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10 THINGS TO KNOW ABOUT THE FUTURE OF WATER AND SANITATION

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The world is transforming in many different ways.

These shifts – from climate change, to migration, to new technology, and urbanisation – will have a large impact on the management of water resources and related services like sanitation.

This impact will be both positive and negative; throwing up a variety of new opportunities and challenges, for people and economies.

But how can we make the most of the opportunities, and face the challenges? Here, we outline 10 things to know about the future of water and sanitation up to 2030, to do just that.

01

5.2 BILLION PEOPLE WILL NEED BETTER SANITATION BY 2030

In 2015, at the end of the Millennium Development Goals (MDGs), a third of the world still defecated in the open or used unsafe or shared toilets. The new Sustainable Development Goals (SDGs) are much more ambitious. For sanitation, everyone needs access not only to a toilet, but also to a sanitation system that safely captures and manages waste. Over 60% of the world, 4.5 billion people, currently lack that. With population growth, the target is to reach at least 5.2 billion more people by 2030. Meanwhile, at least 2.5 billion more people will need a reliable water supply service that is available at home and free from contamination.¹



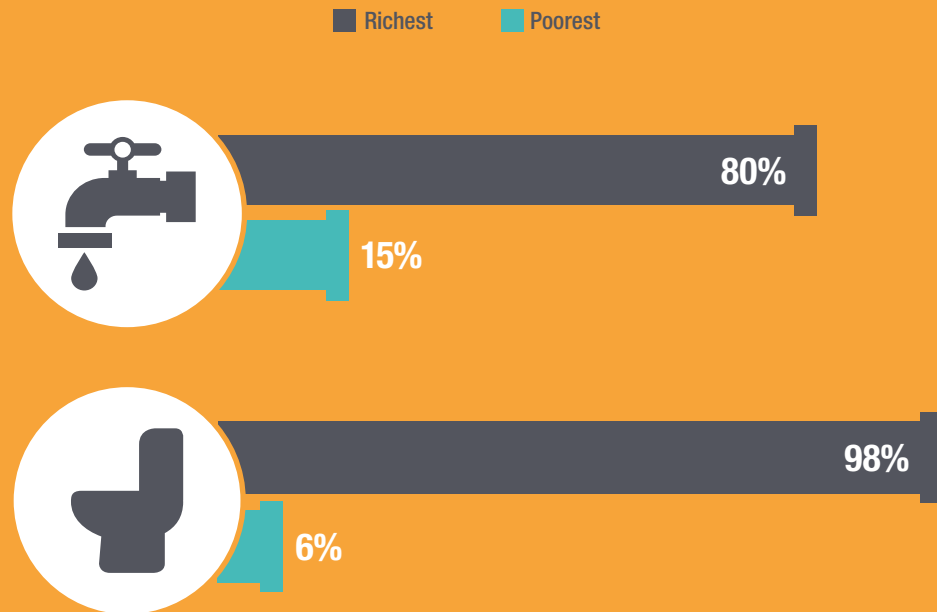
Over 60% of people currently lack a sanitation service that safely captures and manages waste

02

POOR PEOPLE WILL NEED TO BE SERVED FIRST

In recent years, the gap in access to water and sanitation between the richest and poorest has widened in many countries. In most countries for which data is available, the richest fifth in rural areas gained access to sanitation faster than the poorest fifth. Leaving no one behind means actively putting poor people first, not just assuming they will eventually catch up.²

In Angola, the richest fifth of the population have much higher levels of access to basic water and sanitation than the poorest fifth³



03

DEMAND WILL INCREASE; SUPPLY WILL GET MORE VARIABLE

In the future, increasing demand from growing populations and economies will have more widespread effects on water availability than climate change. Climate change will reduce water availability in some regions, costing as much as 6-14% of growth,⁴ but the most consistent effect will be increasing variability. Countries often see infrastructure, especially large dams, as the best way to handle both variable rainfall and increasing demand. For example, the biggest dam in Ethiopia will hold more than 30 times the annual flow of the Thames in London.⁵ Yet dams are more of a problem than a solution if they are not accompanied by investments in people, and policies for sharing water and its benefits equitably.

