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1. Background

A large number of point sources present a potential threat to groundwater resources. Environmental authorities need to:

- Establish an adequate knowledge level that enables trustworthy risk assessment
- Implement remedial actions where necessary.

However, due to limited available resources **prioritization** of such actions is necessary.

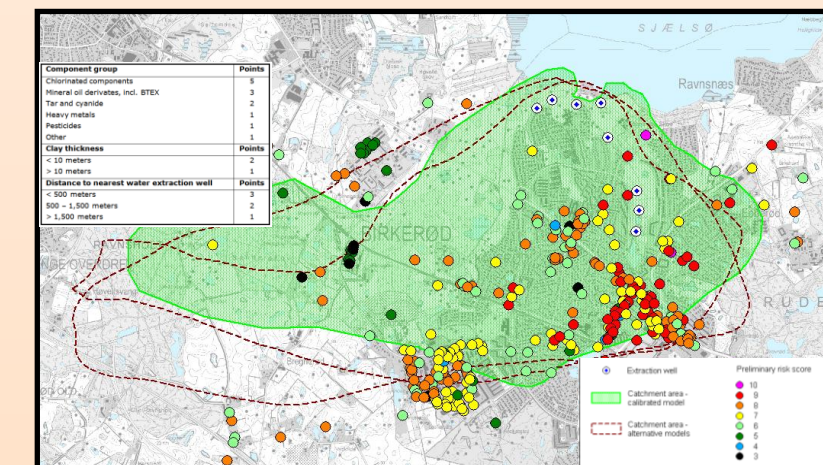
2. Aim, to develop a tool that:

- Ensures a uniform and transparent risk assessment and prioritization of point sources based on contaminant fluxes.
- Enables the prioritization of different kinds of point sources at sites with various knowledge levels at both local and catchment scale.
- Provides an overview of the potential contaminant fluxes on a visual platform to assist the discussion between different authorities.

3. Project Description

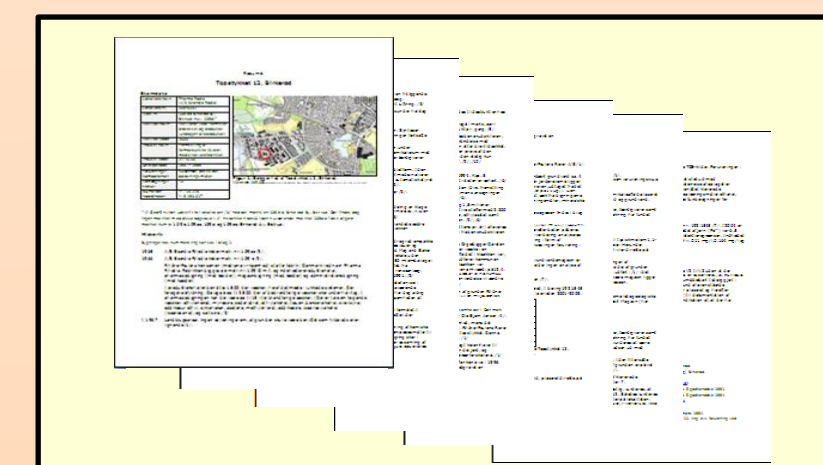
Initial screening at catchment scale

Possible point sources at catchment scale are screened based on the type of used chemicals, thickness of protective clay layer, and their proximity to the recipient.



