

# Data Dictionary and resource pages, Use of CDR and future developments – consequences of developments towards decentralised and future WISE developments

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# Content of the presentation

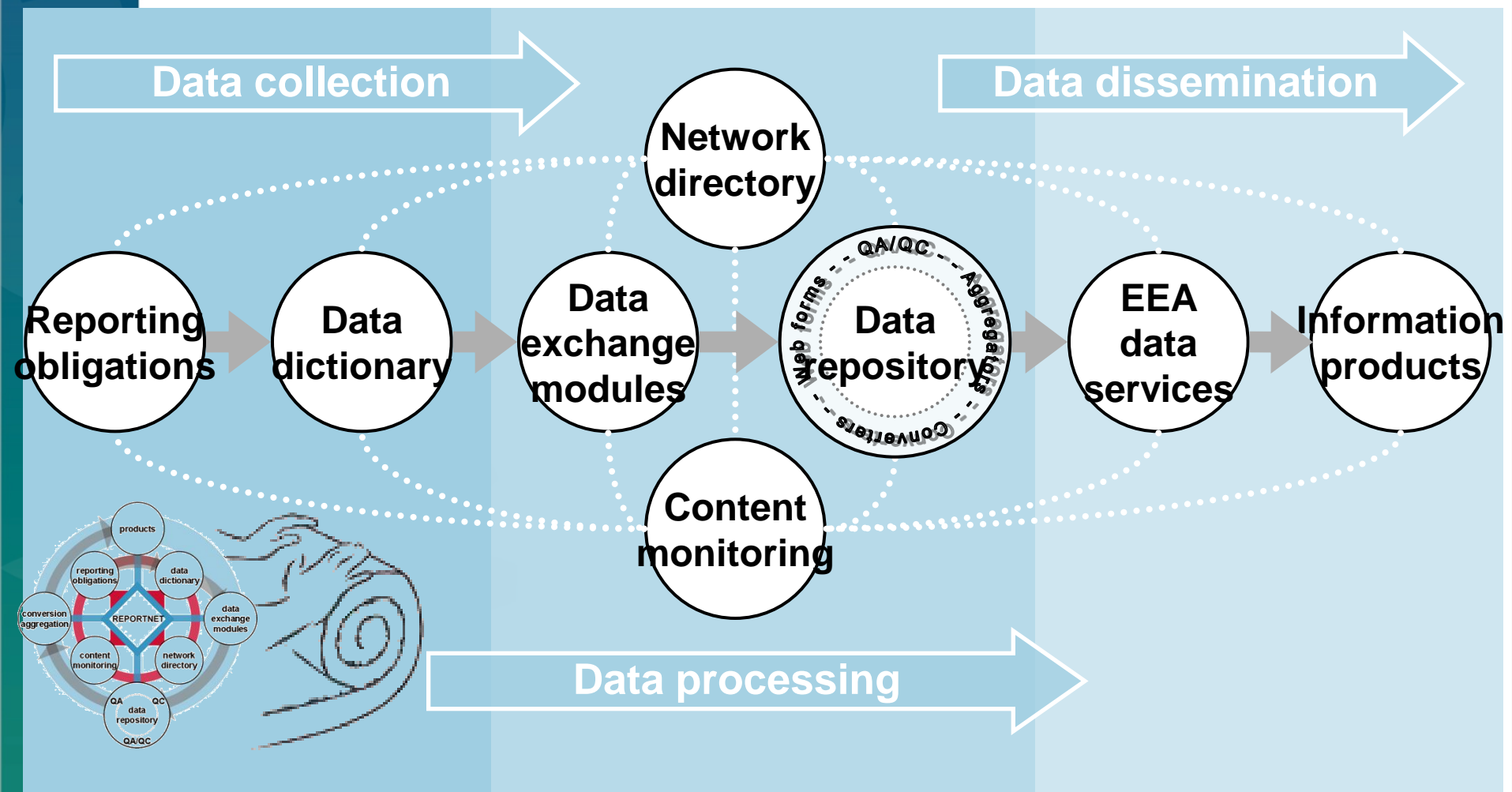
1. Current structure of the Data Dictionary
2. Current structure of the Resource pages for Water Directive reporting
3. Options for a decentralised reporting system
4. Future WISE developments
5. Questions to NRCs



