

# SDG 6: Clean Water and Sanitation

University of Applied Sciences Burgenland



# 6 CLEAN WATER AND SANITATION



SUSTAINABLE  
DEVELOPMENT GOALS

**Interpretation of  
clean water and  
sanitation**



## Main goal: to ensure availability and sustainable management of water and sanitation for all

Not everywhere in the world does water come straight from the tap. Around 2.5 billion people have no access to toilets and around 750 million lack clean drinking water. Water is vital for survival and dirty water is often the cause of diseases. Access to clean water is a human right and therefore, the United Nations advocate fair supply of clean drinking water for all. To this end, the sewage disposal is to be improved, the pollution from chemicals and waste reduced, and thus the water quality increased. In many countries, in particular where temperatures are rather hot, water is a scarce and precious commodity.

# The problem with access to water



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## Fresh Water:

Climate change is warming the planet, causes extreme weather conditions and clouds to move from mid-latitudes towards the North and South poles — creating huge implications for agricultural production, industrial and energy output, and municipal water provisioning.

At the same time, water demands increase due to population and economic growth, particularly in the emerging markets such as China or India. Growing incomes also exacerbate the water problem, because of the water-intensive products — like meat, and energy from fossil fuels — that richer populations demand.

About 30% of pristine freshwater lies deep underground in aquifers. This groundwater is being extracted, daily, for farming, drinking and industrial processes — often at dangerously unsustainable rates. Fresh water has been completely depleted in many of the dry and hot areas around the planet.

Source: [wri.org](http://wri.org)

*"I read that people can go without food for about three weeks but would typically only last three to four days without water. In the western world, we don't think about the effort that goes into having clean fresh water simply available when we turn on the faucet."*

Source: [businessinsider.com](http://businessinsider.com)

Did you know that the world population will have grown to almost 10 billion people by 2050? How can the planet satisfy their thirst?

Source: [wri.org](http://wri.org)



# The problem with water sanitation



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## Unsafe Water:

Having enough water to go around is only the beginning. That water also needs to be transported, treated, and discharged. Around the world, water infrastructure — treatment plants, pipes, and sewer systems — is in a state of disrepair. In very poor areas there is no infrastructure at all. These scenarios are presenting serious health risks and challenges for accessing fresh water.

Healthy ecosystems are “natural infrastructure” and vital to clean, plentiful water. They filter pollutants, buffer against floods and storms, and regulate water supply. Plants and trees are essential for replenishing groundwater; without them, rainfall will slide across dry land, instead of seeping into the soil. Loss of vegetation from deforestation, overgrazing and urbanization is limiting our natural infrastructure and the benefits that it provides. Forested watersheds around the world are under threat, having lost up to 22% of their forests in the past 14 years.

Source: [wri.org](http://wri.org)



*„I recently learned about the importance of wetlands for providing habitats for plants and animals, and for protecting the land from floods and how they improve the water quality.“*

2.2 billion people do not have access to clean water at home. 2.3 billion people lack access to basic sanitation services, such as toilets or latrines. Every day, more than 800 children under five years of age die from diarrhea caused by dirty water.

Source: [oxfam.org](http://oxfam.org)

# The problem with waste water



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## Water Waste:

Although it's true that water is a renewable resource, it's often wasted. Inefficient practices like flood irrigation and water-intensive wet cooling at thermal power plants use more water than necessary. What's more, as we pollute our available water at an alarming rate, we also fail to treat it. About 80% of the world's wastewater is discharged back into nature without further treatment or reuse. In many countries, it's cheaper to receive clean drinking water than to treat and dispose of wastewater — encouraging water waste.

Globally, water is seriously undervalued. Its price does not reflect the true, total cost of service, from its transport via infrastructure to its treatment and disposal.

