



Monitoring under the WFD

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Unit D.2: Water and Marine

Water Framework Directive

key elements



- protecting all waters, surface and groundwaters;
- covering all impacts on waters (risk analysis and design of appropriate programmes of measures);
- good quality ('good status') to be achieved, as a rule, by 2015;
- water quality comprehensively defined in terms of biology, chemistry and morphology;
- water management based on river basins;
- monitoring programmes for surface and groundwaters, both as a planning tool and as an assessment instrument;
- economic instruments: getting the prices right - to promote prudent use of water;
- mandatory public participation;
- ... and complemented/guided by an unprecedented cooperation on implementation.

Principle of WFD River Basin Management Planning



- ✓ One **plan** for each **river basin** in Europe;
- ✓ River Basin Management Plan as **main instrument for planning**, reporting and **evaluation** of success;
- ✓ **Publication** 2009, **updates** every 6 years;
- ✓ **Contents**: characteristics of river basin; environmental and economic analysis; monitoring network; established environmental objectives ('good status' made operational); results of public participation; programme of measures

Environmental objective (1)

"good status"



- For surface waters defined in terms of
 - biology (aquatic flora and invertebrate fauna – composition and abundance; fish fauna – composition, abundance and age structure);
 - chemistry; and
 - hydromorphology;
- For groundwater defined in terms of
 - chemistry (compliance with numerical quality standards; no saline or other intrusions); and
 - quantity (balance between natural recharge and abstractions)

