

# Maximizing Target 10: Reaping the Full Social and Economic Benefits

INVESTING IN WATER is investing in poverty reduction. In fact, \$1 spent on improving water supplies and sanitation buys the poor at least \$6 in time and health savings. The first chapter of this report discussed the purpose of prioritizing improved water supply and sanitation facilities—they are gateways to widespread poverty reduction. We have measured the progress of Asia and the Pacific and made projections of who is on course to meet Target 10 and who is not. We know what it will cost to ensure every country arrives at the target—\$8 billion annually. Now why? Why invest so much in the water sector when there are other sectors demanding equal or more resources? This chapter explains what investments in water will buy for the people of the regional economies. The hundreds of billions of dollars and millions of productive days that water offers are waiting to be realized. By building a rationale of water's benefits on each MDG and providing a cost benefit analysis, this chapter presents a strong case for investing in water. To not do so, the data argues, is the height of economic irrationality. And, to not do so urgently is a waste of opportunity to reap the social and economic benefits of water. Improving water immediately brings the poor better health, more productive hours in a day, higher wages, more time in school, and better educational attainment.

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The first MDG target, to halve by 2015 the proportion of the world's people living on less than \$1 a day, requires sustained economic growth in countries across Asia and the Pacific. The existing record on this is patchy, with some countries facing considerable challenges in achieving such sustained progress. Others, however, most notably the PRC, India, other South Asian countries, and much of Southeast Asia, are showing high and sustained levels of growth in recent years, becoming the envy of many other parts of the world.

Even in these rapidly growing economies, though, growth alone is not automatically reducing poverty. Strategies for growth and its benefits must be engineered to benefit the poor. We cannot expect a country's economic growth to trickle down

to the poor. Left to this strategy, the poor receive disproportionately and insufficiently less—their poverty being sustained rather than alleviated. Growth should provide opportunities, specifically for the poor, to improve their livelihoods, increase their incomes, reduce their vulnerability to illness, and rid their worries about food and the misery of hunger. If growth is not equitable, genuine sustainable development and poverty reduction is not possible. It is largely up to governments to ensure the poor are not left behind as more prosperous classes, sectors, and geographic areas benefit from the wealth that growth creates.

For growth to reach the poor, growth must be directed to them—the sectors and places where the poor live and work. Investments in water are a vehicle for de-

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delivering the benefits of growth to the poor, and when done effectively, to their very doorstep. Investments in two key areas will greatly advance countries toward reducing poverty: Agricultural water supply and domestic water supply. Investments in these two areas will foremost improve their health through food security and increase their opportunities for greater income-generating livelihoods. Through these investments, the poor can become more productive workers and become engines for overall economic growth.

**Agricultural water supply and rural poverty.** Technically, the scope of Target 10 is limited to increasing access to drinking water. Yet, traditionally, the water supply subsector includes water for irrigation and agricultural uses, as well as domestic use, as the context for monitoring access to drinking water. Improved access to agricultural water is also highly effective intervention for improving the poor's income, nutrition, and health. In most parts of Asia and the Pacific, the poor are heavily concentrated in rural areas, and not where the capital intensive, high productivity agriculture is found. Yet, agriculture will continue to be a key sector where the rural poor work. Limited access to rural water supply, particularly irrigated fields, reduces the viability of agricultural activities for the rural poor. A wide variety of water management strategies could be adopted to address these problems, such as improving and expanding irrigation systems across more farming land where possible, improving rainwater harvesting and on-farm water management in rain-fed agriculture, crop diversification, and improvements to crop strains.

