BE1: Urbanised dune area
VMM

Management of fresh groundwater in urbanised dune area under a changing climate

Pilot summary

Coastal dune areas have multiple functions: they protect the low-lying polder area against flooding and salinisation, offer touristic and ecological values and are an important freshwater resource for drinking water supply. The coastal dune area in Belgium is highly urbanised which has led to a decrease in natural groundwater recharge and an increase in groundwater extraction. In addition, climate change and sea level rise threaten the availability of fresh water in these areas.

To protect these freshwater resources, understanding the impact of urbanisation, climate change and sea level rise is necessary. Groundwater modelling can predict the evolution of the fresh-salt water distribution and indicate which part of the dune area is more vulnerable for urbanization, climate change and/or sea level rise.

Together with stakeholders, the potential of different measures will be investigated. The project will lead to a cooperative and sustainable management of freshwater resources in the dune area.

Activities

- Data acquisition: (hydro)geology, hydraulic parameters, water levels & water quality, groundwater abstractions, land use, …
- Fieldwork: installation of piezometric wells, geophysical survey, groundwater monitoring with special attention to the fresh-salt water distribution
- Groundwater modelling: impact of urbanisation, climate change and sea level rise on fresh-salt water distribution
- Investigation of the potential of different measures to protect fresh water lenses

Governance

- Transnational exchange and learning on governance structures by transnational governance workshops
- Optimisation of guidelines/legislation regarding groundwater abstractions
- Cooperation between different authorities (urban – nature – rural)
- Communication and stakeholder involvement by newsletters, website, workshops, field day, policy day


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