European Commission

EU Groundwater Directive 2006/118/EC on the protection of groundwater against pollution and deterioration

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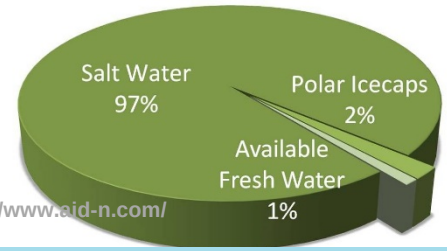
Water on Earth



Groundwater

makes up the **largest reservoir**
of **freshwater** in the world,

accounting for over **97%**
of all freshwater **available on earth**

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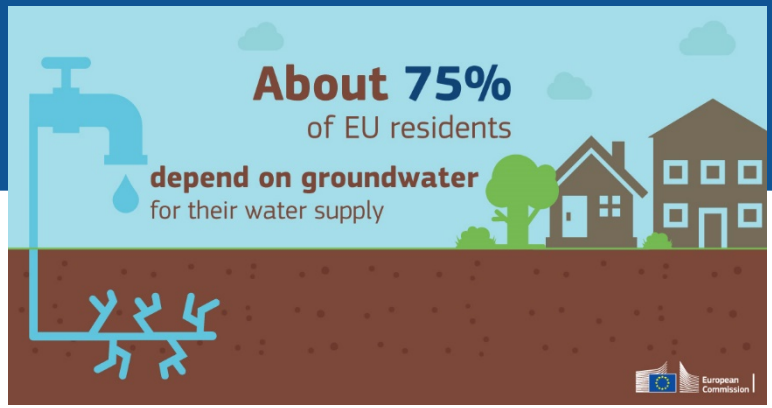
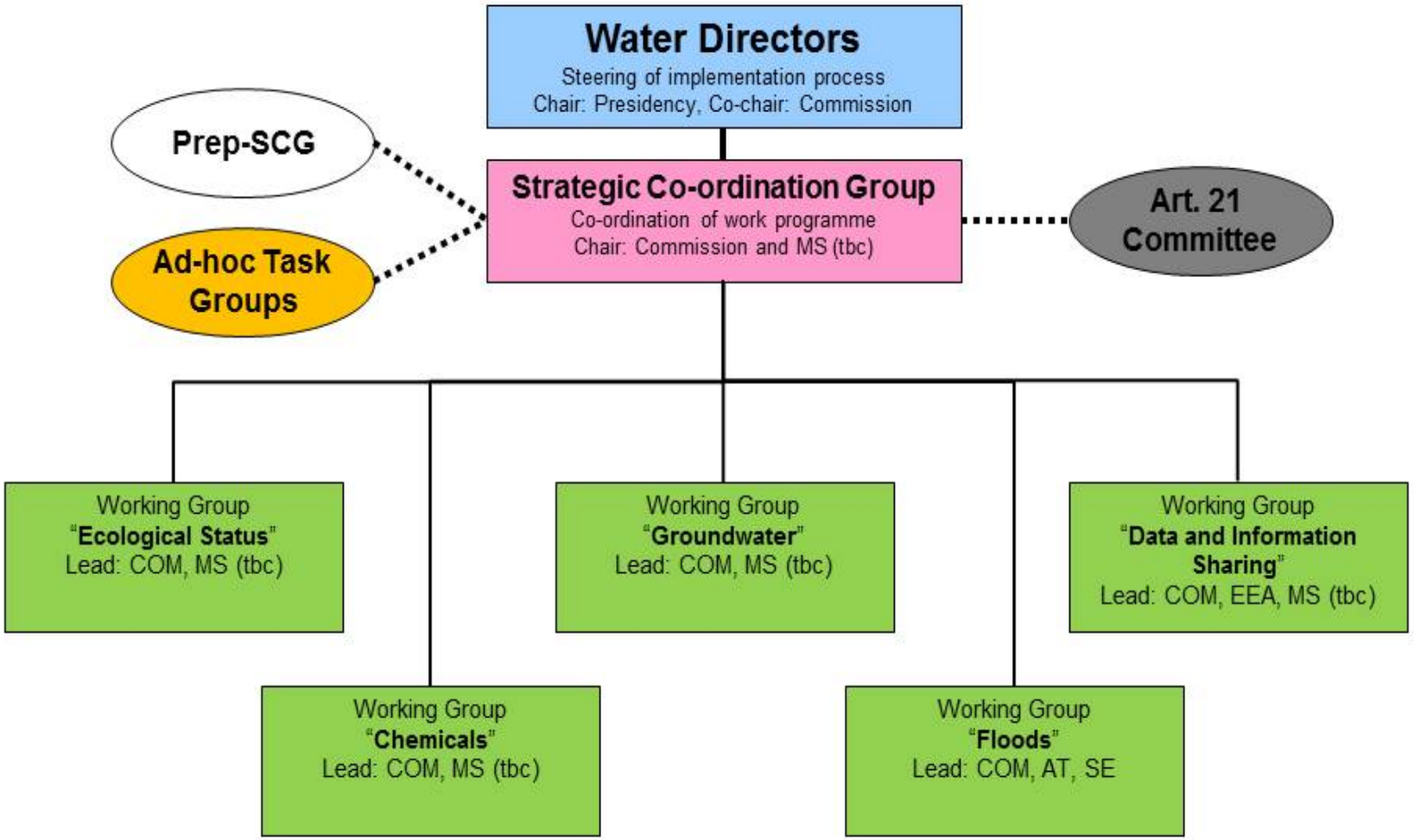