Principle of WFD River Basin Management Planning – Stepwise approach

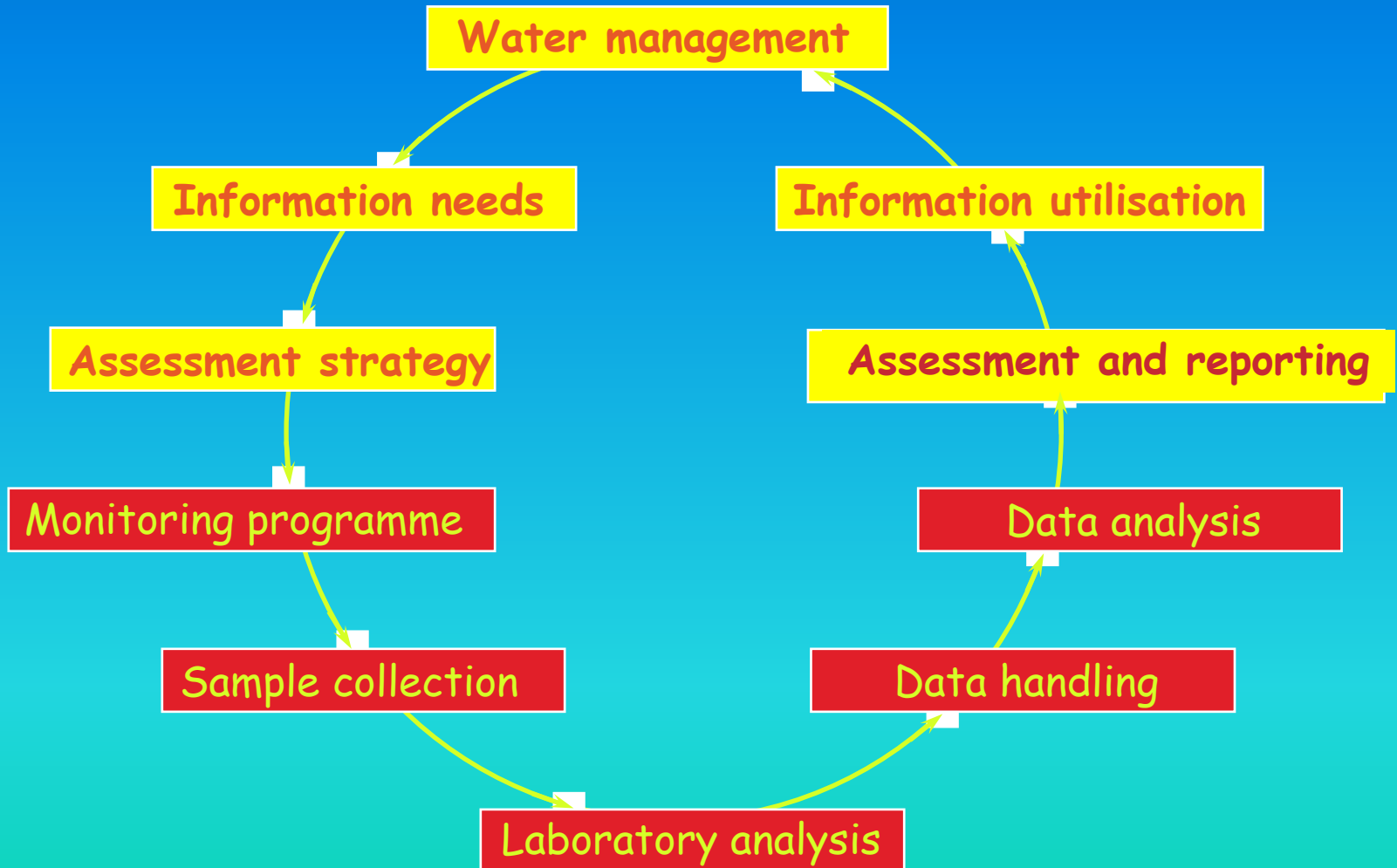


- ✓ Requirement for implementation of measures necessary to prevent or limit input of pollutants and to prevent status deterioration in order to achieve good status by 2015
- ✓ Delineation of water bodies (administrative units), analysis of pressures and impacts, economic analysis, aimed at identifying water bodies “at risk”, and establishment of register of “protected areas”
- ✓ Design of monitoring programme based on this characterisation (surveillance, operational, investigative), mapping of results
- ✓ Development of river basin management plan, including all above features and identifying appropriate measures (protection, control, remediation) in the form of basic measures (linked to effective implementation of parent legislation) and supplementary measures (e.g. different specific instruments, research, education etc.)
- ✓ Principle of cost recovery including environmental and resource costs and taking into account the polluter pays principle
- ✓ Reviewing every six years according to scientific progress



Water monitoring principles

Water Management cycle





No monitoring without objectives
- No objectives without monitoring

- International objectives
- National objectives
- Regional objectives

Guiding principles for monitoring



- Relevant (representativeness, frequency, types of parameters)
- Economically feasible
- Cost/efficient
- Scientific (techniques, data comparability)
- Flexible
- Reveal trends

WFD Article 8 – Monitoring



- for surface water status, groundwater status and protected areas
- to establish a coherent and comprehensive overview of water status within each river basin district
- Operational by 22 December 2006, and
- in accordance with the requirements of Annex V

Scope of Directive/monitoring



Covers all waters

- Rivers, lakes and groundwater
- Transitional waters
- Coastal waters up to one sea mile
- For chemical status also territorial waters which may extend to 12 sea miles from the territorial baseline of a Member State

