

Water and Poverty

Fighting Poverty through Water Management

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Abbreviations

ADB	Asian Development Bank
AWARD	Association for Water and Rural Development
DRA	demand response approach
IDE	International Development Enterprises
IUCN	World Conservation Union
IWRM	integrated water resources management
MDGs	Millennium Development Goals
NGO	nongovernment organization
O&M	operation and maintenance
SEWA	Self-Employed Women's Association
WSSD	World Summit on Sustainable Development

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Introduction

The world has united to combat the scourge of poverty. The UN Millennium Declaration and the consensus reached at the World Summit on Sustainable Development (WSSD) place poverty reduction at the top of the international development agenda, presenting a challenge to all sectors to define how they can contribute to this goal.

For those interested in water, this raises the key issue of how the management of water resources can contribute to poverty reduction. This paper sets out the ideas and experiences of the Water and Poverty Initiative, an initiative in which many partners have participated that was set up to bring some coherence to discussions on this issue in the 3rd World Water Forum in Kyoto.

Problems with water security are part of the overall experience of poverty that so many face. These include limited opportunities to develop potential and little access to life's necessities. Meeting the water needs of the poor has too often been seen as simply providing access to drinking water. Important as this is, it is far from being the only challenge facing poor women, men and children around the world.

Poor people also need access to water for productive use to help provide a livelihood, such as for irrigation or animal husbandry. Water is critical to the ecological services on which many of the poor depend.

Poverty is now recognized to be complex, multidimensional, and varied in both its causes and forms. Conventional measures of poverty, such as level of nutrition or daily income (usually expressed in dollar terms), are important indicators but offer few insights into the real nature of poverty or the potentials that exist to lift people out of lives of misery.

The Millennium Development Goals (MDGs) are important in their definition of a clear international agenda for focusing efforts on poverty reduction. One of the goals—to stop the unsustainable exploitation of natural resources and to halve by 2015 the proportion of people who cannot access or afford safe drinking water—clearly relates to water and must be a focus of efforts to improve the role of water in poverty reduction. Also agreed upon at the Johannesburg WSSD was

to adjust the goal on sanitation to halve the proportion of people without access to adequate sanitation—20% of the world's population—within the same time frame.

The role of water in achieving the MDGs is not confined to these issues, however, as water management can contribute to realizing all of the MDGs and is of particular significance for MDGs related to promoting health, reducing hunger, increasing income, and improving the living conditions of the urban poor. Any strategy to maximize the role of water management in poverty reduction must consequently identify which actions can ensure that water contributes to realizing all of the MDGs.

A multidimensional view of poverty will provide a basis for the development of integrated approaches that have poverty reduction as an explicit goal. This reflects the 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. The need to target more effectively the needs of the poor is one of the central themes that emerged from the Water and Poverty Initiative and runs through this report. We must not assume that actions that are good for water management or economic development in general will necessarily contribute to poverty reduction. We must be clear and explicit as to how they will contribute and, where necessary, adapt our actions to maximize their poverty impact. Poverty reduction should not just be the general but vague goal of water management; it should be the explicit and targeted purpose of these actions. This paper articulates some ideas on how this can be achieved.

A Framework for Action

The need to improve the contribution of water management to poverty reduction means that there is a need for actions that make water more accessible to poor people. Six key areas have been identified as a framework for action to improve water security for the poor:

- ***Pro-Poor Water Governance.*** Strengthen pro-poor water governance through water policies, laws, action agendas, and better information management. Introduce pro-poor safeguards in integrated water resources management, improve stakeholder consultation and participation, and mainstream gender and empower women to improve water management. Increase public awareness about and political support for the water security needs of the poor.
- ***Improved Access to Quality Water Services.*** Increase the access of the poor to water services: drinking water supply (with hygiene and sanitation), irrigation and drainage, and other areas. Put people at the center of viable and affordable services, mobilize funds from all sources, increase public awareness, and improve the accountability of service providers.
- ***Pro-poor Economic Growth and Livelihood Improvement.*** Increase investments in agriculture, rural development, and other water-using sectors that generate direct income for poor communities. Strengthen the asset base of the poor and help develop sustainable livelihood diversification opportunities.
- ***Community Capacity Building and Empowerment.*** Invest in capacity building in poor communities to help them improve the management of their water

resources, negotiate better access to water services, and improve their livelihoods through income-generating activities. Ensure gender equity in water management.