# CURRENT STRUCTURE OF THE DATA DICTIONARY



# What is Reportnet?



# DD for WISE SoE Reporting categories

- **Rivers water quality<sup>\*)</sup>** (EWN-1)
- **Lakes water quality<sup>\*)</sup>** (EWN-2)
- **Groundwater quality** (EWN-3)
- **Transitional, coastal and marine waters quality** (ME-1)
- **Water quantity<sup>\*\*)</sup>** (EWN-4)
- **Emissions to water** (WISE-1)
- **Biology in Transitional and Coastal waters** (WISE-2)

*\*) including Biological elements in rivers / lakes*

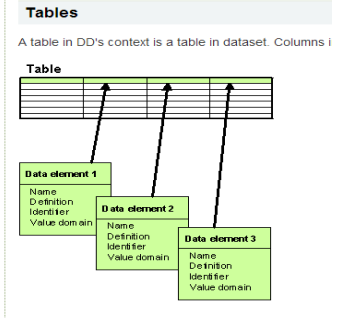
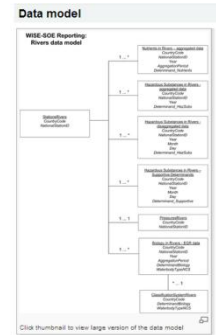
*\*\*\*) Water Quantity Reporting tool and relevant data manual are used instead of Data Dictionary*



# Current structure of the Data Dictionaries

- Detailed description of requested national dataset
- Data model
- List of tables, Instructions for filling tables
- Structure of tables incl. definition, methodology and format of all fields
- Relations between tables
- Specification of mandatory fields in each table
- Unique combination of fields in each table
- Codelists relevant to specified fields (list of allowed values)
- Summary of last update
- Templates for data in several formats (xls, mdb, xml)
- Contact to database manager

[dd.eionet.europa.eu](http://dd.eionet.europa.eu)



# Data Dictionaries - most important updates since 2009

2009:

- Tables for reporting of concentrations were divided to aggregated and disaggregated data tables
- Separated tables for reporting of nutrients and hazardous substances were created
- All large codelists (lists of nutrients, hazardous substances, RBDs,...) were made available as excel files on Circa / Forum
- A Data Dictionary for the new reporting category „Emissions to water“ was created

2009 – 2010:

- Names of selected tables were changed to become better understandable
- Short names and identifiers of all tables and fields were unified
- Codelists of substances (names, CAS numbers) were corrected and harmonized across all reporting categories



# Data Dictionaries - most important updates since 2009 (continued)

2010:

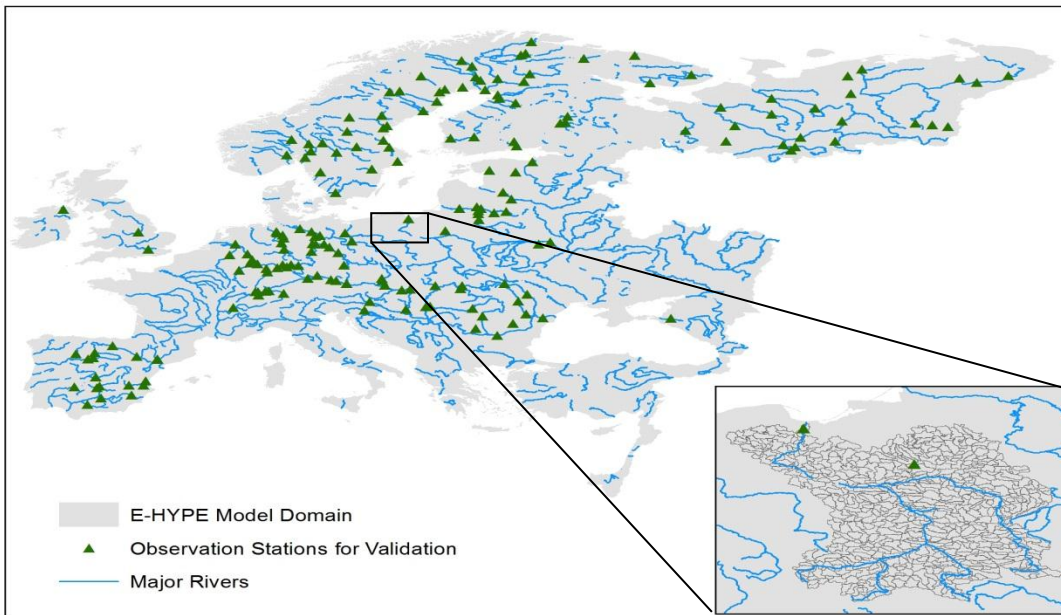
- Preferred SoE hazardous substances and nutrients were specified
- Data Dictionaries for 2 new reporting categories were created:
  - Biological elements in rivers and lakes
  - Biological elements in Transitional and Coastal waters

