

Human Development Report 2006

Water and human development: power, entitlements and scarcity

Background

Water is one of the great human development challenges of the 21st Century. Access to water on a secure and sustainable basis is fundamental to life and human well-being. It is one of the most basic requirements for extending human freedom, overcoming capability deprivation, extending human dignity, and achieving social justice. The sustainable management of water is also vital to the ecological integrity of the planet.

As competition for water intensifies within and between countries, the management and regulation of water is becoming an increasingly critical human development concern. HDR 2006 will look at how water resources and water markets can be governed in a fashion that puts human development at the centre of the water agenda.

That crisis in water has many dimensions. Progress towards ‘water for all’ has been limited. Notwithstanding an international ‘water decade’, an estimated 1.1 billion people lack access to safe water and almost 2.5bn people – 40 per cent of the world’s population – lack access to adequate sanitation. Looking beyond household consumption and access to sanitation, the livelihoods of many of the world’s poorest people are constrained by inadequate access to water as a productive resource.

Growing competition for water poses growing threats to poverty reduction efforts and challenges for international cooperation between countries. Similarly, the combined effects of rapid urbanization – including the urbanization of poverty - and the erosion of sanitation infrastructures is already acting as a brake on human development. In addition to the current social and economic costs of inadequate access to water and sanitation, the management of water systems raises important questions for ecological sustainability and cross-generational equity. As the recent Millennium Ecological Assessment documents, the failure to manage water in an ecologically sustainable fashion is at the heart some of the most severe environmental problems facing governments. The loss of wetlands, soil erosion, salination, and losses in agricultural productivity are all symptomatic of these problems.

Resolving these problems through effective public policy responses is vital to the attainment of the Millennium Development Goals, and to wider efforts to overcome poverty and extreme inequality.

Much of the debate on the global ‘water crisis’ starts from a presumption of scarcity. HDR 2006 will explore the political economy of water shortages and water insecurity and

set out an agenda for change. The point of departure for the report is that water scarcity and water security is rooted not primarily in physical availability, important as this is in some areas, but in structures of entitlement, or enforceable claims on scarce resources. Initially developed to explain famine in the midst of food abundance, Sen's notion of entitlements is a useful starting point for challenging some of the received wisdom on water. While water scarcity is a fact of life in some regions, it is an insufficient explanation for the wider crisis. In many cases, people lack access to water, whether as a consumption good or as a productive input, not because it is unavailable, but because they are poor, because they lack enforceable rights to land or tenure, because they are women, or because of disadvantage associated with group membership or location. In some cases, people are denied access to water because others consciously exclude them.

These markers for disadvantage structure the markets and institutions through which access to water is governed. The urban poor often go thirsty while middle-class suburbs waste water. Similarly, the rural poor are often excluded from access to irrigation and reliable water inputs while large-scale commercial producers are given incentives to over-use water. Patterns of scarcity reflect and reinforce asymmetric power relations, socio-economic inequalities and other distributional factors, such as asset ownership.

HDR 2006 will explore the markets, institutions and wider governance structures that exclude poor people from water. It will argue that the water crisis is in part a crisis rooted in governance and a failure to redress wider inequalities in power. At the same time, the operation of water markets pose challenges that are central to human development. The supply and pricing of water and sanitation services raises important questions about distributional equity, along with a host of wider social, political and cultural questions. Similarly, the terms on which groundwater or surface water is used for productive purposes has a bearing on livelihoods today and on ecological sustainability tomorrow. Water is one of the defining features of the 'global commons' – and it poses some of the starkest public policy challenges in terms of commons management.

Debates over water, including the rationale and strategies for achieving universal access, remain polarized. Some commentators stress that the obligation to provide access to water is rooted in human rights. Others evoke the importance of water as a public good with strong externalities in health, ecology and education. Many analysts argue that as water becomes increasingly scarce efforts to promote universal access should reflect its market value – and that this value should be reflected in the 'right' price.

Each of these perspectives offers insights which will inform HDR 2006. Notions of human right, global public goods and market efficiency can all be used to advance the case for institutionalizing universal access to water, though none offer a ready-made prescription for resolving the core problem.