- **Disaster Prevention and Mitigation.** Improve the resilience of the poor to water-related disasters through better forecasting and relief and recovery systems, including both structural and nonstructural investments in prevention, adaptation, and mitigation interventions.
- **Management of the Environment.** Introduce sustainable natural resource management arrangements with the participation of the poor, particularly in the upper watersheds, wetlands, and other common property resources.

These six action areas are developed in more detail below, drawing on experiences from a range of case studies and defining key actions that should be promoted in each of the areas.

Linking Poverty and 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 21st century. It means that people and communities have reliable and adequate access to water for 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 when conflicts over water arise. The concept of water security is based on the creation of mechanisms that ensure that 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 recognizing **all users'** needs and the value and potentials of **all uses** of water resources in making decisions about their future. Water resources (including aquatic plants and animals, hydropower, aesthetic, and other services) come from many sources (including surface water and groundwater) and have many uses (such as domestic needs, irrigation, fishing, industry, and waste disposal). Where scarcity exists, conflicts emerge and the poor and powerless are more likely to be marginalized. The idea of water security means there are mechanisms in place to ensure this marginalization does not happen.

Gender is a key issue in any analysis of poverty and water. Women disproportionately make up the poor and are the main managers of many water resources. Women face the burdens of fetching water for use in the home, of coping when there is not enough water for domestic needs, and of 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—vegetable gardens, livestock, handicrafts, and services. Empowering women is critical to achieving more focused and effective water management. Successful empowerment will create an improved social and institutional environment for women that benefits many other aspects of life.

The basic assumption is that water resources are important to the poor. The extent to which this is the case varies from place to place, but generally poor people depend upon water resources in four ways.

- Water resources are direct inputs to **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 tree and garden cultivation around homesteads, livestock raising, fishing, small-scale manufacturing such as pottery, brick-making, tanning as well as services such as laundering. Water is also vital for many types of manufacturing and other larger economic activities that provide employment for the urban poor in particular. The poor often rely on these non land-based production activities to give essential diversity to their livelihoods and to overcome their lack of assets.
- Water resources are 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 the quantity of water matter greatly in this, and safe and adequate quantities of water are recognized as a precondition for an acceptable standard of development, to meet the UN Millennium Declaration targets for 2015—to halve the proportion of people who suffer from hunger, cannot access or afford safe drinking water, and are without adequate 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 to the viability of the **ecosystems** through which the poor access the natural resources on which many aspects of their livelihoods are based. Even where water is not a direct input into production, other natural resources (such as forestry, fishing, or grazing) that are contingent on the viability of ecosystem processes depend on the flows of water through these systems. For example, 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, and pollution. This vulnerability can undermine any effort to break the poverty trap and can even cast the not-so-poor into poverty by 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.

Pro-Poor Water Governance

Governance has been stressed as a key issue throughout the discussions on water and poverty. Good governance will depend upon stakeholders (and in particular local communities) having the knowledge and skills needed in areas such as water management, infrastructure maintenance, and administration, to fulfill the roles assigned to them. There is a need to make laws and policies more coherent and consistent, to ensure that state agencies in particular are better equipped to respond to and meet the needs of poor people, and to ensure that intentions of more transparent and participatory approaches are carried through into practice. Three main elements of 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 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 (for example, transport, power supply, and communications) and education and media services.

- **Water laws, policies, and institutions** that set the context within which water management takes place and the poor have access to water resources. 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 exists on paper) and the *de facto* situation (what actually happens on the ground, which can be very different from 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 policymakers 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 are rarely acknowledged but are of critical importance in defining the basic approach and potentials for change at the local and institutional level.

Effective actions to improve governance conditions are extremely challenging, not least because key decisions are often beyond the authority of water managers to take and reflect much wider political and societal forces. Actively engaging with politicians and politics is essential if these governance issues are to receive the attention they deserve. Despite such caveats, a number of successful actions on improving governance were found in the case studies.

