

Significance of GW-bodies in the implementation of WFD and for GW reporting

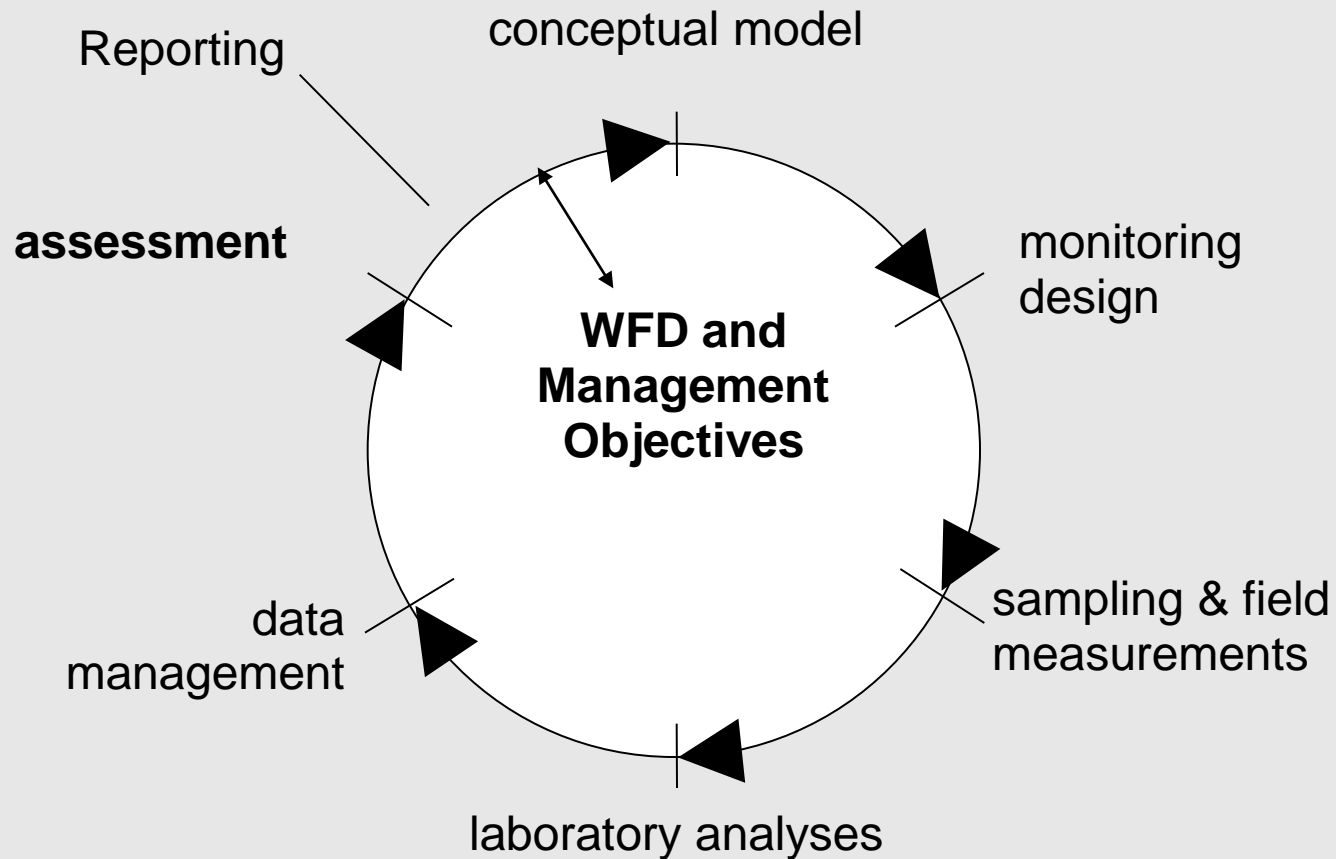
Johannes Grath, Chair WG C Groundwater



Outline of the presentation

- Introduction
- Common Implementation Strategy CIS
- GWB-Delineation and role of GW-bodies
- Supportive documents
- First results – European overview
- Outlook