Increasing demand
will put pressure on
available resources



Climate change
will increase variability
in the water cycle

On its own,
infrastructure
is not enough

04

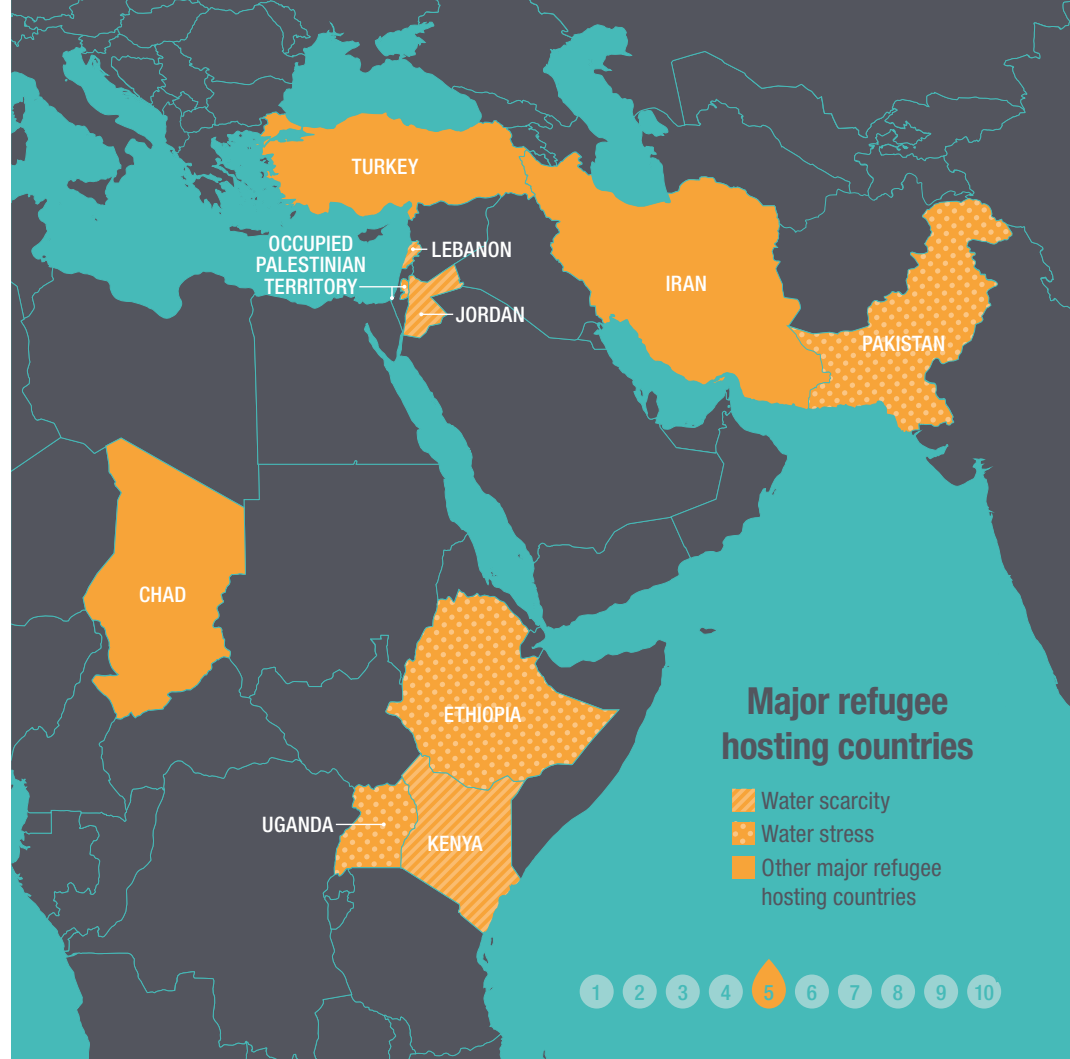
QUALITY WILL MATTER AS MUCH AS QUANTITY

Mention water scarcity to people and most will think of retreating lakes and rivers or falling water tables. Despite this, it's quality, not quantity, that will limit options in many areas. Poor quality affects not just surface water but also major groundwater reserves — a hidden problem that is difficult to treat. In South Asia, over half of the groundwater potentially available in the Indo-Gangetic basin is contaminated with salt or arsenic, down to a depth of 200m.⁶ Across China, 10 of 37 deep aquifers analysed had unsafe levels of nitrate pollution.⁷