Actions to ensure greater equity through the inclusion of a strong gender perspective are increasingly recognized as essential if good governance is to develop in the water sector. This is challenging, but several positive experiences were identified in the case studies including those for Gujarat, India, Pakistani Punjab (see Box 1), and Nepal. The need to approach gender as a core element of water management, rather than as something that is added on to existing approaches, is a lesson that these case studies illustrate. This is particularly important for the effective targeting of water management to the specific needs and capabilities of the poor, as women make up a disproportionate amount of the poor and generally have needs, capabilities, and priorities that differ from those of men.

Box 1. Ladies First: Accessible Water for Entrepreneurial Women in Punjab, Pakistan

In Punjab, women and children bear the brunt of the lack of access to water. The Government of Pakistan has implemented the Punjab Rural Water Supply and Sanitation Sector Project, funded by ADB. The project, using a community-based approach, has provided safe drinking water and drainage facilities to about 800,000 people. The project used a community-based, demand-driven approach wherein the local people participated from planning through construction and eventually became fully responsible for operation and maintenance (O&M) work. Men and women formed community-based organizations to implement the water-related activities and promote other development and livelihood activities. The main impact of the project has been to free women and children from the hard labor of carrying water for 2-6 hours per day. Also, household income has increased by an average of 24%, as 45% of the time saved from carrying water is spent on income-generating activities. In addition, there is a reported 90% decrease in water-related diseases and as much as an 80% increase in the enrollment of school children in some communities. The Punjab project demonstrates that it is possible to combine an efficient and large-scale extension of services with actions to improve governance.

Legal and policy provisions, as well as institutional reform, are needed to protect the rights of poor people to access water resources. This is true in all circumstances but is particularly important where actions taken affect multiple stakeholders over a larger area, as this opens up the potential for conflict that is unlikely to be resolved by existing community regulatory systems. Hussein et al. (2003) established the importance of effective governance conditions for ensuring positive poverty reduction impact through irrigation systems, with cases where this was found, such as in the Walawe River Basin in Sri Lanka, demonstrating positive and sustainable benefits for the poor in large irrigation schemes.

Institutional fragmentation is extremely common, with different agencies having jurisdiction over these different aspects of water management and little or no coordination between them. There are a number of cases where active steps are being taken to address such problems and ensure that all aspects of water management for the poor are included in initiatives. These should cover broad issues of water resources and their relationship to poverty in forms that reflect the specifics of local circumstances. For example, new coastal policies in Bangladesh are focused on the multiple vulnerabilities facing coastal communities, including the threat of natural disasters, the need to maintain the resource base, and the intention to support and extend livelihood opportunities that benefit the poor. The establishment of more effective governance conditions in the coastal areas is seen as a precondition for success.

Improved Access to Quality Water Services

In all but the most exceptional circumstances, it is not the amount of water available that is the issue, but often, the key problem facing the poor is lack of access to the services that these resources can provide. For example, missing are: access to water for all the needs of the poor, particularly for domestic needs and sanitation as well as for food production. Measuring the quality of service provision includes looking at both quantities and quality of water, with the latter being especially important for domestic supply. Access is determined by a wide range of factors, including:

- **Rights and entitlements of poor communities to use the resources.** These reflect laws and policies, traditional rights, as well as social customs and barriers. They are part of the wider fabric of legal rights and social relations that are recognized as part of the poverty experience. Specific steps to guarantee the rights of women must be included within the legal and policy framework.
- **Availability of infrastructure and technology.** Can the poor both afford and have access to hand pumps, nets, irrigation canals, tube wells, latrines, storage facilities, or any other technical devices needed to harness the services that the available water resources available can potentially provide?
- **Ability to pay.** If the poor have the rights and the infrastructure or technology is available, can they afford to pay for the initial investments and operation and maintenance, as well as for any water charges?
- **Appropriate knowledge and skills among the poor.** Do the poor have the skills and knowledge required to make use of the water services available to them? For example, are they aware of hygienic practices, effective irrigation, or of the places where they can fish sustainably?
- **Institutions that are accessible to the poor.** These must perform services such as manage water resources efficiently, operate services, develop infrastructure where needed, and resolve conflicts.

There can be little doubt that many poor people around the world have inadequate access to these services, and instead use poor-quality water that negatively affects their health and welfare. Investments in improved services such as more reliable, higher quality, and more conveniently located domestic water, or more reliable and higher-flow irrigation can quickly and significantly improve the lives of the poor. These improvements in water services are frequently identified by poor people as one of their highest-priority needs, and indeed their development often opens 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.