Important aspects to keep in mind

- **Initial protection focus: drinking water (75% of EU residents depend on gw).**
- **More recently: other uses (industry, agriculture), environmental value, dependent ecosystems…**
- **GW deterioration can directly affect rivers, protected areas…**
- **Slow flows and recovery rates: anthropogenic pressures might last for a long time (decades or more)**
- **"Hidden resource": pollution prevention, monitoring and restoration can be more difficult than in surface waters.**
- **Lack of awareness: technicians, citizens, politicians…**

- **EU Policy history**
  - **First directive 1980: direct or indirect introduction of high priority pollutants.**
  - **Water Framework Directive 2000 (first directive repealed in 2013): gw quantitative and chemical status objectives.**
  - **"Daughter" Directive 2006: GWD to clarify criteria for good chemical status and specifications for reversal of pollution trends + prevent/limit pollutants.**

CIS Organisation 2016-2018



- **Water Framework Directive (WFD) Article 17:**
  - **Specific measures to prevent and control groundwater pollution aimed at achieving the objective of good groundwater chemical status in accordance with Article 4(1)(b) → Groundwater Directive 2006/118/EC (GWD)**
- **WFD and GWD should be read together:**
  - **Definitions: Art. 2 WFD**
  - **Objectives: Art. 4 WFD**
  - **Characterization: Art. 5 and Annex II WFD**
  - **Drinking water abstraction: Art. 7 WFD**
  - **Monitoring: Art. 8 and Annex V WFD**
  - **Measures: Art 11 WFD**
  - **GWD focusses on chemical status and trend assessment**

• WFD environmental objectives

No deterioration of status for** surface and **groundwater

Achievement of good status by 2015

- **(Later for priority substances added in 2013)**

Surface waters:

- **Progressive reduction of pollution by priority substances**
- **Phase-out of emissions of priority hazardous substances to water**

Groundwater:

- **Prevention and limitation of input of pollutants**
- **Reversal of any significant, upward trend of pollutants (trend studies baseline: 2007-2008)**