Introduction



Introduction - Required activities

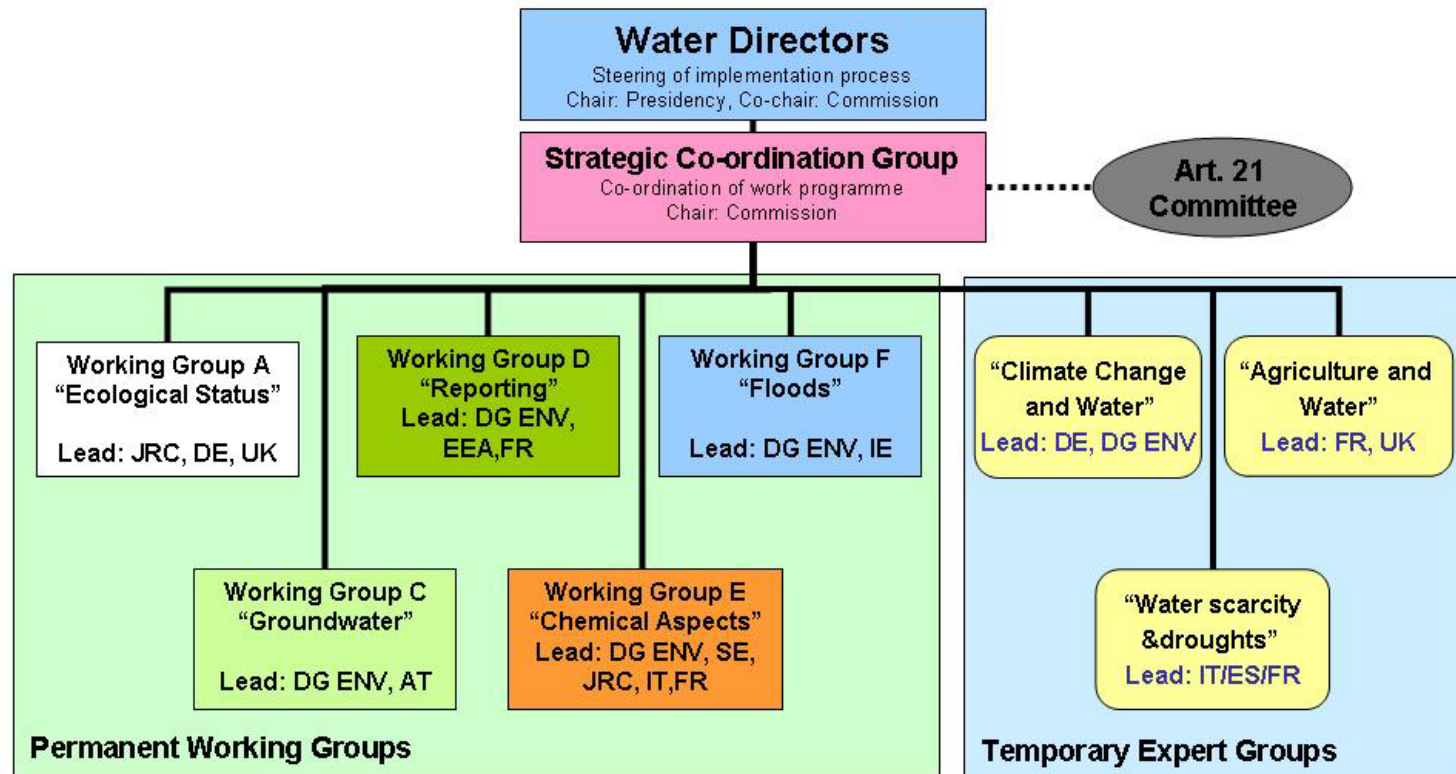
- | | | |
|--|---|--|
| ■ Delineation of GW-bodies | } | WFD Art. 5 Annex II – DONE |
| ■ Characterisation of GW-Bodies | | |
| ■ Risk assesement | } | WFD Art. 8 Annex V, 2.4 - DONE |
| ■ Monitoring Network Design and implementation | | |
| ■ Monitoring | } | GWD Art. 3, Annex II – QS laid down, TVs DONE |
| ■ Quality standards and threshold values | | |
| ■ Chemical status assessment | } | WFD & GWD – presented in 1st RBMP |
| ■ Trend reversal assessment | } | WFD & GWD – subject of 1st/2nd RBMP |
| ■ RBMP and Programme of measures | } | WFD & GWD – presented in 1st RBMP |
| ■ Start of next RBMP-Period | } | Start Dec. 2012/13 |

Common Implementation Strategy

- The Water Directors of the Member States, Norway and the Commission agreed to establish a Common Implementation Strategy CIS in order to:
 - develop a common understanding and approaches;
 - elaborate informal technical guidance including best practice examples;
 - share experiences and resources;
 - avoid duplication of efforts;
 - limit the risk of bad application.
- Furthermore, the Water Directors stressed the necessity to involve stakeholders, NGOs and the research community in this joint process as well as to enable the participation of Candidate Countries in order to facilitate their cohesion process.

New CIS structure

CIS Organisation 2010-2012



Delineation and role of GW-bodies supportive documents:

- Guidance Document No 2 Identification of Water Bodies
- Technical report on groundwater body characterisation issues as discussed at the workshop of 13th October 2003
- Guidance Document No. 15 Guidance on Groundwater Monitoring
- Guidance Document No. 21 Guidance for reporting under the Water Framework Directive
- Guidance Document No. 22 Updated Guidance on Implementing the Geographical Information System (GIS) Elements of the EU Water policy
- Guidance document No. 26 GUIDANCE ON RISK ASSESSMENT AND THE USE OF CONCEPTUAL MODELS FOR GROUNDWATER
-