A key challenge is to ensure that the investments made can be operated and effectively and sustainably maintained by the direct stakeholders. This can require levels of skills development and organization within communities that are challenging but that, again, can catalyze wider processes of community development. Equity, and especially gender equity, is a central issue in all aspects of increasing the access of poor people to good-quality water services.

Many examples were found of improvements in water services that brought major benefits to poor people, including improved health and livelihoods. Such improvements are not just a matter of how many people are connected to water supplies or how much land is irrigated. The quality of the water provided, the reliability and cost of the services, and the extent to which all aspects of water needs are taken into account are equally important. Improved sanitation is also increasingly recognized as an essential if much neglected service that has a major impact on poverty.

The multiple benefits that improved services generate even where they were not specifically designed as objectives have been demonstrated by WaterAid, which

Box 2. Allocating Water for Home-Based Productive Activities in Bushbuckridge, South Africa

The case study highlights how water-dependent productive activities are vital to the livelihoods of many poor people, including female-headed households, and how improvements in access to reliable water services can contribute to poverty reduction. The institutional context in South Africa is one of dynamic changes in water laws, policies, and institutional responsibilities, most of them pro-poor. Productive uses of domestic water are recognized in the water use regulatory category known as “Schedule 1.” While no license is required for this use, water-dependent productive activities that take place in the household have yet to be recognized in planning and allocation.

The importance of water for productive activities leads to a reassessment of the concept of water for basic needs, which has traditionally been viewed as only water use needed for basic health and hygiene. However, for many in South Africa and across the developing world, the definition should be extended to include water needs for livelihood activities, since this affects their ability to provide food for themselves. A key implication of this is that domestic water needs are likely to occupy a far higher level than that assumed by conventional approaches to basic needs. Different households will have different needs, as the scale and nature of use of domestic water for productive activities vary greatly within any community. This means that current norms-based allocation systems (so many liters per person per day) are a hindrance to poor households trying to work their way out of poverty.

assessed the impact of older water supply and sanitation projects in Ethiopia, Ghana, India, and Tanzania. The results were remarkable. Although the initial justification for the projects was usually based on health objectives, the assessment identified a wide range of positive effects on many dimensions of life, including major savings in collection time, improvements in health, new income opportunities around the house, (a result mirrored by those found by AWARD in South Africa; see Box 2), new skills, and more effective local institutions.

In Andhra Pradesh, the successful implementation of watershed management in some drought-prone areas has led to substantial improvements in income, better health, reduced out-migration, and stronger social organization—an experience mirrored by that of the communities in Gujarat, where the Self-Employed Women’s Association (SEWA), a nongovernmental organization (NGO), has introduced similar schemes that are linked to income-generating activities and social organization for women.

Most water sector interventions are implemented by government agencies. Capacity building of those agencies, increased supervision, and demand for better facilities from organized direct stakeholders are necessary for better-quality services to materialize in situations where government agencies are to continue to play a leading role in service provision. Water services should not aim at a “final solution”, but instead at a step-by-step approach. Starting with the felt needs and existing capacity of the poor, the services should allow expansion and upgrading toward internationally accepted standards of water and sanitation services. Many of the case studies demonstrate that this is both possible and, where it does happen, effective in the long term in improving the position of the poor. This places a burden on governments, funding agencies, and others to accept the need to avoid quick-fix solutions and unrealistic targets and to engage with the poor as a long-term process.

The poor are almost always willing and able to pay for water services, as long as the services are relevant and secure. Such payments are necessary to improve

supply and reduce misuse. Special arrangements, such as payment in weekly or monthly installments and at different rates for different types of usage, are necessary to give the poor access to the services. The Punjab water supply and sanitation project demonstrates that poor communities are both willing and able to pay for both the initial investments and the running costs of improved water supply and sanitation where the costs are kept reasonable, the communities are involved, and the services are reliable and provide good-quality water.

Water quality, particularly of domestic water, must receive much more attention. The geological pollution of groundwater with arsenic and fluorides in India, Bangladesh, and other countries is an example of how a focus on quantities alone is insufficient, as is the widespread pollution from industry and other sources found in many low-income urban areas in particular. Improving service provision in the poorest urban areas, especially where many settlements are themselves illegal, is particularly challenging. The examples from Manila, where a large utility is extending services through private sector involvement, and Dhaka, where an NGO is actively and effectively working with poor communities to improve water supply and sanitation, show that there are different routes to achieving this goal with a significant level of success.

