

**INTERSESSIONAL PANEL OF THE UNITED NATIONS COMMISSION
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Contribution by Austria

to the CSTD 2022-2023 priority theme on “Ensuring safe water and sanitation for
all: a solution by science, technology and innovation”

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PRIORITY THEME 2: Ensuring safe water and sanitation for all: a solution by science, technology and innovation

What are the concrete challenges that your country has encountered in managing water and sanitation and providing access for all to these services?

The major challenges in Austria are to find and develop further, previously unknown, regenerative groundwater deposits and to support the regeneration of groundwater, e.g. by unsealing soil.

1. What projects/policies has your country implemented to use the above-mentioned range of technologies and innovations or other STI, including frontier technologies (e.g., AI and drones) to address these challenges? What are the main outcomes? What are the main difficulties confronted while trying to implement these projects/policies? Pls. include the gender dimension.
2. Can your country provide examples of policies/projects/initiatives aimed at strengthening national STI capabilities in managing water and sanitation for ensuring their access by all population in your country? One example is what institutional and regulatory arrangements are in place to stimulate R & D and innovation in managing water and sanitation for access by all.
3. Could you share case studies of regional and international cooperation that have helped your country in strengthening STI capacities? Can you provide success stories in this regard?

Sustainable water supply: acquisition of groundwater reserves:

Resources in Austria that have not yet been questioned and considered “safe”, such as the occurrence of groundwater, can react to climate change in a complex way, both in terms of availability and water quality. If sustainable groundwater supply for the population is to be made plannable under the influence of climate change, hydrogeology needs a stronger climatological reference. The bundling of meteorological-climatological with geological-geophysical competence, as in the newly established GeoSphere Austria, an institution that will start operations in 2023 after the merger of the Geological Survey of Austria (GBA) and the Central Institute for Meteorology and Geodynamics (ZAMG), thus contributes to strengthening social resilience in Austria. When it comes to method development, the GBA focuses on the field of geoelectrics and is one of the world's leading research teams. Geoelectrics measures the electrical resistance of the subsoil, which as one of the main parameters depends on the water content of the subsoil. Thus, lateral and temporal changes in the water flow in the subsoil can be measured. So, geoelectrics can be used in all those areas where knowledge of the subsoil water supply and its changes is relevant: demarcation of landslide areas, early warning systems, groundwater exploration, monitoring of flow movements (using fed-in salt tracers) and permafrost, tightness monitoring of dams, verification of effectiveness of irrigation processes and many other applications. The geoelectric methodology is normally used together with additional sensors such as automatic movement sensors but also weather stations. Here in particular, the intersection of weather and climate data with subsoil saturation data results in great potential for innovation, especially when assessing the effects of climate change on the future availability of groundwater resources.