

# Groundwater body qualitative status assessment

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**WaterAct**  
Joint actions for more efficient management  
of common groundwater resources

# What is a qualitative chemical status?

Quantitative status is defined through conductivity and concentrations of pollutants in WFD (Annex V, 2.3.1 and 2.3.2)

Elements	Good status
General	<p>The chemical composition of the groundwater body is such that the concentrations of pollutants:</p> <ul style="list-style-type: none"><li>— as specified below, do not exhibit the effects of saline or other intrusions</li><li>— do not exceed the quality standards applicable under other relevant Community legislation in accordance with Article 17</li><li>— are not such as would result in failure to achieve the environmental objectives specified under Article 4 for associated surface waters nor any significant diminution of the ecological or chemical quality of such bodies nor in any significant damage to terrestrial ecosystems which depend directly on the groundwater body</li></ul>
Conductivity	Changes in conductivity are not indicative of saline or other intrusion into the groundwater body



# Why the Groundwater Q status is assessed?

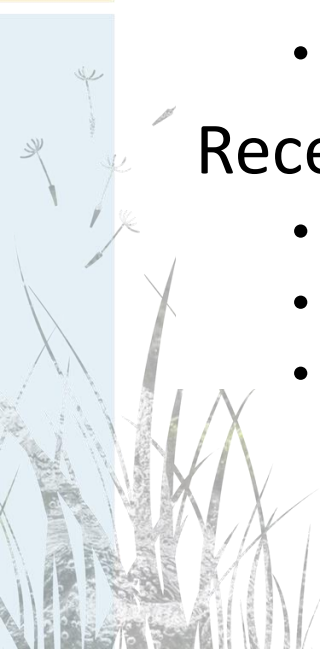
- **Source-Pathway-Receptor (SPR) model**
- **What is the risk of not meeting the environmental objectives of the WFD?**

## Sources:

- Pressures - point and diffuse pollution, e.g. agriculture, Industry, wastes, traffic etc;
- Water use - change of pathways, direction of flow, intrusion of not natural water;

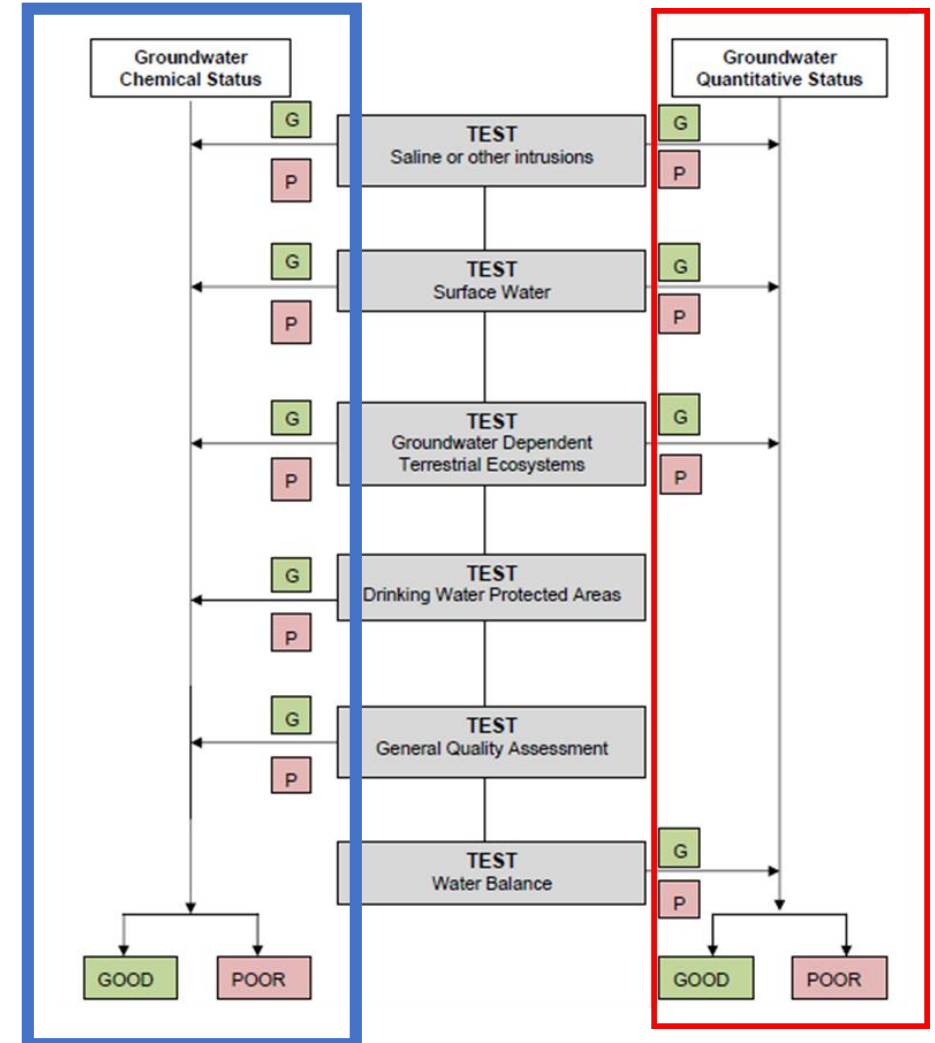
## Receptors:

- Groundwater (drinking water);
- Surface water;
- Terrestrial ecosystems.



# Groundwater Chemical status assessment

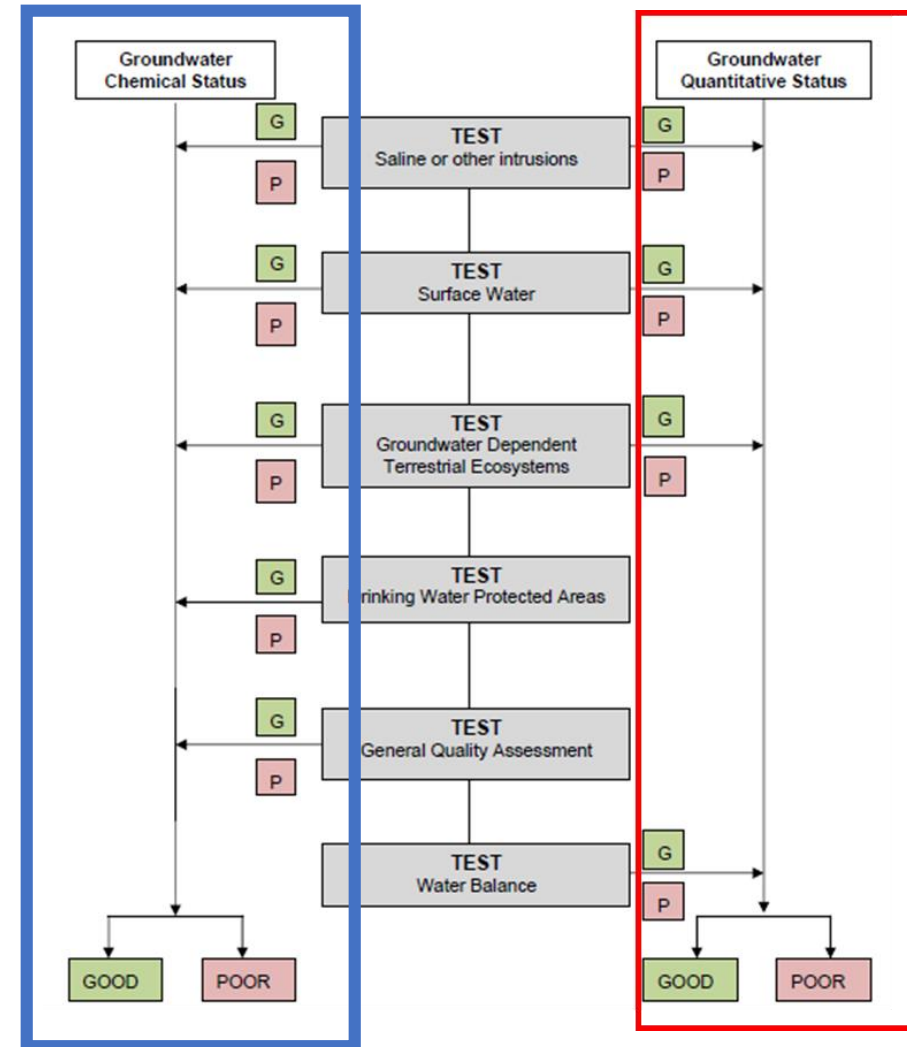
1. 5 tests for chemical status;
2. Quality standards are needed;
3. Existing limits are breached by entirely natural processes;
4. Threshold values which are GWB specific and based on natural baseline concentrations in relevant aquifers;
5. WFD sets limits for pesticides and nitrates for all GWBs.



