Water Framework Directive
River Basin Specific Pollutants
10./11.6.2010 Stresa, Italy

A JRC IES – NORMAN Initiative in support to the Water Framework Directive implementation
NORMAN Network  (former EU-funded FP6 project)

• Network among national reference laboratories, research centres and associated organisations for monitoring of emerging environmental contaminants

Mission:
• Encourage more rapid and wide-scope exchange of information
• Improve data quality and comparability
• Ensure that knowledge is maintained and developed (synergies with activities funded at the national level)
Since 2009 the NORMAN network is established as a non-profit association

- 8 Founding members and 45 members in 2010
- Focus on synergies with the various activities funded at the national level in the field of EP
- Strong link with DG ENV (WFD CIS WG-E)
Collaboration between:

EC Joint Research Centre – Institute for Environment and Sustainability – Rural Water and Ecosystem Resources Unit

and

NORMAN – Network for Emerging Pollutants
Collaboration between:

EC Joint Research Centre – Institute for Environment and Rural Water and Ecosystem Resources Unit

and

NORMAN – Network for Emerging Pollutants

JRC IES – NORMAN Collaboration Agreement Has been signed today!
WFD River Basin Specific Pollutants

Main critical issues:

• Discharged in significant quantities: what do we mean by that?

• What are the relevant substances? “Well known” substances vs less investigated?
  • Lack of data, limited analytical performance, limited knowledge of the effects (high uncertainty factors), etc:
  • Limitation of the risk assessment methodology (substance-based approaches)

Risk of neglecting less investigated / emerging substances!
Well investigated vs emerging substances

There is no place for emerging pollutants if risk is not demonstrated: too high uncertainty.

**TOP-DOWN approach**
TARGET & select: PRIORITISATION of emerging SUBSTANCES

**BOTTOM-UP approach**
Identification of relevant toxicants via FIELD-BASED approaches
Biological tools in combination with chemical analysis

Data comparability:
- Common Protocol for methods validation
- ILS

Data sharing / data exchange
- Databases

NORMAN strategy
Setting priorities among emerging substances

• NORMAN Working Group N°1: Prioritisation of emerging substances
  – NORMAN list: more than 400 substances identified in the scientific literature as «emerging substances»
  – Need to establish criteria for setting priorities among emerging substances: definition of action categories to fill current gaps
  – The result of this WG will help future NORMAN actions: investigative monitoring exercises, interlab studies, biological testing (WG on bioassais), etc.
Identification of relevant toxicants and their monitoring

- Monitoring and modelling-based prioritisation can only partly solve dilemma of the complexity of contamination
- Two Working Groups dealing with the biological tools:
  - WG-2 “The value of bioassays / biomarkers in water quality monitoring: strategies for interpretation of results” (INERIS / IVM / RIVM)
  - WG-3 “Effect Directed Analysis – (UFZ): combination of extraction, biological testing, fractionation, and chemical analysis to reduce complexity of the mixture of compounds and enable identification of toxicant(s) responsible for observed biological response.
Data sharing

EMPOMASS

Mass spectra + num info for not yet identified substances

Occurrence in the environment

EMPOMAP

Substance

Experts:
- A. Bbb
- B. Bcc
- C. Bdd

Institutes:
- X. Bbb
- Y. Bcc
- Z. Bdd

Projets:
- Modelkey
- PERFORCE
- Sednet

EMPODAT

Effects
Results of bioessais, biomarkers
Add new entry or Edit the database

Select

- Chemical data
- Bioassays - monitoring data
- Bioassays - ecotoxicity studies

Next
<table>
<thead>
<tr>
<th>Determinand/measurand</th>
<th>Concentration</th>
<th>Ecosystem matrices</th>
<th>Sampling site/station</th>
<th>Sampling date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibutyl tin ion</td>
<td>3.000 µg/l</td>
<td>Biota - River water</td>
<td>River Saar, barrage Rehlingen</td>
<td>28.07.1997</td>
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<tr>
<td>Dibutyl tin ion</td>
<td>Less than 3 µg/l</td>
<td>Biota - Lake water</td>
<td>Lake Belau</td>
<td>11.09.1997</td>
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<td>Biota - River water</td>
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### QA/QC information about chemical data