2012:

- Reporting of Biological elements in rivers and lakes was included into Rivers and Lakes water quality reporting categories
- Many updates implemented in the past years were focused to potential interlinking of reported SoE data with WFD datasets (e.g. adding of fields containing identifiers of monitoring stations, water bodies and river basin districts as required / defined by the WFD).
- Data Dictionaries are now stabilized, minor updates reflecting annual development can be expected only in coming years.



# SMHI: Experiences using EEA Data for E-HYPE



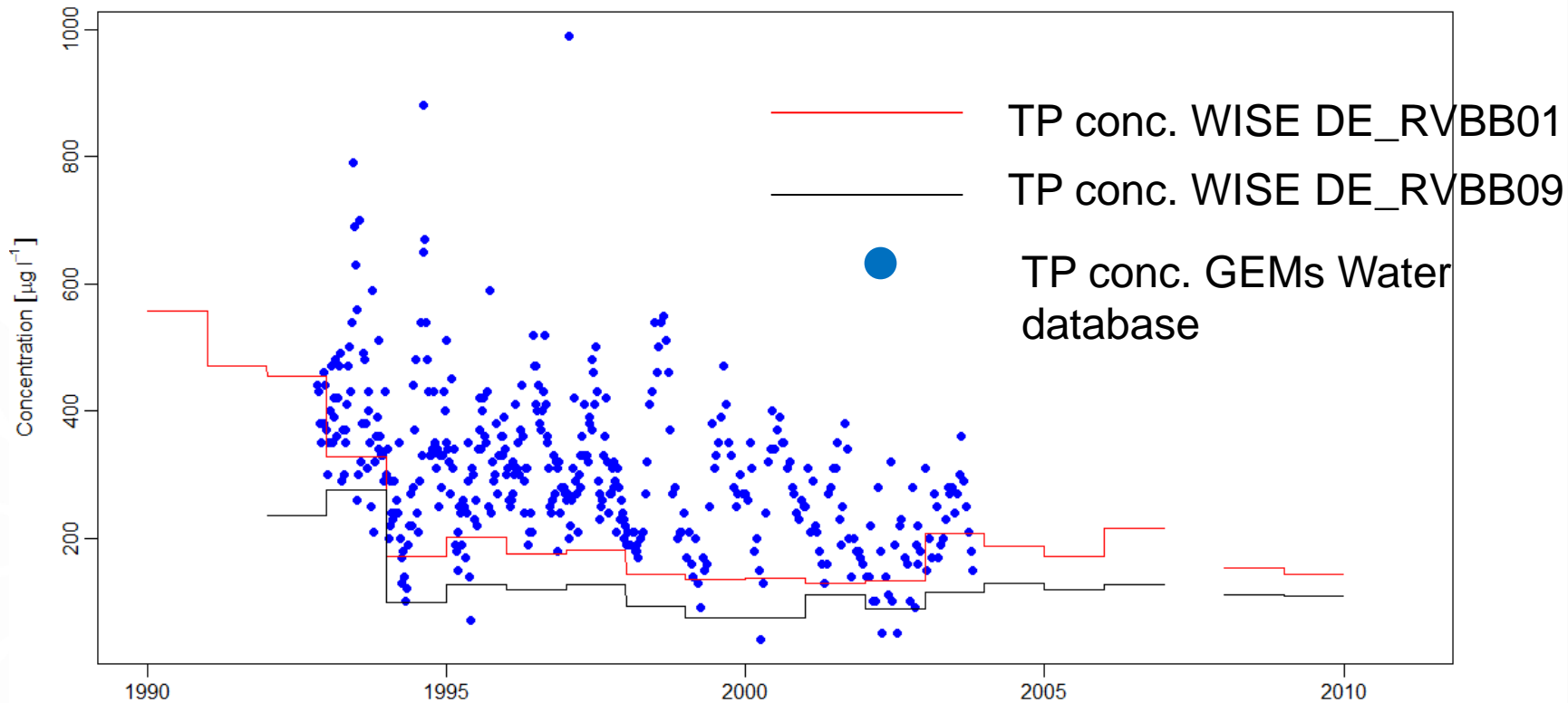
## EEA Data Experiences:

- **ECRINS** difficult to use, poor documentation, some layers (e.g. lakes) very non-homogenous, e.g. many lakes in France, none in other countries. Decided against using this data for subbasin delineation (2010)
- **WaterBase:** Some useful data for water quality inputs and validation:
  - **Industrial point sources** : we have used these as inputs to the water quality module. Hard to tell how complete this list is. E.g. seems like emissions from large scale pig farms around Baltic are not included
  - **Urban Wastewater treatment plans:** Frustrating that a map was available, but that the underlying GIS layers were not available. We were unable to use this data but would have liked to.
  - **Observed Nitrogen and Phosphorous in Rivers and Lakes:** Data presented by WISE is aggregated to seasonal or annual values. It is unclear if these values are flow weighted or not. Aggregated values not useful to describe the total nutrient behaviour of a river/lake as nutrient concentrations are highly variable in time. (see next slide)

## **E-HYPE:** High Resolution nutrient and hydrology model for all of continental Europe

- Set up using European/Global databases
- Homogenous input data level for all of Europe
- Can deliver hindcasts, forecasts, climate scenarios, used for both hydrology and nutrients including assessments of nutrient status and source apportionment of nutrients
- A useful tool for comparing national assessments using varying methods with a homogenous approach

# Comparison EEA TP reported aggregated concentrations and actual measurements



TP concentrations in Oder River, Germany



# **CURRENT STRUCTURE OF THE RESOURCE PAGES FOR WATER DIRECTIVES REPORTING**



# Current structure of the Resource pages for Water Directives reporting

1. For Water Directive data reporting into WISE, **Data Dictionaries** exist for relative simple reporting obligations:

- Bathing Water Directive (2006/7/EC)
- Nitrate Directive (91/676/EEC)

2. A **webtool** for data reporting has been created for the well established but complex reporting obligation:

- Urban Waste Water Treatment Directive (91/271/EEC)

3. **Resources pages** have been created for reporting under the following Water Directives, for which reporting is more complex and not well standardised yet:

- Drinking Water Directive (1998/83/EC)
- Water Framework Directive (2000/60/EC)
- Floods Directive (2007/60/EC)
- Marine Strategy Framework Directive (2008/56/EC)



# Current structure of the Resource pages for Water Directives reporting

The image displays two screenshots of the EIONET website. The left screenshot shows the 'XML Schemas' page for the Drinking Water Directive, listing various directives and their corresponding XML schemas. The right screenshot shows the 'Drinking Water Directive reporting resources' page, which includes a helpdesk contact information, a helpdesk log, and a list of help documents and schemas.

**XML Schemas**

EEA | EnviroWindows |

## EIONET

European Topic Centre on Inland, Coastal and Marine waters

SERVICES | REPORTNET | TOOLS | TOPICS (ETCS)

You are here: Eionet > ICM > XML Schemas

### Topic Centre Services

- >> Activities
- >> Announcements
- >> Consortium
- >> Contact List
- >> ETC Reports
- >> Location
- >> Water data centre
- >> Workshops

### XML Schemas

- dir199883ec (Directive 1998/83/EC)
- dir200060ec (Directive 2000/60/EC)
- dir200760ec (Directive 2007/60/EC)
- dir200856ec (Directive 2008/56/EC)
- dir91271eec (UWWTD Directive)

**Drinking Water Directive reporting resources**

Support files for the Drinking Water Directive reporting.

