BIG ISSUES

WATER

securing life's most precious resource for everyone

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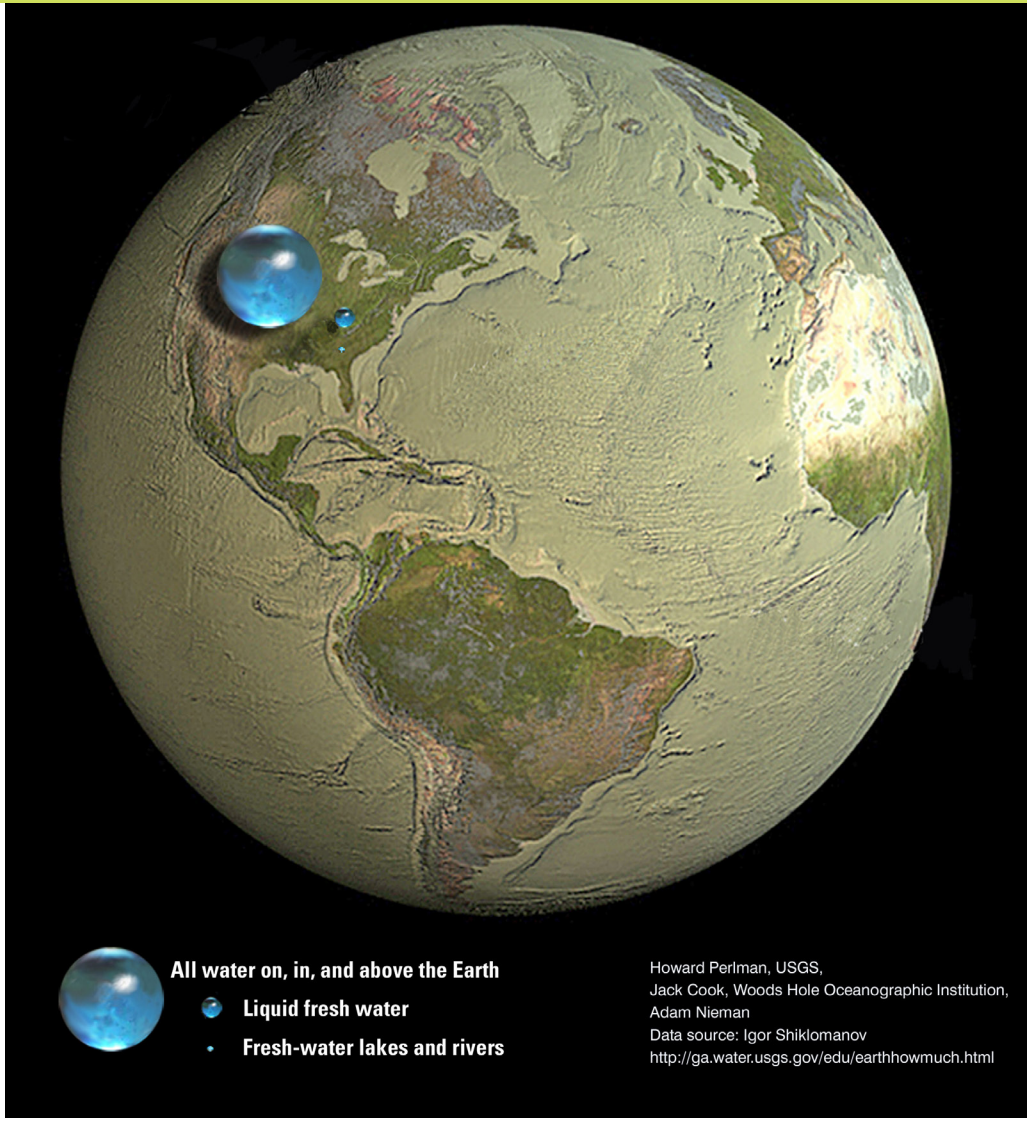
Lifeworlds Learning

BIG ISSUES: WATER

Water covers around 71 per cent of our planet's surface. This is why the Earth is often called 'the blue planet'. When it comes to water for human use however, the majortiy of this water (around 96.5%) is saltwater that is not suitable for human use. Only 3.5% is freshwater and most of this is deep underground (groundwater) or locked up in ice sheets and glaciers. Only 1% of the world's water is freshwater available for human use.

This 1% is not shared evenly and unequal access to water is a growing issue. Some people have all the water they could ever want, whereas others struggle to even get enough freshwater to meet their most basic needs. Around 2 billion people (25% of the world population) lack access to safe drinking water. This can cause various health issues. Water-related diseases and illnesses are the biggest cause of death globally. Population growth, urbanisation and competing demands for water from agriculture, industry and homes, mean that water issues are set to grow even more throughout the 21st century.

The United Nations has made clean water and sanitation one of its 17 Sustainable Development Goals - Goal 9 - but as a complex issue it also has clear connections with the other 16 SDGs (see other goals below).



