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Project acronym: **Euro-limpacs**

Project full name: **Integrated Project to evaluate the Impacts of Global Change on European Freshwater Ecosystems**

Instrument type: **Integrated Project**

Priority name: **Sustainable Development**

### **Deliverable No. 37**

**Report from first Catchment Level Meetings (on Requirements regarding DSS in Water Management) – Questionnaire results**

Due date of deliverable: **31 January 2005**

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Start date of project: **1 February 2002**                      Duration: **5 Years**

Organisation name of lead contractor for this deliverable: **entera**                      Revision

<b>Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)</b>		
<b>Dissemination Level (tick appropriate box)</b>		
<b>PU</b>	Public	
<b>PP</b>	Restricted to other programme participants (including the Commission Services)	X
<b>RE</b>	Restricted to a group specified by the consortium (including the Commission Ser-	
<b>CO</b>	Confidential, only for members of the consortium (including the Commission Services)	

## Results for Spain / Regional Level: Autonomous Community of Catalonia

Reported by Joan Riera, University of Barcelona

### META DATA

<b>1. Where and when are workshops held?</b>
14.02.2006 Agència Catalana de l'Aigua (ACA) (Catalan Water Agency) <a href="http://www.gencat.net/aca">http://www.gencat.net/aca</a>

<b>2. Who gives information?</b>		
Names	Role/Position	Institution
Antoni Munné	WFD implementation coordinator	ACA

<b>3. How is information acquired?</b>	
•workshop	
•individual interviews	X
•questionnaires	X
•internet investigation	X

### “END-USER MAPPING”

<b>4. Who is responsible for implementing the WFD?</b>	
•Name and Administrations Level of the authority (national/regional)??	Catalonia: Mr. Gabriel Borràs Director de Planificació, ACA  Spain: Mr. Jaime Palop Director General de Agua (Chief Water Director) Ministry of the Environment  Mr. Teodoro Estrela  Subdirector General de Planificación WFD Coordinator at the national level

<b>5. How is the decision making process (regarding water management plans) organised?</b> (tables, organisation charts)	See organizational chart for Catalan Water Agency attached to this document
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<b>6. Which other parties are engaged in that process?</b>	
<ul style="list-style-type: none"> <li>•(stakeholders, NGOs)</li> </ul>	A high-level decision-making body that includes all major stakeholders – the CUSA (Consell d'Administració per a l'Ús Sostenible de l'Aigua, or, Administrative Council for the Sustainable Use of Water Resources. Includes users, polluters (industry, agriculture), tourism, etc.
<ul style="list-style-type: none"> <li>•General public</li> </ul>	Not yet, but it is planned, following WFD requirements. There is occasional consultation, but not in a systematic, organized way.

## **CORRELATION BETWEEN IMPLEMENTATION OF WFD AND CLIMATE CHANGE**

<b>7. Which role do climate change issues play in the implementation process of the WFD?</b>	<p>The priority now lies in the implementation of the WFD. Climate change is kept in mind, but is not a burning issue. Special concern for changes in hydrology, this being a Mediterranean area.</p> <p>A study is being planned to analyse impacts of climate change scenarios on stream hydrology using the catchment/vegetation model GOTILWA+, developed at the Centre for Ecological Research and Forestry Applications (CREAF), based at the Autonomous University of Barcelona  <a href="http://www.creaf.uab.es/gotilwa+/">http://www.creaf.uab.es/gotilwa+/</a>.</p>
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<b>8. Who is responsible for integrating questions regarding climate change into the implementation process of the WFD?</b>	Climate change impact on WFD implementation are not considered in any systematic way as yet –priorities are on meeting the WFD implementation timetable.
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<b>9. How are the participation requirements in § 14 WFD interpreted? (see table 1 in the appendix)</b>		
	<b>current</b>	<b>planned</b>
Participation is done as		
•Information provision	<b>X</b>	<b>X</b>
•Consultation	<b>occasional</b>	<b>X</b>
•Active involvement	<b>X</b>	<b>X</b>
•Shared decision making	<b>X</b>	<b>X</b>
•Awareness raising		<b>X</b>

<b>10. Participation: who is (should be) involved? to what extend?</b>		
See questions 5/6.	<b>IS</b>	<b>SHOULD B E</b>
•Administration, public bodies	administration	both
•Stakeholders (key persons, NGO's)	in particular cases, and through CUSA (see Q.6)	planned
•Open to the general public	initial planning under way	should be, but twith different degrees of participation that still need to be worked out

## PROBLEMS AND PRIORITIES

11. WHAT PROBLEMS DO AUTHORITIES / DECISION MAKERS HAVE TO SOLVE IN TERMS OF DECISION MAKING FOR IMPLEMENTING THE WFD?		
Priority of problem, please insert (highest=5; no problem =0) <b>Major problems:</b>	Missing data / data gaps	Assessment methods
nitrate pollution associated with manure and manure effluents		
water abstraction, modification of natural hydrological regime		
invasive species		
combined sewer overflows		
implementation of tertiary treatment in sewage treatment plants		
salinization in some rivers affected by salt mine drainage		

**12. Are there typical problems in the catchment (i.e. pollution through agriculture) and typical ranges of possible responses (management options, solutions)?** (Answers to this could be helpful for designing typical management options as part of our DSS)

For the Catalan watersheds managed by ACA (those that are not part of the Ebro river catchment), the main problems are those listed in the previous question.