Source: [wri.org](http://wri.org)



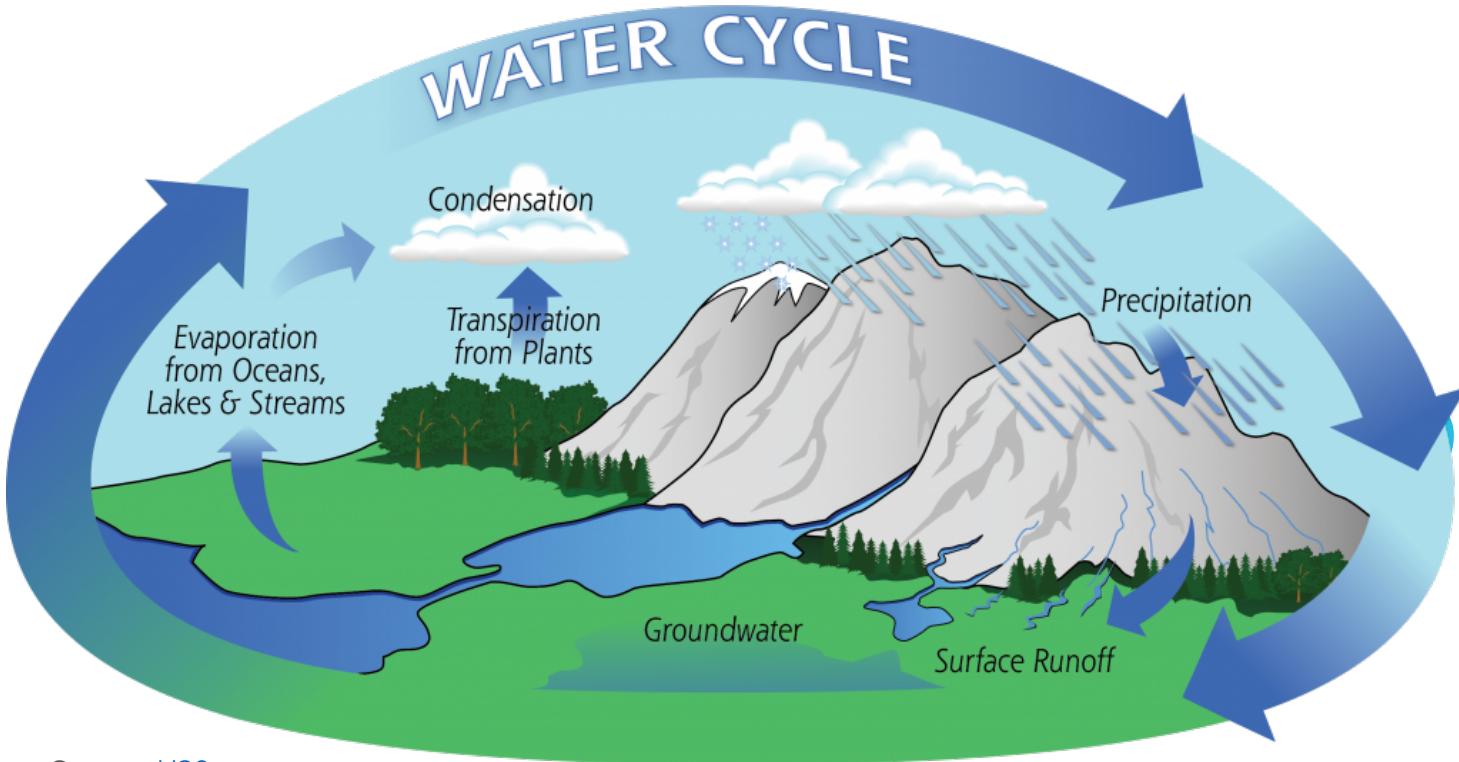
*"I once asked our biology teacher how long it takes nature to replenish the water I use for showering. She said that my city water is extracted from the Floridian aquifer and that it takes a drop of water 300 years to make it through the various layers in the ground until it reaches the aquifer, completely clean. This made me think about how many drops of water it takes for one shower and how I am wasting pristine fresh water for a task that could easily use wastewater, not even to mention watering the yard or washing my car. Something to ponder over..."*



Did you know that there was a 24% decrease in renewable water resources per capita across Europe between 1960 and 2010, particularly in southern Europe? Water scarcity is frequently experienced in the southern and western parts of Europe.

