UNDP, Human Development Report 2006

Beyond scarcity: Power, poverty and the global water crisis

[Excerpts compiled by SANDRP and IRN]

Overview

Water for life, water for livelihoods

"The spirit of Thomas Malthus, who in the 19th century disconcerted political leaders by predicting a future of food shortages, increasingly pervades international debates on water. With population rising and demands on the world's water expanding, so the argument runs, the future points to a 'gloomy arithmetic' of shortage. We reject this starting point. The availability of water is a concern for some countries. But the scarcity at the heart of the global water crisis is rooted in power, poverty and inequality, not in physical availability. Nowhere is this more apparent than in the area of water for life. (…) Those twin deficits are rooted in institutions and political choices, not in water's avail-ability." (p. 2)

"Much the same applies to water for livelihoods. (…) In water-stressed parts of India irrigation pumps extract water from aquifers 24 hours a day for wealthy farmers, while neighbouring smallholders depend on the vagaries of rain." (p. 2)

"There is more than enough water in the world for domestic purposes, for agriculture and for industry. The problem is that some people – notably the poor – are systematically excluded from access by their poverty, by their limited legal rights or by public policies." (p. 3)

"The 1.8 million child deaths each year related to unclean water and poor sanitation dwarf the casualties associated with violent conflict. No act of terrorism generates economic devastation on the scale of the crisis in water and sanitation. Yet the issue barely registers on the international agenda." (p. 3)

"Ensuring that every person has access to at least 20 litres of clean water each day to meet basic needs is a minimum requirement for respecting the right to water—and a minimum target for governments. Human rights are not optional extras. Nor are they a voluntary legal provision to be embraced or abandoned on the whim of individual governments. They are binding obligations that reflect universal values and entail responsibilities on the part of governments." (p. 4)

"While basic needs vary, the minimum threshold is about 20 litres a day. Most of the 1.1 billion people categorized as lacking access to clean water use about 5 litres a day – one-tenth of the average daily amount used in rich countries to flush toilets. On average, people in Europe use more than 200 litres – in the United States more than 400 litres. (…) Dripping taps in rich countries lose more water than is available each day to more than 1 billion people." (pp. 5f)

The human development costs—immense

⇒ "Some 1.8 million child deaths each year as a result of diarrhea. (…) Deaths from diarrhoea in 2004 were some six times greater than the average annual deaths in armed conflict for the 1990s." (p. 6)
⇒ "The loss of 443 million school days each year." (p. 6)
⇒ "Close to half of all people in developing countries suffering at any given time from a health problem caused by water and sanitation deficits." (p. 6)
⇒ "Millions of women spending several hours a day collecting water." (p. 6)

"On any measure of efficiency, investments in water and sanitation have the potential to generate a high return. Every $1 spent in the sector creates on average another $8 in costs averted and productivity gained." (p. 6)

"The perverse principle that applies across much of the developing world is that the poorest people not only get access to less water, and to less clean water, but they also pay some of the world's highest prices. (p. 7)

Prognosis for meeting the Millennium Development Goal target

⇒ "On current trends Sub-Saharan Africa will reach the water target in 2040 and the sanitation target in 2076." (p. 7)
⇒ "Measured on a country by country basis, the water target will be missed by 234 million people, with 55 countries off track." (p. 7)
⇒ "The sanitation target will be missed by 430 million people, with 74 countries off track." (p. 7)

"Closing the gap between cur-rent trends and target trends for achieving the Millennium Development Goal for water and sanitation would result in:
⇒ Some 203,000 fewer child deaths in 2015 and more than 1 million children's lives saved over the next decade. (…)
⇒ Total economic benefits of about $38 billion annually." (p. 8)

"The $10 billion price tag for the Millennium Development Goal seems a large sum—but it has to be put in context. It represents less than five days' worth of global military spending and less than half what rich countries spend each year on mineral water." (p. 8)

Four foundations for success

"So many conferences, so much activity – and so little progress. Looking back over the past decade, it is difficult to avoid the conclusion that water and sanitation have suffered from an excess of words and a deficit of action. (…) There are no ready-made blueprints for reform, but four foundations are crucial for success:
⇒ Make water a human right—and mean it. (…)
⇒ Draw up national strategies for water and sanitation. (…) In Ethiopia the military budget is 10 times the water and sanitation budget – in Pakistan, 47 times. (…)
⇒ Support national plans with international aid. (…) The sector now accounts for less than 5% of development assistance. (…)
⇒ Develop a global action plan. (…)" (pp. 8)