### Helpdesk

All enquiries can be directed to [helpdeskWISEreporting@atkinsglobal.com](mailto:helpdeskWISEreporting@atkinsglobal.com)

### Helpdesk log

The document log below is maintained through the course of the reporting period to ensure issues raised and responses made are available to all.

- DWD reporting phase issues (HelpdeskDWD log) v11.04.2012

### Help documents

- Document No.1: Drinking Water Directive reporting: User manual v1.0
- Document No.2: Drinking Water Directive reporting: Guide document on reporting under the Drinking Water Directive 98/83/EC
- Document No.3: Information required by the European Commission under Article 9(derogations)

### Schemas

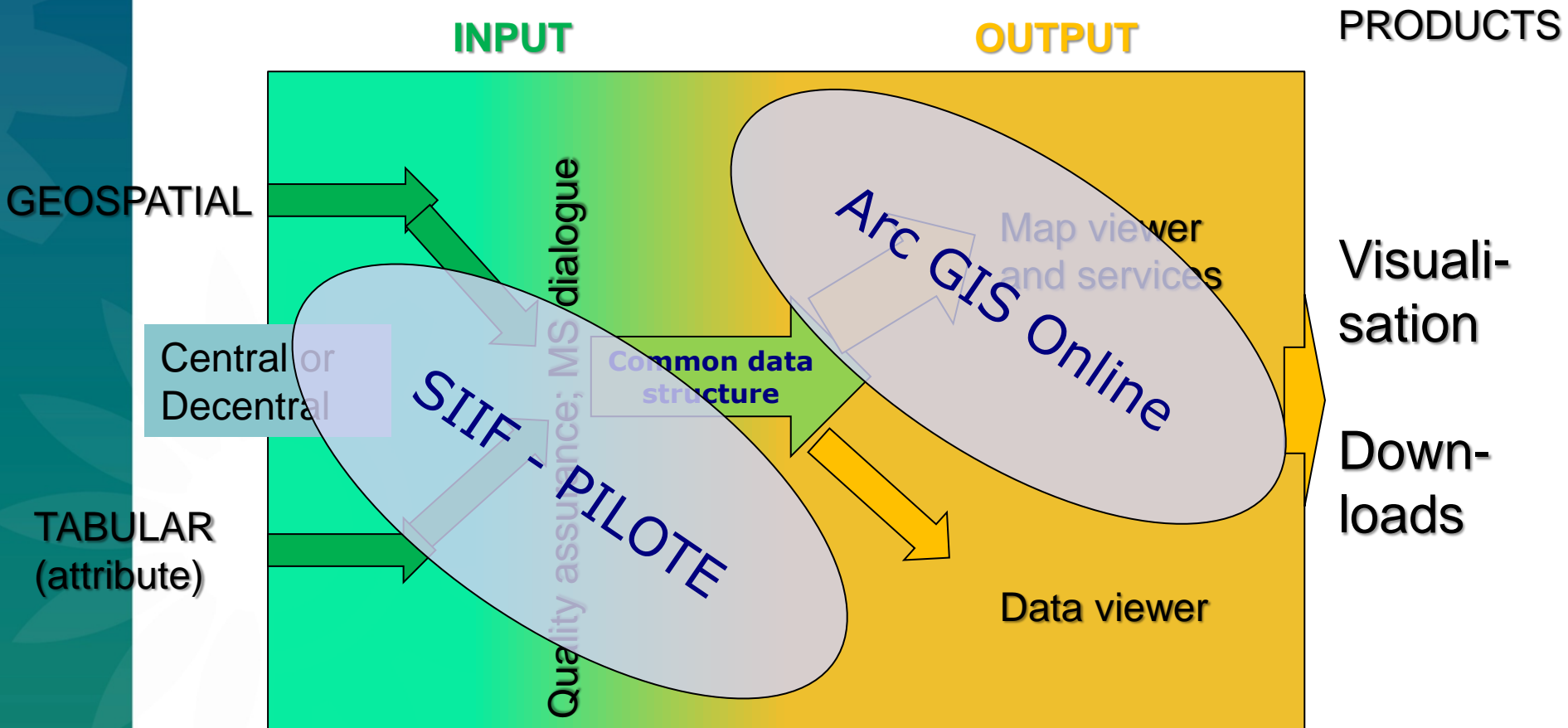
- DrinkingWaterDirective.xsd
- DWD\_D1\_Derogation.xsd
- DWD\_D2\_Derogation.xsd