GWB delineation WFD - Definition

- **'Body of groundwater'**

a distinct volume of groundwater within an aquifer or aquifers

= **management unit**

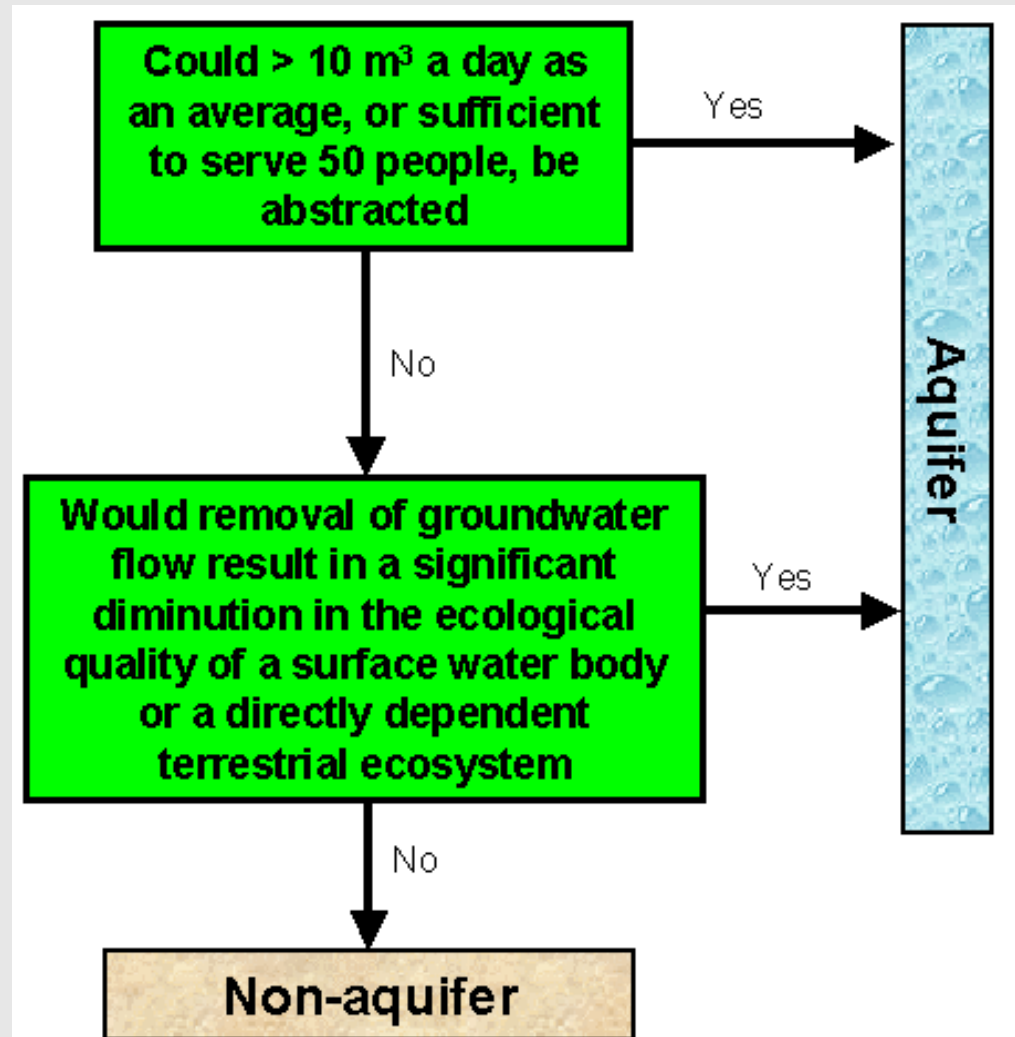
- **'Groundwater'**

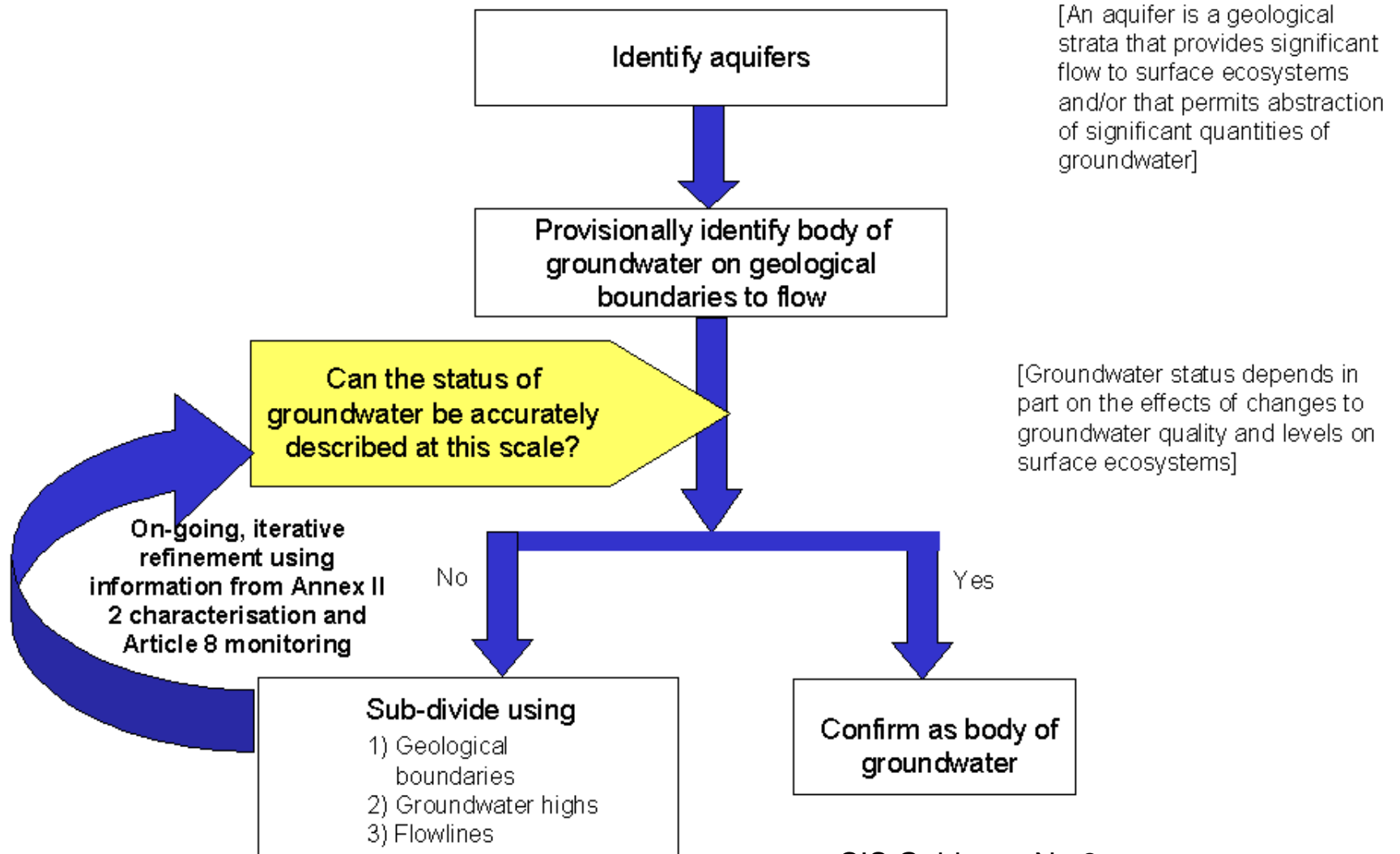
all water, which is below the surface of the ground in the saturated zone and in direct contact with the ground or subsoil.

- **'Aquifer'**

subsurface layer or layers of rock or other geological strata of sufficient porosity and permeability to allow either a significant flow of groundwater or the abstraction of significant quantities of groundwater.

GWB delineation WFD - Aquifer





Aggregation of water bodies

- Surface water bodies **or bodies of groundwater** may each be grouped for the purposes of assessing the risk of failing to achieve the objectives set for them under Article 4 (pressures and impacts)(refer to WFD CIS Guidance Document No. 3).
- They may also be **grouped for monitoring, reporting and management purposes** where monitoring sufficient indicative or representative water bodies in the sub-groups of surface water or groundwater bodies **provides for an acceptable level of confidence and precision** in the results of monitoring, and in particular the classification of water body status (refer to WFD CIS Guidance Document No. 7).