Improved Livelihoods and Pro-Poor Economic Growth

Eradicating poverty is ultimately about creating an environment that will allow the poor to use their potentials and to develop better and more secure livelihoods, which is in turn contingent on 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 livelihood 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 (i.e. the resource base, the financial system, society) through which the capital is produced).
- On the basis of the choices made, household members will undertake a series of **livelihood activities** such as growing a crop, fishing in a lake, working at a job, or making pots. Some activities may be dominant, but a poor household will rarely 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 community poverty. Ultimately, this is what any pro-poor strategy is trying to improve, and therefore the nature of poverty in different settings needs to be better understood.

Water management plays an important part in many aspects of these livelihood processes and in particular is essential to many livelihood activities, both productive—such as agriculture and manufacturing—and household maintenance activities. Focused efforts to meet the needs of the poor must recognize the different roles that water security plays in their livelihoods. These vary from community to community and prescriptive assumptions should be avoided.

Water management is also a key to 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 role that secure availability of widespread irrigation plays in the overall development of countries and regions. There can be little doubt that sustained agricultural development is critical to 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 militate against 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.

Supporting facilities such as credit, skills training, and markets are necessary if water is to be used for productive purposes that can help reduce poverty. The results can be spectacular where this is the case, as illustrated by the experiences of communities in Gujarat involved with SEWA's programs and in many other watershed programs across India. Scaling up such successful local experiences is perhaps one of the main challenges to be faced if such successful experiences are to be built on and replicated.

Extremely encouraging results have been seen in low-cost and appropriate improvements in water provision for food production by the poor. For example, International Development Enterprises (IDE) demonstrates that innovations such as the treadle pump and low-cost drip irrigation can yield an annual income of \$100 from a small plot of land, for an initial investment of about \$30 (see Box 3). As this case study argues:

The distribution of micro-irrigation technologies through the private sector at affordable, sustainable, and unsubsidized prices has proven to be an effective and efficient means of achieving widespread impact with minimal donor resource (IDE. 2002: 1).

Box 3. Livelihood Impact of Small-Scale Irrigation: Treadle Pumps in the Indian Subcontinent

Micro-irrigation is a simple, practical, and widely applicable technology for harnessing agricultural potential and increasing the income-generating capacity of smallholders. More than 1 million pumps have been sold in Bangladesh since the 1980s, and more than 200,000 in eastern India and the Nepal Terai since the 1990s. Treadle pumps and other forms of micro-irrigation have had a widespread impact on poverty reduction. For an initial investment of about \$30, smallholder families can increase their net income by an average of \$100 a year. The innovative distribution of treadle pumps at affordable and unsubsidized prices through the private sector has resulted in widespread poverty reduction with minimal donor resources. Micro-irrigation could potentially benefit up to 30 million smallholder households in South Asia alone in the next 15 years. This requires a focus on pro-poor economic growth and on poverty reduction, linked to ensuring a range of product choices for smallholders, effective distribution systems, and an end to subsidies, including the uneconomic pricing of electricity for mechanical pumps.

There are many ways that water can and does contribute to improving the livelihoods of poor people. Efforts to support these need to continue, which can be extended by ensuring that politicians and policymakers are aware of the many economic benefits that investments in water can bring.

The potential of water management as a motor for economic growth and a basis for sustainable livelihoods is often not recognized. While health and hygiene are important issues, indeed the focus on health and hygiene has to an extent masked the issue of the relationship of water to sustainable livelihoods. The compelling evidence that is found needs to be more widely presented and the case for water, more effectively argued in discussions on development and economic strategies.

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. 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, knowledge, and other means (including transport, appropriate space to work) to undertake the new tasks in the water management process that is the purpose of engendering participation?
- Do funding agencies and implementing agencies (government as well as nongovernment) have the procedures and capacity to facilitate participatory, pro-poor interventions? 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 sectors of society are represented fairly and equally. In turn, this means targeting the participation of the excluded or marginalized. These are typically women, the young, in some places the elderly, and 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.