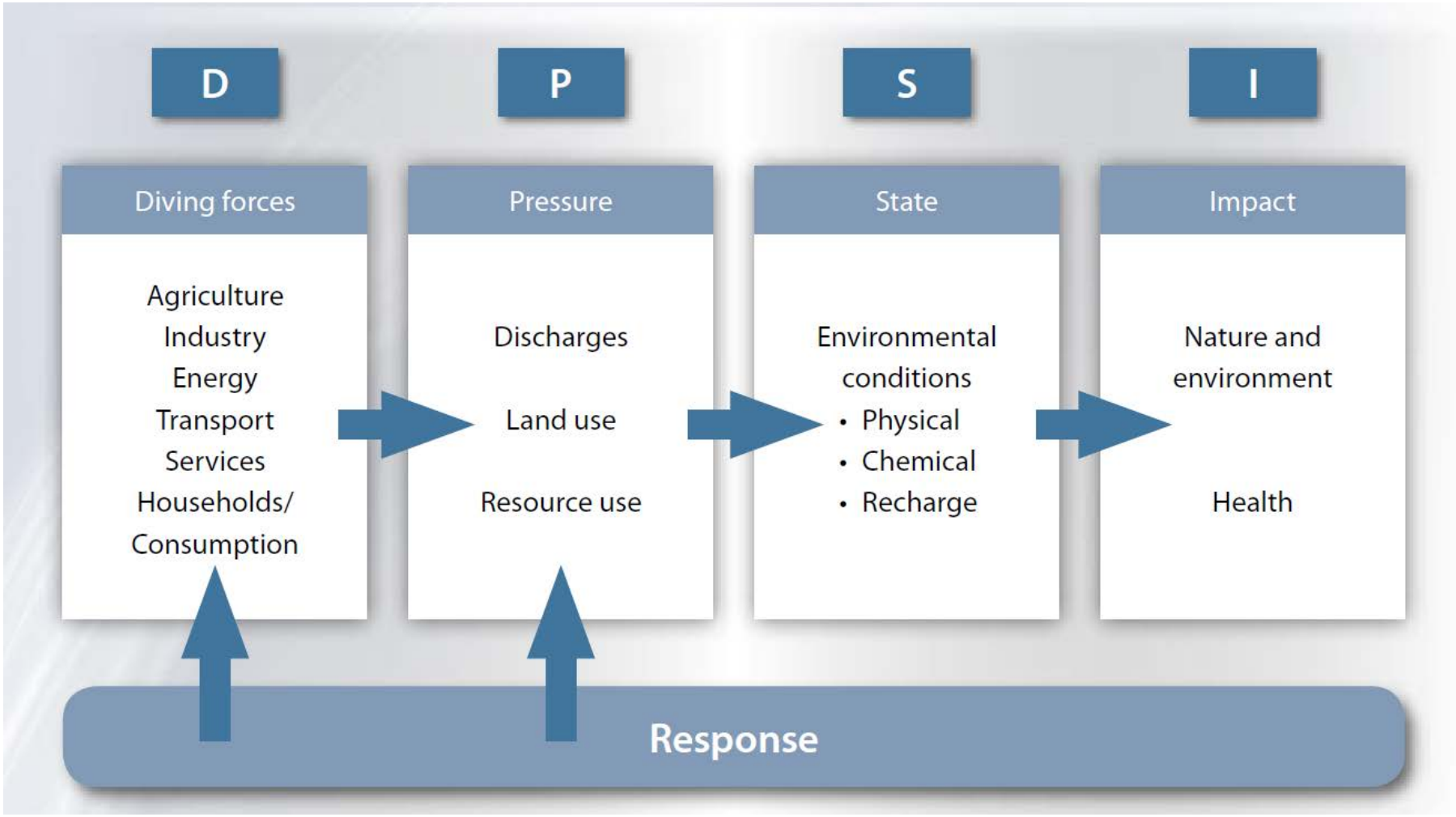
Achievement of standards and objectives set for WFD protected areas in Community legislation (e.g. conservation of habitats and species)

- **Characterisation**

Initial characterisation: all groundwater bodies (GWBs –management units-) location, pressures, geology, dependent ecosystems within River Basin Districts.