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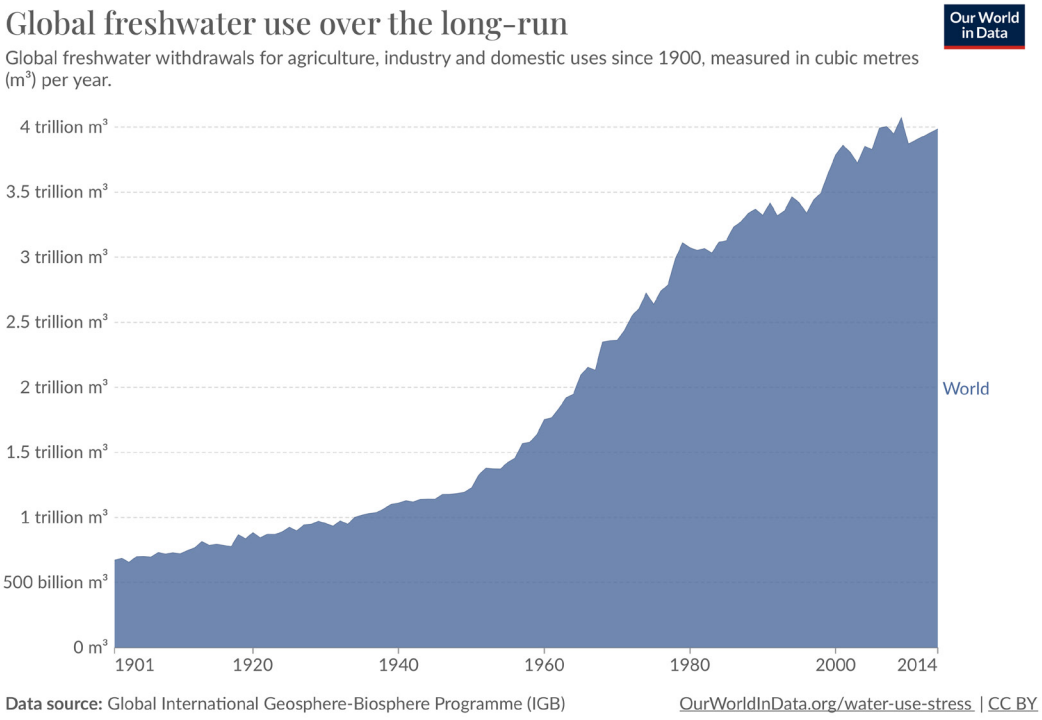
Water use

Between 1900 and 2014, the amount of freshwater used globally increased from 500 billion m3 to 4 trillion m3 per year (see graphic below) and this upward trend continues today.

At a global level, agriculture is by far the biggest user of water making up around 71% of global use, although this varies greatly by country. In low-income countries agriculture accounts for around 90% of the water they use compared to an average of 41% in high-income countries.



Global water use by major sector

Photos (top to bottom) by Louis Lo, Lenny Kuhne, Ricardo Gomez Angel on Unsplash

Industry accounts for 17% of global water use with high-income countries using the greatest share such as in Central and Eastern Europe where around 70% of water is used by industries. This compares to less than 2% of water used for industry in sub-Saharan Africa.

The water used by households makes up about 12% of global water use and is known as municipal water use. This includes the water that is used for everyday activities like drinking, washing, cooking and cleaning. China, as the most populous country has the highest domestic water demand.

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Water stress

Water stress is when the demand for fresh water is greater than the amount available. A region experiencing water stress may not be short of water, but may be withdrawing water at a rate faster than it can be replenished. This includes areas where desalinisation – converting sea water to fresh water – is used to meet demand.

A shortage of water supplies can be a serious problem affecting people's health, food supply, jobs, and energy security. In 2023, data showed that 25 countries faced extremely high water stress each year, regularly using up almost all of their water supply. Together, these countries are home to around 2 billion people or 25% of the global population. A further 2 billion experience water stress for at least one month of the year, meaning half the world's population live under some form of high water stress for at least part of the year.

Between now (2024) and 2050 the biggest change in global water demand is likely to be in Sub-Saharan Africa. Demand is growing rapidly there as the economies and populations of the region continue to grow rapidly. Most of this demand will be for agriculture and domestic use. Although the region does not currently experience high water stress there are concerns that inefficient supply and poor management could limit growth and increase water stress in the region.

Globally, a further 1 billion people are expected to be living under conditions of extreme water stress by 2050.

Irrigation like here in South Africa may increase water stress if not carefully managed.

Photo by Wynand Uys on Unsplash

One of the biggest contributors to water stress is water wastage. In agriculture it is estimated that around 45% of water is wasted through inefficient methods of irrigation (the application of water to crops). As well as wasting water, poor irrigation can lead to excessive water entering the ground and raising the groundwater level. As it does it brings up salts from deep in the soils that can contaminate the top (growing) layers of soil and leave the land useless for agriculture.

