

Clean water in Danish taps

Open the tap in any Danish home and have a sip. This is some of the cleanest water available and a result of more than 30 years of intensive water management in Denmark, including strict regulation, planning, monitoring and incentives to reduce water consumption. Based on almost 100 per cent unpurified groundwater this is a story of success, but there are many challenges along the way.

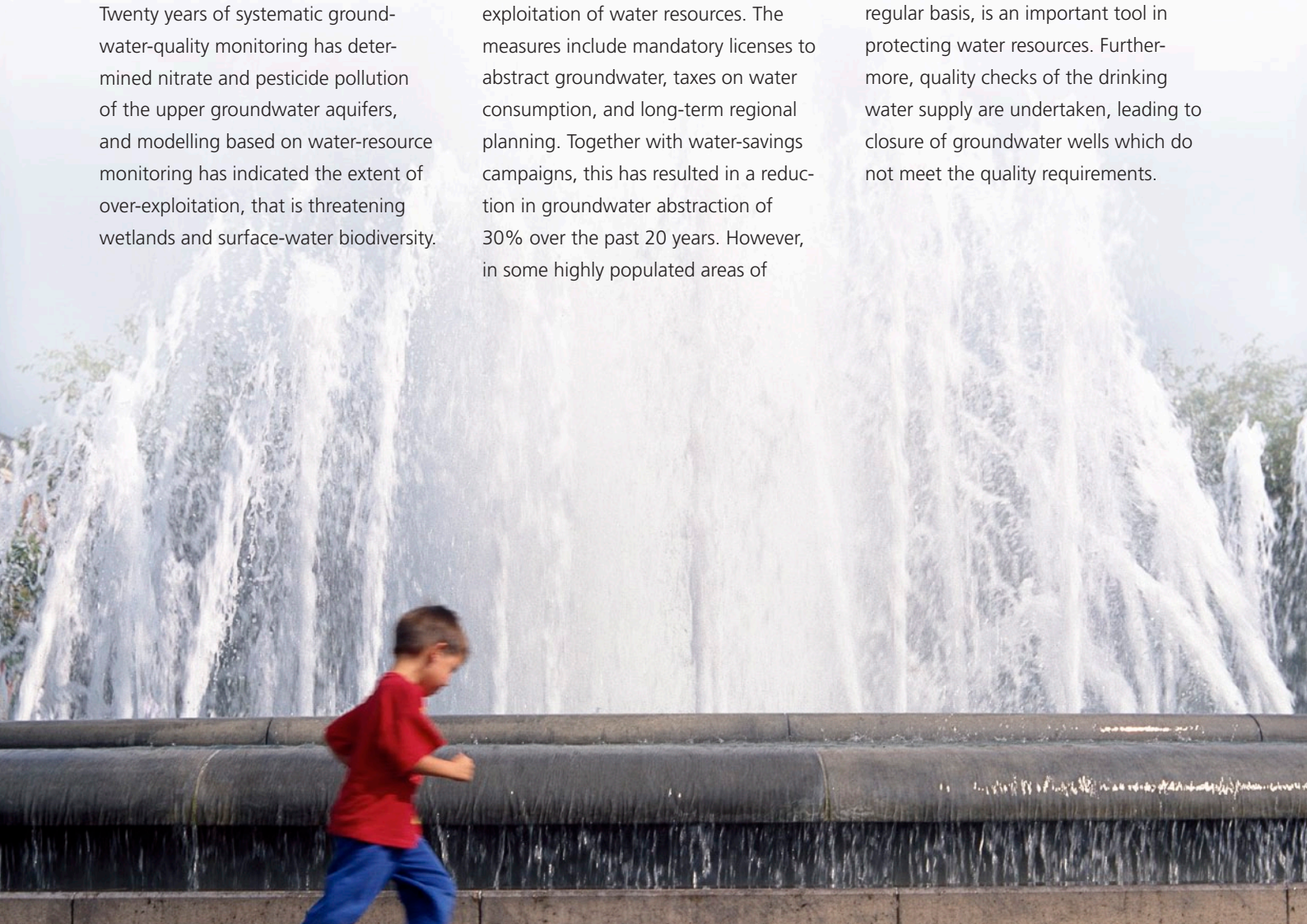
Due to its climate, geography and geology, Denmark has a unique source of accessible groundwater which today provides all of Danish drinking water. Over the past 50 years, the groundwater has been under pressure from among other things soil pollution, pesticides, nitrate seepage and over-exploitation. Twenty years of systematic groundwater-quality monitoring has determined nitrate and pesticide pollution of the upper groundwater aquifers, and modelling based on water-resource monitoring has indicated the extent of over-exploitation, that is threatening wetlands and surface-water biodiversity.

However, strict regulation of the agricultural sector, industry, waste deposits and oil tanks, as well as clean-up projects at old chemical waste deposits have reduced the threat from this pollution.

Strict regulation has also played an important role in preventing over-exploitation of water resources. The measures include mandatory licenses to abstract groundwater, taxes on water consumption, and long-term regional planning. Together with water-savings campaigns, this has resulted in a reduction in groundwater abstraction of 30% over the past 20 years. However, in some highly populated areas of

Denmark the water balance is still being over-exploited.

The solid base of knowledge from e.g. mapping water resources and systematic monitoring of groundwater quality, including measurements of up to one hundred chemical parameters on a regular basis, is an important tool in protecting water resources. Furthermore, quality checks of the drinking water supply are undertaken, leading to closure of groundwater wells which do not meet the quality requirements.



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Technology and better prices show the way forward

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- The Danish water authorities have optimised overall planning and protection of the groundwater and Danish authorities as well as companies have developed several new technologies and competencies

which have contributed to the solutions. These include:

- surveillance and mapping of the groundwater resources,
- water saving,
- supervision of the water pipes,
- measurement of water usage,
- optimisation of the energy efficiency of the water supply ,
- reduction of the pollution in the groundwater from agriculture

However, challenges still remain for the Danish water supply system, in particular in relation to nitrate and pesticide pollution from agriculture. Furthermore,

constant focus should remain on the effects of extracting groundwater in vulnerable areas where the groundwater resource is generally being over-exploited. Finally, systematic monitoring of the quality of the Danish groundwater will remain of extreme importance in the future. In order to handle these challenges, protection of the groundwater in future will focus more on local conditions and challenges, since this allows for more thorough evaluations and tailor-made solutions. For more information contact:

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