FT5.13
Distributed Water Information Systems for water resources and risk management ...

Water Information System for France

Pascal Berteaud
Water Director
WIS-Fr, a distributed information system which
• reflects the distributed nature of water public stakeholders in France
• is aligned on the public environment/water policy
• endorses the “evaluate, perform, report” schema, with risk assessment as a key component, and reporting as a linking process across geographic levels
• is endowed with a shared information framework, consistent with external requirements and an information infrastructure based on open standards and metadata
WIS-Fr is a distributed information system

- not a choice

- but a reflection of the distributed nature of water public stakeholders in France:
  - multiple independent objectives
  - information sharing is a “service of general interest”
  - since 1992: a network of cooperating public authorities and bodies
WIS-Fr, as a distributed information system

- in itself is not a booster for cooperation (it is not a clearing house)!
- but does expose possible failures of the organisation's governance
- needs first to be aligned on the organisation's strategy/policy (as any information system):
  - **Environmental information policy** (Rio, Århus, ...): a comprehensive view (state, pressures, impacts, economy, ...), free public access to data
  - **Public water policy** ...
WS-Fr/ public water policy

• First France's Water Act (1964): “general inventory”

• Second France's Water Act (1992): “integrated management plan” (aka “SDAGE”)

  
• The synthesis:
  
  • Monitoring programme
  
  • Management plan / PoM

• Plus reporting
**WFD’s schema**

- **Evaluate**
  - Risk assessment
  - Emission control
  - Economic analysis

- **Report**

- **Perform**
  - River basin management
  - Public information + participation

*risk of failing environmental objectives*
Floods directive (proposal) schema

Risk* assessment

Evaluate

+ Flood forecast (Fr)

Report

Risk* management

Perform

+ Alert (Fr)

* Flood risk

Ministry of Ecology and Sustainable Development

Water Directorate

March 2006
A generic informational schema

- Start
- Evaluate
- Perform
- Report
With the same key component: risk assessment

- needs
  - Observations (available data)
  - Spatial and temporal modelling
  - Statistics
  - Spatial information and GIS
Inside: a distributed information system

• needs a shared information framework to secure internal interoperability:

  • **Conceptual interoperability**
    ex: what an “agglomeration” actually is

  • **Referential interoperability**
    ex: what WWT plant #060913001005 refers to, in the real world

  • **Syntactic interoperability**
    ex: how to write and read messages like

    ```xml
    <StationMesure>
    <CodeStationMesure>K4350020</CodeStationMesure>
    <LbStationMesure>La Loire à Orléans</LbStationMesure>
    </StationMesure>
    ```
Outside: interactions of national/European levels

- Compliance checking
  - evaluate
  - State of the environment assessment

- Law enforcement
  - perform
  - Supplement
  - Revision

- report
  - European level
  - National level

- report
  - evaluate

- report
  - perform
Linking levels via reporting

level  

report  
perform  

superlevel  

evaluate  
report  

May apply to different geographical levels:

- national / international,
- river basin / national, ...
A (distributed) information system lives in multiple global contexts

- the information framework must be consistent with external requirements:
  - European Commission
  - European Environment Agency
  - OECD
  - UNEP
  - International conventions, ...
- these external requirements should be mutually consistent!
A distributed information system lives in heterogeneous technical contexts

- needs an information infrastructure
  - based on open standards (W3C, OGC) – for system interoperability
  - enhanced with metadata – for information usability
- is implemented by web sites accessing metadata catalogs and databases via web services
- A picture ...
end