

Water quality and geothermal projects

POLICY BRIEF

The GEOENVI project identified the need for a harmonised regulatory framework to prevent and manage any potential environmental effects on **underground and surface water resources** from deep geothermal projects in Europe.

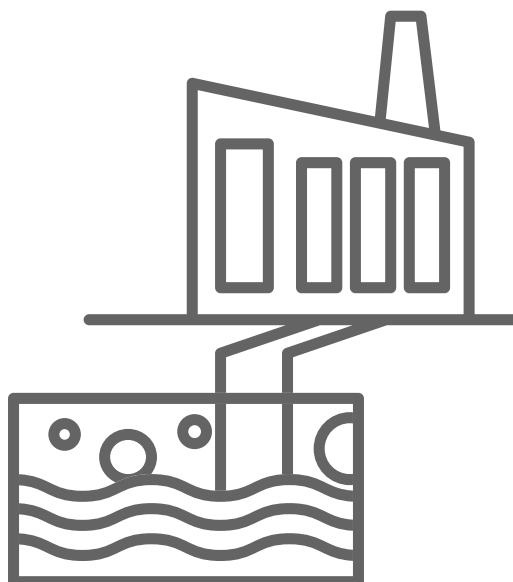
CURRENT CHALLENGES

A geothermal project could **interfere with the water resources** in the following ways:

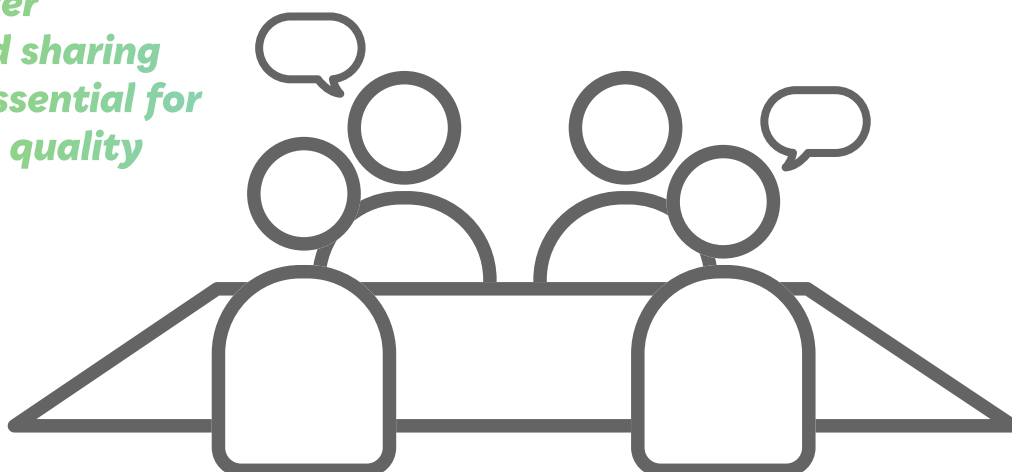
- **Inexpert drilling** which could potentially lead to a **connection of non-targeted aquifers** via the wellbore;
- **Excessive exploitation** of geothermal fluids which could **modify the reservoirs' physio-chemical character**;
- The chemical and temperature character of surface and groundwater could be affected by **discharges** of geothermal water into the ecosystem **and reinjection of fluids** after production.

Although well-regulated in the EU Water Framework Directive and associated legislation, the **water management practices**, monitoring guidelines and technical prescriptions **differ** in the Member States. Since there are good practices to be shared, **harmonised approach should be adopted**.

Geothermal projects could interfere with water resources



Harmonising water management and sharing good practices essential for protecting water quality



RECOMMENDATIONS



Sharing and adopting best practices regarding well design, monitoring, control, and abstraction limit. Harmonised guidelines and procedures to evaluate and control wells would make an improvement to current practices which rely on the operators' expertise.



Making evidence of water monitoring and control available to the public. The data should be available to experts, e.g., national observatories, geological surveys, and the general public, adopting an Open Data Policy, which will increase the transparency of the operation.



Enforcing control of aquifers. Monitoring of aquifers' quality (e.g., chemical and temperature control) and quantity (e.g., groundwater levels) and data sharing should be an established good practice to be organised at the local level.



Evaluating the medium and long-term behaviour of the geothermal reservoir status.



Where surface discharge is allowed, **frequent monitoring and harmonisation of temperature and chemical thresholds** for geothermal water should be established.



Executing reinjection of fluids for minimising the reservoirs' depletion and avoiding chemical and thermal impacts on surface ecosystems.



Harmonising the chemical classification for the toxicity of inhibitors in Europe and among sectors (e.g., oil and gas).

KEY TAKEAWAYS

In order to protect water resources, the related policies must harmonise the approach to monitoring and integrity of wells, and control of aquifers. An environment of trust must be created, in which the **public has access to key data** and information.

Best practices must be shared among the countries to create deeper synergies in their water management, including on cooperation of various administrative bodies.



Detailed overview of the recommendations and countries comparison can be accessed [here](#).

Contact: Annamária Nádor
Mining and Geological Survey of Hungary
nador.annamaria@mbfsz.gov.hu



Coordinated by: EGEC
com@egec.org



<https://www.geoenvi.eu>

G E O E N V I

This policy brief is part of a series conducted in the framework of the GEOENVI project. Its aim is to respond to the need for harmonisation of environmental regulations and to address concerns about potential environmental effects of geothermal projects in Europe. GEOENVI strives to facilitate the incorporation of geothermal strategy in Europe's energy transition, while respecting sustainability and creating a robust strategy to answer environmental concerns. The project developed a unique Life Cycle Assessment methodology for evaluating geothermal projects.



GEOENVI has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 818242