



Water Outlook to 2050: The OECD calls for early and strategic action

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This article provides an overview of the OECD's latest projections for water management to 2050. Concerning trends for water demand, water quality, and water supply and sanitation necessitate urgent and strategic policy responses.

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Keywords: OECD; Water Outlook; water supply; water demand; water quality; projections.

Around the world, cities, farmers, industries, energy suppliers, and ecosystems are increasingly competing for their daily water needs. Without proper water management, the costs of this situation can be high – not just financially, but also in terms of lost opportunities, compromised health and

environmental damage. The OECD and PBL Netherlands Environmental Assessment Agency have reviewed recent trends, projected plausible future trends, and explored potential policy responses.

Trends and projections

The water outlook covers four issues: the availability of the resource, water quality, access to water supply and sanitation, and water-related disasters.

1. Resource availability

Water demand is projected to increase by 55% globally between 2000 and 2050. The increase in demand will come mainly from manufacturing (+400%), electricity (+140%) and domestic use (+130%). In the face of these competing demands, there will be little scope for increasing water for irrigation.

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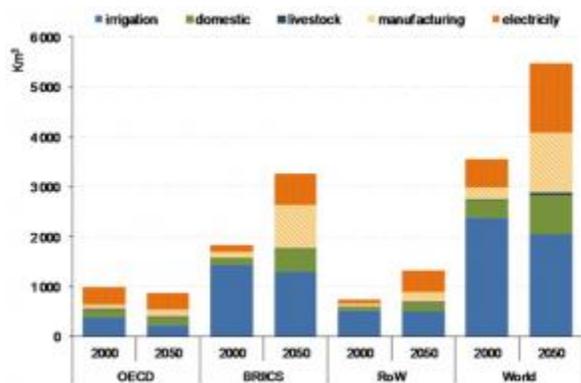


Figure 1. Global water demand: Baseline scenario, 2000 and 2050. Source: OECD (2012a); output from IMAGE.

This situation is compounded by two factors. First, the number of people living in river basins under severe water stress is projected to reach 3.9 billion by 2050, totalling over 40% of the world's population. In water stressed basins, small changes in water regimes (droughts) can have major consequences. Second, groundwater depletion, which more than doubled between 1960 and 2000, may become the greatest threat to agriculture and urban water supplies in several regions in the coming decades.

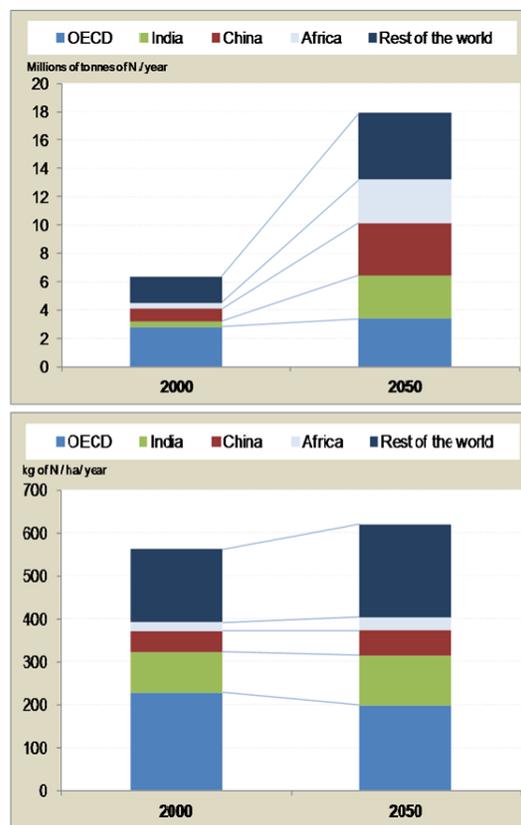


Figure 2a (top). Nitrogen effluents from wastewater: Baseline, 2000 and 2050.

Figure 2b (bottom). Nitrogen surpluses per hectare from agriculture: Baseline, 2000 and 2050. Source: Based on data from OECD (2012a).

2. Water quality

The quality of surface water outside the OECD is expected to deteriorate in the coming decades (see Figures 2a and 2b). The consequences will be increased eutrophication, biodiversity loss and disease. Micro-pollutants (medicines, cosmetics, cleaning

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agents, and biocide residues) are an emerging concern.