# Groundwater Chemical status assessment

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Start with General Quality Assessment



# Groundwater Chemical status assessment

## **General Quality Assessment**

- Data aggregation;
- If all relevant substances are below the quality standards, no further chemical tests are needed.



# Groundwater Chemical status assessment

## General Quality Assessment

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Why? Do you agree?



# Groundwater Chemical status assessment

## General Quality Assessment

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- If all relevant substances are below the quality standards, no further chemical tests are needed.

Why? Do you agree?

Quality standards (threshold values included) of relevant substances are set according to conceptual understanding of GWB and based on the main aim:

**What is the risk of not meeting the environmental objectives of the WFD?**



# Groundwater Chemical status assessment

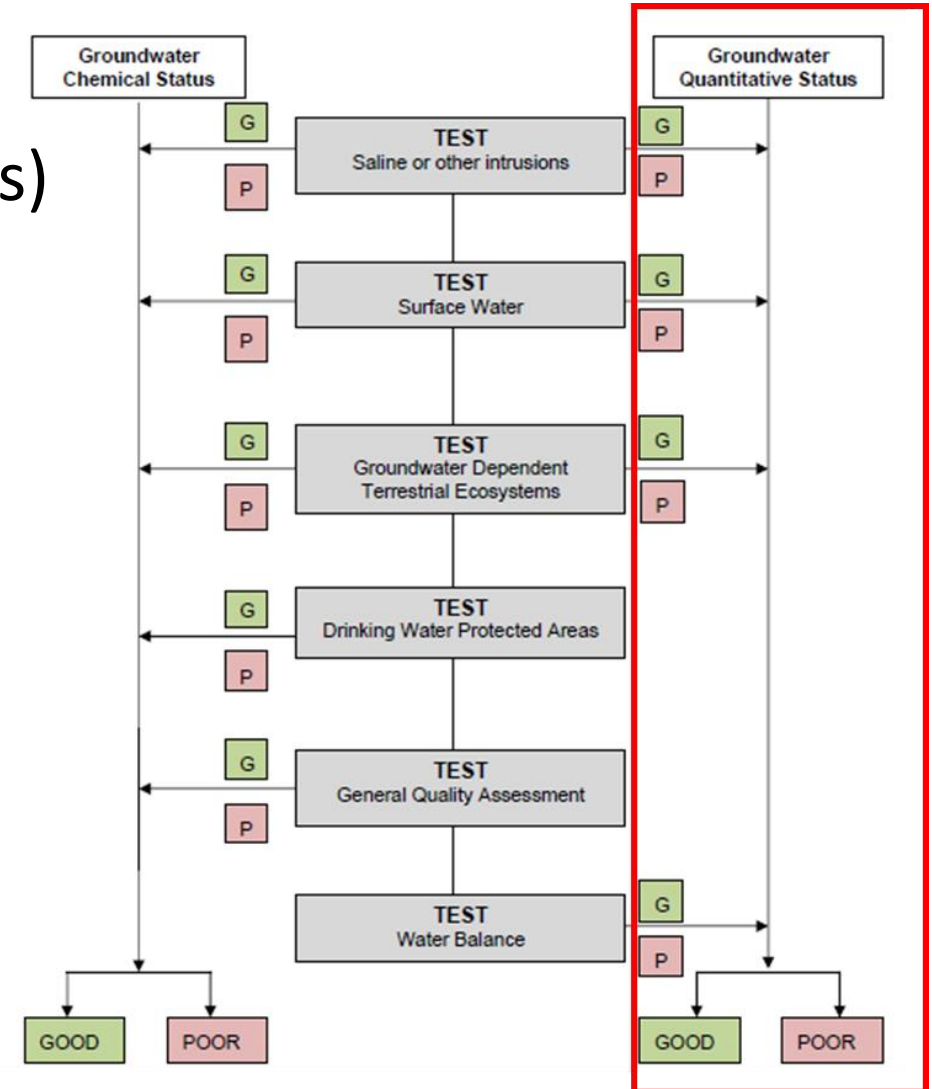
**If some relevant substances exceed the quality standards, further chemical tests are needed**

