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# The water challenge

Global demand for water is increasing at a time when the supply and quality is declining. Population growth, the consumption patterns of a rapidly expanding global middle class, a reliance on unsustainable water sources, and increasing demand from industry and agriculture are all putting pressure on the world's water supplies. In fact, the global supply of fresh water is arguably insufficient for today's population levels – let alone the 9 or 10 billion people who'll need it by 2050. [ 1]

Water is therefore likely to become a much more expensive resource as we move through the 21st century, which will change how it is used at both a domestic and industrial level. Resource-intensive systems like food and energy production will find themselves in competition for dwindling fresh water supplies; tackling problems related to one commodity will affect another's supply and demand. [2]

Agriculture already accounts for the majority of global freshwater use. But increasing demand from other industries, combined with increasing water scarcity due to climate change, will limit how much water is available for food production. This issue will be especially acute in water-stressed and agriculture focused countries in the developing world.

**“If nothing is done we will run out of water faster than we run out of oil” - Peter Brabeck-Letmathe, Chairman of the Board, Nestle [3]**

Footnotes:

1. [1] Wiltshire, A. et al. (2013), 'The Importance of Population, Climate Change and CO2 Plant Physiological Forcing in Determining Future Global Water Stress'
2. [2] National Intelligence Council (2012, Dec). Global Trends 2030: Alternative Worlds, pg iv.
3. [3] Peter Brabeck-Letmathe (2013). “Addressing the Water Challenge”

## Implications

- Although water stress [1] exists in the US and Mexico and along the western coast of South America, the world's major belt of water stress lies across Northern Africa, the Middle East, central and southern Asia, and Northern China. These stresses are increasing as this is also the zone of the largest projected population growth during the next 15-20 years. [2]
- Businesses need to prepare for the possibility that relatively inexpensive and/oradequate water supplies may no longer be guaranteed across their supply chains. In particular, they will need to consider the 'water footprint' of their current products, services, and operations. The best-prepared businesses will be those which take steps to minimise their reliance on fresh water and help people to use water more efficiently.
- Technological breakthroughs pertaining to water security are essential for meeting the on-going water needs of the world's population. Businesses and governments are experimenting with techniques such as drip irrigation, waterless washing machines and seawater desalination to reduce demand and increase supply of water. [3]

Footnotes:

1. [11] Water stress is present when a country or region's annual water supply is less than 1,700

cubic meters per person per year.

2. [12] National Intelligence Council (2012, Dec). Global Trends 2030: Alternative Worlds, pg x.
3. [13] National Intelligence Council (2012, Dec). Global Trends 2030: Alternative Worlds, pg x.

## Current trajectory

- Global water demand is forecast to increase by 55% between 2000 and 2050, with the largest increases coming from manufacturing, electricity and domestic use. [1]
- According to the Organisation for Economic Co-operation and Development, a 'business as usual' approach to water supplies will see almost half the world's population living under severe water stress by 2030. [2]
- Concern over 'embedded water' in food and other products is expected to increase. Trade in embedded water has steadily grown over the last 40 years, and approximately 15% of domestic water is now exported via trade. [3]
- Today agriculture accounts for 70% of freshwater withdrawals, rising to 90% in least developed countries; agricultural use is set to increase by 20% by 2050. [4]
- 20% of global aquifers are over-exploited, with the rate of abstraction increasing by 1-2% per year. [5]
- Two-fifths of the world (i.e. over 2 billion people) live in river and lake basins spanning two or more countries. Since 1948, 295 international water agreements have been signed, with 37 cases of acute violence between states over water. [6]
- On average, the benefits of investing in water management, sanitation, and hygiene range from USD\$2 to USD\$3 per dollar invested. [7]

### Footnotes:

1. [4] OECD (2012). OECD Environmental Outlook to 2050: The Consequences of Inaction, Paris, Organisation for Economic Cooperation and Development.
2. [5] OECD (2012). OECD Environmental Outlook to 2050: The Consequences of Inaction, Paris, Organisation for Economic Cooperation and Development.
3. [6] Hoekstra, A. Y. (2013). Virtual water trade between nations: a global mechanism affecting regional water systems. IGBP Global Change News Letter, 54, 2-4.
4. [7] Figures quoted from the 2014 World Water Development Report, Volume 1
5. [8] Figures quoted from the 2014 World Water Development Report, Volume 1
6. [\[9\] Oregon State University \(2011\). The World's International Freshwater Agreements](#)
7. [10] UN (2013). A new global partnership: Eradicate poverty and transform economies through sustainable development, pg 42.