By improving rural water supply, a major determining characteristic of poverty is alleviated—hunger and food security for the poor. The second MDG target calls for *reducing by half, by 2015, the proportion of the world's people who suffer from hunger*. Food security, in part, depends on national production and distribution capabilities, including government famine relief systems. This is critically important for af-

fordable food for both the rapidly growing numbers of urban poor and rural populations in times of hardship, such as droughts and other disasters. Reliable water for subsistence agriculture, home gardens, livestock, fisheries, tree crops, and the sustainable production of other foods gathered in common property resources are potential options that can contribute to improving the food security of those most vulnerable to hunger. In rural areas, food insecurity should primarily be tackled at the local level, so that specific sections of the poor, such as landless families, female-headed households, rainfed farmers, livestock herders, and other vulnerable people, are targeted by interventions.

**Domestic water.** Both the rural and urban poor depend on small, home-based enterprises where they, themselves, are the entrepreneurs. The poor have been industrious in using domestic water for a range of enterprises—vegetable gardens, plant and tree crops, livestock, aquaculture, handicrafts, pottery, brick making, and leather goods, and providing such services as hair salons, laundries, and eateries. Similarly, ecologically sustainable sanitation experiences show many productive uses for waste, whether from the recycling of nutrients or the use of biogas as an energy source.

The scale, value, and importance of domestic water, sanitation, and micro-irrigation around homesteads to support livelihoods and thus reduce poverty are key policy issues for managing water in the developing world. To maximize the promise of domestic water to build livelihoods for entire poor communities, the following policy and program approaches should be pursued:

- Water supply systems designed to ensure adequate water supply with the supply points being in the right place;
- Management and tariff structures that account for the economic gains made by productive uses of water, increasing their ability to pay and demand for reliable water supplies;

■ Transparent, agreed upon regulation of water uses across seasons;

■ Training of rural and urban water users in product diversification and market development of the products and services they offer, which allow the poor to take full advantage of the new livelihood opportunities.

Home-based productive activities are complex and diverse, as well as informally—and at times illegally—carried out, making it difficult to collect data and estimate—even broadly—their economic contribution. Initiatives to quantify these water-dependent home-based livelihood activities and include them in the calculation of benefits of water supply and sanitation investments are needed and should be a focus of cooperation between governments and national and international development partners.

Domestic water has traditionally been written off as a nonproductive cost—something used only for consumption purposes. So, analysis of the benefits attached to domestic water has typically been limited to improvements in health and increases in time available and capacities for productive activities. Not including the income-generating effect of domestic water supply limits the analysis. Yet, the time and health savings on their own generally justify investments in water and sanitation.

There is one main variable typically used to estimate the cost benefits of better access to clean, reliable water supply and improved sanitation—time savings. These time savings are traditionally split into two main types: gains related to lower morbidity and fewer deaths, and gains related to less distance and energy spent fetching water.

Time savings represents an additional resource, which can be valued based on minimum wages. From this, it is estimated that the annual value of adult days gained from meeting Target 10 would be \$323 million, rising to almost \$647 million when improved water supply and sanitation are provided for all (Annex D). Due to the considerable health impact from disinfecting

water at point-of-use (households), the value of productive days gained would be over \$1.8 billion, and would reach \$2.8 billion when regulated piped water supply in house and sewage connection with partial treatment for everyone is provided. East and Northeast Asia would benefit the most in terms of the value of productive days gained per year.

The second major benefit of improving access to water and sanitation derives from the time savings associated with closer location of the facilities. Time savings occur from the relocation of a well or borehole to a site closer to user communities, the installation of piped water supply in houses, and closer access to latrines. They translate into increased production, higher school attendance, and more leisure time.

The annual value of these time savings, spread over the entire population of the Asia and Pacific region, would amount to \$54 billion for achieving Target 10 and \$109 billion to improve water supply and sanitation *for all*. When regulated piped water supply in house and sewage connection with partial treatment is provided for everyone, \$241 billion are generated from time savings.

The economic and political significance of these potential benefits are tremendous. Essentially, every dollar invested in meeting Target 10 generates \$6 in economic returns—and that is just in terms of time savings. As stated earlier, Target 10 requires an annual investment of \$8 billion. Once Target 10 is met, an economic benefit of over \$54 billion is returned annually. Providing total coverage generates even greater levels of benefits.