A strong theme that ran through most of the case studies was the recognition of the importance of empowerment and capacity development at the community level. In most cases, this was something that was both central to the approach adopted, and that represented a radical break from the past (see Box 4). There were varying degrees of success with this challenging issue and a variety of approaches were adopted, but overall, what the case studies demonstrate is the possibilities that can lead to significant improvements in the water security of the poor.

Box 4. The Demand Response Approach in Practice

The Demand Response Approach (DRA) being developed in Mozambique in partnership with WaterAid offers considerable advantages over previous supply-driven approaches. Projects are better maintained and communities have a greater sense of ownership of their water points. District and provincial capacity to monitor and promote the Government's policy has been secured through a funding arrangement that creates security and confidence. Health improvements are possible if not yet proven, and new community management models that seem to enhance community control are being developed and tested. In addition, costs have come down, meaning that more communities can be served than was possible in the past. Although there are many potential improvements in the present approach, it is one that means a radical change in the relationship between poor communities and outside agencies, giving these communities real control over the decision-making process for the first time. It is one that brings benefits for all concerned and should be widely replicated once improvements to ensure greater sustainability are made.

Empowerment of direct stakeholders requires that the time and effort they invest be matched by increases to their decision-making power, with implementing agencies and funding agencies combining to devolve real authority to poor communities. There has been some reluctance to do so in many cases, but there are also clear signs of success with this in the Punjab in Pakistan, Mozambique, and Gujarat, Tamil Nadu, and Andhra Pradesh in India. Empowerment and enhanced participation of the poor in decision making should not just be confined to actions at the immediate community level. Examples of the effective representation and consultation of the ultimate target beneficiaries at more macro levels were also found. In Bangladesh, this included the process of policy formation, with extensive consultations among coastal communities being an integral part of the process through which the new coastal development policy is being formulated.

The devolution of authority needs to be complemented by capacity building at the community level so that poor people can carry out their new responsibilities. The case studies demonstrate clearly that all water sector interventions must include sufficient time and financial resources to enable direct stakeholders both to organize and to voice their opinions. Project design, including disbursement and other schedules, should be flexible enough to allow direct stakeholders to be involved at their own speed and in ways that match their capacities. Project design now reflects the importance of this issue with almost all the more recent projects containing specific objectives and activities related to the development of skills and institutional capacities at the community level.

Capacity building and change should also cover implementing agencies if these indirect stakeholders are to support direct stakeholders in demand-driven development. New attitudes, skills, procedures, monitoring and evaluation criteria, etc., are needed. Change is particularly needed at the field level, where the interaction between agencies and direct stakeholders takes place. Without such change, community capacity building would only lead to greater frustration among the poor.

Major changes in social relations and improvements in the cost and sustainability of water investments occur where these changes do take place and real authority is devolved to poor communities. This is significant beyond water, as such changes

Box 5. Gender and Economic Benefits from Domestic Water Supply in Semiarid Areas: A Case Study in Banaskantha District, Gujarat, Western India

Combining improved water supply with microenterprise development has much potential for alleviating poverty in semiarid areas. This case study, implemented by the Self-Employed Women's Association (SEWA) in Gujarat, India, combined the rehabilitation of piped water supply and traditional water sources with a microenterprise development program for female entrepreneurs. These actions were based on community-level organization among the women that substantially changed their place in their local societies. Research revealed that the time released by improved water supply enabled women entrepreneurs to make a substantial contribution to the household income. This income was especially useful in times of limited employment, such as during a drought. In addition, gender relations have changed in favor of these women. One of the main conclusions of the SEWA experience is the potential for using the development of women's enterprises combined with the improvement of domestic water supply as an entry point for rural poverty reduction programs.

can be the basis for a wider process of empowerment and development at the community level. The experiences of women involved in SEWA schemes in Gujarat, India (Box 5), are mirrored in many places around the world. They are a cause for real optimism and point to the types of actions that should be integral to all pro-poor water management schemes.