Types of monitoring



- Surveillance
- Operational
- Investigative
- Protected Areas

Objectives - Surveillance monitoring



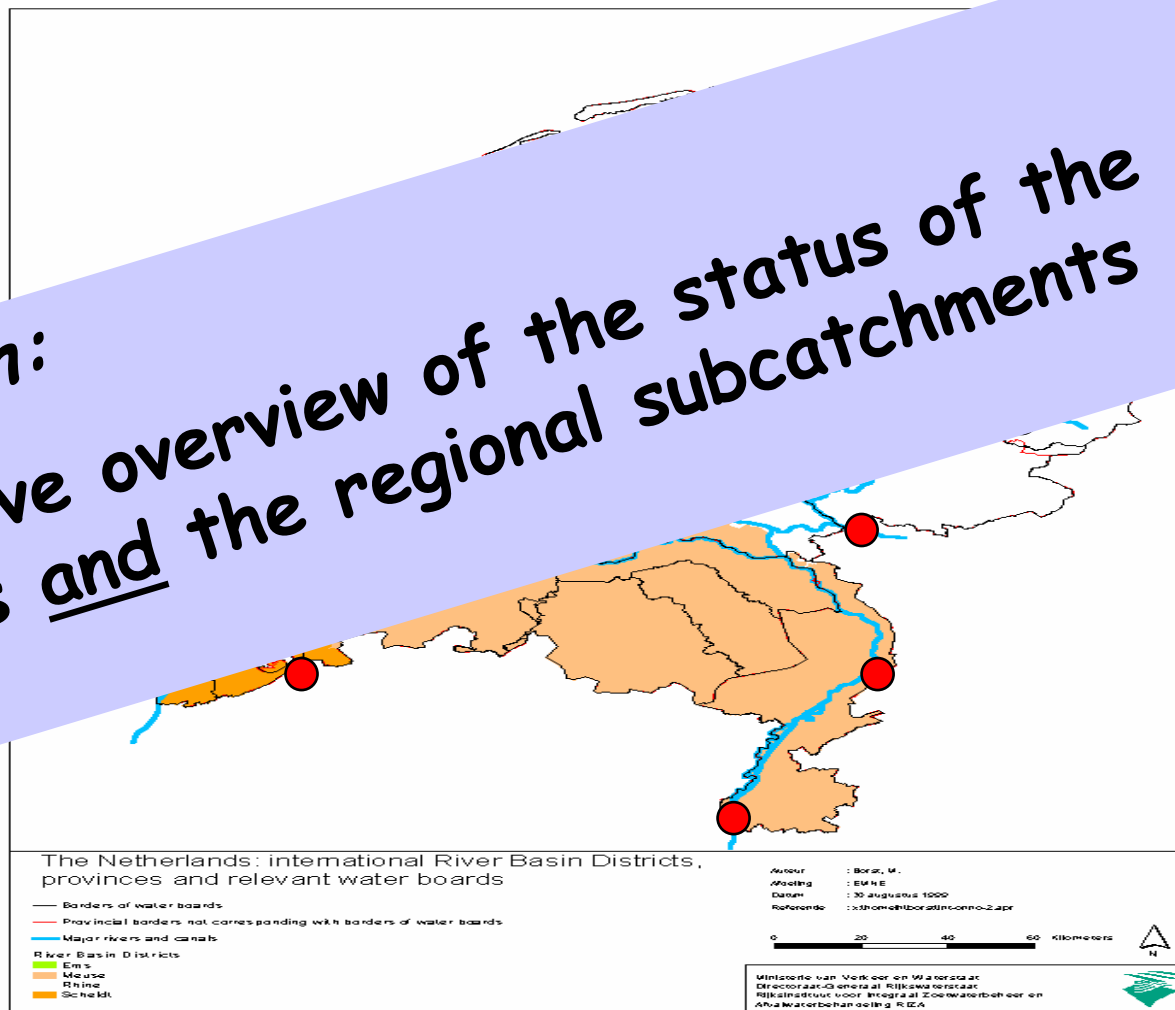
- Supplementing and validating the impact assessment procedure
- Designing efficient and effective future monitoring programmes
- Assessing long term changes
- Undertaken for at least a period of one year during the period of a RBMP

First approach for the surveillance network: *mainly in the major rivers*



Final approach:

Representative overview of the status of the major rivers and the regional subcatchments



Objectives: Operational monitoring



- Establish status of those water bodies identified as being at risk of failing to meet their environmental objectives
- Assess any changes in the status of such water bodies resulting from the programmes of measures
- Results of operational monitoring used to classify status of water bodies at risk
- Results of surveillance monitoring used to classify status of water bodies not at risk