It is the height of economic irrationality to not invest in these vital services—as there are few other areas of investment that will generate as high a rate of return and that are as effective at targeting the specific needs and capabilities of the poor. The benefits of meeting Target 10 will disproportionately go to the poor since it is the poor who usually do not have adequate coverage now and whose time would be saved, and it is the poor who would ben-

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efit from the new opportunities. As such, investments in water supply and sanitation are self-selecting to the poor and are of significance in terms of targeting investments directly to poverty reduction. The poor themselves, who lack decent water supplies and sanitation options, almost always prioritize water when asked what are their needs.

## Improving Health and Hygiene

Of all the social sectors, the water supply and sanitation target—Target 10—obviously affects the three health-related MDGs and their associated targets. By 2015, the three health-related MDGs hope to:

- Reduce by two thirds the death rate for children under the age of 5 years
- Reduce by three fourths the maternal mortality ratio
- Have halted and begun to reverse the spread of HIV/AIDS, malaria, and other major diseases.

Assisting the poor in their fight against diseases and high mortality rates, water is crucial to improving nutrition and food security. By making them healthier, the poor reduce their chances of falling ill—and too often fatally—to a wide range of conditions and diseases. The greatest threat posed by waterborne and water-washed diseases is infectious diarrhea—the biggest killer of young children. Improved quantities and quality of domestic water and sanitation will directly reduce child deaths. As the WHO Director-General puts it:<sup>27</sup>

“Water and sanitation is one of the primary drivers of public health. I often refer to it as ‘Health 101,’ which means that once we can secure access to clean water and to adequate sanitation facilities for all people, irrespective of the difference in their living conditions, a huge battle against all kinds of diseases will be won.”

His views are echoed by Secretary-General of the United Nations Kofi Annan:

“We shall not finally defeat AIDS, tuberculosis, malaria, or any of the other infectious diseases that plague the developing world until we have also won the battle for safe drinking water, sanitation, and basic health care.”

**Role of Awareness.** Providing access alone will not deliver on water’s promise to dramatically improve the poor’s health. Behavior must change. Health and hygiene awareness campaigns must be waged in local communities to educate them on the different health and hygienic practices that should go along with the new and improved water services and facilities they receive. Government officials and services providers should not be excluded from this process of awareness raising. They too must understand, plan, and commit resources to the important role that awareness building plays in maximizing new services introduced in communities. There are many examples of successful awareness-raising approaches in this area.

**Role of local water, environmental management.** As communities become more informed about personal health and hygiene, they also need to be educated on new ways of managing their surroundings. Local water quality must be protected from potentially hazardous environmental elements, such as waste from livestock, pollution from farming and local industries, and potential habitats for parasites and disease vectors, such as mosquitoes and worms. Protecting local water resources and surrounding environments at the local levels protects human health. Malaria is a scourge that will only be successfully addressed through water management that removes their breeding habitat. Similarly, water management will reduce vulnerability to a range of other diseases such as trachoma and schistosomiasis for which water is a vector.

**Regional Prospects of Water’s Impact.** The impact of improved water supply and sanitation on the poor’s health will vary from one region to another, depend-

ing on the existing levels of water supply and sanitation access and the region-specific levels of morbidity on Health MDGs and mortality due to diarrheal and other diseases. Health impacts will be greatest in regions with high numbers of unserved and significant cases of diarrheal disease. Estimates suggest that South and Southwest Asia and East and Northeast Asia would benefit the most in terms of reducing most cases of diarrhea and the burden of water-related diseases for caregivers (Annex E). If Target 10 is met, almost 137 million cases of diarrhea will be averted per year in South and Southwest Asia and more than 108 million in East and Northeast Asia. Overall, more than 275 million cases in Asia and the Pacific would be averted per year. Providing basic water and sanitation for all—not just the half called for in Target 10—would double these numbers and greatly reduce infant and child mortality.