- When the exceedance is relevant for the whole GWB?
- 20% rule of acceptable exceedance is used in general (Guidance document No18);
- If the quality standards are exceeded >20% monitoring points/GWB area, the trends in changes of pollutant concentrations is evaluated;
- Confidence of the assessment must be evaluated:
  - number of samples;
  - number of observation wells;
  - representativity of monitoring network (even distribution);

# Groundwater Chemical status assessment

For further tests (saline or other intrusions, drinking water, surface water, GDT Ecosystems) following steps are necessary:

- Criteria for assessing;
- Data aggregation;
- Extent exceedance;
- Location exceedance;
- Confidence in the assessment.

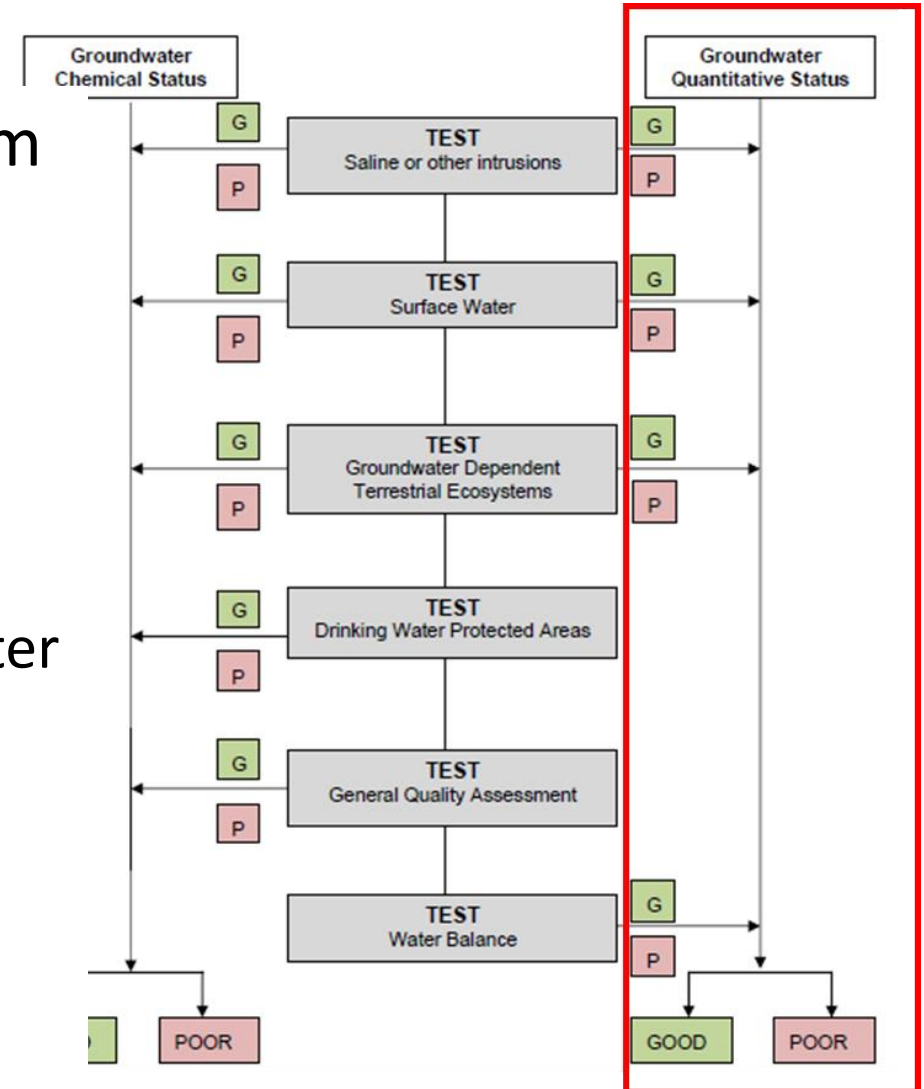


# Groundwater Chemical status assessment

For surface water, GDT Ecosystems, input from the assessment of surface water bodies/GDT ecosystems is needed (the aim):

Is the surface water body/GDT ecosystem failing to meet its environmental objectives (is less than good status) and is there contribution from the groundwater body?

Conceptual model!



# • A Happy Assessment!

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