Further characterization: only GWBs at risk: preparation of a conceptual model

Impact assessment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P
S
I
Diving forces
Pressure
State
Impact
Agriculture
Industry
Energy
Transport
Services
Households/
Consumption
Discharges
Land use
Resource use
Environmental
conditions
• Physical
• Chemical
• Recharge
Nature and
environment
Health
Response

• Monitoring

Quantitative: groundwater level

Chemical:

- **Surveillance monitoring – validate impact assessment and info on trends. 5 core parameters: oxygen content, pH value, conductivity, nitrate, ammonium**
- **Operational monitoring – establish chemical status and trend of pollution of GWBs at risk. Minimum once a year**

• What is Good Status ?

Means meeting all environmental quality standards for chemicals set at EU level:

-priority substances (Directive 2008/105/EC as amended in 2013)

- other substances previously regulated 76/464/EEC codified 2006/11/EC

Means an expression of the quality of the structure and functioning of aquatic ecosystems including: biological, hydromorphological and chemical elements

- *Good surface water status*
  - **Good chemical status + good ecological status**
- *Good groundwater status*
  - **Good chemical status + good quantitative status**

Means meeting all standards for chemicals:

- quality standards set at EU level: pesticides and nitrates

- threshold values: standards set at national level (varying scale).

Means ensuring a long-term balance between abstraction and recharge, protecting as well associated surface waters and ecosystems.

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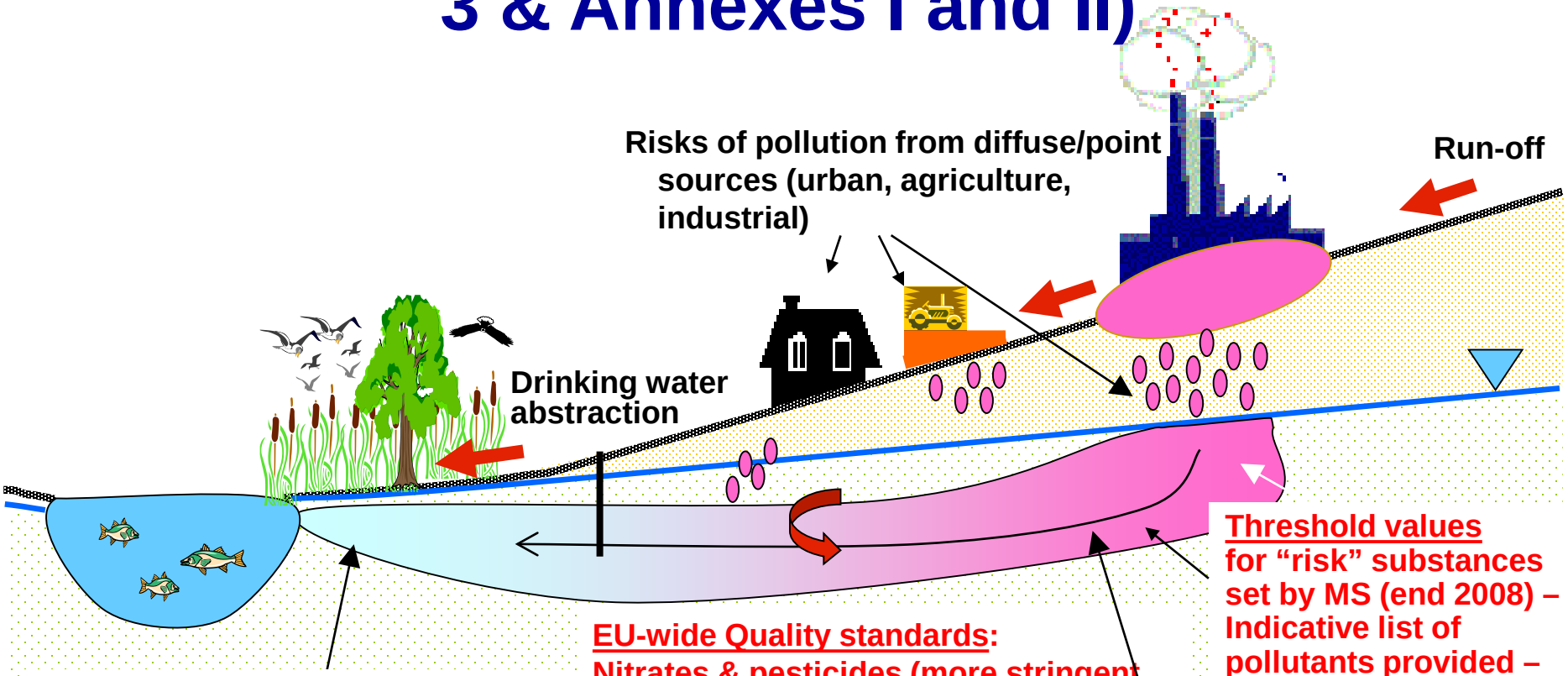
Good chemical status criteria (GWD Article 3 & Annexes I and II)