05

WATER, CONFLICT AND MIGRATION WILL BE INCREASINGLY LINKED

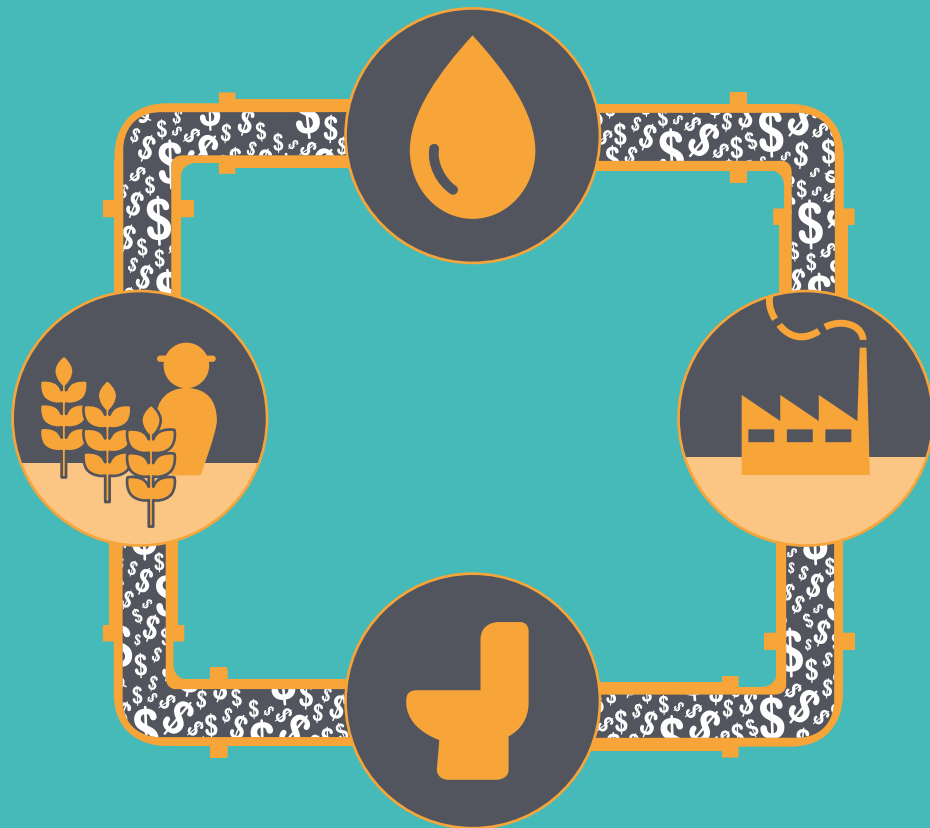
Conflict will continue to drive population movements, putting pressure on water resources and services in countries that already struggle to cope. Of the ten major refugee hosting countries, seven face water stress or water scarcity. A quarter of the total population across these countries do not have access to basic drinking water. To avoid water-related conflicts of their own, host countries will need help to meet the needs of refugees as well as their own people.⁸



06

WATER AND SANITATION WILL SECURE INCLUSIVE GROWTH

Water is a crucial input to economic activities across sectors and income levels – from smallholder farms to high-tech factories. Using water to drive inclusive growth means allocating it to firms and sectors that generate jobs and diversification, not just gross domestic product. While ministries of finance have tended to overlook the sector, sanitation offers much more than health benefits to the economy. In India, a latrine for everyone could free up 260 million hours every day, time that people could spend productively instead of trying to find a place to defecate in the open.⁹



