# The SETAC EMAG workgroup on groundwater monitoring

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# Introduction

- Over the past few years, ground water monitoring has become increasingly important in the EU registration process
  - There is no detailed EU guidance on monitoring studies, only some general information in the FOCUS Ground Water Report
- Several EU regulators worked with SETAC to set up a group to establish scientific recommendations for conducting such studies

# SETAC EMAG-Pest GW Members

About 30 specialists comprising regulators, industry, geological survey and consultancy

Anne Louise Gimsing
Jutta Agert
Arnaud Boivin
Richard Gibson
Florian Hegler
Jenny Kreuger
Dirk Liss
Andy Massey
Laurent Monrozies
Laura Padovani
Graham L. Reeves
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Robin Sur
Michael Stemmer
Uta Ulrich
Russell L. Jones
Nicole Baran
Federico Ferrari
Lisa Hammond
Wolfram König
Ton van der Linden
Ludovic Loiseau
Benedict Miles
Andy Newcombe
Anton Poot
Stefan Reichenberger
Horst Staudenmaier
Andreas Schwen
Wiebke Tüting

# SETAC EMAG-Pest GW

## Current Structure

- Chaired by Anne Louise Gimsing with an informal steering committee of regulators
- Full committee which meets once or twice a year
- Subgroups which meet by phone more frequently, currently there are two subgroups

  - Document subgroup-prepare the document providing the scientific recommendations on study design

  - Vulnerability subgroup-prepare the section on assessing relative vulnerability of potential monitoring sites

# SETAC EMAG-Pest GW

## Activities to date

- Workshop in Copenhagen 2015
- Annual presentations at Fresenius conference
- Presentations at the pesticide conferences in Piacenza (2015) and York (2017) and at SETAC Europe in Rome (2018)
- Two day training courses in Nantes 2016 and York 2017
- Very active work on the publication about monitoring studies over the last two years – finalised in summer 2018 and currently under revision

# Recommendations for monitoring studies

- To address how to conduct targeted monitoring and how to use public monitoring data
- What is the next step after failing the FOCUS Scenarios
- The document should be a helpful tool for regulators and notifiers to enhance acceptance
- The guidance will **not** be a cook book, there are too many different variables to be considered

# Status for publication

- Submitted to Journal of Consumer Protection and Food Safety in July
- Currently the authors are revising the document after commenting from the Journal
- Publication around the beginning of 2019

# Content of the publication

Conducting groundwater monitoring stud
their metabolites in the context of Regula


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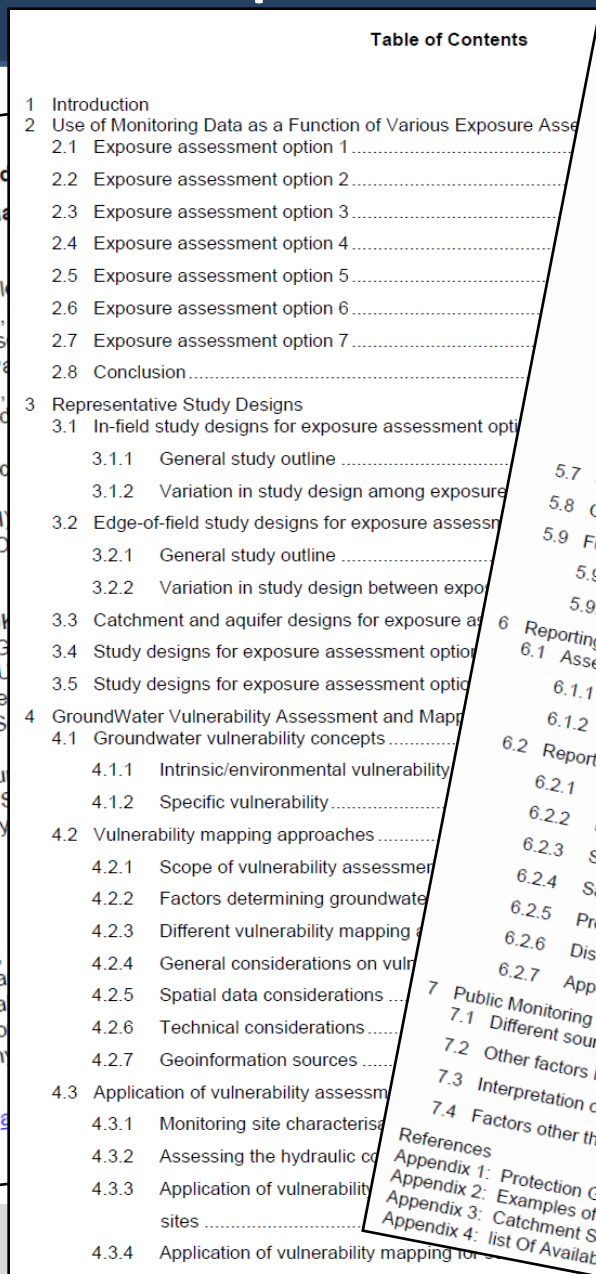