3. Water supply and sanitation

Despite tremendous efforts in the last two decades, the number of city dwellers without access to an improved water source has increased since 1990; as urbanisation has outpaced the development of infrastructure. More than 240 million people (most of them in rural areas) will still be without access to an improved water source by 2050 (see Figure 3a). The situation is even more daunting given that access to an *improved* water source does not always mean access to *safe* water. In addition, 1.4 billion people are projected to be without access to basic sanitation in 2050, with severe consequences on health and environment, as well as hampering water uses downstream (see Figure 3b).

4. Water-related disasters

The number of people at risk from floods is projected to rise from 1.2 billion today to around 1.6 billion in 2050 (nearly 20% of the world's population). The economic value of assets at risk is expected to be around USD 45 trillion by 2050, a growth of over 340% from 2010.

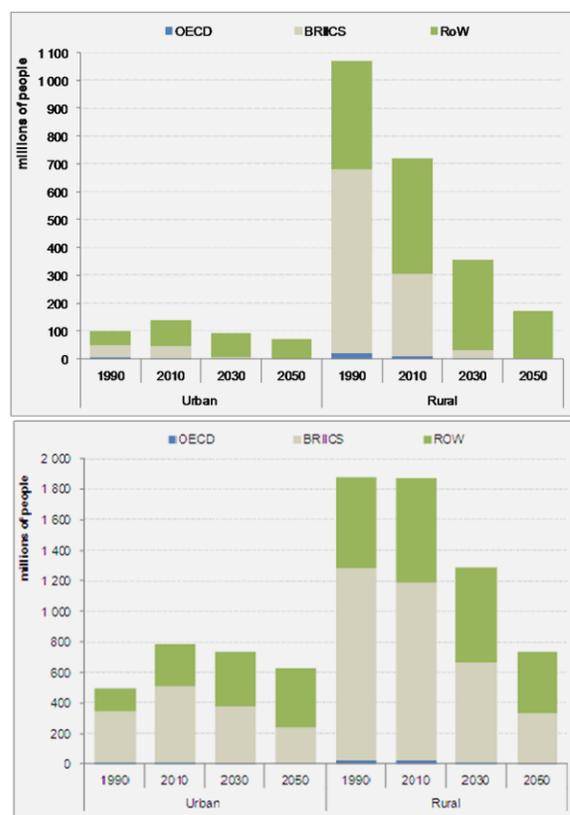


Figure 3a (top). Population lacking access to an improved water source: Baseline, 1990-2050. Figure 3b (bottom). Population lacking access to basic sanitation facilities: Baseline, 1990-2050. Source: OECD (2012a); output from IMAGE.

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Policy options and needs

Governments and authorities in charge of water management need to act to reverse these trends and to make the water outlook manageable. A number of initiatives have already taken place. A more strategic approach can save cost and accelerate favourable outcomes.

Improved water efficiency remains a policy imperative in most regions of the world. Water pricing can be used to signal scarcity and to create incentives for efficient water use in all sectors (e.g. agriculture, industry, domestic). Social consequences are best addressed through well-designed tariff structures or targeted measures.

Water storage capacities will secure access to the resource. At the same time, they should not conflict with other environmental objectives (e.g. preservation of ecosystem services, forests or biodiversity). Green technologies (such as groundwater recharge, floodplains and wetlands restoration) are available and could be scaled up in most parts of the world.

Flexible mechanisms are required, to allocate water where it is most needed. This requires appropriately defined water rights, an

insufficiently considered issue in many regions.

Water policies need to place quantity and quality issues on an equal footing. Wastewater collection (sewerage systems) needs to be systematically coupled with wastewater treatment.

Innovative techniques and business models will be needed, to secure water-related services (including water supply and sanitation), while consuming less water, energy or capital. The private sector will be an important player. Public policies can support the development and diffusion of such innovations, including in developing countries.

These initiatives work best when integrated with policies that have an impact on water availability and use, primarily agriculture, energy, and land use. Water governance needs to be reformed to ensure such coherence. One requisite is the engagement of all relevant stakeholders (different levels of government, water user groups, and private companies).

One pragmatic step forward would be assessing the vast number of subsidies that encourage unsustainable water use, with a view to phasing them out. For example, the reform of agricultural support in the European Union has helped to better align

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agricultural and environmental objectives, typically by reducing production and input related support, as well as shifting toward agro-environmental measures thereby helping to ease stress on the environment, including water. Similarly, removing incentives which encourage people to settle or invest in risk-

prone areas will reduce the impact and occurrence of water-related disasters.

In all of these domains, early action will avoid being locked in costly and detrimental trajectories.

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