Source: [eea.europa.eu](http://eea.europa.eu)

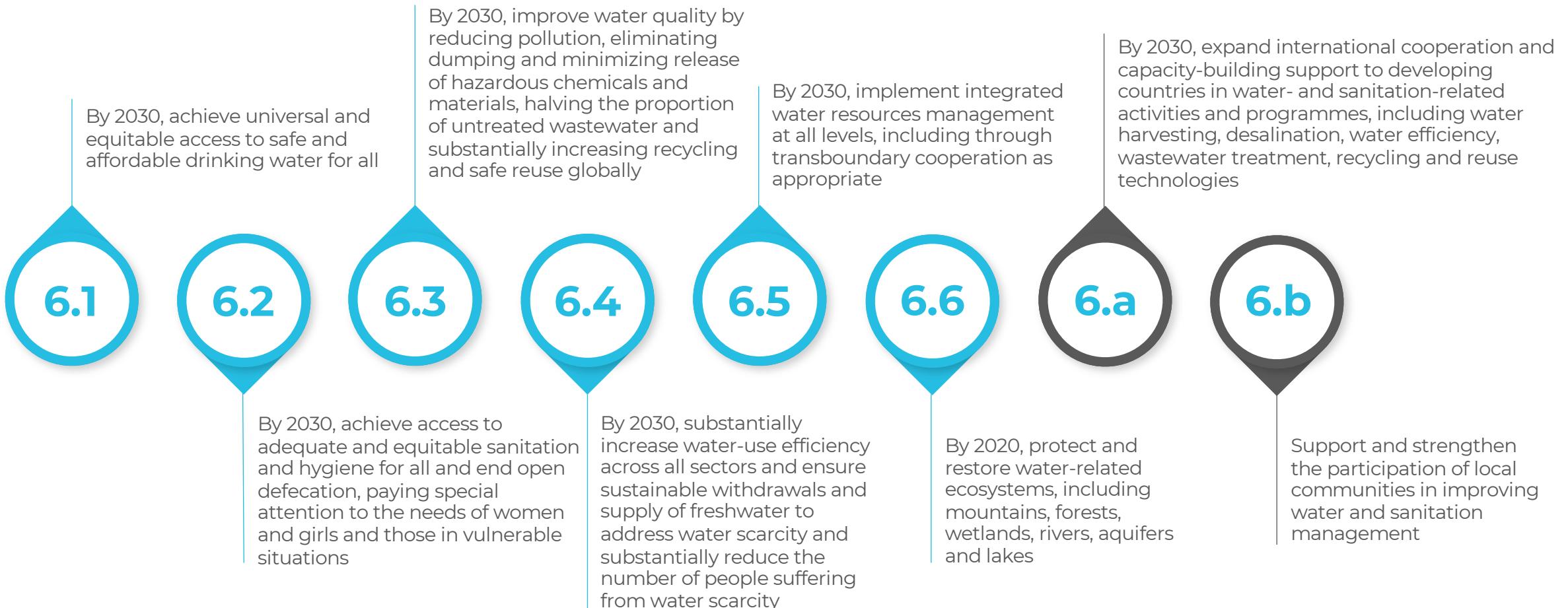
# Model: the water cycle



Did you know that on average water in the atmosphere is renewed every 16 days? Soil moisture is replaced about every year. Globally, waters in wetlands are replaced about every 5 years while the residence time of lake water is about 17 years. In areas of low development by society, groundwater renewal can exceed 1,400 years.