TV establishment at most appropriate level (local, regional, national), with account of impacts on aquatic and terrestrial ecosystems, human toxicology and ecotoxicology knowledge

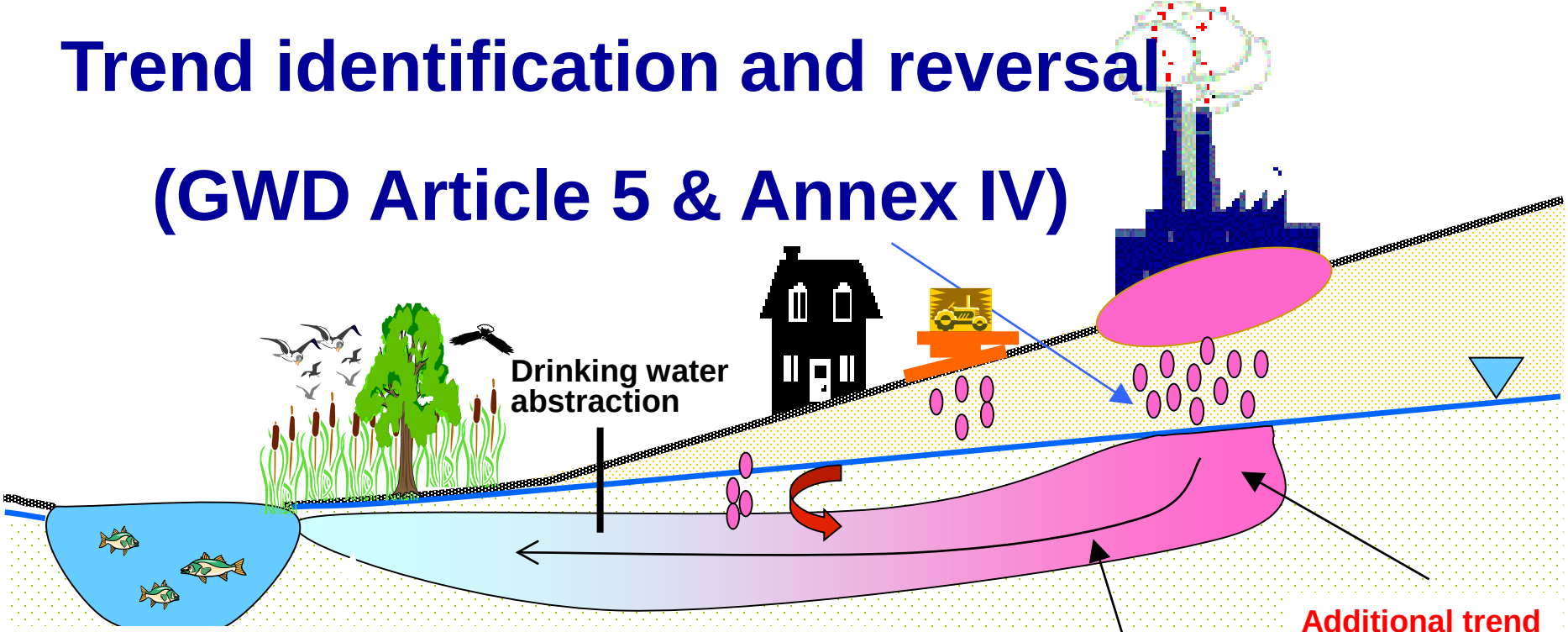
EU-wide Quality standards: Nitrates & pesticides (more stringent TVs are required if associated surface waters or directly dependent terrestrial ecosystems need them)