For La Tordera, the focus catchment for Eurolimpacs, specific problems are:

- industrial effluents, in particular organic loads
- forestry practices on the floodplains
- inefficient sewage treatment for some urban areas, and problems with combined sewer overflows

## STATUS QUO OF MODELS/DSS USE

It is necessary to get a picture of the current use of models and Decision Support Systems in the different countries/catchments. Are they used at all? What kind of models?/To what extend?

<b>13. Kinds of models used for the decision making process?</b>	
<ul style="list-style-type: none"> <li>• Scientific models/tools for internal use, Models for part/sub problems e.g.               <ul style="list-style-type: none"> <li>- hydraulic models (discharge, floods)</li> <li>- river habitat models</li> <li>- groundwater models</li> <li>- water resource management model / DSS</li> </ul> </li> </ul>	
Missing: models for catchment emissions of pollutants (including nutrients), but some efforts under way with MONERIS and INCA	
• Tools/models to be used by participants (stakeholders/ general public)	none
<ul style="list-style-type: none"> <li>• integrated Decision Support Systems (DSS)</li> </ul> <p>custom DSSs made by LEQUIA (University of Girona, <a href="http://lequia.udg.es">http://lequia.udg.es</a>) to support planning (wastewater treatment plants, industrial effluent treatment); also ACA collaborated in the development of STREAMES, a DSS prototype for stream reach management</p>	

<b>14. Which models exactly are used in different fields?</b>		
	<b>(please give exact names)</b>	<b>Advantages and problems of the tools/models?</b>
•Tools/models for calculating acidification (N + S deposition)	not a problem in Catalonia	
•Tools/models for calculating nitrification (N-/P- pollution)	MONERIS INCA (still in the calibration stage)	
•Tools/models for calculating water abstraction / hydrology, floods	HEC-RAS MIKE 11. MIKE 21	
•Tools/models regarding faunistic and floristic assessments (biodiversity)	RHABSIM, RIVER-2D	
•Tools/models regarding economic aspects	ACA is establishing initial contact with research groups specialising in cost/effectiveness	
•Rainfall-runoff	Sacramento, NAM	
• Groundwater	MODFLOW	
•Water management	AQUATOOL, SIM-5	

<b>15. Who produced / produces models used in different fields?</b>			
	<b>In-house developments</b>	<b>Scientists in academia</b>	<b>Consulting companies</b>
general	X	X	X
•Tools/models for calculating nitrification (N-/P- pollution)		X	
•Tools/models for calculating water abstraction		X	X
•Tools/models regarding faunistic and floristic assessments (biodiversity)		X	X
•Tools/models regarding economic aspects	X	X	

16. How would you assess the various products regarding ...	(5= very good to 0 = very poor)		
	In-house developments	Scientists in academia)	Consulting companies
Ability to produce solutions	3	4	3
Value for money	5	4	4
userfriendliness			
Adaptability to new tasks			
other			

it's difficult to give an overall assessment –decisions are very much case-dependent

## END-USERS' REQUIREMENTS AND SUGGESTIONS

This is the core of the required information: What can Euro-limpacs do for the end-users?

In this case it is important to take into account not only the regional/catchment point of view. Some issues might be more relevant for the national level.

17. General demand for information relevant for resp. catchment management provided by euro-limpacs		
	Policy level	
	national	regional
Climate change scenarios / models / information		X
Influence of climate change on		
• Surface water		X
• Groundwater		X
• Biodiversity	X	
• Economy	X	X



<b>18. General willingness to use Decision Support Systems</b>	
Role a DSS might play in the administrative work	in support of elaborating, implementing and monitoring progress of WFD river basin programmes of measures
Preconditions for using DSS/models ...	<ul style="list-style-type: none"> <li>• must be based on good data and a good knowledge base</li> <li>• should have clear objectives</li> <li>• should be user-friendly</li> <li>• should be able to link to the agency's databases and GIS</li> <li>• should provide the user with the information about the reasoning process followed by the DSS to reach conclusions</li> </ul>