HDR 2006 will attempt to identify the economic, political and institutional conditions under which water markets and water systems can be managed to meet the needs of people lacking entitlements to water by virtue of their poverty, marginalization, and lack of control over institutions. The report will cover four core thematic areas:

- Water and human development
- Water for human consumption and sanitation
- Water for production
- Managing water as a trans-boundary resource

Water and human development

Water has emerged as a controversial issue on the human development agenda. Important questions have been raised over the respective roles of the public and private sectors in water provision. Access to water and sanitation shapes not only basic capabilities – such as staying alive and staying health – but also defines wider human freedoms.

HDR 2006 will set out a conceptual framework for analyzing the links between water and human development. That framework will draw on literature dealing with public goods, common pool resources, human rights, and social justice. Historical evidence and case studies will set out how – and why - water has been a focal point for public policy. The report will provide a critical appraisal of shifting perceptions about the role of public and private policy in the globalised world of the early 21st Century, drawing on a wider historical perspective that traces the evolution of public intervention and private markets. It will argue for new forms of private and public partnerships to overcome problems of water scarcity and insecurity.

Working with the WHO and others, HDR 2006 will attempt to quantify the human costs of the water crisis. Inadequate access to clean water and sanitation inflicts enormous health costs. It is implicated in one-in-every three child deaths and accounts for a large share of the burden of disease in poor countries. Where schools are unable to provide adequate water and sanitation, many parents withhold their children. Collecting water imposes huge demands on female labour. None of these costs can be considered in isolation. Their effects are cumulative – and they are transmitted across generations. As industrial country governments recognized during the second half of the 19th Century, the case for publicly guaranteed access to clean water and sanitation is rooted a combination of moral concern, economic efficiency, public goods arguments.

While water and sanitation are part of an integrated human development agenda, the sanitation sector poses distinctive problems. While the world is seriously off-track for the MDG targets in water, the gap between goals and progress is far wider in sanitation – and not just for low-income countries. This is reflected in data highlighting very large differentials between water coverage on the one side and sanitation coverage on the other. These gaps are important because of evidence that sanitation coverage may have an even more marked impact on human development than access to water. Beyond immediate health implications, access to sanitation matters for wider human development goals. For example, sanitation facilities have a direct bearing on girls' enrolment in school. More widely, poor households cite sanitation facilities – or their absence – as a key determinant of dignity.

Apart from its critical role as a human development 'consumption good', water is a vital input for production. Inadequate, or irregular and unpredictable, access to water constrains productivity in agriculture, helping to perpetuate cycles of poverty and reinforcing vulnerability. Vulnerability to drought poses a distinctive human development threat which will be addressed in HDR 2006 by reference to a range of drought-prone areas, including the Sahel, southern Africa and parts of India and China. Integrating this 'productive' aspect of water into the wider framework will be central to the analytical framework.

Looking beyond current costs, HDR 2006 will consider cross-generational equity problems. These include the ecological and human health costs associated with unsustainable water-use patterns. Sinking water tables, salination, soil erosion, the pollution of waterways, and toxic threats posed by 'water mining' will all be considered.

HDR 2006 will attempt to develop a range of measurement devices and case studies for capturing 'water poverty', building on current approaches. In this context, the report will draw on DHS data bases to explore inequalities in access to water and their implications. It will also look into a range of governance issues relating to the transparency and accountability of water providers.

In order to link HDR 2006 with wider work in UNDP on the MDGs, the report will develop a number of exercises attempting to quantify the potential benefits of improved access to water in terms of accelerated progress towards the targets in areas such as child and maternal mortality, education, and extreme poverty.

Looking to the future, HDR 2006 will evaluate evidence that the world is heading for a neo-Malthusian water scarcity crisis. It will develop scenarios that capture the implications for water availability of major structural changes in demand and supply. These changes include population growth, urbanization, shifting patterns of production, competition within the agriculture-industrial-urban users' nexus, and climate change. The latter poses what is arguably the greatest human development challenge in water, not least because its full implications remain unknown. What is known is that shifting climatic patterns will influence the volume and variability of rainfall, redistributing global water availability in the process. Arid and semi-arid areas face especially acute threats, raising the specter of an increased frequency of droughts.

Water for human consumption and sanitation

Most cities in the world have an average level of water supply well above minimum human requirements. The same applies to most countries in the world, even in semi-arid regions. The problem is that access to existing water resources is limited, while supply is unpredictable and variable. As in other areas of human development, the average conceals large inequalities and high levels of scarcity among the poor.