Third dimension of GW-bodies

- Depth of GW-body depends on
 - GW within an aquifer or aquifers which needs to be protected and
 - On the risk according to the Objectives of WFD
- MS will decide
 - Based on their assessments of GW characteristics and the risks identified
- According to definitions for „GW-body“
 - Identification either separately within different strata overlying each other in the vertical plane or
 - As a single body of GW spanning the different strata
- → Flexibility allows MS for most effective means of achieving Directive's objectives

GWB delineation - Experiences

Groundwater body = **Management Unit**

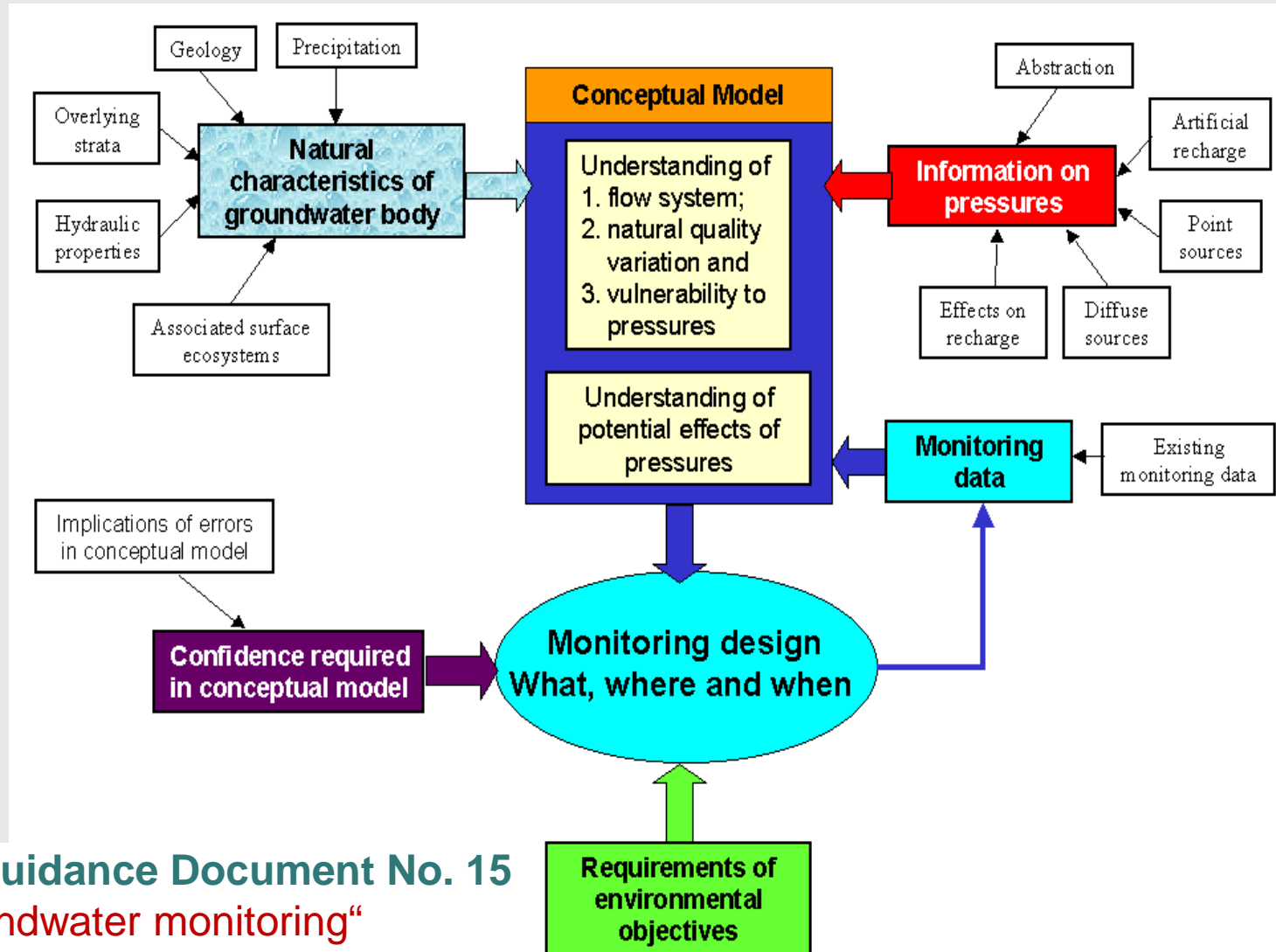
- For adequate description of status
- For comparing to environmental objectives and
- For implementing measures

Experience - Most Member States started with:

- identification of geological and hydrogeological boundaries;
- vulnerability maps, subsoil properties, risk potential, utilisation and protection need, economic importance and water management aspects