For the mentioned directives, xml schemas of requested data and supporting documents are available (excel templates, description of fields, lists of parameters, guidance for GIS data reporting etc.).

# OPTIONS FOR A DECENTRALISED REPORTING SYSTEM



# Perspective of Input/output versus geospatial/tabular (attribute) data



# WISE data maintenance - need for

- INSPIRE-compliant spatial datasets and
- tabular datasets fit for integrated assessments

Tabular datasets

Monitoring data, status info  
– water quality  
(ID, parameter values)

Monitoring data, status info  
– water quantity  
(ID, parameter values)

Reported data, - emissions,  
treatment type, compliance,..  
(ID, parameter values)

Monitoring stations - quality  
(ID, ID-WB, coordinates, attributes)

Monitoring stations - quantity  
(ID, ID-WB, coordinates, attributes)

Facilities (industries, treatment plants,..)  
(ID, ID-WB, coordinates, attributes)

WFD surface water bodies (WB)  
Rivers, lakes, transitional, coastal  
(ID, shapefiles, attributes)

WFD ground water bodies (WB)  
(ID, shapefiles, attributes)

WISE Main Rivers, Main Lakes  
(ID, shapefiles, attributes)

Reference GIS datasets

WFD River Basin Districts  
(ID, shapefiles, attributes)

NUTS1, NUTS2, NUTS3,..  
(ID, shapefiles, attributes)

Country borders  
(shapefiles)

Coastline(s)  
(shapefiles)