Where to monitor? Operational



- Number of monitoring stations needs to be sufficient to assess the magnitude and impact of
 - significant point sources,
 - diffuse sources and
 - hydromorphological pressures
- More than one station per water body may be required
- Water bodies can be grouped as long as groups are similar in terms of:
 - Type
 - Pressures to which they are subject
 - Sensitivity to those pressure

Objectives: Investigative monitoring



- To ascertain the causes of a water body or water bodies failing to achieve the environmental objectives when not known
- To ascertain the magnitude and impacts of accidental pollution

Investigative monitoring – some examples



- To be planned at local level with input from RBMP stakeholder groups
- Pollution incidents
- Programme to investigate potential effects from e.g. sheep dip use
- Selected catchments to determine source apportionment between point/diffuse pollution
- Surface/groundwater interactions
- Assist with licence determinations

Monitoring for Protected Areas



- Additional monitoring required for drinking water abstraction points and habitat and species protection areas.
- Also includes areas designated as bathing waters, as vulnerable zones and sensitive areas.
- The latter are in Directives that also have monitoring requirements
- CIS Guidance on “Eutrophication assessment in the context of European water policies” includes a chapter on “Monitoring – guidance and integration of requirements stemming from various obligations”

What to monitor?



Surveillance

- Parameters indicative of all biological, hydromorphological and general physico-chemical quality elements
- Priority List substances if discharged in River Basin
- Other pollutants if discharged in significant quantities

Operational

- Parameters indicative of those biological and hydromorphological quality elements most sensitive to the pressures to which the body(ies) are subject
- Only those priority substances discharged, and other significant pollutants (including nutrients) e.g. that might cause failure of Environmental objectives

Key Principle



- The actual precision and confidence levels achieved should enable meaningful assessments of status in time and space to be made
- Member States will have to quote these levels in RBMPs and will thus be open to scrutiny and comment by others. This should serve to highlight any obvious deficiencies or inadequacies in the future

MONITORING IMPLICATIONS

Conclusions



REGULATORY IMPLICATIONS OF MEASUREMENTS

- classification and reporting on water body status
 - decision linked to this classification
 - trend studies
- management planning, identification of measures
 - follow-up of measure effectiveness

NEEDS

- harmonisation (e.g. sampling strategies)
 - validation of analytical methods
 - standardisation, if necessary
- coordination of quality control programmes
 - comparability of data

Cooperation on implementation

"Common Implementation Strategy"