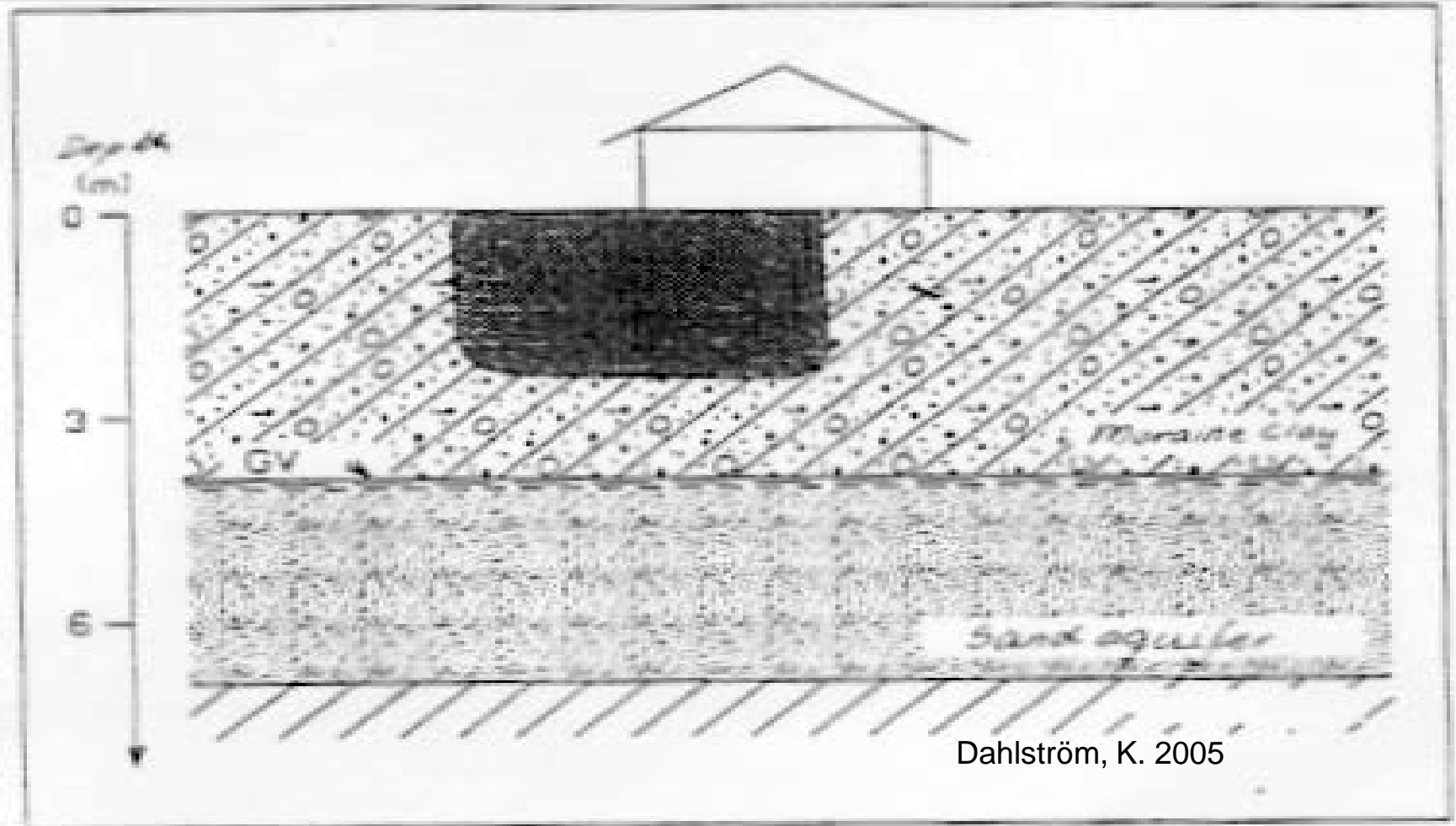
- Aim to achieve efficient and practical management units considering administrative burden and financial efforts
- Size depends on variation of characteristics and pressures
- An iterative and on-going process
- **Grouping of bodies supports efficiency**

