

Water Scarcity

Physical and economic scarcity of essential freshwater resources is increasing due to man-made and natural forces, and is further diminished by waste, pollution and unsustainable management.

Freshwater is a fundamental natural resource for sustaining life on Earth, but its availability – both physical and economic – and its quality is declining. Demand for freshwater has risen at twice the rate of population growth over the last century. The challenges are so acute that access to water resources is expected to be a major cause of conflict between nations in future.

Globally the number of people without access to clean freshwater is considerable and many regions are experiencing, or approaching water scarcity. Physical scarcity affects around 1.2 billion people globally. It arises from an absolute lack of supply, due to geographic distribution, overconsumption or ecosystem degradation, and is common in developed regions. Economic scarcity results from poor infrastructure and management practices. It affects some 1.6 billion people, often in developing economies and restricting otherwise adequate resources.

Climate change is expected to worsen water stress. Glacial retreat and a reduction in snow and ice cover will reduce flows of melt-waters on which many communities and even countries rely. Changes in precipitation patterns are also expected to make wet regions wetter, and contribute to the expansion of dry arid regions, while rising sea-levels will increase the salinity of freshwater bodies in coastal areas. The agricultural sector will feel the impacts of these changes acutely, limiting the ability to feed an expanding population.

Challenges

- ★ Can consumption be reduced and more sustainable management of water be encouraged without restricting use or impacting on quality of life?
- ★ What infrastructure types should be prioritised to address water scarcity and how should this be targeted spatially to maximise the benefits?
- ★ How can river and groundwater catchments be better managed to improve water quality and reduce existing pressures?
- ★ Can food be grown in ways that conserves water and could this be achieved in the context of other drivers of change, such as increasing food demand?



Key Facts:

1. **Demand for freshwater has risen at twice the rate of population growth over the last century¹.**
2. **Around 1.2 billion people globally live in areas of physical water scarcity, while a further 1.6 billion face economic scarcity due to a lack of necessary infrastructure¹.**
3. **The global gap between water supply and demand is expected to reach 40% by 2030 if 'business as usual' consumption continues^{2,3}.**
4. **Approximately 70% of the world's freshwater is consumed by the agricultural sector alone².**
5. **About 40% of humanity lives in or near an international river basin, with over 200 of these shared by more than two countries⁴.**
6. **The economic benefit of investing in improving water and sanitation are estimated to be \$3 - 34 for every \$1 invested⁵.**

