EDITORIAL

Water: The Most Undervalued Resource on Earth

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In developed countries, due to common access to drinking water, the value of water is often underestimated. On the contrary, some nations suffer from water scarcity and struggle to obtain fresh water every day. For decades, due to increasing environmental impacts, the quality of water resources has been constantly deteriorating. Moreover, only 3% of global water resources are considered as freshwater, of which 23% are surface and ground waters, which in total means that only 0.3% is available for consumption (U.S. Geological Survey, 2019). Water use differs between regions of the world, but in general, it is driven by agriculture, manufacturing, energy industry, mining, services and public supply. In developed countries, households use less than 5% of water for drinking or cooking while in some developing countries water use for consumption needs reaches 100%. It has been estimated that by 2025 approx. 2.8 billion people will suffer from water scarcity due to high water stress and lack of sustainability in water use and by 2050 half of the global population will live in water-stress regions (United Nations, 2015).

This is why the monitoring of water use efficiency is so important and one of the methods for its assessment is to calculate the water footprint. The water footprint is a measure that indicates how large volume of water is used for producing goods, services and consumption per capita annually. The United States, Greece and Malaysia have the highest water footprint globally (>2300 m3/capita/year) mainly due to climate conditions and the size of agricultural and industrial sectors. Food and textiles production are considered to have the highest water footprint (m3 of water/ton) among the produced goods. However, the cultivation of rice, wheat and maize have the highest water consumption (Hoekstra & Chapagain, 2008).

Additionally, the pressure on renewable freshwater resources is described by the water exploitation index (WEI) which is the difference between water abstractions and water return divided by renewable water resources in an analysed region (Fan et al., 2018). Seasonally, there are significant differences in many countries in terms of WEI, and even countries that are not considered as being at risk of water scarcity observe water deficits such as north-western Germany, eastern Poland, northern-eastern France and Belgium.

However, the actual value of water resources is also decreased due to its pollution. The water environment is receiving almost all human-known substances that for years have accumulated in water bodies and are present in the water cycle. Eutrophication, acidification, exposure to toxic heavy metals, pharmaceuticals, micropollutants and other contaminants of emerging concern are currently the most serious factors that have decreased the water quality and resulted in increased water purification costs and its availability for consumption. Even though there are currently available technologies to treat water and wastewater even to very high quality, the economic costs, greenhouse gases emissions and other environmental impacts of these processes make it environmentally unreasonable (Schaubroeck et al., 2015). Therefore, water availability value as a resource that is necessary to maintain life on Earth will rise in the coming decades. The question is for how long the water ecosystem will be able to stand the anthropogenic pressure and when it will be too late to save the critical freshwater resources for the most important humankind needs.

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