Providing water for life

"'The human right to water', declares the United Nations Committee on Economic, Social and Cultural Rights, 'entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use." (p. 9)

"From Argentina to Bolivia, and from the Philippines to the United States, the conviction that the private sector offers a "magic bullet" for unleashing the equity and efficiency needed to accelerate progress towards water for all has proven to be misplaced." (p. 10)

Closing the vast deficit in sanitation

"Almost half the developing world lacks access to sanitation. Many more lack access to good quality sanitation. (…) The transition from unimproved to improved sanitation reduces overall child mortality by about a third. (…) Toilets may seem an unlikely catalyst for human progress – but the evidence is overwhelming." (p. 12)

"In sanitation the taboo remains resolutely intact. This helps to explain why the subject does not receive high-level political leadership, and it seldom figures in election campaigns or public debate." (p. 13)

Managing water scarcity, risk and vulnerability

"Water stress is reflected in ecological stress. River systems that no longer reach the sea, shrinking lakes and sinking groundwater tables are among the most noticeable symptoms of water overuse." (p. 14)

"In the past governments responded to water stress by seeking to augment supply. Large-scale river diversion programmes in China and India underline the continuing appeal of this approach. (…) Demand-side policies are likely to be more effective." (p. 14)

"Realigning supply and demand within the frontiers of ecological sustainability and water availability (…) has the potential to create both winners and losers. And there are win-win scenarios. But the danger is that the interests of the poor will be pushed aside as large agricultural producers and industry – two constituencies with a strong political voice – assert their claims. Water is power in many societies – and inequalities in power can induce deep inequalities in access to water." (p. 15)

Dealing with climate change

"Global warming will transform the hydro-logical patterns that determine the availability of water. (…) But the overwhelming weight of evidence can be summarized in a simple formulation: many of the world's most water-stressed areas will get less water, and water flows will become less predictable and more subject to extreme events. Among the projected outcomes:
⇒ Marked reductions in water availability in East Africa, the Sahel and Southern Africa as rainfall declines and temperature rises, with large productivity losses in basic food staples. (…)
⇒ Disruptions to monsoon patterns in South Asia, with the potential for more rain but also fewer rainy days and more people affected by drought.
⇒ Rising sea levels resulting in freshwater losses in river delta systems in countries such as Bangladesh, Egypt and Thailand." (p. 15)

Managing competition for water in agriculture

"One lesson from water reforms is that far more weight needs to be attached to equity. In contrast to land reform, for example, distributional concerns have not figured prominently on the integrated water resources management agenda." (p. 18)

"The revival of small-scale water harvesting programmes in India in response to the groundwater crisis has shown the potential to generate large returns to investments and at the same time to reduce risk and vulnerability. Similarly, micro-irrigation technologies do not have to be geared solely to large capital-intensive producers. Innovative new designs and low-cost technologies for drip irrigation have been taken up extensively. Here, too, the social and economic returns are large. On one estimate the extension of low-cost irrigation technologies to 100 million smallholders could generate net benefits in excess of $100 billion, with strong multiplier effects in income and employment generation. (…) Putting the interests of the poor at the

centre of integrated water resources management policies is an organizing principle. But that principle has to be backed by practical pro-poor policies. Among the most important: (…)
⇒ Developing integrated water-harvesting and groundwater policies extending from small-scale to large-scale infrastructure." (p. 19)

Delhi polluting Yamuna

"Delhi has many of the trappings of a developed country sanitation model—but appearances belie some serious problems. A large proportion of the city's 5,600 kilometres of feeder sewers are silted, and less than 15% of the trunk sewer is functioning. The 17 sewerage plants that serve the city have the capacity to process less than half the waste produced, and most operate far below capacity. The result: less than a fifth of the city's waste is processed before it is dumped into the Yamuna River, transmitting risks downstream." (p 114)

Chapter 5: Water competition in agriculture

"The question commonly posed is whether the world has enough water to meet the food needs of a growing population. Less attention has been directed towards another issue with equally important implications for human development and global poverty reduction: how to manage water resources to meet rising food needs while protecting the access of poor and vulnerable people to the water that sustains their livelihoods." (p. 173)