Source: [H2Ocare.com](http://H2Ocare.com)

# Subgoals: targets and measures



Source: [bundeskanzleramt.gv.at](http://bundeskanzleramt.gv.at) and [un.org](http://un.org)

Targets = Numbers, Measures = Letters

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**Current state of  
water issues**

# Report 2020

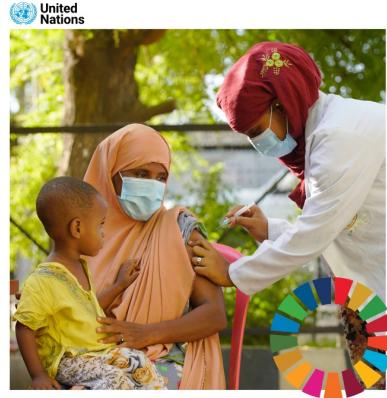
## The Sustainable Development Goals Report 2020



Source: [un.org](https://un.org)



## The Sustainable Development Goals Report 2021



Source: [un.org](https://un.org)



## ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL

BEFORE COVID-19

### DESPITE PROGRESS, **BILLIONS STILL LACK** WATER AND SANITATION SERVICES



2.2 BILLION PEOPLE  
LACK SAFELY MANAGED  
DRINKING WATER  
[2017]



4.2 BILLION PEOPLE  
LACK SAFELY MANAGED  
SANITATION  
[2017]

### COVID-19 IMPLICATIONS



3 BILLION  
PEOPLE WORLDWIDE  
LACK BASIC HANDWASHING  
FACILITIES AT HOME  
↓ ↓ ↓  
THE MOST EFFECTIVE METHOD FOR  
COVID-19 PREVENTION



TWO IN FIVE  
HEALTH CARE FACILITIES  
WORLDWIDE HAVE  
NO  
SOAP AND WATER OR  
ALCOHOL-BASED  
HAND RUB  
[2016]



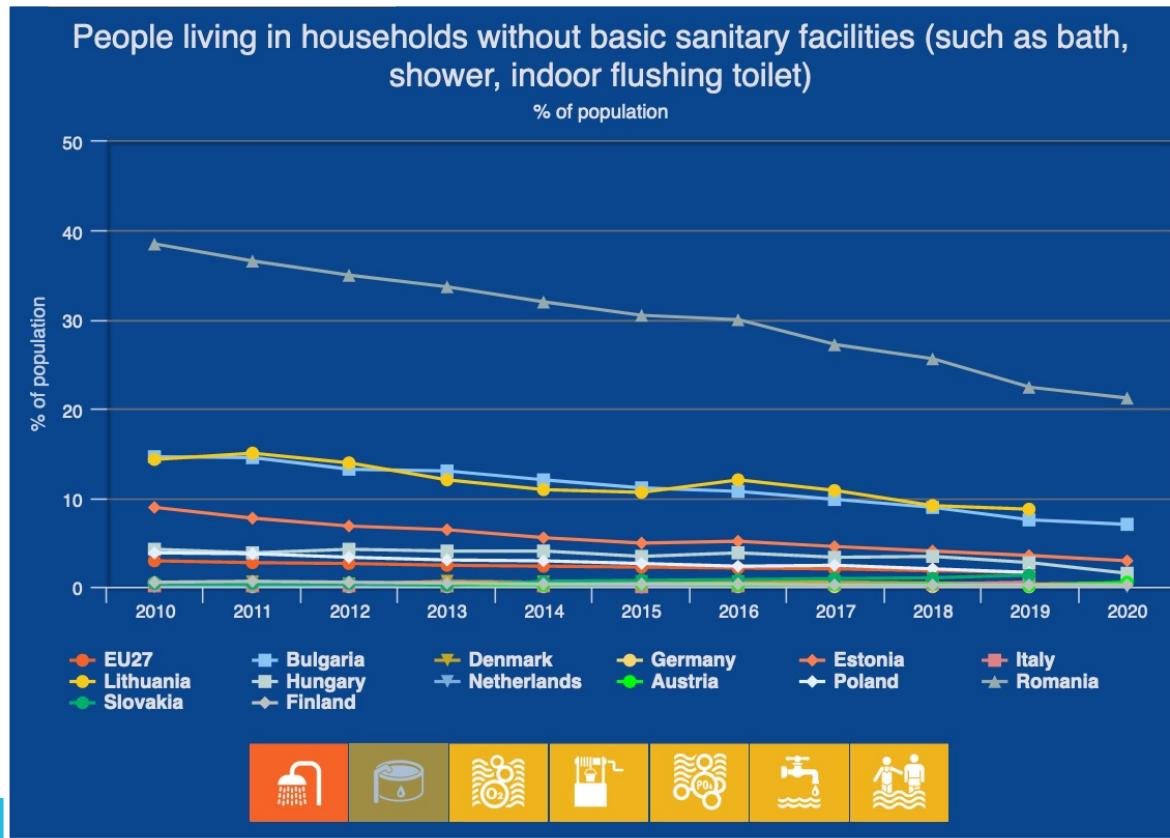
WATER SCARCITY  
COULD DISPLACE  
700 MILLION PEOPLE  
BY 2030