Water is also wasted in the industrial and municipal sectors both by end users and in the supply system. In the UK, around 3 billion litres of clean water is wasted every day to leaky pipes in the supply network. That is enough to fill 1,200 Olympic swimming pools and equivalent to 25% of the UK's daily average water consumption.

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Water and health

In 2022 at least 1.7 billion people were reliant on unclean drinking water that could affect their health. They are at risk of contracting diseases like diarrhoea, cholera, dysentery, typhoid and polio. Shortages of water can lead to a lack of hygienic practices such as hand washing which further adds to these problems.

Each year around 500,000 people die from diarrhoea which is largely preventable by regular handwashing with clean water.

Water can also become contaminated with chemical pollutants and microbes (from faeces) due to the poor management of urban, industrial and agricultural waste water. This can mean that even if water is available it is unfit for human use.

Open water sources can be another source of health issues as they can be a habitat for disease-carrying insects that live or breed in water. Diseases like dengue fever and malaria are spread in this way but can be reduced by covering water storage containers and having sealed boreholes rather than open wells.

The United Nations Sustainable Development Goal target 6.1 tracks the availability of 'safely managed drinking water services'. This means drinking water that is free from contamination and located in places where it is available as required. In 2022, 75% of the world's people used these services, but this leaves 2 billion for whom this goal and right (see box) has not yet been met.

Photo by Boundless South Africa on Flickr

Washing hands at a community borehole in Zambia.

A right to water

For something that is so essential to life, it may be surprising to learn that it was only in July 2010 that the United Nations General Assembly recognized the human right to clean water and sanitation.

This right means that all humans have a right to between 50 and 100 litres of water per day to meet their basic needs. This water should be available within 1000 metres of their home and take less than 30 minutes to collect. Water should cost no more than 3 per cent of household income.

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Water and peace

Where water is in short supply or unfairly distributed it can lead to tensions and even conflicts between individuals and communities. Water can also be used as a weapon during conflict with various parties using it as a way to gain control over territory and people, or purposefully damaging water infrastructure to cause harm. These kinds of attacks create serious health risks and are in violation of international humanitarian law.

As well as being a trigger for conflict, living with water stress can impact on people's ability to lead peaceful lives with implications for their health, wellbeing, livelihoods, and sense of community. Whilst the situation is serious, it is not completely insurmountable:

> *'...water stress doesn't necessarily lead to water crisis. For example, places like Singapore and the U.S. city of Las Vegas prove that societies can thrive even under the most water-scarce conditions by employing techniques like removing water-thirsty grass, desalination, and wastewater treatment and reuse. In fact, WRI research shows that solving global water challenges is cheaper than you might think, costing the world about 1% of GDP, or 29 cents per person, per day from 2015 to 2030. What's missing is the political will and financial backing to make these cost-effective solutions a reality.'*
>
> World Resources Institute

Solutions lie at all levels including: offering guidance to communities on how to protect their water sources, hygienic sanitation practices, investment in technology and infrastructure, and better, more ethical management practices.

The Covid-19 pandemic demonstrated that whilst there are times when a lack of resources can cause conflict, there are also many times when people come together in cooperation to meet their shortages. This sort of cooperation can actively promote more peaceful communities and improve lives and wellbeing for everyone. Achieving a world in which everyone has access to clean water will require peaceful and sustainable human relationships as much as technological solutions.

Water shortages in northern Kenya have been a cause of tensions between communities.

Photo by Tucker Tangeman on Unsplash

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Hidden water

When we think of water we often focus on the very visible water that we can see: the water we drink, cook or wash with. There is another form of water, known as hidden or virtual water, that makes up a huge part of our global water use and has significant implications for future water management.

This hidden water is the water used in the production or manufacture of things we need or want in our lives. **Almost everything we eat, wear or use depends on water** and so the choices that people make have a direct impact on the amount of water that is used. As incomes rise around the world so does consumption and our use of resources. The pressure on water resources from this hidden water is likely to increase significantly in coming years.

The amount of hidden water each of us uses will depend partly on our lifestyle choices. An apple for example, accounts for around 125 litres of hidden water, a large cucumber around 180 litres, and 500g of wheat uses around 650 litres in its production. Animal-based foods use significantly more water with a single burger or a large block of cheese accounting for around 2,500 litres.

Hidden water is not just in food products. There are around 8,000 litres used to produce a pair of jeans and 12,000 litres in producing a smartphone. A family car can require as much as 150,000 litres!

Photo by Ricardo Gomez Angel on Unsplash

A meat-based diet uses large amounts of hidden water.

Photo by Frans Ruiter on Unsplash

The import and export of hidden water

Another consideration with hidden water is its import or export through the trading of goods around the world. An apple exported from South Africa to markets in northern Europe for example, is using water from a country with relatively high water stress.

The trade in hidden water can impact total water availability in an area, and could also mean people are denied sufficient water to meet their own basic needs because it is used to produce goods for export instead.