

## **Climate and land-use change impacts on groundwater recharge**

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**Abstract** We show the effects of both climate and land-use changes on long-term groundwater recharge. The study was conducted in the context of a safety assessment of a near-surface disposal facility for low and intermediate level waste; this includes estimating groundwater recharge for the next millenia. Climate change impact on groundwater recharge was simulated using HYDRUS-1D and weather time series from so-called analogue stations. Results showed that transition to a warmer climate is expected to yield a decrease in groundwater recharge. For land-use change impact on groundwater recharge in the Nete catchment, conversion to crop (maize) and coniferous forest resulted in the highest positive (recharge increase by 30%) and negative (recharge decrease by 41%) sensitivities, respectively. Further improvements of the method may consider correlation and feedback between combined land-use change and climate change.

**Key words** groundwater recharge; climate change; land-use change; Nete catchment, Belgium