Conceptual model

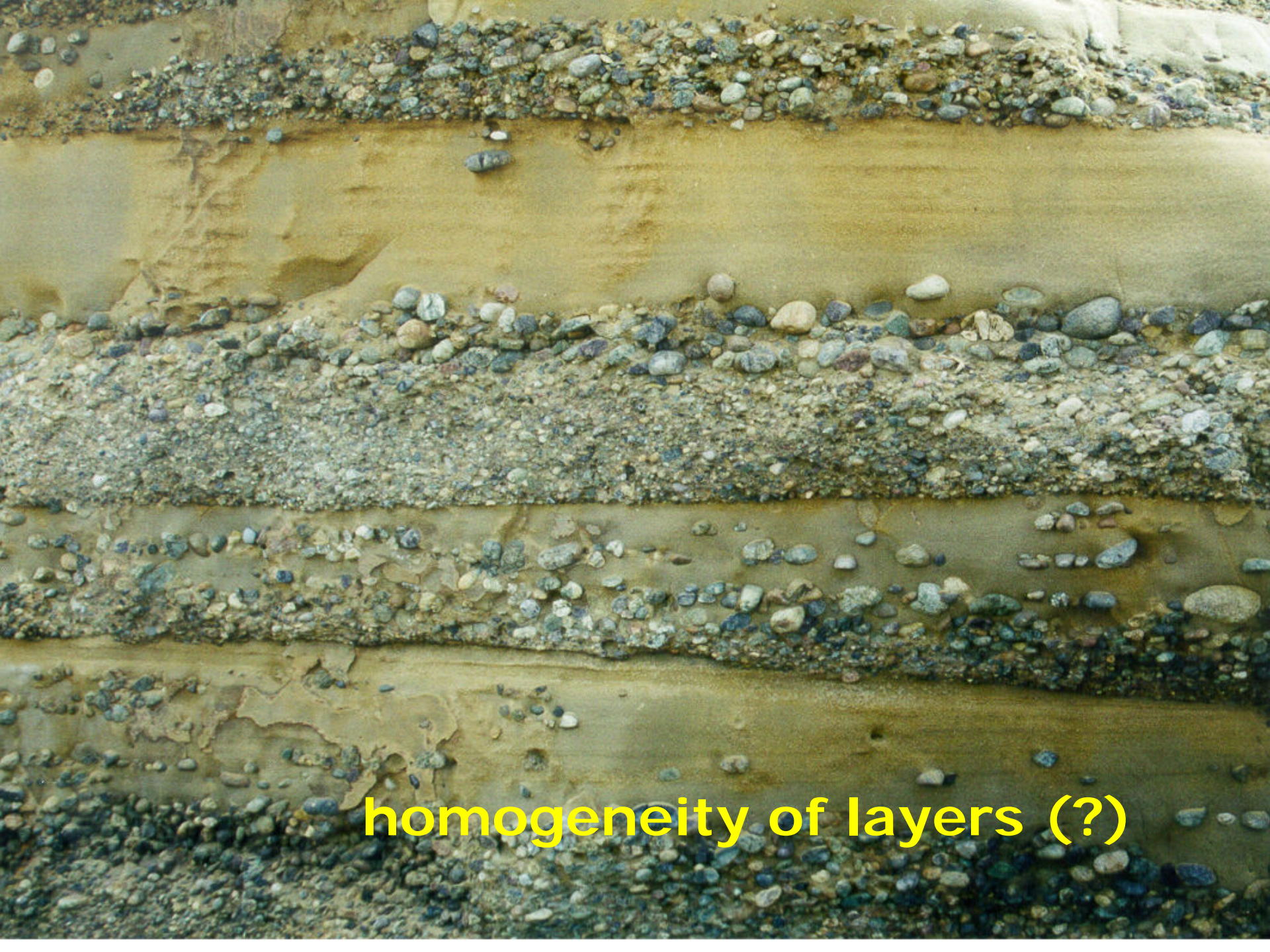


CIS Guidance Document No. 15
 „Groundwater monitoring“





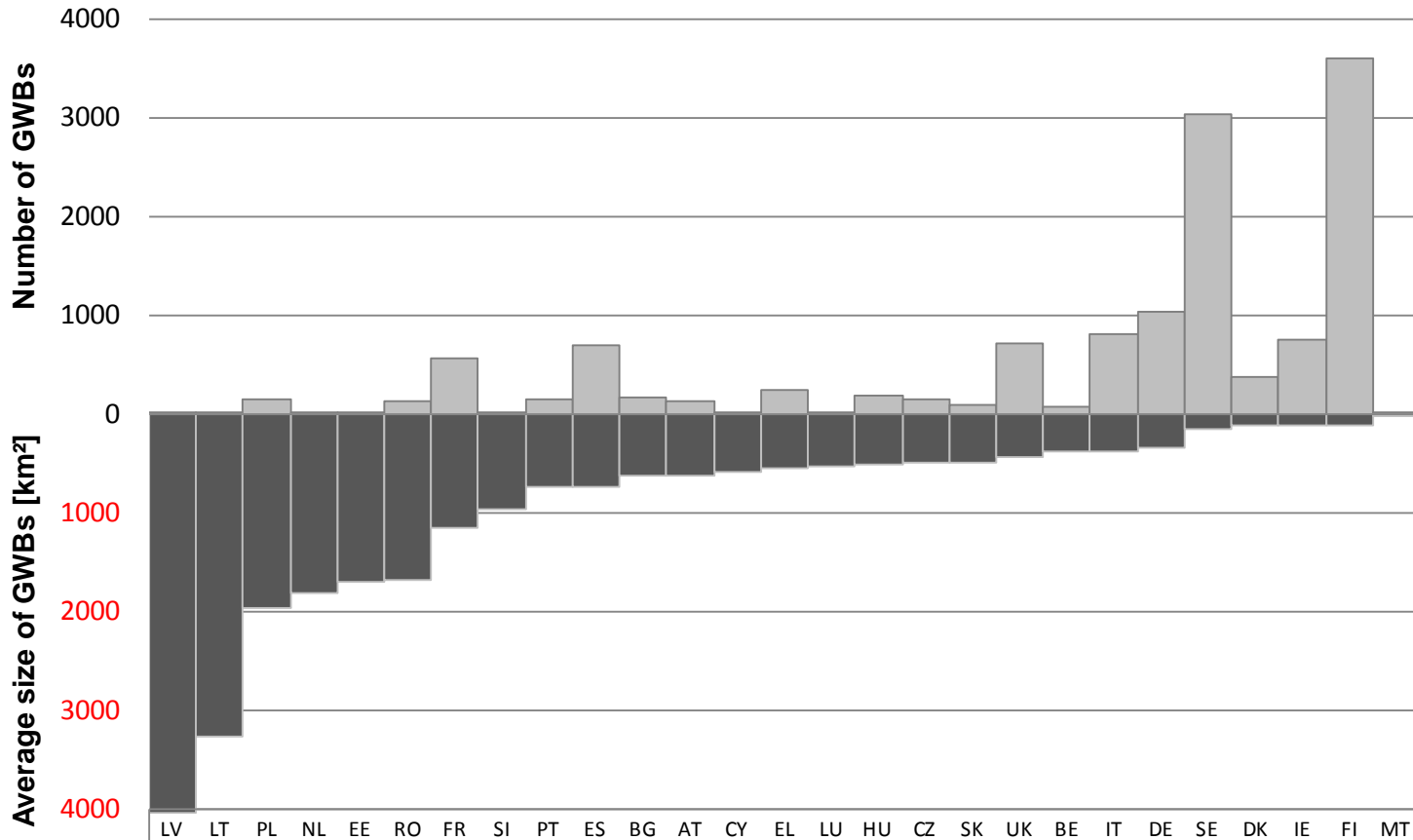
Dahlström, K. 2005



homogeneity of layers (?)