Spatial datasets

Update frequency



# Reporting dataflow – now: reporting without INSPIRE?

## INSPIRE

Discovery service on metadata



Metadata for spatial data set and services

Spatial data sets conformant with INSPIRE



Provide access to spatial data sets and services

INSPIRE View, download, other spatial data services



## Reportnet

EIONET  
Central Data Repository

(B) Providing download and other services and direct access to data

(A) Uploading spatial data sets and tabular data

Duplicated data and double workflows

Country A



Data

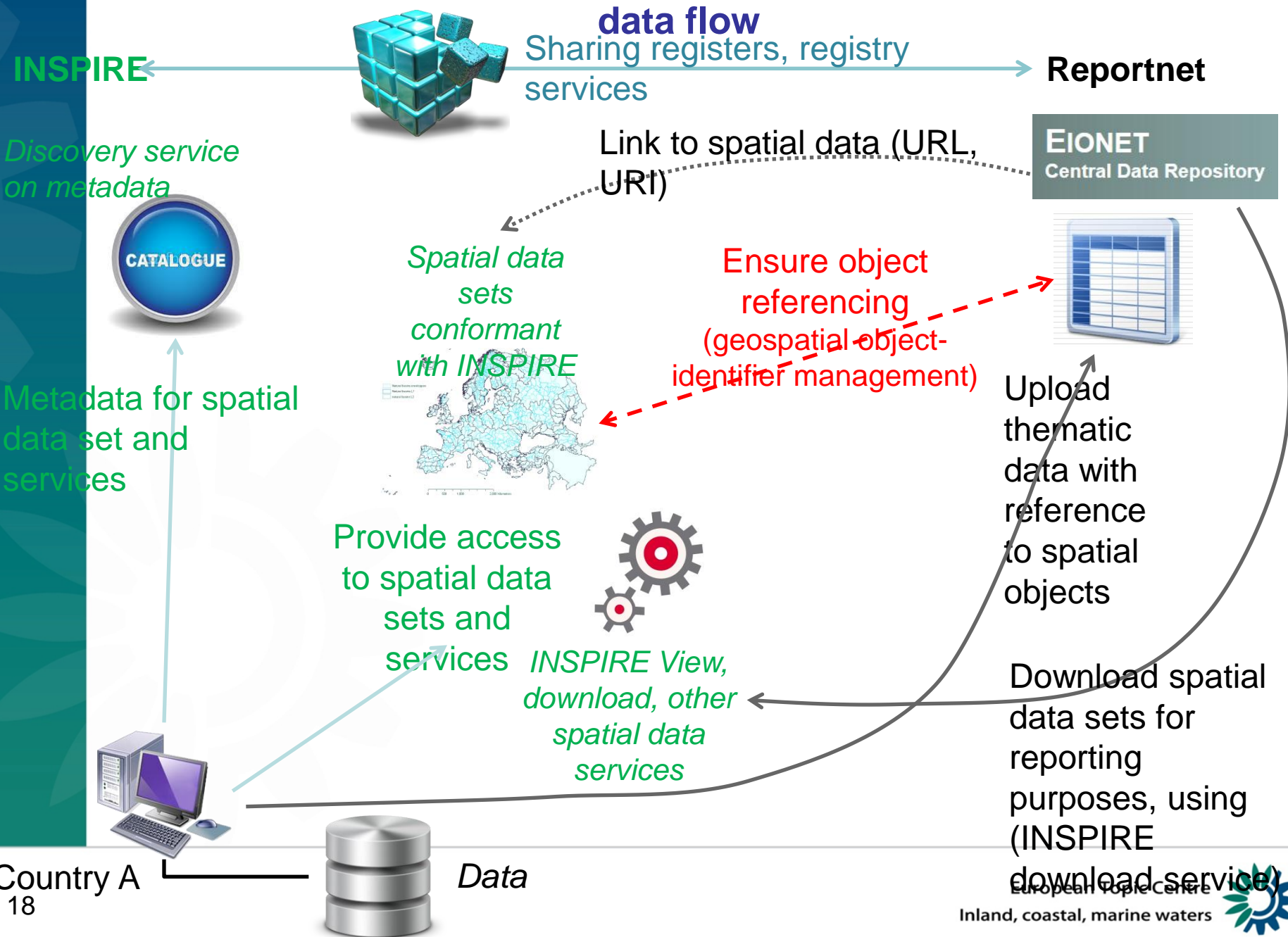


Sub-set of data for reporting

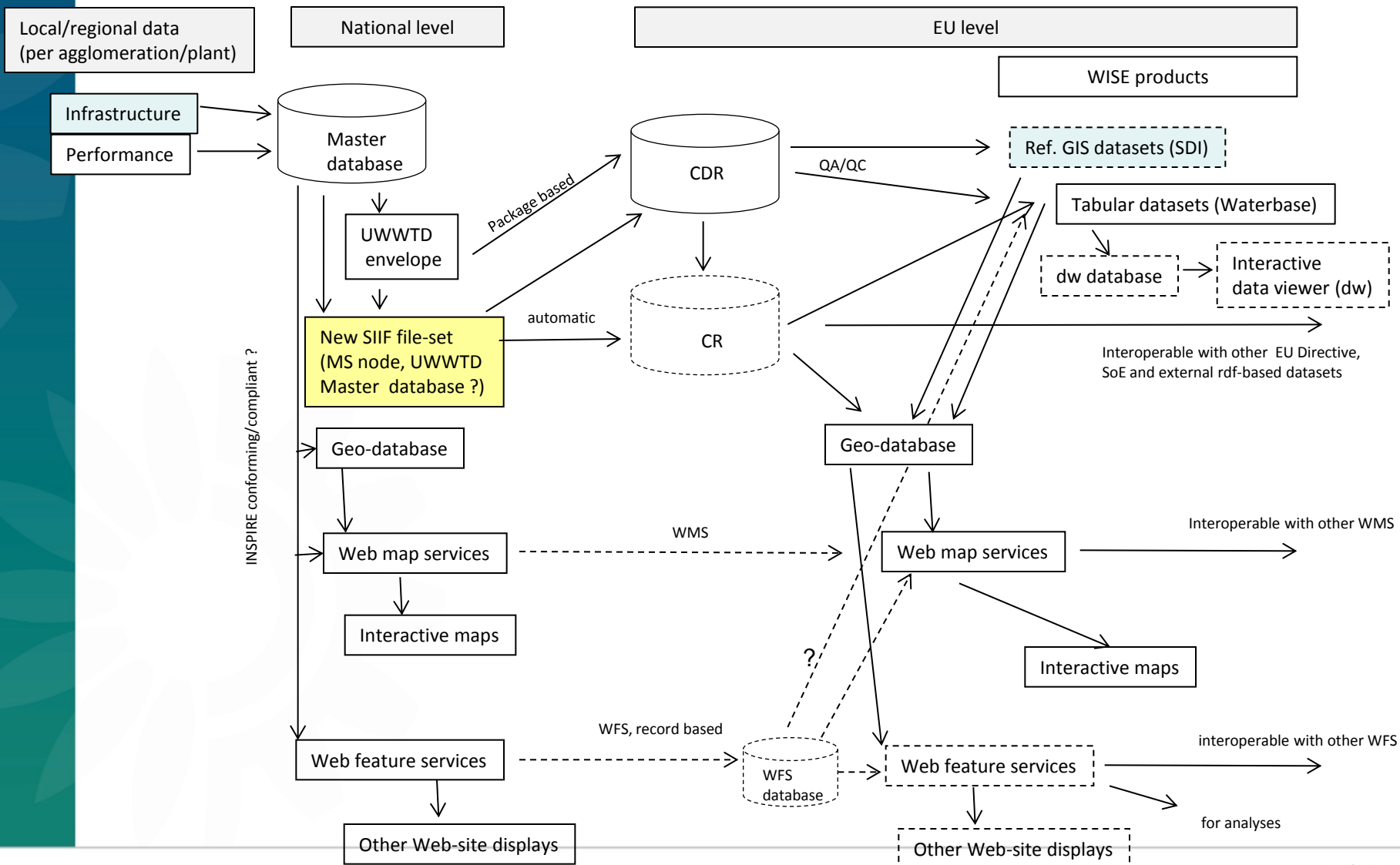
European Topic Centre  
on land, coastal, marine waters



# Reporting dataflow – scenario 1: including INSPIRE into reporting data flow



# Simplified diagram for national and EU level data related to UWWTD SIIF developments (excl. Legal procedure docs)



# FUTURE WISE DEVELOPMENTS



# Further overall WISE development in 3 phases (1)

- DG ENV and EEA plan to develop a work plan for upgrading WISE in 3 phases short term, mid-term and long term until 2025 and discuss this phasing in the next WISE steering group. Hereafter involve WISE TG.
- Set arrangements in place that all master databases (WFD, MSFD, UWWTD, etc.) come to EEA and should in addition have queries and data viewers on top of it (e.g. if data bases are too complex to use MS Access or Excel). EEA needs to define the conditions for the consultants.
- Maintain the classical **Reportnet** reporting for European datasets (SoE and, Directive data for in depth analysis) and identify which data flows could be reported via SIIFs. And in parallel stepwise adapt Reportnet towards better business processes and toward use in a distributed/decentralised system.

# Further overall WISE development in 3 phases (2)

- Further develop visualisation in ArcGIS online, further specify and refine user needs in particular from ENV side.
- Development of internal platform for display of all the datasets (including restricted data). The tool will be mainly used by **DG ENV** in support to compliance check and the EEA for the integrated assessments
- Start harvesting **geo-referenced data** via web feature services with spatial data needed for the GIS reference datasets. While agreeing the continuous update of the **spatial data with MS**.
- Develop a concept for the managing of **versions of spatial data** in geo-databases using INSPIRE

## Issues to be discussed

- Acceptable changes in Data Dictionaries resulting from changes of the data structure and content towards INSPIRE-compliant datasets.
- Checking the quality of the reported data - Reportnet automatic QA service on CDR is not used by some of countries or detected errors are not corrected

## Questions to NRCs

- Can you assure at country level proper checking and approval of the quality of your data according to the defined rules and using the QA tools provided by EEA?
- Do you have problems with the annual updating of DDs?

**Thank you for your attention!**