**DETAILED REQUIREMENTS REGARDING MODELS/DSS**

<b>19. What kinds of models / regarding which issues are needed?</b>	
•Scientific models (see examples in question 14)	diffuse pollution
•Economic models	cost-effectiveness

<b>20. Which kinds of information (formats) would be helpful for solving each of the problems? (see question 11)</b>
<p>at a minimum:</p> <ul style="list-style-type: none"> <li>• qualitative assessment of expected trends</li> <li>• cause identification</li> <li>• prioritization of measures to be applied</li> </ul>

<b>21. What kind /accuracy of output of the DSS is useful for end-users?</b>	
(for example: are 5 step scales detailed enough?)	yes, the WFD 5 degrees should be sufficient
Questions concerning accuracy and uncertainties are not that important as long as the DSS is able to rank two or more different management options	(I agree absolutely = 5, I don't agree at all = 0)

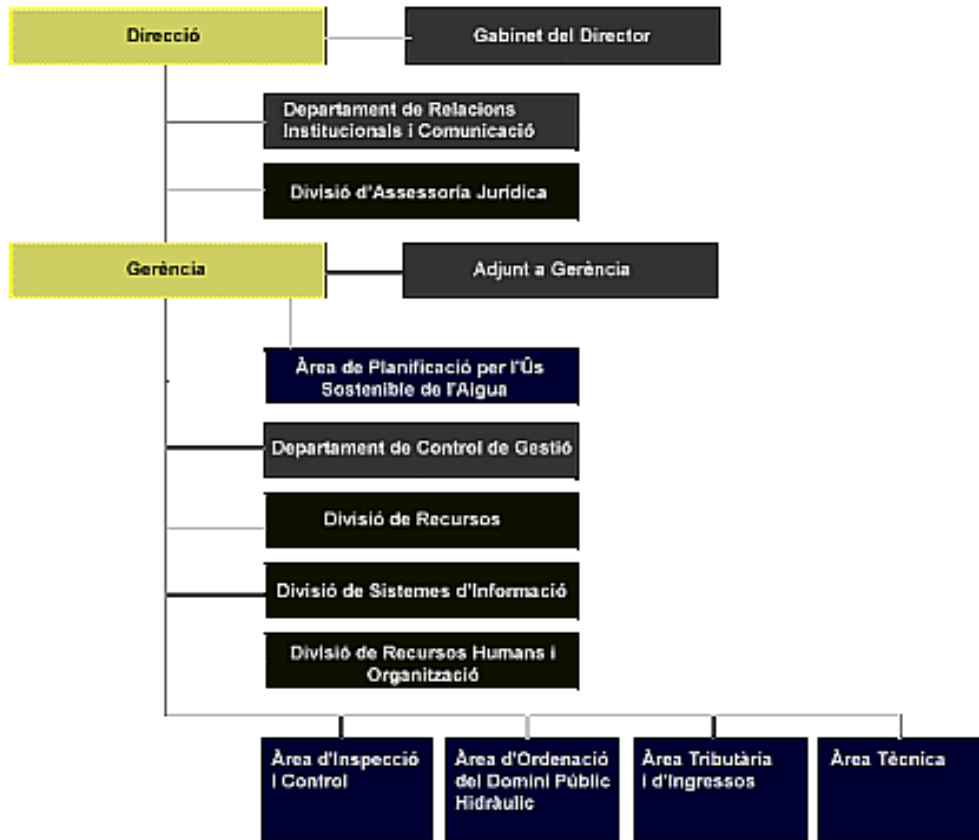
<b>22. Requirements regarding user interface, layout</b>	
a) End-user requirements:	<ul style="list-style-type: none"> <li>• open, scalable system</li> <li>• access to see/edit knowledge base by authorized users</li> <li>• connections with databases and GIS</li> </ul>
b) Requirements for stakeholder participation:	<ul style="list-style-type: none"> <li>• should provide clean, clear, intelligible reports for communication with stakeholders</li> <li>• should be visually attractive</li> </ul>