GW-Bodies in Europe

Total number and average size of GWBs in EU 27

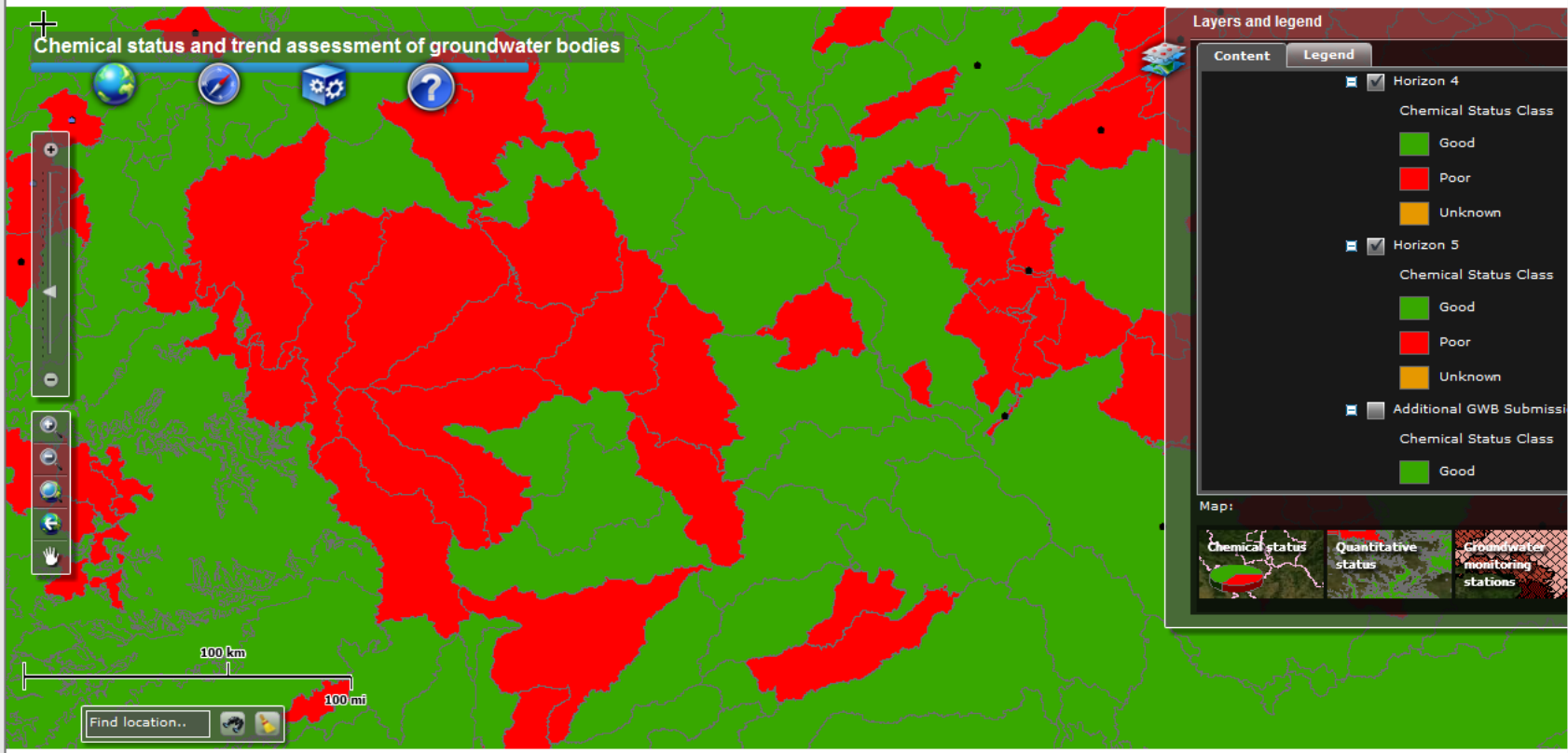


■ Number of GWB	16	20	160	23	26	142	560	21	149	699	178	136	19	241	5	185	161	101	716	80	814	1036	3031	383	757	3608	16
■ km2/GWB	4037	3265	1955	1817	1687	1679	1148	965	735	725	624	617	580	548	517	503	490	485	441	384	374	346	150	113	111	103	25

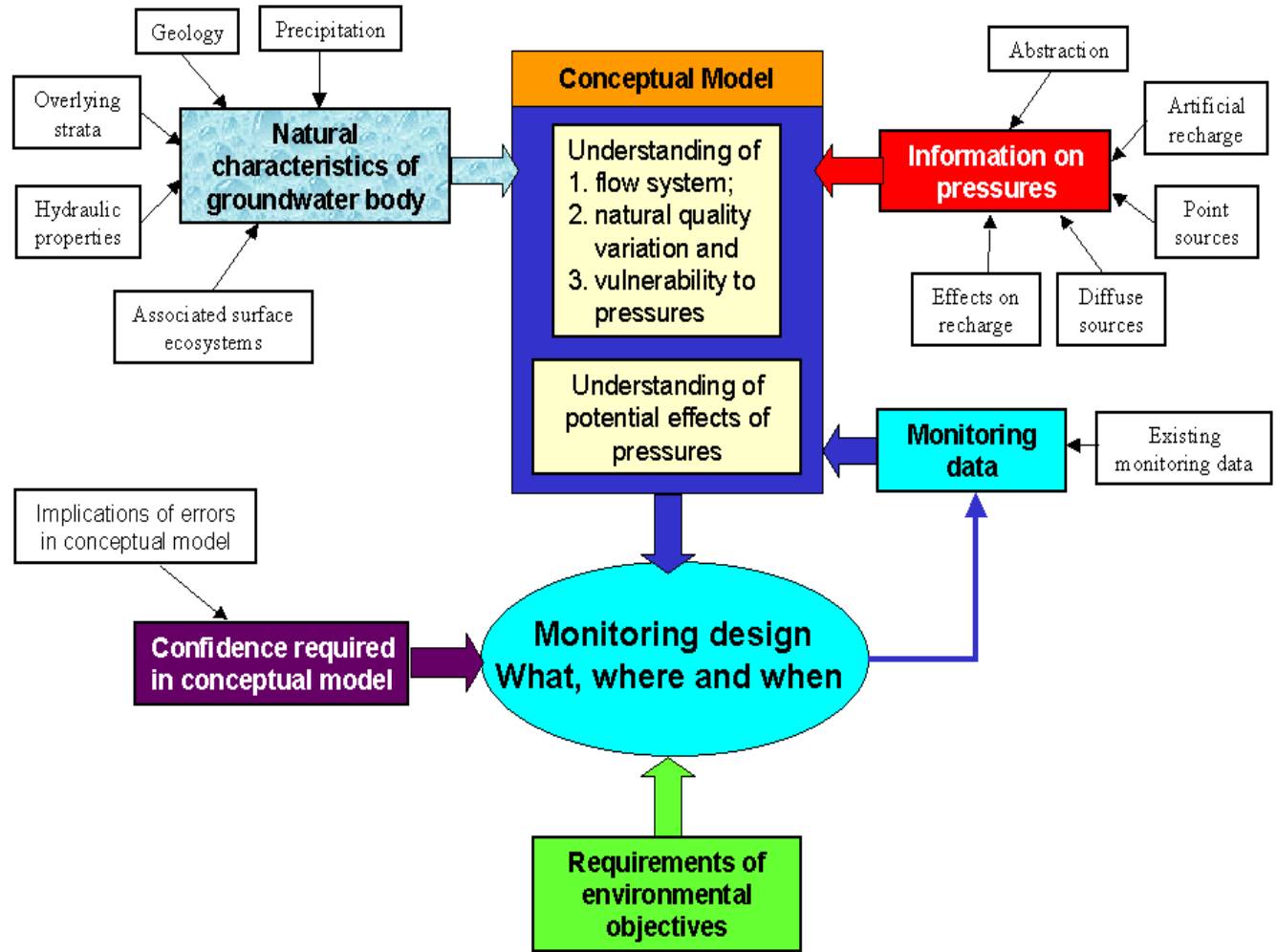
First results – European overview

- Total number of GW-bodies:
 - 13,283 (average size from 25 to more than 4000 km²)
- TVs set by 24 MS for 158 pollutants/indicators
- 139 pollutants are responsible for GW-bodies being at risk
- Pollutants causing risk (most frequent):
 - Nitrate: at least 478 GW-bodies in 17 MS at risk
 - Ammonium: 276 GW bodies in 14 MS at risk