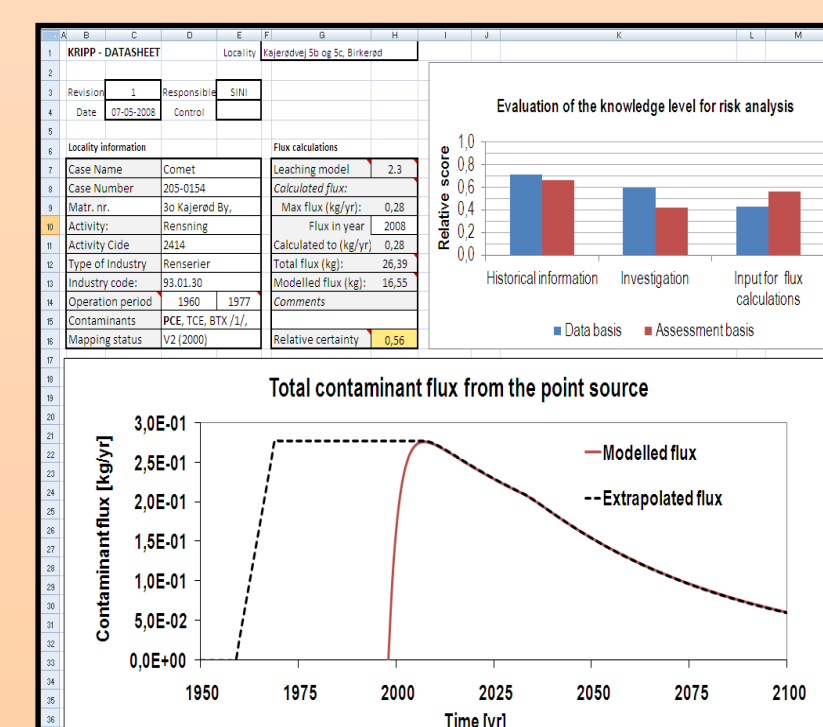
Locality analysis

Analysis of the selected point sources at local scale using existing data. This includes historical information, and a description of (hydro)geology, geochemistry and pollution situation for each locality.



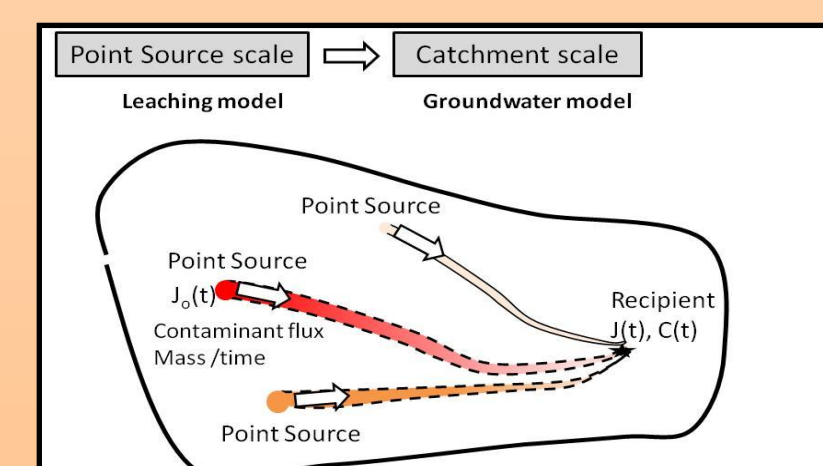
Flux Calculations

Calculation of the contaminant fluxes from each point source into the underlying saturated zone and evaluation of the uncertainties.



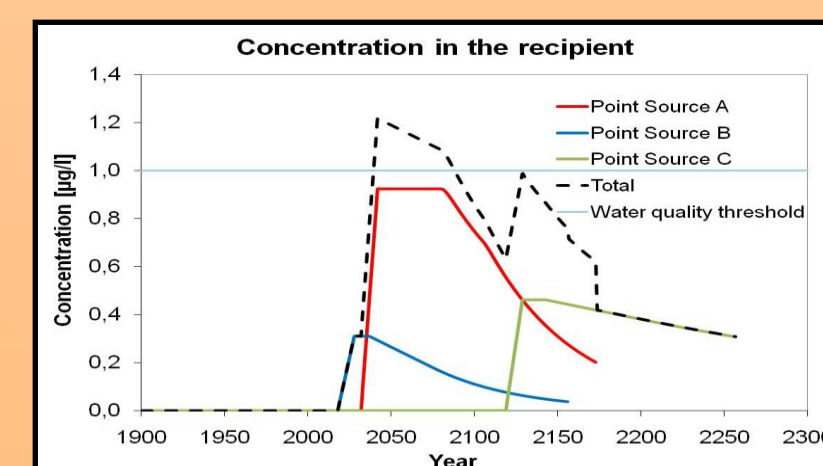
Groundwater model

Analysis of groundwater flow at catchment scale and simulation of the contaminant particle tracks using a 3-d groundwater model.