"In many countries the dominant governance model is a path of least resistance approach, with powerful constituencies in industry, commercial agriculture and municipalities transferring water by stealth from those – including the rural poor – with the weakest political voice." (p. 174)

"Smallholder farmers and agricultural labourers account for about two-thirds of the world's 830 million malnourished people." (p. 174)

Agriculture under pressure – the emerging scenarios

"Production of predominantly irrigated crops – such as rice and wheat – rose by a factor of two to four, with more than two thirds of the gain coming from yield increases. These massive productivity gains were a key element in improving food security and reducing world hunger. Without the expansion in irrigated area, rural poverty and global food security would look very different today." (p. 175)

"Looking to the future, prospects for extending irrigation are limited, while pressures from industry and domestic water users are rising. New sources of water for irrigation are increasingly expensive and ecologically damaging to exploit, setting limits on the potential for the type of expansion that marked the decades after 1960. The real cost of new irrigation in countries such as India, Indonesia and Pakistan has more than doubled since 1980. (…) The groundwater overdraft rate is more than 25% in China and 56% in parts of India." (p. 176)

Customary and formal rights – evidence from Sub-Saharan Africa

"Plans to develop irrigation capacity in Sub- Saharan Africa are gathering pace in many countries. The prize being sought is an increase in productivity and a reduced dependence on the vagaries of rainfall. However, when an asset as precious as irrigation water is introduced into a water-scarce environment, it inevitably become a focus for competing claims. The danger is that the claims of the politically and commercially powerful will take precedence over the claims of the poor and marginalized.

Developments in the Sahel demonstrate the problem. Here, large irrigation systems are comparatively rare, though they are likely to become more common in the future. The development of large systems has often gone hand in hand with the introduction of formal land rights. In one large scheme, the Office du Niger in Mali, customary systems have effectively been replaced by government regulations. Because the public investment cost of developing irrigation facilities is high – direct costs are more than three times as high per hectare in Sub-Saharan Africa as in South Asia – generating high returns has been important. To attract private capital, successive governments in Mali have strengthened tenure security and created private property rights in land. An explicit objective has been to attract investment from large-scale commercial producers. One concern is that smallholders will be disadvantaged. Is this concern justified?

Large-scale producers are not inherently more efficient than small-scale producers in irrigated areas. In fact, there is evidence from several countries that smallholders can be more efficient than large commercial farmers. However, increased market orientation can strongly favour large-scale commercial producers. In 2004, for example, the Malian government decided to sell some 3,000 hectares of land in the Office du Niger to private operators, with less than 10% set aside for smallholders. At the same time some 4,000 eviction orders were served on small farmers accused of not paying water fees. As ever with water, the issues are rooted in local politics. But the Office du Niger, one of the most efficient irrigation systems in Sub-Saharan Africa, now faces the difficult challenge of managing the competing claims of smallholder farmers and politically influential large-scale producers.

Similar problems have emerged in Senegal. The future of smallholder family farming is at the centre of a protracted debate in the country. Some see the sector as a source of employment, innovation and food security in an environment marked by extreme uncertainty, financial constraints and extensive poverty. Others see a need to modernize agriculture through large-scale capital investment. The government's rural development programme seeks to develop both sectors. But in the Senegal River Valley decentralized rural councils have sought to attract large-scale foreign investors from France and Saudi Arabia, providing access to land and irrigation resources. The resulting competition for water has attracted opposition from farmers claiming customary rights to the land and water, forcing national authorities to intervene." (pp. 183)

Poverty, inequality and inefficiency

"Pakistan has the distinction of being one of the few countries in which poverty levels have been found to be as high inside the irrigation networks as outside (figure 5.4). (…) China, with relatively equitable land distribution, is the most efficient irrigator and Pakistan the least efficient (figure 5.5)." (p. 188)

"Once again, irrigation modelling has found that the reallocation from head-end to tail-end users in Pakistan can generate win-win outcomes – production and incomes at the tail can be increased with little impact at the head. (…) So why do governments not seize opportunities for such win-win outcomes? The answer lies in politics, not economics. Relative power, not comparative efficiency, governs water allocation systems in many countries. Rich farmers with political power can influence the timing and volume of water releases by manipulating canal managers. Meanwhile, unaccountable and sometimes corrupt governance systems harm the poor by favouring people with political connections and money for bribes." (p. 189)