Rapid urbanization and the development of mega-cities is placing a huge stress on already over-stretched water systems. In some cases, the growth of cities and industrial

demand is sucking water away from rural areas and agriculture. Within developing country cities, large areas – notably poor areas, slum settlements, and informal squatting sites - are ‘off-grid’. While middle-income groups get access to subsidized piped water, the poor are served by formal and informal private markets which combine higher prices with erratic supply and variable quality. In rural areas, too, access to piped or pumped potable water is limited, especially for poor households. HDR 2006 will use a series of city and rural studies to ‘map’ who has access to identify and illustrate the extent of water poverty.

Heated debates about the relative virtues of public and private ownership continue to rage. Arguably, these debates diverted attention from some of the more fundamental human development problems. Large-scale grid extension requires heavy up-front investments and a long-term planning horizon. In countries lacking developed and stable financial sectors, this is often implausible. Meanwhile, markets for water are structured by effective (that is, monetized) demand, rather than human needs. The central human development question is what forms of public and private action are best equipped to provide poor people with access to water?

HDR 2006 will investigate this question. On the financial side, it will look at the potential for developing a range of risk instruments and financing provisions – from municipal to national levels - to underpin long-term investment. Secure and stable global financing mechanisms - through aid, concessional transfers, and private markets - will also be explored. The HDR 2006 will also look at the success and failures of measures designed to improve the access of the poor, including cross-subsidies, tiered tariffs, and the provision of free minimum quantities.

While HDR 2006 will review the debate on privatization, it will focus on the themes of regulation, governance and accountability. Under this umbrella the report will examine what types of public-private partnerships are best geared towards achieving the goal of universal access to water.

Inadequate sanitation is among the most formidable barriers to accelerated progress towards the MDGs. Millions of deaths linked to diarrhea and water borne diseases could be prevented through access to latrines, with attendant health-related productivity gains for poverty reduction. Currently, there are huge inequalities in access between rich and poor, and between urban and rural areas. HDR 2006 will explore in detail the sanitation challenges now facing governments and communities, looking at a wide range of technological interventions and small-scale responses to demand among the poor.

In common with water, the erosion of the sanitation infrastructure poses immense challenges. Urbanisation and population is exacerbating that challenge: in Ethiopia the sanitation infrastructure is expanding more slowly than population. Across the developing world, a gathering human development emergency is unfolding in sanitation. Yet the sector figures far less prominently in poverty-reduction planning than water. It also exercises a lower order of claim upon public investment, notwithstanding the very high returns to such investment. Meeting the sanitation challenge will require action on

both the supply side and the demand side. Community-based organizations and non-government actors have developed a range of low cost sanitation models that could be scaled-up under the right public policy conditions. At the same time, there is a growing literature emphasizing the importance of hygiene education both as a tool for creating demand, and as a mechanism for changing behaviour. HDR 2006 will look at the range of experience in these areas.

There is huge scope for more effective public-private partnerships. These partnerships are vital if the MDGs are to be achieved. Cost-estimations suggest that, at least in the medium-term, the public sector alone will be unable to meet the costs of universal access, even with increased aid. However, public finance can create incentive structures for the development of new, low-cost technologies, and support demand for these technologies through subsidies and micro-finance. One of the keys to improved access to adequate sanitation is community-led management and governance of facilities, though municipal bodies have a critical role to play in creating an enabling environment. HDR 2006 will use case studies to review what has worked in this area, drawing lessons and recommendations for scaling-up.

Water for production

The debate on water and the MDGs has thus far tended to focus on water supply for domestic use and sanitation. Much less attention has been paid to access to water for productive purposes in agriculture. Yet water is an indispensable input for agriculture, food production and sustainable livelihood systems - and irrigation accounts for about three-quarters of all freshwater use worldwide. HDR 2006 will look at the critical role of access to water for agricultural purposes as one of the requirements for achieving the MDGs and other internationally recognized rights, including the right to food.

Improving access to water for agriculture within a framework for poverty reduction is a complex challenge. The nature of that challenge varies across and within regions. Competition between agriculture and non-agricultural uses of water (for example, for power, industry and urban households) is intensifying. Within the agricultural sector, there is often competition for access to irrigation between large-scale, commercial producers on the one side and smallholders on the other.