Impacts

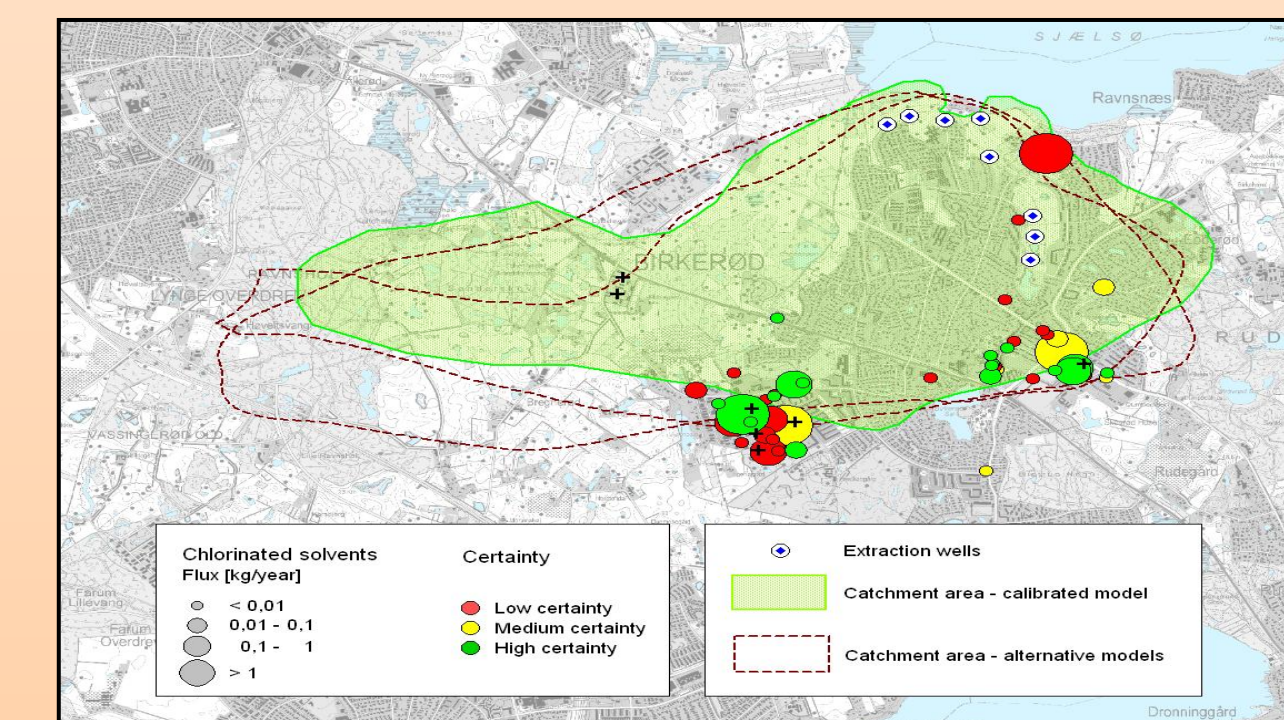
The resulting impacts from the different point sources to the recipients are calculated.



4. Results

The output of this concept is a GIS depiction of the different fluxes towards the recipient and the level of certainty associated to them.

- This depiction allows the authorities to prioritize in which sites further investigation or remedial actions are necessary.
- Uncertainties related to catchment boundaries are also taken into account.



Decision scheme for further action

Point Source Flux	Determined with high certainty	Determined with low certainty
Large	Remediate!	Further investigation (High Priority)
Small	Go Happy 😊	Further investigation (Low priority)

5. Conclusion

This concept enables the risk assessment and prioritization of point sources within a catchment, at different knowledge levels, including the uncertainties. Thus, it can assist the authorities in prioritizing further investigation and remediation actions.