"In Pakistan less than half the operation and maintenance costs of irrigation spending are recovered, and most of the benefits are captured by large-scale producers. In India about 13% of the population has access to irrigation. Within this group the richest one-third of farmers receive 73% of the subsidy. Meanwhile, low rates of cost-recovery often lead to poor service, especially at the tail-end of irrigation canals. Low rates of cost-recovery also lead to high inequity." (p. 191)

Empowerment – the missing link

"Under the emerging consensus on integrated water resources management, decentralization and devolution of authority to water user associations are seen as fast-track routes to empowerment. But empowerment is more complex than administrative reform. (…) One problem with the governance model for irrigation has been its partial approach to empowerment. Reforms have often been more about giving water users a voice than about empowering them with rights." (p. 192)

Greater water productivity for the poor

"For much of the past hundred years water shortages in agriculture have been countered by dams and large-scale irrigation works. In the years ahead the focus will shift decisively to demand management. Getting more crop per drop, rather than more water to the fields, is becoming the central concern in public policy debates." (p. 195)

"In Gujarat, one of the epicentres of the groundwater crisis, the state government has supported community initiatives to create more than 10,000 check dams (…). (p. 196)

"Extending check dams across all of India's rainfed farming areas would raise the value of the monsoon crop from $36 billion a year to $180 billion, for an initial investment of $7 billion. Of course, this is a cost-benefit estimate that provides no insight into the huge governance challenges that such a programme might entail. But given the very high poverty rate in rainfed areas, it is difficult to envisage another investment with more potential to enhance human development and extend the benefits of India's economic success into rural areas." (p. 196)

"Water harvesting does not make large dams obsolete. In India large-scale infrastructure has 10 times the storage capacity of small tanks." (p. 196)

"Consider the case of Ethiopia, a water-abundant country. (…) Irrigation offers a way to reduce the risk and vulnerability associated with unpredictability. Up to 2.7 million hectares of land in Ethiopia have irrigation potential, but fewer than 300,000 hectares are developed. (…) Research by the International Water Management Institute has demonstrated the potential for expanding small-scale irrigation. Combined with low-cost drip irrigation technologies, it is estimated that with small-scale irrigation infrastructure Ethiopia could double yields over the next 10–15 years at per hectare and per capita costs lower than those required for formal irrigation investments." (p. 197)

"Micro-level irrigation is at the cutting edge of emerging water management technologies. It has enormous potential. Drip technologies use less water than surface irrigation, deliver it directly to the crop and reduce salinization and water-logging. (…) In France sprinklers and drips are used on 90% of irrigated area, compared with 1%–3% in China and India. (…) Studies show that drip techniques cut water use by 30%–60% and boost yields by 5%–50%." (pp. 197ff)

"Another innovation is the treadle pump." (p. 198)

"Combining micro-irrigation and new technology has the potential to distribute the benefits of irrigation far more widely. (…) But many countries will first need to review current approaches to agricultural growth. While many governments extol the virtues of small-holder farming, most concentrate scarce public investment on relatively large-scale, capital-intensive commercial farming areas. That approach may be bad for long-run growth and for poverty reduction. The untapped potential for scaling up is considerable. Micro-irrigation may be expanding rapidly, but it still covers only about 1% of the world's irrigated area." (p. 198)

“Incentives for developing and disbursing new technologies have been inadequately developed. (…) Instead of providing incentives for groundwater mining through electricity subsidies, governments could offer targeted support for water conservation through micro-irrigation. This is what has happened under the National Water Conservation Programme in Tunisia.” (p. 198)

The way ahead

“Almost all countries recognize the public goods element in irrigation provision. That is why construction and capital costs are heavily subsidized. But these subsidies create a responsibility to ensure that the benefits are spread as widely as possible. In far too many cases this does not happen. For countries where unequal land ownership compromises the efficiency and equity benefits of irrigation, mechanisms for re-distribution have to be part of the reform strategy.” (p. 199)

“Small-scale water harvesting should be a central part of water management from the local to the national level – and an element in wider efforts to empower the poor.” (p. 200)