SOME COUNTRIES EXPERIENCE  
A FUNDING GAP OF 61% FOR ACHIEVING  
WATER AND SANITATION TARGETS

Source: [un.org](https://un.org)

# Some European statistics



Source: [ec.europa.eu](http://ec.europa.eu)

Did you know that about 20% of Romanian households live without basic sanitary facilities?

Source: [ec.europa.eu](http://ec.europa.eu)

*"When I was a child, I remember that we bathed only once a week, that the water was heated in a kettle in the shed and brought in buckets to the wooden bathtub by my father. I was the first to bathe in the water, then the rest of the family had their turns, one by one, all in the same water. I cannot imagine such life for myself today. We have really come a long way!"*



# Implementation in Austria as of 2020

Target	National indicators (selected)	Trend
6.1	TARGET: Universal access to safe drinking water	✓
6.2	Proportion of population having neither a bath, nor a shower, nor a toilet in their household	✓
6.3	Population connected to a municipal wastewater treatment plant with at least secondary treatment	↗
	Biochemical oxygen demand in rivers	:
	Good water quality in all bodies of water	:
	Biological status in terms of the pollutant load in rivers	:
6.4	Water stress	:
	Water use	:

Source: Statistics Austria. 8-year trend 2010–2018 (if figures missing, at least 7-year trend) in 4 categories (↑↗↘↓) if there is a clear target (quantitative/normative); ✓ (part of the) indicator target achieved; : calculation of trend not possible. More information about methodological questions can be found in the National Indicator Report 2020.

- > Austria provides secure access to safe and affordable drinking water.
- > Only just under 1% of Austrian households do not have a bath, shower or toilet in the home.
- > The connection rate to municipal wastewater treatment plants increased from 93.9% (2010) to 95.2% (2018); 4.8% is disposed of via septic tanks or similar.
- > Water quality indicators demonstrate the good status of surface water bodies.
- > Austria uses only 3% of its available water resources.

Source: [bmk.gv.at](http://bmk.gv.at)

Did you know that drinking water is obtained entirely from groundwater (springs and wells) in Austria? 90% of the population are supplied with drinking water by centralized water supply facilities. The remaining 10% of the population obtain their drinking water from their own domestic wells and springs.



# Main issues to solve in Austria as of 2020



Water shortages and droughts in some areas



Increase of extreme weather conditions and dwindling wetlands



New challenges with maintaining very high quality of wastewater facilities and sanitary infrastructure



Did you know that the indicator for the biochemical oxygen demand in rivers gave a value of 1.34 mg O<sup>2</sup> / L for Austria in 2015? In the EU28, the value for 2015 was 2.0 mg O<sup>2</sup> / L.