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# Types of Ground Water Studies

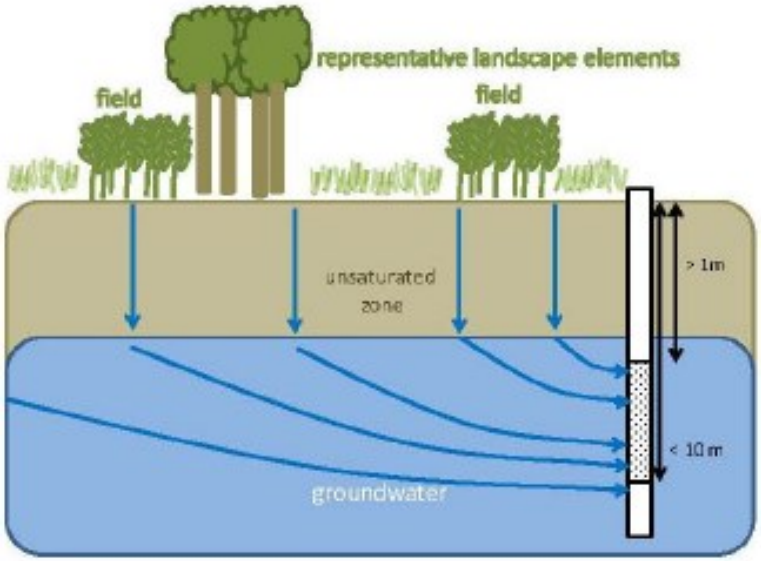
## What is a ground water monitoring study?

- Often used to denote any field study in which GW is sampled and analysed
- In the EU a distinction is made between a field leaching study (FOCUS Tier 3) and a ground water monitoring study (FOCUS Tier 4)
- The publication will focus on monitoring studies which usually involves less intensive sampling but at larger number of sites

# Exposure Scenarios

## What to protect?

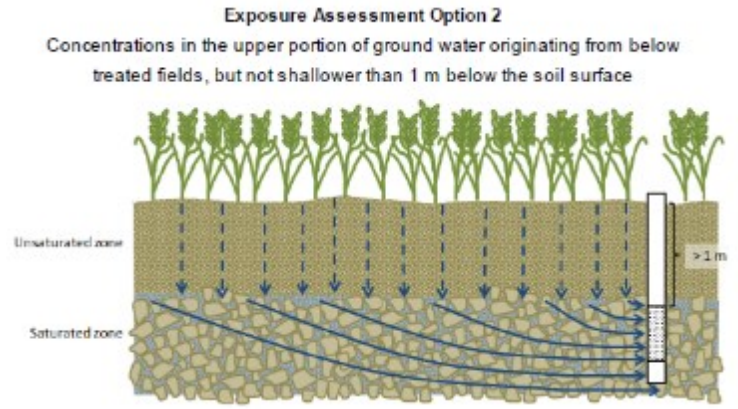
- There are no defined/common protection goals across the member states, which impacts on the study design
- A total of 7 exposure scenarios were identified as part of a work group at the modelling workshop in Vienna in 2014