1st draft of WFD ground water viewer



Outlook for 2nd RBMP-period



CIS Guidance Document No. 26

„Risk Assessment and the Use of Conceptual Models“



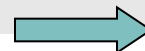
EC Assessment of 2009 RBMPs

- 10 Topics for in-depth assessments
 - Governance
 - Characterisation of the river basin district
 - Monitoring of surface waters and groundwater
 - Classification of surface water status
 - Designation of heavily modified water bodies and definition of good ecological potential
 - Assessment of groundwater status
 - Environmental objectives and exemptions
 - Programme of measures
 - Strategy to deal with water scarcity and droughts
 - Adaptation to climate change in RBMP

170 templates !



27 National
summaries



Commission
Communication
(15 pages)



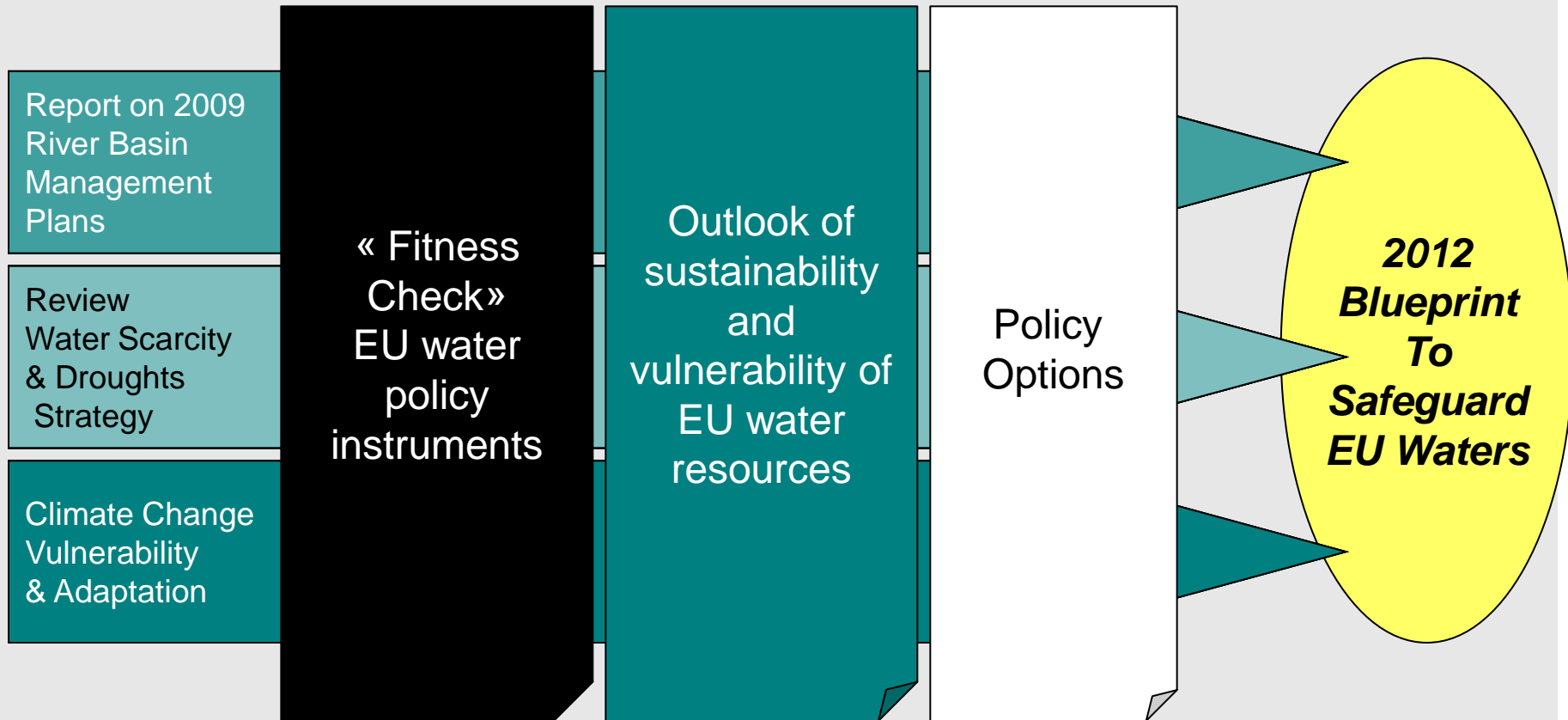
Outlook for 2nd RBMP-period

- European Summary of 1st RBMPs – Groundwater basic questions for lessons learnt
 - Which receptors were identified as relevant for status assessment by MS?
 - How were GW dependent aquatic and terrestrial ecosystems identified and assessed?
 - Are TVs specific to affected receptors?
 - Which criteria were applied for status assessment?
 - Area of GW-bodies identified as of poor status?
 - Programm of Measures, Risk assessment, Risk management
 -
- WG C Groundwater will support lessons learnt activity and preparation of 2nd RBMP

2nd RBMP

- Timetable
 - Start in 2012 at National Level
 - Update of characterisation and risk assessment according Art. 5 WFD
 - Review of Threshold values
 - ...
 - Reporting of 2nd RBMP to EC early 2016

Impact Assessment



Subject of the Workshop: European GW-body (reference) layer?

- What can be achieved – based on already reported information?
- What could be done for the future - in particular until next reporting in 2016?

Supportive Guidance docs and Reports

- Groundwater at the Europa website:
<http://ec.europa.eu/environment/water/water-framework/groundwater.html>
- Published guidance documents at the CIRCA website:
http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/guidance_documents&vm=detailed&sb=Title
http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/groundwater_library&vm=detailed&sb=Title
- WISE: <http://water.europa.eu/>

Contact & Information

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2nd Workshop on Groundwater Bodies in
Europe
Berlin ■ Dec 2011