07

SMALL CITIES WILL DRIVE INNOVATION FOR BILLIONS

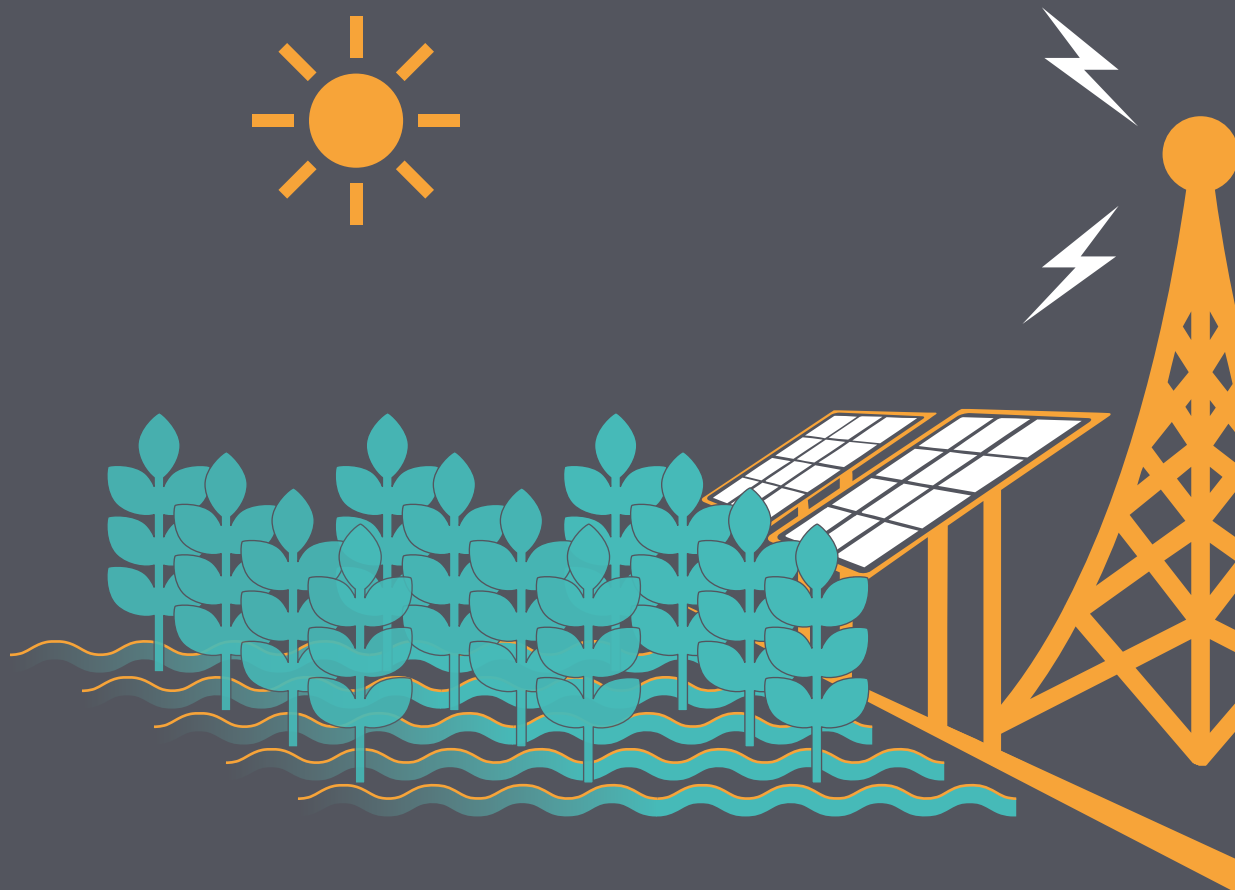
It is often assumed that large cities and megacities present the greatest challenge for urban services. Yet, by 2030 it is estimated that 2.3 billion people, more than a quarter of the world's population, will live in towns and cities of fewer than 500,000 people.¹⁰ Historically, cities in poorer regions have struggled to extend formal, centralised water and sewerage networks to growing populations living on their edges. In sub-Saharan Africa, the share of the urban population receiving a piped water supply has fallen from 67% to 56% since 1990.¹¹ Yet small cities are less likely to be 'locked in' to centralised networks, giving them the chance to find innovative solutions.



08

ENERGY AND THE INTERNET WILL RESHAPE WATER USE

Water has powered societies for millennia. Now, a power revolution is set to change the rules for water. Solar photovoltaic cells provide energy that is 250 times cheaper now than it was 40 years ago, and are now powerful enough to meet irrigation needs.¹² Millions of small farmers in Asia and Africa have historically used expensive diesel to pump water. Switching to solar systems will lower the cost of food production over time and could reduce poverty. Other smart solutions, including internet-enabled technology, need to be used wisely to monitor pumping and keep it to sustainable levels.