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<th>Value</th>
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<tr>
<td>Limit of Detection (LoD):</td>
<td>1 µg/kg</td>
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<tr>
<td>Limit of Quantification (LoQ):</td>
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<tr>
<td>Uncertainty at LoQ:</td>
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<tr>
<td>Sample preparation method:</td>
<td>TMH digestion, n-hexane extraction, derivatization (alkylation with ethylborate or Grignard)</td>
</tr>
<tr>
<td>Analytical method/Detection:</td>
<td>GC-AED (atomic emission detection)</td>
</tr>
<tr>
<td>Has method been validated</td>
<td>No</td>
</tr>
<tr>
<td>according to NORMAN protocols?</td>
<td>No</td>
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<tr>
<td>Have the results been corrected</td>
<td>No</td>
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<tr>
<td>for extraction recovery?</td>
<td>Yes</td>
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<tr>
<td>Was a field blank checked?</td>
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<tr>
<td>Is laboratory accredited</td>
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<tr>
<td>according to ISO 17025?</td>
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<td>Is the laboratory accredited</td>
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<tr>
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<tr>
<td>Does laboratory participate in</td>
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<tr>
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<tr>
<td>given determinand?</td>
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<td>Summary of performance of the</td>
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<td>laboratory in the interlaboratory</td>
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<td>study for the given determinand:</td>
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<tr>
<td>Are control charts recorded for</td>
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<td>the given determinand?</td>
<td>z-score (according to ISO-15528) ≤</td>
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<td>Are the data controlled by a</td>
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<td>competent authority?</td>
<td>Yes</td>
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• Harmonisation and validation of analytical methods
• Implementation of NORMAN methods validation protocols in European Standardisation (CEN)

Validation protocol developed during the NORMAN project: common European framework for methods validation

TC 230 resolution (397): NORMAN protocol will be the basis for New Work Item Proposal (future CEN TS)
Regulated Pollutants under WFD
Regulated Pollutants under WFD

WFD Priority Pollutants

Monitoring at EU level
Regulated Pollutants under WFD

WFD Priority Pollutants

WFD „Other“ Pollutants

Monitoring at EU level
Regulated Pollutants under WFD

WFD Priority Pollutants

Monitoring at EU level

WFD River Basin Specific Pollutants
Regulated Pollutants under WFD

WFD Priority Pollutants

Monitoring at EU level

WFD River Basin Specific Pollutants

National monitoring
Universe of Chemicals
Universe of Chemicals

Candidate substances
Universe of Chemicals

Candidate substances

River Basin Specific Pollutants

National EQS
Universe of Chemicals

Candidate substances

Selection

River Basin Specific Pollutants

National EQS
Universe of Chemicals

Candidate substances

Identification

River Basin Specific Pollutants

Selection

National EQS
4 thematic areas:
• Data availability
• Identification of RBSP candidate substances
• Selection of RBSP
• Monitoring of RBSP
This workshop is a WORK-shop.....
Scope of the workshop:

- Be a platform for informal information exchange among Member States
- Identification and discussion of relevant questions among Member States
- Identification of priority development needs
Workshop preparation:

• Questionnaire distributed to MS via WG E and Chemical Monitoring group (14.1.2010)

• Drafting of questions for thematic areas
Workshop organisation:
- Introduction and background info
- Overview on questionnaire feedback
- Working sessions on thematic areas
- Wrap up and outcome drafting
Working sessions:
• 5 min flash presentations for „scene setting“
• Discussion of questions
• Answer compilation at tables
• Collection of table answers
Envisaged workshop output:

- Enhanced communication among MS
- Compilation of questionnaire feedback
- Compilation of discussion outcome
- Drafting of report and publication after agreement by participants as EU report

Overview on feedback presented by Henna Piha