Disaster Prevention and Mitigation

Disasters, whether natural or man-made, can devastate long-term efforts to reduce poverty and build sustainable improvements in the livelihoods of the poor. The number of poor people affected by such disasters is increasing rapidly, and trends such as increased pressure on resources and climate change suggest that these risks will continue to grow. It is now widely recognized that disaster prevention and mitigation need to be established as mainstream components of water management systems. In most cases, a range of both structural and nonstructural measures will be needed. The point of departure will be to understand and strengthen the coping and adaptation strategies of poor and vulnerable communities. On its own, however, this will rarely be enough, and concerted efforts 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. For water, this is a two-way street.

- The poor are directly vulnerable to water-related hazards (such as floods, droughts, and pollution), the reduced availability of resources (quantity and quality of water, fish and aquatic plants, etc.) as a result of environmental degradation, 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 therefore 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 providing protection against hazards (e.g., through flood protection or pollution control). It can also work indirectly, by 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 that improve water management, secure livelihoods, establish more effective governance, and build direct stakeholder capacities—among other improvements—is a key component of a pro-poor approach to water security.

Vulnerability to disasters is not as effectively integrated into water management as it should be. In particular, there is still too often a failure to integrate disaster prevention and mitigation as a central element of water policies and programs. This is a critical issue for poor people, who are the most vulnerable to such hazards. There are serious gaps in our understanding of how such hazards relate to the livelihoods of the poor, the types of coping and adaptation strategies that they adopt, and long-term increases in their vulnerabilities that stem from both climate change and increased exposure to hazardous environments. Further research and analysis is needed on all of these issues.

The case studies offered limited examples of successful approaches to reducing the vulnerabilities of the poor, but some positive experiences were found, particularly in relation to drought hazards. The watershed management programs in Andhra Pradesh and the SEWA program in Gujarat, both in India, provide examples of where improvements in rainwater harvesting and water management have been succeeded in mitigating at least some of the worst effects of droughts that have hit these semiarid areas in recent years. Similarly, the rehabilitation of traditional water harvesting structures in Balochistan, Pakistan, demonstrates the potential of approaches that build on long-established methods of water management and conservation at the community level (see Box 6).

Box 6. Pro-Poor Water Harvesting Systems in Drought Prone Areas: A Case Study of Karez in Balochistan, Pakistan

Balochistan, in Pakistan, has been severely affected by droughts, as have similar areas in eastern Iran and southwestern Afghanistan. The *karez* is an ancient water system that has made survival and even prosperity possible in these perennially arid areas. It has reduced the impact of drought on crop productivity, livestock productivity, incomes, health and nutrition, and the sustainability of groundwater resources. The community and the Government could use this potential to develop a strategy for integrated water resource management that is aimed at doing more with less water. For this the following measures are suggested:

- Integrated water conservation strategies must be devised to enhance the benefits of available water supplies and to optimize water use efficiency once the rainfall resumes.
- Water conservation, through awareness raising and supporting policies is key to a stable and sustainable effort to ensure that future droughts have less devastating effects.
- Introducing water delivery mechanisms such as modern irrigation techniques (trickle, sprinkle, etc.) would lead to more efficient use of water.
- Research must be done on the possibility of growing crops that do not require large amounts of water, hold the soil in place, and are appropriate for subsistence and marketing in southern Balochistan.

Coastal policy development in Bangladesh is specifically focused on reducing the vulnerability of poor people in an area where they face the threat of cyclones, floods, and (in some areas) droughts, along with hazards such as salinization and the presence of arsenic in groundwater and the decline of ecosystems such as mangroves and wetlands. It is an innovative approach that seeks to integrate the existing (and effective) disaster relief system into the overall process of coastal development. Actions to increase the resilience of coastal communities are central to the approach, with many of these focused on improving water security. Overall, while still under development, this example demonstrates that disaster management and mitigation can be an integral part of enhancing the water security of poor and vulnerable people.

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 take account of 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; as well as recreational, power, aesthetic, and transport potentials). It should also take into account all water uses, including actual and potential conflicts between different uses. There is an emerging consensus that the basis for this should be, as far as possible, integrated water resources management (IWRM) within river basins, although how these interface with political and administrative boundaries remains a challenging issue.

Sustainability is key, as the availability of 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 thus requires an understanding of what levels of exploitation are sustainable.

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 resources management, and has particularly strong and important links to land management. Critical trade-offs must be made where ecosystems are sensitive to variations in water flows, (e.g., wetlands, and mangroves) 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.

