

# Groundwater issues: hiding in plain sight

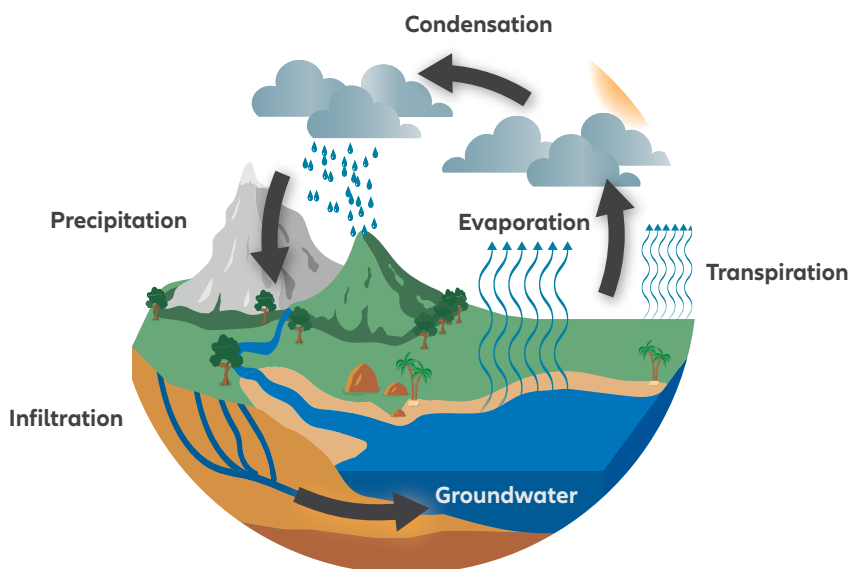
World Water Day 2022

## The issues around groundwater

Every year since 1993, the United Nations (UN) has marked World Water Day on 22 March, shining a spotlight on the importance of fresh water. World Water Day aims to raise global awareness of the more than 2 billion people who, according to UN figures, live without access to safe water, as well as the more than 4 billion people experiencing severe water stress.

World Water Day supports the overall achievement of Sustainable Development Goal (SDG) #6: Clean Water and Sanitation for all. This year, the focus topic is "Groundwater – making the invisible visible".

## Natural water cycle



## Key takeaways

- Groundwater is seriously burdened by issues such as overuse, pollution and contamination
- A lack of separation of fresh water and wastewater, together with leaks, disrupt the natural freshwater cycle and lead to significant losses, not least of an economic nature
- Mitigating water issues supports the achievement of many SDG goals and could more than double the overall global economic return on water spending
- Investments in providers of drinking water filtration systems, efficient farming solutions or producers of smart water meters and pressure sensors can help alleviate the burdens weighing on groundwater

Water on earth moves in a cycle; as a resource, it cannot be “used up” like fossil fuels. This makes water a very special commodity. As it is used repeatedly, we must take care that water remains available throughout the cycle. Unlike other commodities, water does not have a specific value determined by markets. It is perceived to be free, with zero opportunity cost, i.e., it can be consumed in any quantity without reducing availability for others. However, that might not be true.

Water is probably the most essential commodity when it comes to human life on earth, and fresh drinking water is scarce. The amount of water that can be used sustainably is limited – and becomes more limited with heavy use and increasing pollution.

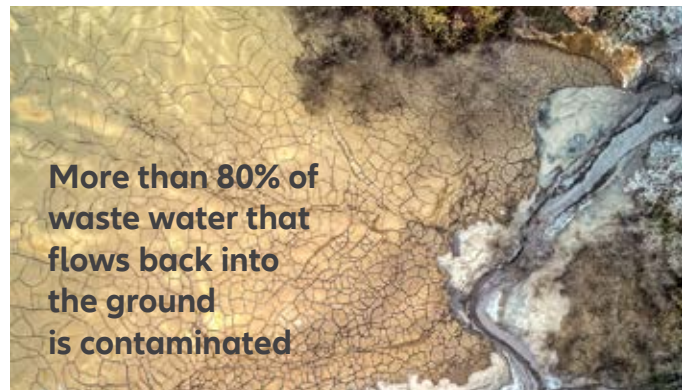
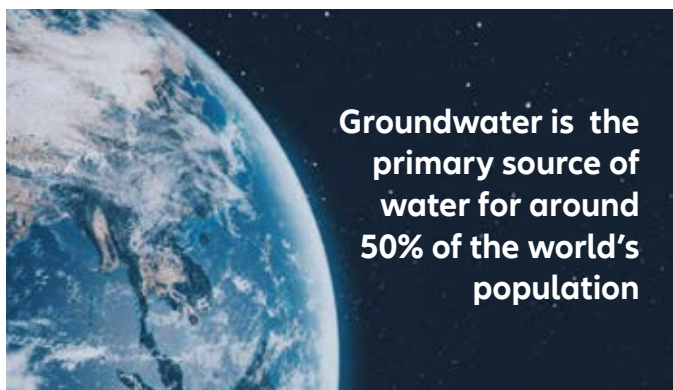
Demand for drinking water is growing worldwide due to population growth, changing dietary habits and rising living standards. Groundwater is the primary source of fresh water for almost half the world’s population but in many parts of the world reserves are being depleted faster than the natural cycle can replenish them. This “vicious circle” has a devastating impact on the environment, harming ecosystems and creating desertification.