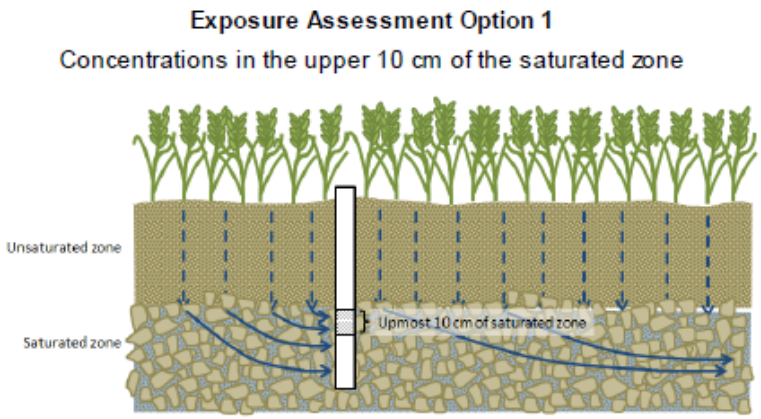


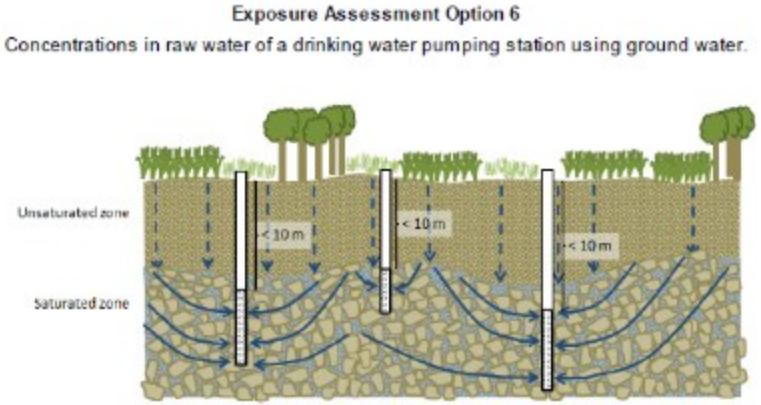
# Exposure Scenarios

## What to protect?

- The study design will vary depending on the exposure scenario



# Types of Ground Water Studies

## Geographical Scale

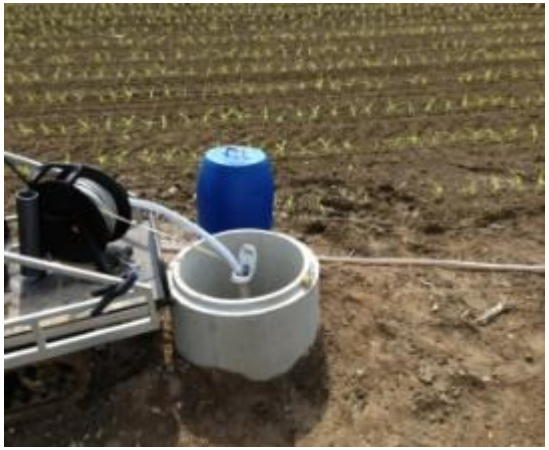
**In-Field and Edge of Field**

- Focuses on residues resulting from a single field

**Catchment and Aquifer**

- Focuses on residues in ground water over a larger use area

# Types of Ground Water Studies



## Timing with regards to applications

- Prospective ground water study
  - Make an application and follow the movement
- Retrospective ground water study
  - Monitor residues from previous applications
- Some studies are both retrospective and prospective
  - Monitor residues from previous applications and includes subsequent proactive applications