Threshold values for "risk" substances set by MS (end 2008) – Indicative list of pollutants provided – Transboundary coordination required

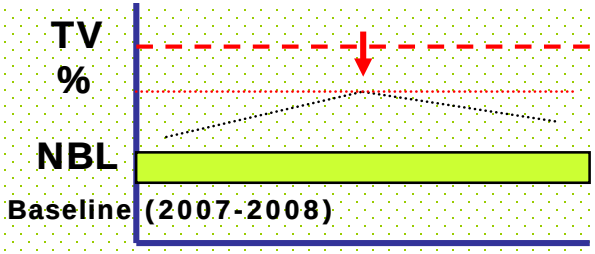
=WFD environmental objective (besides quantitative status covered by WFD)

Trend identification and reversal

(GWD Article 5 & Annex IV)



Starting point for trend reversal as % of GW standard (75% as a rule) or TV (depending on trend and associated risk) based on programmes of measures



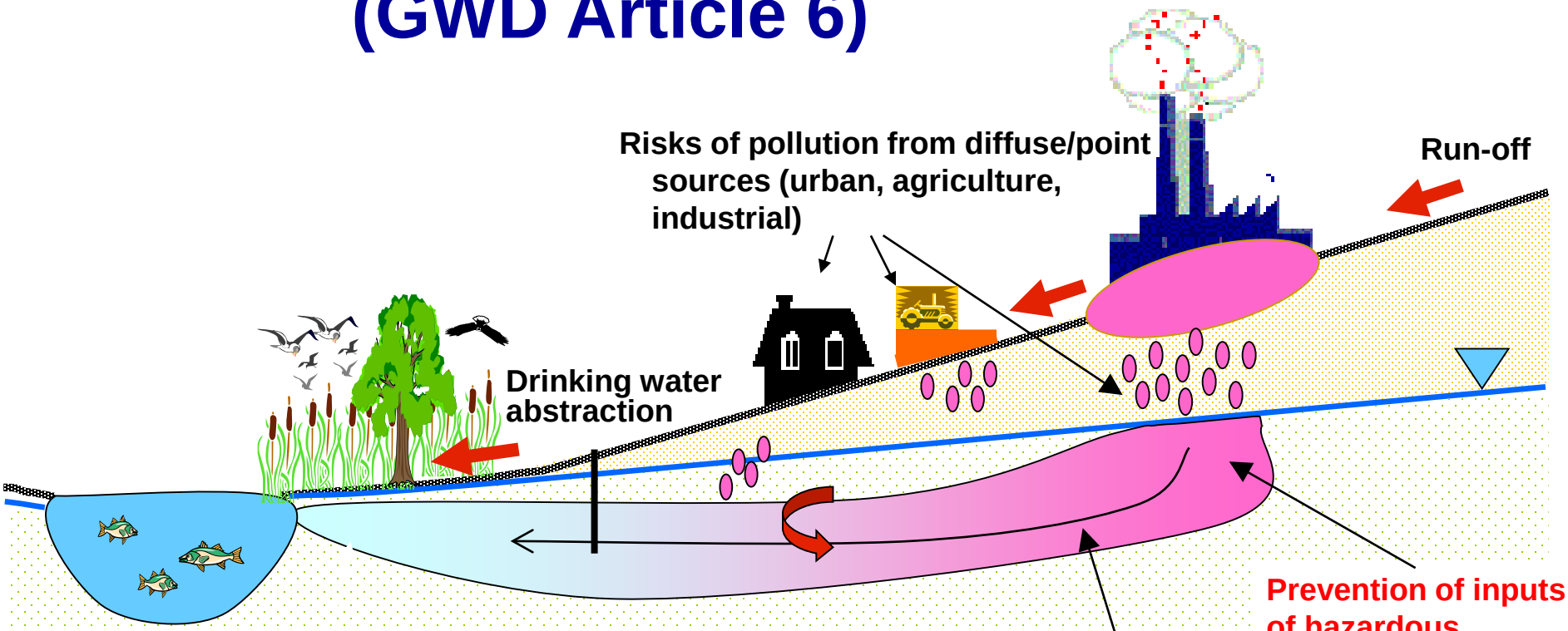
Summary to be reported in RBMP (way trends have been identified, reasons for starting point for trend reversal)