**Cost savings benefit.** Avoiding illness naturally saves time and money for both the health sector and to patients themselves. The most significant source of cost savings comes from the reduced number of treatments for diarrheal cases. Patients avoid costs incurred by seeking treatment, which includes expenditures on care, drugs, transport and the costs of opportunity lost to the time spent on seeking care. These cost savings were calculated by multiplying the cost of a health service unit by the number of cases averted. Past studies do not include data on the number of health visits per case, so it was assumed that 30% of the people with a diarrheal case would visit a health facility.

Meeting Target 10 would save Asia and the Pacific \$2.5 billion per year. An additional \$2.6 billion would be saved every year if improved water supplies and sanitation were provided for all (Annex F). To further note, these health care savings would continue long after the bulk of investments have been made to meet Target 10. That a significant proportion of these savings would go to poor people, who suffer most from the problems and would save most from their removal, has

further implications for the poverty reduction benefits of improved water supply and sanitation.

## Improving the Lives of Slum Dwellers

The urban poor suffer from poor quality and unreliable water services. In many major South Asian cities, only 1% or less of those fortunate to even have connections receive 24-hour water supplies. In worse conditions, slum dwellers without connections regularly queue for long periods to collect water from private vendors. Most often, they are paying the most—10 times or more than what better off people with connections to central utilities pay. Few of the urban poor have access to sanitation, and many areas where the poor live are vulnerable to floods and contamination from polluted waters.

Providing reliable, affordable and accessible water supplies, improved sanitation, and protection from floods and pollution is a direct contribution to the MDG of improving the lives of slum dwellers. To do this requires substantial investments in infrastructure and reforms in urban governance.

In urban areas of Asia and the Pacific, between 1990 and 2002, nearly 384 million people gained access to water and nearly 369 million gained access to sanitation. Although this is an impressive number of people, the rate of increase has barely kept pace with the growth of urban populations. In 1990, 95% of urban residents had access to improved water supply. Twelve years later, in 2002, 94% had access—although a reduction of only 1%, this is an indication of population growth outpacing services.

Sanitation coverage increased from 70% in 1990 to 75% in 2002. Meeting the urban sanitation challenge is particularly daunting, as the disposal of contaminated wastewater in densely populated areas is both expensive and technically challenging and the scope for sustainable revenue to pay for these services is limited. There are examples of successful actions to ad-

## BOX 3: Reforming Phnom Penh's Water Supplies

In 1993, the people of Phnom Penh lacked reliable water supply. Open a tap in 1993 and out would come little more than a trickle—if you were lucky. Only 20% of the people in Phnom Penh had access to water supplied by the Phnom Penh Water Supply Authority (PPWSA). The organization's staff of 500 was underqualified, underpaid, inefficient, and lacked motivation: according to Ek Sonn Chan, the then newly installed PPWSA Director, it was “in a sad state of chaos and disarray.” At the time, PPWSA had 26,881 connections, only 13% of which were metered. PPWSA earned riel (KR)0.7 billion (\$175,400), against an operating cost of KR1.4 billion (\$350,900). What was needed, Mr. Chan says, was a complete restructuring of the organization to increase revenue and rehabilitate PPWSA's distribution network and treatment plants. In cleaning up PPWSA, Mr. Chan also sought to supply clean and safe water directly to poor families. Now, more than 10 years on, each of the 82,000 PPWSA connections in Phnom Penh is metered, and 70% of the city is connected to the water distribution network.