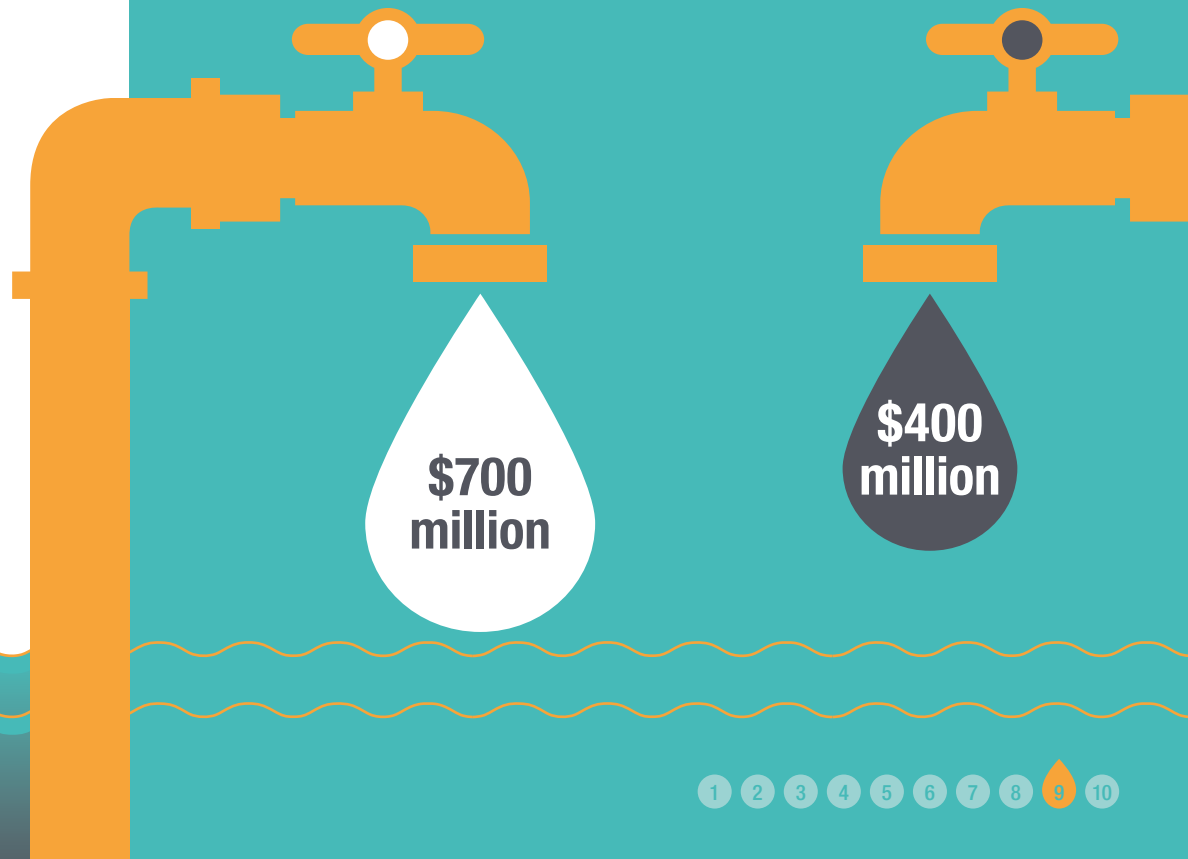


09

JOINED-UP SPENDING WILL MEET THE NEEDS OF THE MOST VULNERABLE

Joining up longer term and emergency water and sanitation would help meet the needs of the most vulnerable people in the world. Over \$700 million was spent on long term water and sanitation projects in fragile countries and territories in 2015. In the same countries, around \$400 million was spent on emergency water and sanitation.¹³ Yet there is little joint planning, even where the money comes from the same source. This results in duplicated effort and contradictory approaches.¹⁴

To make money go further, emergency relief and longer term development needs must be approached in a joined-up way



10

COMPANIES WITH THE LONG VIEW WILL PROSPER

Many companies understand that water risks affect their business, yet only a few are taking action. More than \$14 billion in water-related financial impacts were reported across 600+ companies in 2015, but there is little progress on addressing the risks.¹⁵ If anything, most companies are only trying to increase water efficiency in their own operations. To get the edge on competitors and win the confidence of investors, companies need to help their suppliers manage water risks, and engage openly with others – public and private – who rely on the same water resources.



REFERENCES AND RESOURCES

ODI's **Water Policy Programme** (WPP) links high quality research with practical policy advice on water and water-related issues with a bearing on poverty.