At the same time, water for agriculture draws on a range of sources. For example, in sub-Saharan Africa only a small proportion of arable land is irrigated. Most farms – and the bulk of staple food – depend on rainfall. Yet investment in effective rainwater harvesting and micro-irrigation remains limited. In much of South Asia, aquifers make a major contribution. However, in some areas these are being depleted at a rapid rate, with small farmers in particular losing out to larger producers. As demand for river water increases, there is also growing competition between agricultural producers, and between the agricultural sector and other users.

One of the problems in agriculture, as in other areas, is that current water usage patterns combine inefficiency with inequity. Water is often treated as an unlimited resource. As

such it is heavily under-priced, giving rise to inefficient patterns of production and resource allocation. Managing water for human development will require pricing structures and systems of water rights that combine pricing structures which reflect scarcity value, with a commitment to more equitable access and water rights. HDR 2006 will explore what this might mean in practice, drawing on a range of case studies from different regions.

The report will also explore some of the unintended consequences of public policy initiatives aimed at tackling the water crisis. For example, extending irrigation can generate benefits. But it can also lead to an inflation of land valued and the displacement of producers with weak property rights – a problem that has emerged in stark form in the Sahel region. More broadly, decisions about the location of public investments in irrigation and water infrastructure will have an important bearing on inequalities between producers and regions. Responses to these problems have to be informed by consideration of allocative efficiency within and between sectors, as well as equity. For example, would growth strategies based on intensive, commercialized agriculture be viable if water were priced for its scarcity value? And would the integration of ecological costing into prices change production decisions?

HDR 2006 will address these and other questions through a series of case studies that capture public policy problems that have a bearing on equity and access to water. These will cover a diverse range of agricultural systems and public policy environments. The aim will be to demonstrate how water insecurity perpetuates cycles of disadvantage – and to identify potential strategies for overcoming that insecurity.

Managing water as a trans-boundary resource

Over 40 per cent of the world's population – including many of its poorest and most vulnerable communities - lives within trans-boundary river basins and aquifers. In many regions, cross-border competition is increasing, posing new threats to peace and security in some cases. It follows that successful management of trans-boundary water resources vital to poverty reduction and international cooperation. HDR 2006 will make this a central theme.

Growing competition for water resources raises the specter of rising tensions between states. Yet there is also a huge potential for international water cooperation to act as a force for conflict prevention, security, and broader benefits sharing. Conversely, failures in international cooperation have the potential to generate high costs. High profile ecological disaster stories – such as the shrinkage of the Aral Sea and Lake Chad – powerfully demonstrate that short-term over-exploitation of limited water resources can generate long-run costs that traverse borders. Disputes over water use in the Tigris-Euphrates river systems have periodically threatened to generate conflict. And disputes between the Palestinian National Authority and Israel over aquifer management remain a source of tension.

Not all disputes over water allocation are international in character. Within countries too rival claims between jurisdictional authorities create political tensions, as witnessed by high profile cases in the US and India. While the legal context for national disputes is different, many of the underlying problems related to allocation and usage rights are similar in character.

Set against these cases, international co-operation to manage trans-boundary water flows is developing in many areas. The Nile Basin Initiative, the Senegal River Basin (Mauritania, Senegal, Mali), the Mekong River Commission (including Thailand, Cambodia, and Vietnam but – importantly – not China), the Kagera Basin (involving Burundi, Rwanda, Tanzania and Uganda) and the Jordan Basin, all demonstrate the potential for water co-operation.

Working with a research team in the Stockholm International Water Management Institute, and drawing on UNDP's own programme work, HDR 2006 will look at the institutional, financial and political requirements for building on trans-boundary initiatives. The analysis will draw on contemporary case studies while drawing lesson from a critical evaluation of successful institution-building in Europe (the Rhine and the Danube) and between India and Pakistan (the Indus Treaty). It will also consider public-private financing. At present, only a tiny fraction of aid directed towards water and sanitation is spent on trans-boundary resources. Private funding is also very limited. This is despite the huge commercial benefits of successful trans-boundary management. HDR 2006 will examine potential mechanisms for increased funding, taking into account the important international public good benefits of success in this area.