Falling groundwater levels can also lead to seawater intrusion and land subsidence. According to a UNESCO report, more than 4 billion people are living in regions that are experiencing severe water stress<sup>1</sup>, defined as occurring when the demand for water exceeds the amount available during a certain period, or when poor quality limits its use. Significant investment in innovative solutions across the three key areas of water efficiency, water quality and water supply is essential to address global water stress and to safeguard groundwater and corresponding ecosystems.

### The one-trillion funding gap

The Organisation for Economic Co-operation and Development (OECD) estimates that the necessary investment to cope with this challenge will need to exceed USD 1 trillion (a number with 12 zeros) before 2030 if we are to ensure access to basic water needs and sound sanitation solutions.<sup>2</sup> This represents a significant increase from previous estimates of around USD 600 billion.

Clean water is strongly linked to a broad range of the sustainability issues connected to the other SDGs, including healthy living conditions, social balances and decent economic growth. Mitigating water issues supports the achievement of many other goals. According to estimates



from the World Health Organization (WHO), the overall global economic return on water spending is USD 2.00 for each dollar invested.<sup>3</sup> Creating universal access to sanitation could increase this to USD 5.50 per dollar invested – improving health conditions. This creates potential market opportunities for public and private stakeholders.

### Contamination and leaks

Groundwater is burdened by many issues: from overuse to pollution. For example, more than 80% of the world’s wastewater – and more than 95% in some developing countries – is still released into the environment without treatment.<sup>4</sup>

The contamination of groundwater due to a lack of separation of freshwater and wastewater disrupts the natural cycle. Modern wastewater treatment therefore aims to remove contaminants from sewage, generating effluent that is ready for discharge to the local environment or ready for reuse, thereby preventing water pollution from raw sewage. High-end ultraviolet (UV) equipment solutions, can kill germs in drinking water and enhance quality, while simultaneously making the use of chemicals redundant and lowering the energy used in the process of cleaning water.

The loss of fresh water because of issues within water infrastructure is another (unnecessary) burden on groundwater. In countries like the US or the UK, large parts of the water infrastructure date back more than 100 years. In the UK<sup>5</sup>, 3 billion litres of drinking water does not reach end-customers every day due to leaks. This is even more dramatic in the US, where the economic loss amounts to USD 9.6 billion every year<sup>6</sup>. Repairing this infrastructure is crucial from an ecological point of view as much as an economic one, creating attractive business opportunities for utility companies.

### Solutions for strained water systems

Industrial companies offer smart water meters, pressure sensors and network management software, providing critical information about the health of a water distribution network. In combination with artificial intelligence software, real-time data gives network operators the information necessary to identify risks, detect the exact locations of failed pipes, and reduce the real water losses without interrupting operation of the network.

Speciality engineering consulting companies leverage knowledge to create further overall benefits for society.

Due to the recent drought periods in California, the demand for recycled water has increased, and is actively supported by most cities and communities.

Considering prolonged periods of drought and severe water crises it is all the more important to identify and invest in companies that help to expand the performance of wastewater treatment plants with technologies like membrane bioreactors that increase a plant's water production in a cost-efficient way.

### **Agriculture's weight on water stress**

The agricultural sector places a significant burden on groundwater through the often-indiscriminate use of fertilisers, and the potential pollution from chemical run-off. The globally growing agricultural industry represents the largest chunk of global water demand (more than 70%<sup>7</sup>). Often, extensive farming happens in regions which are already water-stressed. In Europe, for example, the dry regions in the south of Spain are a prominent producer of fruit and vegetables for consumption in Central and Western Europe – relying heavily on groundwater. Accordingly, solutions which enable more efficient farming are powerful tools to mitigate water stress, protect groundwater sources and avoid desertification. Precision technology presents an

ideal solution for providing optimal irrigation with precision application, saving water compared to traditional flooding solutions and thus increasing output while conserving resources, and reducing waste. Precision agriculture enables a more accurate application of pesticides and herbicides. The more localised application means that only the necessary amount is used, instead of a widespread distribution, ensuring that significantly fewer chemicals end up in the soil, and that groundwater is less polluted.

### **Redirecting capital flows to sustainable water solutions**

With water scarcity spreading worldwide and with a rapidly increasing water use the structural imbalance between water supply and demand continues to widen. Although water spending is on the rise, and governments and corporates alike have begun to realise the need for urgent capital expenditure there is still a considerable mismatch between capital requirements and available funding.

Allianz Global Investors identifies companies that actively provide solutions to water scarcity and water quality issues, and which help to improve the sustainability of water resources. By investing in those innovators, we help redirecting capital flows to sustainable water solutions.

<sup>1</sup> <https://www.unwater.org/publications/world-water-development-report-2019>

<sup>2</sup> OECD: "Water-Growth-and-Finance-policy-perspectives", August 2016

<sup>3</sup> WHO: "Global costs and benefits of drinking-water supply and sanitation interventions to reach the MDG target and universal coverage", June 2012;

<sup>4</sup> World Bank: "Quality Unknown - The invisible water crisis", 2019;

<sup>5</sup> Discover Water, Water UK; England and Wales, Apr 2019 - Mar 2022;

<sup>6</sup> <https://sensus.com/solutions/leak-management>;

<sup>7</sup> UN Summary Progress Update March 2021: SDG 6 – water and sanitation for all.

Sources: AllianzGI, as at April 2022. The statements contained herein may include statements of future expectations and other forward-looking statements that are based on management's current views and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in such statements. We assume no obligation to update any forward-looking statement. A performance of the strategy is not guaranteed and losses remain possible. A security mentioned as example above will not necessarily be comprised in the portfolio by the time this document is disclosed or at any other subsequent date. This is no recommendation or solicitation to buy or sell any particular security.

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