Source: [bmk.gv.at](http://bmk.gv.at)

*"I am so glad and proud that we are continuously listed among the countries with the very best drinking water. We even won the European Water Award in 2020!"*

Source: [wetapwater.com](http://wetapwater.com)

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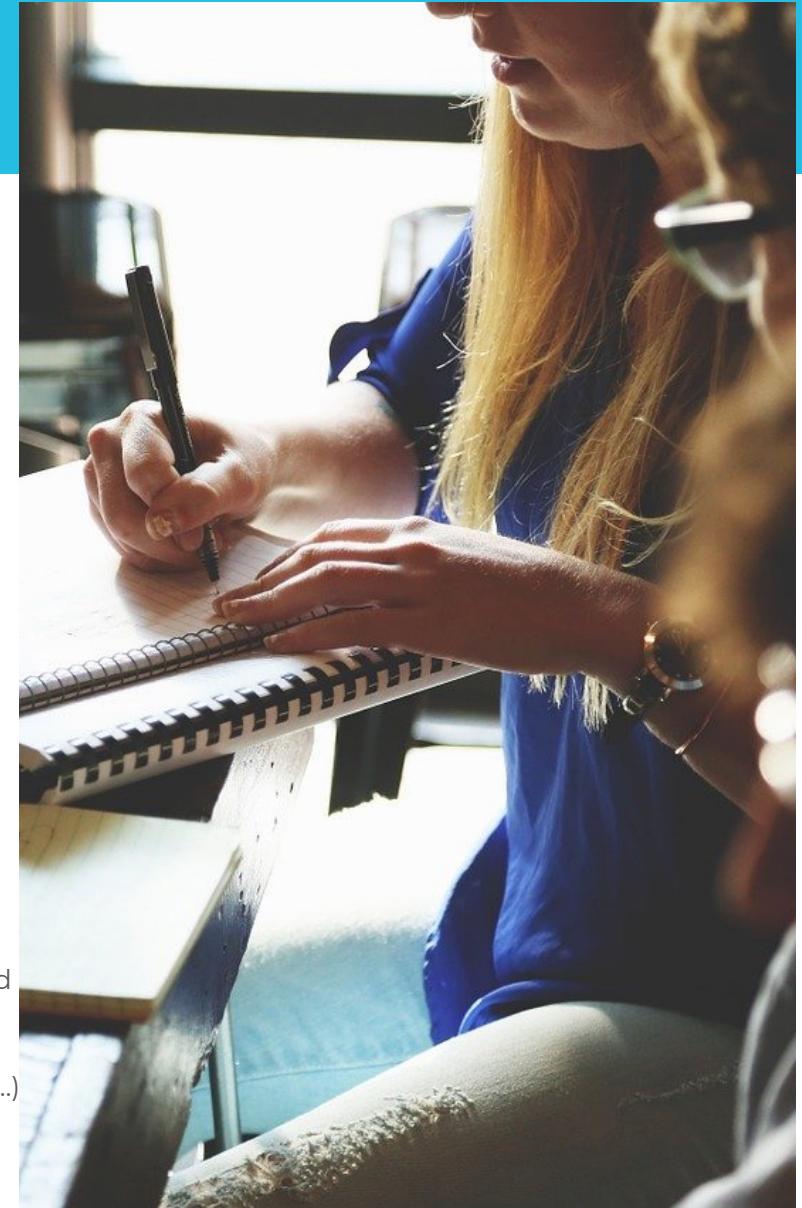
**Potential  
contributions  
Learning activity**

# Before thinking about potential contributions...

- Imagine an organization (business).  
What is the core purpose of this organization\*?
- Who are this organization's internal and external stakeholders?
- How do “water shortages and other related challenges” impact this organization?
- On the other hand, what opportunities and/or benefits arise?
- With all this in mind, what contributions\*\* might this organization make to reach SDG 6 within its sphere of influence via inward and outward actions?