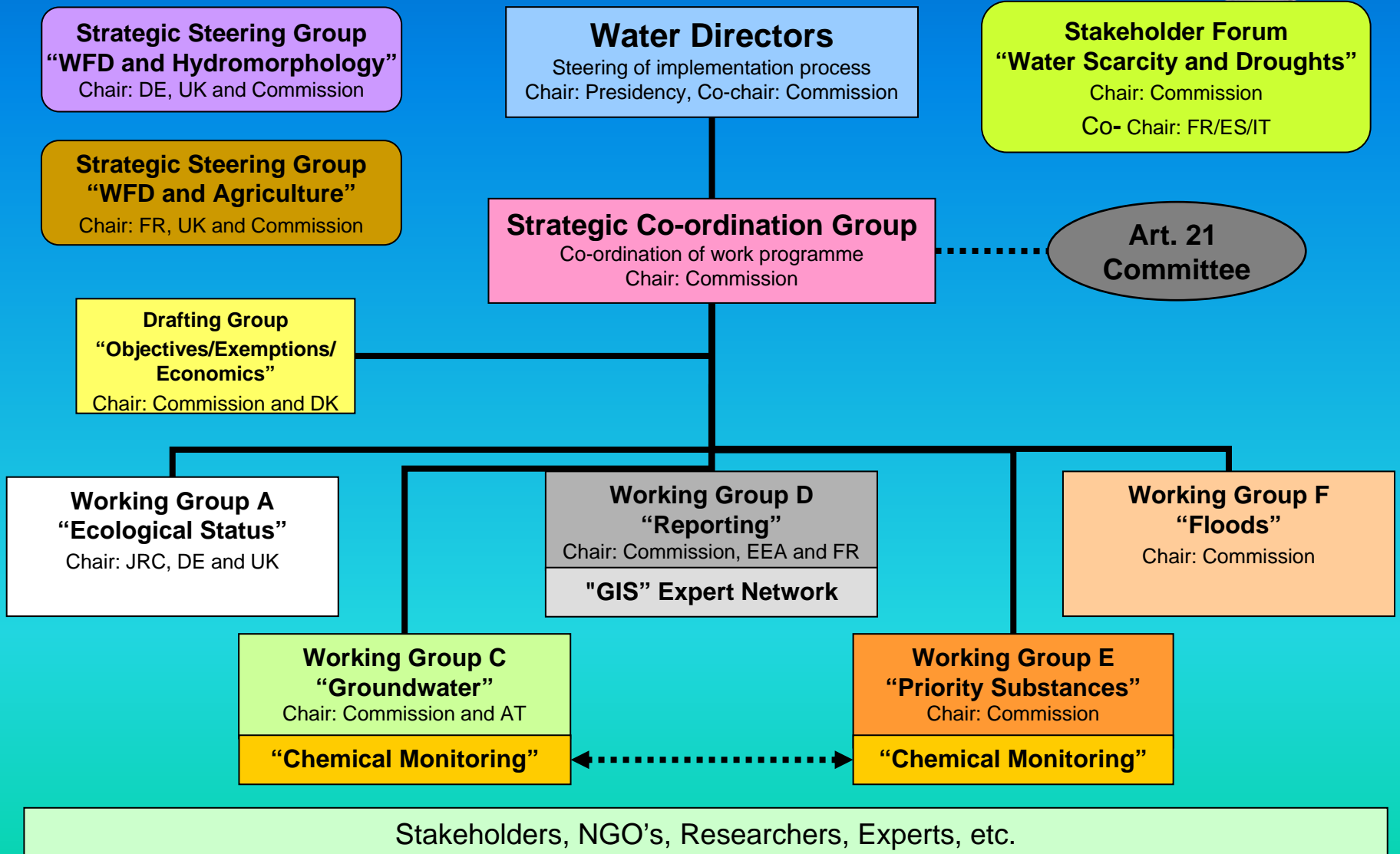
Experts from EU countries, Candidate Countries and EFTA Countries as well as stakeholders and NGOs are all involved in the implementation process :

- raising awareness and exchange information;
- developing guidance documents on various technical issues;
- carrying out integrated testing in pilot river basins;
- developing a Europe-wide information and data management system (WISE);

First assessment, after 5 years:

- guidance documents delivered within schedule and in high quality;
- joint ownership ensured;
- example of Good European Governance.

Common Implementation Strategy 2007-2009



CHEMICAL MONITORING ACTIVITY



Chemical monitoring needs

surface waters
(inland, transitional,
coastal, territorial
and other marine)

Ground
waters

Chemical monitoring guidance document,
guidelines, technical specifications

Common issues :

- Analytical quality assurance and control
- Data quality requirements
- Analytical methods

GROUND WATER :

- Sampling strategies
- Monitoring representativeness
- Background concentrations
- Trend identification and reversal
- Direct and indirect discharges

SURFACE WATERS:

- Location / frequency monitoring
- Matrices (water, sediment, biota)
- Sampling strategies
- Background concentrations
- Area of impact
- Data to be reported

References



- WFD guidance documents

(http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/guidance_documents&vm=detailed&sb=Title)

- GD No 07 - Monitoring - Policy Summary
- Guidance No 07 - Monitoring
- Guidance No 15 - Groundwater Monitoring
- Guidance No 16 - Groundwater in Drinking Water Protected Areas (New 29 June 2007)

- Med working group webpages:

www.semide.net/topics