Poor sanitation can have particularly severe effects on the local environment, particularly in urban areas with far higher concentrations of people. The successful sanitation programs in areas such as Dhaka, Bangladesh and Niassa Province, Mozambique, demonstrate that actions to disseminate improved sanitation are

possible. They contribute to the health of both people and the environment and assist countries in meeting their new international obligations associated with halving, by 2015, the proportion of people without access to improved sanitation.

There were a few cases where the actions taken had explicit environmental conservation objectives. For example, the Kiribati Sanitation, Public Health, and Environment Improvement Project included specific activities to reduce solid waste pollution, encourage water conservation and protection, and improve environmental health. Similarly, the Mountain-River-Lake Integrated Water Resources Development Program in Jiangxi, People's Republic of China, has specific objectives and activities related to soil conservation, ecosystems protection, and the reduction of pollution through integrated water resources management.

The ecological resource base should be strengthened and the carrying capacity of fragile environments improved in the context of broad-based watershed development. The poor who live in these degraded areas would benefit from such initiatives. These cases demonstrate that environmental conservation to improve water security is not just a local issue. This message is reinforced by the example of wetlands conservation in Uganda (Box 7), where a successful partnership between an NGO (World Conservation Union [IUCN]) and government agencies has been scaled up to cover sensitive wetland ecosystems, on which many poor people depend.

Poverty and Water Security Initiative

The issues set out here 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 vulnerabilities of the poor. They provide a structure through which the specifics of different people and places can be understood as well as the steps required at different levels to improve the water security of the poor can be identified.

The partners in the Water and Poverty Initiative have identified many case studies where positive actions are improving the position of poor people and helping to reduce poverty. Such actions take all forms and have implications for all aspects of water resources management. Although many are at present confined to relatively small areas, all contain elements that could be scaled up, and a number are large enough to benefit many thousands of very poor and vulnerable people.

Box 7. Policies for Ecosystems Integrity: The Wetlands Sector Strategic Plan in Uganda

The Wetland Sector Strategic Plan was launched in early 2001, to build on the 12-year experience with the National Wetlands Program, a collaboration between the Government of Uganda and IUCN supported by the Netherlands. Wetlands cover 13% of Uganda's territory, including many of international biodiversity significance. The program is innovative in that it integrates wetlands management and poverty reduction. It funds local community efforts to develop sustainable management initiatives that improve their livelihoods and maintain the integrity of the wetlands. These initiatives are based on locally developed management plans that identify areas where all exploitation is prohibited and areas where specific types of management (such as cultivation, fishing, livestock, and papyrus collection) are allowed. The Uganda experience demonstrates the importance of a sustained effort, supported over many years, both financially and technically, by external development partners.

In many cases, the actions did not require huge investments or the radical and rapid restructuring of institutional responsibilities and capabilities. Indeed, the most successful and sustainable actions evolved gradually and were based on the development of strong partnerships among a range of stakeholders. They were focused on—and improved the capacities of—the poor, but also involved external actors, (governments, NGOs, and the international community), working with and supporting local communities. In all cases, these different actors were willing and able to innovate and work together to ensure that their efforts were more effectively targeted to the needs and capabilities of the poor.

The analysis presented in this paper provides a framework—rooted in powerful ideas and on-the-ground experiences—for understanding 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 catalyzes awareness of the issues and focuses attention on them, as well as leads to immediate and long-term improvements in water security for the poor.

The Water and Poverty Initiative will be taken forward from these starting points. It is coordinated by the Asian Development Bank with the aim of making sure that water and poverty is a major theme at the 3rd World Water Forum in Kyoto in March 2003. 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 water and poverty action programs that would improve the water security of poor people, and thus help reduce poverty, 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 make them more effective. The partnerships will help to achieve the Millennium Development Goals through a participatory and demand-led approach that combines capacity building, community empowerment, and investment. These programs will be poverty-targeted, demand-led, action-oriented, and based on partnerships with 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 toward 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 in themselves not enough to reach the poor, especially the poorest of the poor (Frans and Soussan, 2003). A fresh approach is needed. This paper has 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, a means of ensuring participation for all, and 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 poverty reduction strategy programs of the multilateral development institutions.

Water can—and often does—make a major contribution to poverty reduction. But water management alone—without improved water security—will not solve poverty problems or reduce poverty.

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