\* Meant here are all sizes, all types

\*\* Consider contributions inside the organization (referring to everything that is a resource to the organization and directly or indirectly controlled by the organization, for instance, human resources, know how, monetary and material resources) and the outside of the organization (referring to everything outside of the organization that it can influence but lies outside of its control, for instance, policy change, partnering with other organizations, etc...)



# Potential contributions by educational institutions

The purpose of educational institutions is to educate and train for life and for particular professional interests.

In terms of SDG 6, the tasks lie in teaching the value of water, informing about the challenge of maintaining wastewater treatment and sanitary facilities, and facilitating discussions about wasting water unnecessarily.

Did you know that the Federal State of Styria (Austrian Province) is implementing the goals of sustainable water management and environmental education with its 'Wasserland Steiermark' project, raising young people's awareness of water as a vital resource and the associated ecosystems by means of activity days, practical workshops and teaching materials for schools throughout Styria?

Source: [bmk.gv.at](http://bmk.gv.at)



# Potential contributions by educational institutions, cont.

## Potential inward actions:

- teach students about sustainable water management and the real value of water
- encourage consumption of drinking water on campus, provide drinking fountains for refilling bottles (instead of soft drinks loaded with sugar)
- encourage and role-model sensible water usage (events, lectures, etc...)

## Potential outward actions:

- collaborate with other institutions on water projects that teach the value of water
- support countries where access to safe water is critical (research projects, support student initiatives, etc...)
- engage in and/or collaborate on wetland projects in the region and on studies for wastewater usage

# Potential contributions by municipalities

The purpose of municipalities is to plan, manage, and improve public work and services to the community. In terms of SDG 6, the tasks lie in guaranteeing access and availability of safe water, providing secure sanitary infrastructure and wastewater management

## Potential inward actions:

- offer public events that allow the community to learn about their (waste-) water treatment methods and possibilities to contribute to more clean water in the region
- create/maintain/nourish local mini-wetland areas and/or projects
- send water managers to schools to teach the young about the local water management system and ways to take care of water in the region

## Potential outward actions:

- engage with universities to explore new and efficient (natural) methods for wastewater management
- collaborate with other municipalities on educational efforts to teach people about the value of water and its sensible usage
- co-initiate an annual "water day" in the region and partner with neighboring towns to offer tours of your (continuously improved) wastewater facilities



*"We worry about the water level of our lake every year. It's the major tourist attraction in our region, and the level is sinking more and more every summer – endangering the livelihood of the tourist industry in our area."*

# Potential contributions by corporations and other organizations

The purpose of for-profit organizations (i.e. business) is to provide a service in exchange for resources (i.e. money). The purpose of non-profit organizations is to impact society in a certain way. Both need to generate and/or collect adequate resources to pay for their operations and activities and/or make profit.

In terms of SDG 6, the opportunities for contribution may vary greatly between different types or sizes of organizations, but their core contribution to society for reaching SDG 6 is to provide safe water and ways for employees to participate in sustainable water usage; in organizations that produce goods and services, it is important to also role-model sustainable water usage and management.

Did you know that the total water use by the manufacturing industry in the EU varied from 193m<sup>3</sup> per inhabitant in the Netherlands (2018 data) to 4m<sup>3</sup> per inhabitant in Cyprus (2017 data).

Source: [ec.europa.eu](http://ec.europa.eu)



# Potential contributions by corporations and other organizations, cont.

## Potential inward actions:

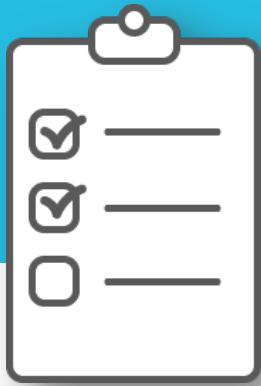
- install digital systems that allow users to see how much water they are using, and measure water usage overall
- run campaigns and creative activities inside the organization that encourage users to save water and keep it clean
- encourage health-inducing actions that lead to valuing water as a precious good (safe cleaning products, supply chain check, etc...)

