



# Water management

Advanced water purification, irrigation and desalination technologies are used to help communities manage the growing supply–demand imbalance.

As highlighted in the key resource constraints chapter, water is the resource over which many governments, corporations and communities have greatest concern for the future. As populations increase and move to urban areas, and as consumption rises in line with economic growth, water stress will be the main challenge for many parts of the world.

At a basic level, many parts of Africa and Asia will suffer increased physical water stress as the available water per person falls below the UN minimum target of 50 litres per day. In many areas, sanitation, itself a UN Millennium Development goal, is increasingly seen as difficult to achieve. Today, around 2.5 billion people lack access to adequate sanitation and the aim of halving this figure by 2015 is likely to be missed by a considerable margin. In some parts of sub-Saharan Africa, achieving this goal even by 2050 is now considered to be an ambitious target.

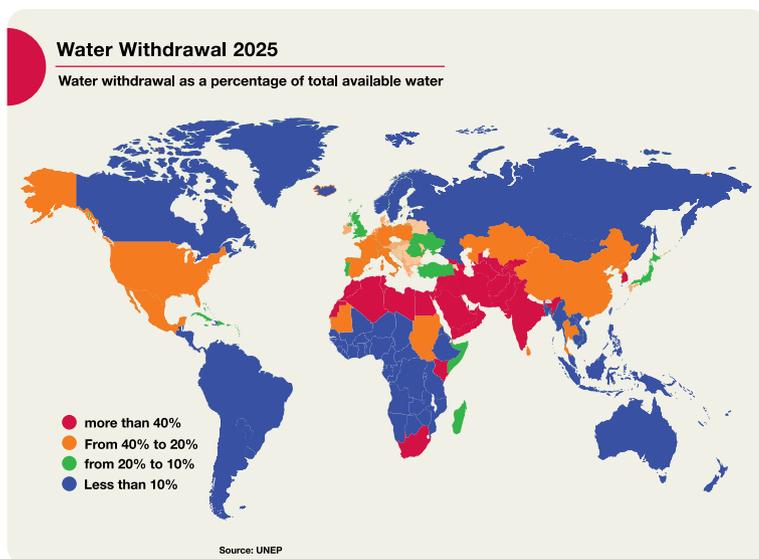
From the US to Chile, southern England to Kenya and the greater parts of the Middle East to Southeast Asia, water scarcity is forecast to have a severe impact over the next decade. Indeed, economic water stress is expected to affect up to half of the global population by 2020. In many areas it is not that there is insufficient water over an annual cycle but that it comes in peaks and troughs: 'the wrong water at the wrong time in the wrong place'. This is increasingly occurring as, in one season, flooding

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encourages us to get rid of excess water as quickly as possible and, in another, drought leads us to try to catch every drop.

According to a recent World Bank/McKinsey report, 'by 2030, projected population and economic growth will lead to global water demand 40% in excess of current supply if no adequate action is taken in the coming years. This would leave one-third of the world's population with access to only half the water it needs.'

As governments develop national water strategies and both cooperate and compete to secure water supplies, companies will come under increasing pressure to make more effective use of water in their production processes. Some will follow the lead taken by the likes of SAB Miller, P&G and Dow in significantly reducing water consumption and the principle of water footprints will gain fast traction as media and governments seek to raise public awareness of the water challenge.



With momentum building up around the issue of water use, the impetus for improved water management will increase internationally. While major technological breakthroughs such as low-cost desalination will be sought and become major areas of investment over the next decade, the utopian vision of transforming sea water into fresh water available for all will not be realised. 'Desalination will remain a luxury for rich countries such as Israel, the UAE, Singapore and Saudi Arabia.' In addition, 'desal water' is too pure and so, in many countries, minerals need to be added to satisfy public health requirements.

*Desalination will remain a luxury for rich countries.*

Some argue that 'the water problem is not one of water scarcity but more of system management'. Therefore, in the next ten years, more pragmatic short-term solutions to help communities better manage the rising supply–demand imbalance will be implemented in such areas as water purification and irrigation. While the concept of a water grid, able to shift resources around regions and between buildings to balance supply and demand, is increasingly discussed, in many areas the next ten years will be more about driving consumption behaviour change. At the same time, the politics of water will continue to be a crucial issue. 'There are vested interests in the supply and management of water and the associated impact and influence of large-scale infrastructure. Most water infrastructures are managed both locally and regionally but are usually seen from a centralised perspective.'

Some say that the problem is one of consumer understanding and behaviour. In many regions where supply is not yet constrained, water is seen as having little value. People pay little attention to water because it is too cheap for them to care about. The view is that governments around the world should regulate such that everyone has a water meter and we can then build a wider public understanding of usage. In general, the privatisation of utilities such as water does not seem to have been effective and some companies are now proactively handing back the responsibility of running the infrastructure to non-profit public bodies and local authorities. Governance on catchment areas is key here. The UK system is the only one where the actual water supply has been privatised but it operates under government controls – and hence suffers from an inability to create value for the management companies.

*'The water problem is not one of water scarcity but more of system management'.*

The need to have an infrastructure that provides us all with water is the driving issue and we need to question whether large companies and organisations should be in control of this or whether it requires a local community focus. There was general agreement in the varied Future Agenda events that it really comes down to how you set up the institutions to achieve the aims and overcome the challenges at a local level. In urban environments, in addition to forcing us to reconsider certain lifestyles water scarcity could open up opportunities for innovation in areas such as water capture, treatment, conservation and efficiency. Changes in behaviour will require measuring our water consumption before we can manage it and solutions such as smart metering will find their way into our homes.

Community-driven mechanisms are particularly important in developing countries to ensure equity and effectiveness. One suggestion in India was to

work more closely with women as, in the main, in many regions, it is they who fetch and carry water and therefore control access. There is also much to be gained from making the most of existing resources by reducing wastage, increasing water reuse, desalination and groundwater recharge. Simple but highly effective things like rain harvesting make a huge difference and, in the future, buildings will be better designed to align with this need.

*The Economist* is optimistic about the future and argues that change will happen where it is needed most: 'It will be in areas of high political, economic and social need that the key technological change in water will occur.' This is why Singapore is such a focus for water and its investment in low-cost desalination may be pivotal in the next decade. 'Both from government and companies such as Hyflux, many see that Singapore is a hub of water technology development.' Others are not quite so hopeful.

What everyone can agree on is that the issue is critical and that the right for all to have access to clean water is a priority. Therefore, a primary focus over the next decade will be to manage our supplies so as to enable this to happen.



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