See full report at: Mason, N., Le Sève, M., Calow, R. (2017) 'Future flows: global trends to watch on water and sanitation'. *ODI Working Paper 520*. London: Overseas Development Institute. Available at: odi.org/10-things-future-water-sanitation

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1. Data from 2017 updates by WHO and UNICEF Joint Monitoring Programme (JMP) for Water Supply, Sanitation and Hygiene (www.washdata.org) and United Nations Department of Economic and Social Affairs Population Division (medium variant; <https://esa.un.org/unpd/wpp/>). Number to reach by 2030 assumes a share of the additional population to 2030 is born into households with access to safely managed water supply and sanitation, in line with the share of the current population with access to such services.
2. Based on 73 country-level datasets made available by the JMP in 2015, including time-series estimates for levels of access to urban sanitation, urban water supply, rural sanitation and rural water supply by wealth quintile. WHO and UNICEF (2015) Estimates on the use of water sources and sanitation facilities by rural and urban wealth quintile (various countries). Geneva: World Health Organization and UNICEF.
3. Estimates for Angola from www.washdata.org, accessed August 2017.
4. Climate-related impacts on GDP in 2050 estimated for Middle East Region in World Bank (2016) *High and Dry*. Climate Change, Water and the Economy. Washington D.C.: World Bank.
5. Thames flow data from UK National River Flow Archive, 39001 Kingston Station (<http://nrfa.ceh.ac.uk/>). Grand Ethiopia Renaissance Dam reservoir volume from Salini Impregilo (www.salini-impregilo.com). Data accessed August 2017.
6. MacDonald, A.M., Bonsor, H.C., Ahmed, K.M., Burgess, W.G., Basharat, M., Calow, R.C., Dixit, A., Foster, S.S.D., Gopal, K., Lapworth, D.J., Lark, M., Moench, M., Rao, M.S., Shamsudduha, M., Smith, L., Taylor, R.G., Tucker, J., van Steenberg, F. and Yadav, S.K. (2016). 'Groundwater quality and depletion in the Indo-Gangetic basin mapped from in situ observations.' *Nature Geoscience*, 9: 762-766.
7. Han, D., Currell, M. J., & Cao, G. (2016) 'Deep challenges for China's war on water pollution.' *Environmental Pollution*, 218: 1222-1233.
8. Major refugee hosting countries are those among the top ten hosts of refugees, by total refugee population, in at least three of the years 2013-2016. Identified from original analysis of United Nations High Commission for Refugees data (mid-line trends for 2013, 2014, 2015 and 2016) and refugee population data for the same years from United Nations Relief and Works Agency for Palestinian Refugees in the Near East. Water stress classified as renewable water resources below 1,700m³/ person/ year; water scarcity below 1,000m³/person/year. Data from AQUASTAT (http://www.fao.org/nr/water/aquastat/maps/TRWR.Cap_eng.pdf). Data on drinking water coverage from JMP (www.washdata.org).
9. Time saving in moving from open defecation to private latrine taken from Hutton, G. (2012) *Global costs and benefits of drinking-water supply and sanitation interventions to reach the MDG target and universal coverage*. Geneva: World Health Organization. Current estimates of open defecation in India taken from WHO and UNICEF (2017) *Progress on Drinking Water, Sanitation and Hygiene 2017*. Update and SDG Baselines. Geneva: World Health Organization and UNICEF.
10. UN-DESA (2014) *World Urbanization Prospects: 2014 Revision*. CD-ROM edition. New York: United Nations Department of Economic and Social Affairs, Population Division.
11. WHO and UNICEF (2017) *Progress on Drinking Water, Sanitation and Hygiene 2017*. Update and SDG Baselines. Geneva: World Health Organization and UNICEF.
12. World Bank analysis of data from Bloomberg New Energy Finance and pv.energytrend.com, in Welsien, K. and Hosier, R. (2015) 'Solar Water Pumping. Ready for Mainstreaming?' Presentation dated 2nd December 2015. Washington D.C.: World Bank.
13. Fragile countries and territories from World Bank Harmonized List of Fragile Situations FY15. Estimated development spending on WASH and total humanitarian spending (2015 disbursements) from Organisation for Economic Cooperation and Development (<https://stats.oecd.org/>). Share of humanitarian spending going to WASH extrapolated, based on sector share reported by United Nations Office for the Coordination of Humanitarian Assistance, Financial Tracking Service (<https://fts.unocha.org>).
14. Mason, N. and Mosello, B. (2016) *Making humanitarian and development WASH work better together*. London: Overseas Development Institute.
15. CDP (2016) *Thirsty business: Why water is vital to climate action*. 2016 Annual Report of Corporate Water Disclosure. London: Carbon Disclosure Project; Newborne, P. and Dalton, J. (2016) *Water management and stewardship: taking stock of corporate water behaviour*. Gland: International Union for the Conservation of Nature.