# Types of Ground Water Studies

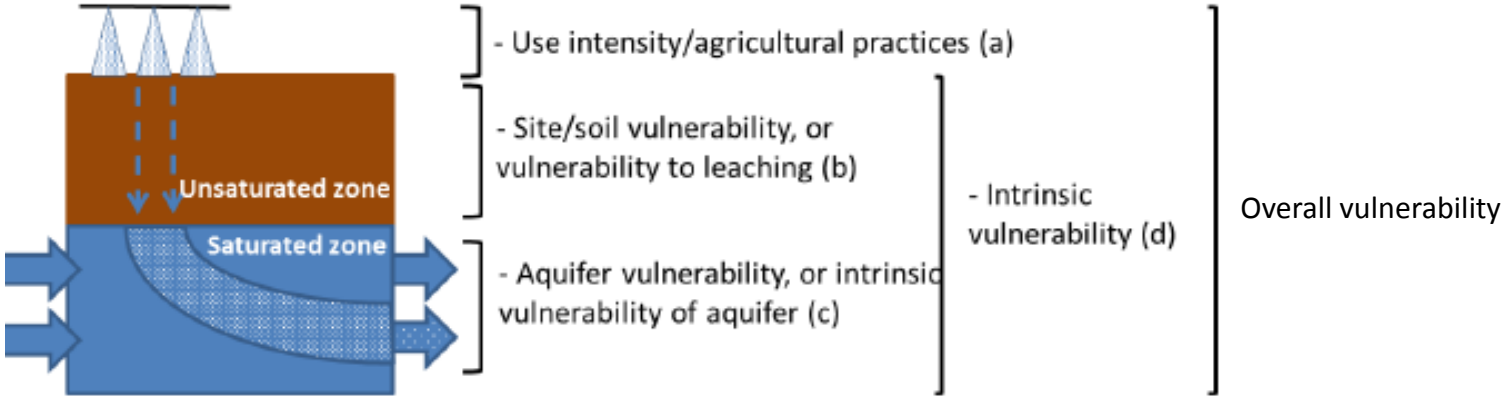
## What study design is appropriate?

- The publication considers the different study designs and gives a recommendation which may be appropriate for individual exposure scenarios
- BUT… it all depends on the aim of the study, the molecule properties and plenty of other parameters

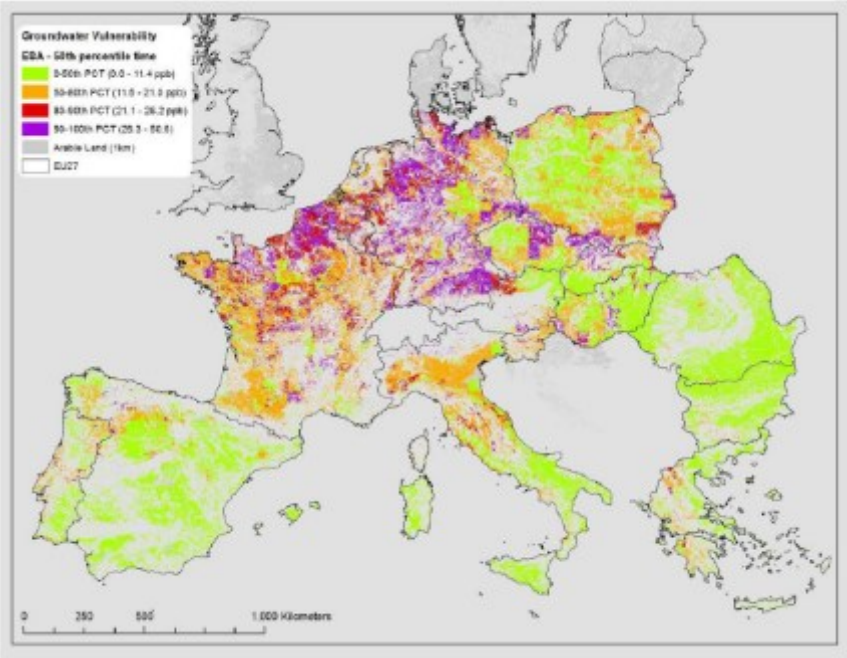
# Vulnerability Assessment

## Where to sample?

- Large part of the guidance document relates to how to address site vulnerability, state of the art methods and context setting



# Vulnerability Assessment




## Approaches

- Document describes and discusses the main vulnerability approaches
  - Index-based
  - Process-based
  - Statistical
- Identifies strength and weaknesses
- Discussion on different geoinformation sources (scale and quality)

# Other Parameters I

## Other topics of the document

- Sampling frequency
- Data quality criteria / GLP
- Installation of wells
- Selection of existing monitoring sites
- Collection of samples, handling, storage
- Analysis of samples

# Other Parameters II

## Other topics of the document

- Hydrogeological characterisation
- How to deal with concentration data (averages or not)
- Reporting
- How to deal with data from public monitoring
- Factors other than leaching that may result in residue detects
- Examples of ongoing and completed monitoring studies

# The End

**Thanks to the EMAG-GW group**

**and**

**Thank you for your attention**