Additional trend assessment for point source pollution

Identification of statistically and environmentally significant upward trends in groundwater bodies at risk- Reversal of trends presenting a risk for associated ecosystems, human health or legitimate uses through the WFD Programme of Measures

Prevent or Limit Inputs

(GWD Article 6)



Investigation / authorisation regime in place, similarly to parent legislation. Assessment to identify which pollutants are to be considered hazardous, in particular metals and their compounds. Exemptions linked to permits can only be used if efficient monitoring is established and an inventory of exemptions has to be kept.

- **List of pollutants**

Annex I: European QS:

- **Nitrates 50 mg/l,**
- **Pesticides: individual 0,1 microgram/l, total 0,5 microgram/l**

Annex II:

- **Arsenic, Cadmium, Lead, Mercury, Ammonium, Chlorid, Sulphate,**
- **Trichlorethylene, tetrachlorethylene**
- **Conductivity**
- **Nitrites, Phosphorus (total) / Phosphates**

- **Some ‘recent’ findings**

COM stated in 2012 : About 90% of water bodies in the EU are expected to reach good gw quantitative status and 77% good gw chemical status in 2015. ***But: many gaps in status assessment, methods and monitoring networks.***

Agriculture: main source of diffuse pollution, affecting 33% of gw bodies (2012). Slight improvement on Nitrates (2009) but:13 % of the stations across Europe exceeded the 50 mg/l limit (Belgium 30 %, Denmark 26 %, Spain 22 %, Cyprus 19 %…).

Very high variability in ranges of threshold values across Europe: different approaches followed, background levels, pollutants behaviour… ***hard to compare!***

Trend reversal methodologies: need further development

- **Way forward**

  EEA's report: European waters –assessment of status and pressures 2018

  COM's assessment of 2nd RBMPs

  - **WFD achievements regarding status and pressures, compliance assessment, integrated assessment (main pressures hydro-morphological alterations, abstractions, chemicals and nutrients).**

- **COM's Report on WFD implementation: summer 2018.**
- **2019: WFD fitness check evaluation (relevance, effectiveness, efficiency, coherence and EU added value). Ensure EU policies achieve objectives at minimum cost!**

The Commission Directive 2014/80/EU amended Annex II to GWD, the amendments entered into force on 11 July 2014 and should had been transposed to national legislations by 11 July 2016: *http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2014.182.01.0052.01.ENG*

GWD implementation group with MS and stakeholders: *https://circabc.europa.eu/w/browse/b1a3fb16-0308-479a-8b6d-0c056b6890e4*

Brochure on GWD: *http://ec.europa.eu/environment/water/water-framework/groundwater/resource.htm*

More on the WFD, GWD and related legislation:
http://ec.europa.eu/environment/water/water-framework/groundwater/framework.htm

Commission reports on the implementation of GWD:
http://ec.europa.eu/environment/water/water-framework/groundwater/reports.htm

Guidance documents and technical reports assisting GWD implementation:
http://ec.europa.eu/environment/water/water-framework/groundwater/activities.htm