“Probably the most difficult of all,” says Mr. Chan, “was to increase the water tariff to cover

its cost.” By 2001, after phased increases, PPWSA's revenue covered the cost of supply. PPWSA's distribution network was rehabilitated and an effective maintenance system was installed. By 1996, with a \$20 million Asian Development Bank loan and funding from the World Bank, France, and Japan, PPWSA embarked on renewing and rehabilitating its distribution network, a task completed by 2002. New treatment plants were built and old ones rehabilitated. In restructuring PPWSA, Mr. Chan gave higher management more responsibility. Salaries were increased, by up to 10 times, and performance-based bonuses were introduced. Those who performed badly were penalized. PPWSA started to install water meters and set up an inspection team to stop illegal connections. It revised and improved its consumer files and began to educate the public of the importance of paying their water bills. The bill collection improved from 50% in 1993 to 99% in 2004. The success of reforms in the PPWSA shows that an efficient and sustainable urban water utility can be created even in challenging circumstances, so long as leadership and political will exist and the needs of consumers are put first.

Source: ADB Water for All website: <http://adb.org/water/actions/CAM/PPWSA.asp>

dress these issues (Box 3) but as Bhatia<sup>26</sup> says: “Despite all the ideas and ‘pilot’ projects, approaches have not proved to be replicable, sanitation policies are absent or not put into practice, investment remains mainly external and limited, and local subsidies have not been sustainable.” In the words of UN Secretary General Kofi Annan: “There is a tragic disparity between its human importance and its political priority.”

The scope for improving these systems is great. There are examples, however, of where municipal authorities, often with the support of international development partners, have made great strides in both ex-

tending coverage and improving services (see Box 4).

### Improving Education and Gender Equality

Education is key to any poverty reduction strategy and is increasingly emphasized by national governments and donors as an area where new efforts are needed. The importance of education is reflected in MDGs to ensure that, by 2015, children everywhere will be able to complete a full course of primary schooling and progress is made towards gender equality and the empowerment of women,

## BOX 4: Urban Sanitation: Islands of Success

- Sulabh community toilet complexes in India have succeeded in providing clean toilets and bathing facilities to urban poor at nominal charges. There are around 6,000 community toilets providing toilet-cum-bath services to around 3 million people in 625 towns on a pay-and-use basis.
- The Orangi project in Karachi, Pakistan is a low-cost sanitation program which enables low-income households to construct and maintain modern sanitation (pour-flush latrines in their own homes and underground sewerage pipelines in the lanes) with their own funds and under their own management.
- The WaterAid-Bangladesh/DSK Urban Programme has been implemented since 1998 in approximately 168 slums in the Dhaka metropolitan area and in Chittagong City Corporation. Around 25,000 households have gained access to one or more of the services offered: connections to metropolitan water authority lines; tubewells; sanitation blocks combining water points and hygienic latrines; community/cluster latrines with septic tanks; household water-seal, pit latrines; footpaths; drainage improvements; solid waste management; and hygiene education. All physical improvements are wholly or partly paid for by local users.

Source: Bhatia, R. Community-managed sanitation services for the urban poor in Asia, Africa and Latin America: Constraints to scaling-up of 'islands of success'. 2004

## BOX 5: WaterAid Australia Support to School Latrines in Papua New Guinea

WaterAid Australia has completed its first project in Papua New Guinea (PNG) in conjunction with Oxfam CAA, Oxfam NZ, and ATprojects. The project has directly benefited over 5000 schoolchildren and indirectly over 13,000 local community members by helping them to build latrines. Funds from WaterAid Australia have supported the building of 84 latrines in 14 primary schools in the Eastern Highlands province of the country. The project worked with children as they are most affected by, and most vulnerable to, hygiene-related illnesses. Establishing sound personal hygiene habits at a young age is vital so that children

take these habits into adulthood and pass them on to the next generation. WaterAid's partner organization, ATprojects, has developed low cost 'ATloo' that are easy to build and maintain, easy to clean, free of smell, and nice to look at. Communities are taught to operate and maintain them and learn about good hygiene. Training in HIV/AIDS awareness and prevention education is also being included as part of the project as HIV/AIDS is becoming a growing issue in PNG. The project reported a strong appreciation of the latrines by the schools and WaterAid intends to continue to help other schools in PNG to build improved sanitation facilities.