## Potential outward actions:

- co-organize initiatives with other organizations that teach about the value of water and the need to not waste it (i.e. competitions)
- support water projects in countries where water issues are critical
- negotiate reduced rates for employees who install digital systems in their homes that help manage water more sustainably



*"I will choose my new job based on what the company stands for and what contributions it makes to society. It's important to me that the company operates on sustainability-oriented purpose, that management is honest and supports projects to mitigate water waste in my country."*



# Activity: potential contributions by an organization of your choice

The purpose of xyz organization is to....

In terms of SDG 6, potential contributions by xyz organization might be:

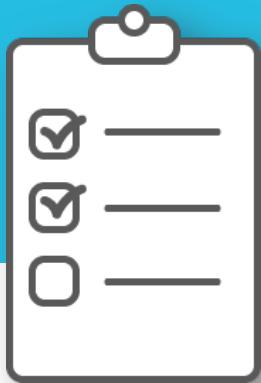
Potential inward actions:

Potential outward actions:

How do inward and outward actions interact and impact each other?

Are partnerships necessary for the desired impact?





# Activity: checking design of potential contributions

Returning to the opening questions:

- In which ways do the designed actions support the core purpose of xyz organization?
- In which ways do the designed actions serve the internal and external stakeholders of xyz organization?
- What balance between costs vs. benefits (or challenge vs. opportunity) can be noticed for xyz organization in terms of “impact of water and sanitation issues” upon this type of organization?
- How do the designed inward and outward actions cohere and create synergy for xyz impact?



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**Reflection and  
resources  
Learning activity**

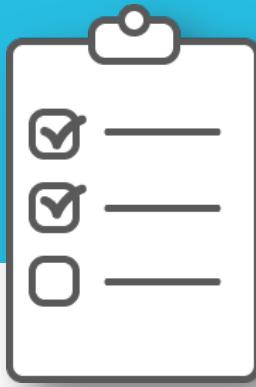
# Reflection and some resources

- What is the importance of water for human life and nature? Why should we care?
- Do you know water-related statistics of your country?
- In which ways and when do you pay attention to your own water usage?
- When you think about the real value of water, what would you be willing to pay for it?
- How might countries where water issues are not critical help other countries with their water-related challenges?

## Further Infos:

- [SDG definition of the UN](#)
- [Water Science School](#)
- [Clean water and sanitation: facts and solutions \(One Drop Foundation\)](#)
- [Summary of an ecosystem \(Sciencing.org\)](#)
- [The World's Water \(usgs.gov\)](#)
- [Water Footprint](#)
- [SDG Report 2021](#)





# Activity: SDG journey

- > Put your SDG glasses on and observe your environment under the SDG 6 umbrella for a week and find evidence for sensible water usage and/or water wasting. Find out about the wastewater treatment methods in your town. Reflect upon how your country compares to others concerning access to clean water and sanitation.
- > If appropriate and allowed, take pictures of the found circumstances and catalogue the photos (begin making a scrapbook) — they will lead to a final assignment at the end of the series. Before you venture out, it might be a good idea to inform yourself about legal responsibilities when taking photos of people: [oesterreich.gv.at](http://oesterreich.gv.at) (If you are not in Austria, look for the regulations of the respective country!)

Possible resource for online scrapbook (free for classrooms and non-profits): [canva.com](https://canva.com)



*"Do you know 3 people/families that have special water treatment or tracking systems built into their homes.  
Why have they invested in such systems?"*

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# Sources

Slide 3:

- <https://germanwatch.org/en/node/14072> (download Arbeitsblätter)

Slide 4:

- <https://www.wri.org/insights/7-reasons-were-facing-global-water-crisis>
- <https://www.businessinsider.com/how-many-days-can-you-survive-without-water-2014-5>

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Slide 6:

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Slide 7:

- <https://h2ocare.com/water-filtration-systems/>

Slide 8:

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- <https://www.canva.com/>

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