Source: WaterAid Water for Life website: <http://www.wateraid.org.uk/>

which is demonstrated by ensuring that girls and boys have equal access to primary and secondary education.

Although water does not play a direct role in achieving this, improved health re-

sulting from clean water and improved sanitation is key to improving attendance and performance at school (see Box 5). Better health resulting from improved water supply and sanitation will mean millions

## BOX 6: Scaling Up Access to Safe Water Supply and Sanitation in Rural Nepal

The Asian Development Bank-assisted Community-Based Water Supply and Sanitation Project is to support the Government in expanding the coverage of improved water supply and sanitation facilities to underserved populations, especially in poor and remote areas, and in improving health and hygiene practices related to waterborne and sanitation diseases. The project was designed in close consultation with a wide range of stakeholders. Socially excluded castes and disadvantaged ethnic groups are specifically targeted to benefit from these investments, which will help rectify historically inequitable access to many social services, including water supply and sanitation.

The project builds on lessons learned and best practices to incorporate features such as (i) ensuring diversity in all decision making; (ii) demand-driven and participatory delivery and management using nongovernment organizations (NGOs) and community-based organization; (iii) NGO supported community-based

planning, implementation, and management; (iv) support to decentralization built into design; and (v) a program orientation. Under this project, NGOs are helping the beneficiaries form water user groups, which will be responsible for construction, as well as operation and maintenance of water supply systems. Community water user and sanitation committees must have, at least, a proportional representation of poor, deprived castes, and of ethnic minority groups. Moreover, at least 50% of the executive and general members of these committees must be women. The committees will decide on the type of technology used and will be responsible for implementing the schemes. Low-income families will receive payments for 50% of the time they spend working on the project, and receive concessionary loans and subsidies to support latrine construction. The longer-term benefits of the project will arise principally from the productive uses of time saved, fewer days lost to sickness, and reduced expenditures on medical treatment.

Sources: ADB.Website: <http://adb.org/Documents/Profiles/LOAN/32249013.ASP>

of girls do not have to spend study time collecting water. Better water supplies and sanitation in schools, poorer rural areas in particular, are also important in ensuring school attendance. Without these improved facilities, cultural barriers in a number of Asian countries prevent girls from attending school.

The benefits of improved water supplies and sanitation in both the homes of children and in school can be measured by calculating the numbers of school days that would otherwise be lost to illness (see Annex G). The data show that tens, or even hundreds of millions, of school days could be gained every year from water supply and sanitation investments, having a tremendous impact on the education of children. These days gained can be valued in terms of the future productivity of better-educated chil-

dren. The value of these school days gained ranges from \$232 million to \$2 billion annually depending on the level of intervention.

**Gender Balance.** Community organizations for water management are often important mediums for improving the social capital of women, leading to more balanced gender roles. The experiences of NGOs, such as the Bangladesh Rural Advancement Committee and the Self-Employed Women's Association in Gujarat, India, provide models that initially organize women around water, acting as a catalyst to wider processes of empowerment and development. The widespread replication of these examples and other NGO experiences in South Asia show that scaling up is not necessarily a problem, even in areas that are more socially conservative. The time and drudgery women save

from collecting water frees up time for productive activities, giving them more economic power and independence, or greater time for leisure, study, and social interactions—all of which build their social capital.

These gains can be measured in terms of time saved and productivity increased, as discussed above. Because of women's central role in collecting and using water, they are central actors in improving water supplies and sanitation. They are the main

stakeholders and it is essential that they be placed at the center of decision making when planning and implementing system improvements. It is understandable why women place such a high priority on improving water supplies and sanitation facilities. They carry tremendous burdens to provide water and care for the health of their families. It should also be understandable then why improving water supplies and sanitation facilities is central to addressing gender issues.