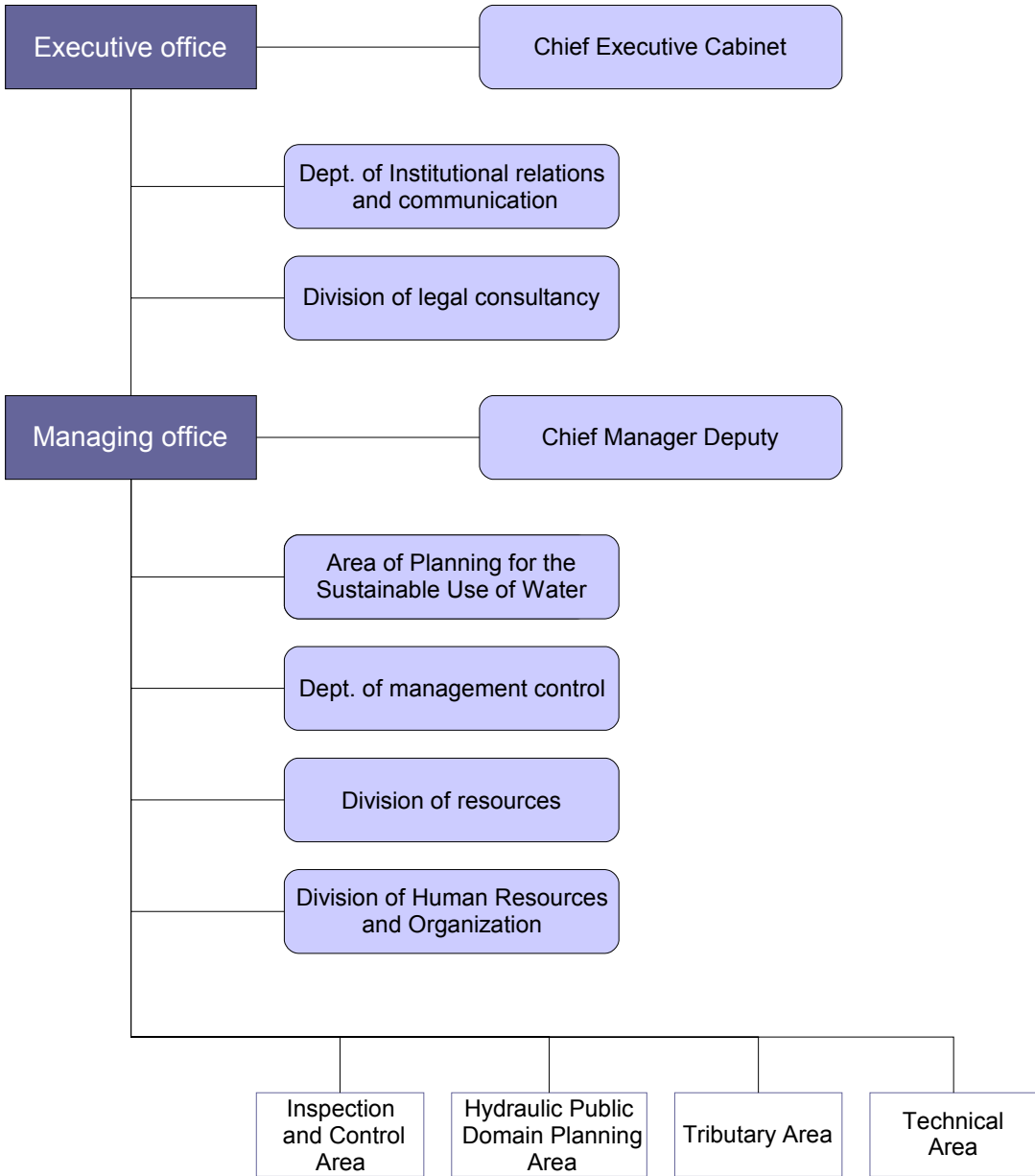
<b>23. Requirements regarding Databases</b>	
a) <i>End-users' requirements:</i> <i>Formats, links</i>	Databases: Oracle and MS Access
b) Requirements for stakeholder participation:	option to publish interactive content on the web (e.g.: via a GIS map server)

<b>24. Suggestions how to improve the participation process</b>	
For models to be used in participation they must be trusted. How can trust be instilled in models?	
•Reliability	X
•Availability	X
•Accessibility (for third parties)	X
•Other	model verification and uncertainty assessment

<b>25. Further comments:</b>

**Catalan Water Agency Organizational Chart** (Translated into English on the next page)





**Results from Greece, reported by Miltiadis Seferlis, EKBY**

**META DATA**

<b>1. Where and when are workshops held?</b>
<b>5.4.2005, Cheimaditida, Town Hall of Municipality Aetos</b>

<b>2. Who gives information?</b>		
Names	Role/Position	Institution
Miltiadis Seferlis	Researcher	EKBY

<b>3. How is information acquired?</b>	
• workshop	X?
• individual interviews	X ?
• questionnaires	
• internet investigation	

**“END-USER MAPPING”**

<b>4. Who is responsible for implementing the WFD?</b>	
<ul style="list-style-type: none"> <li>Name and Administrations Level of the authority (national/regional)??</li> </ul>	Nat.: National Water Authority, Ministry of Environment. Reg.: i) Dir. of Waters, Regional Authority ii) Regional Board of Waters

<p><b>5. How is the decision making process (regarding water management plans) organised?</b> (tables, organisation charts)</p>	<p>As described in the recent law L. 3199, Official Gazette A', 280/9-12-2003</p> <p>Regional Board of Waters comprise:  Secretary General of the Regional Authority,  the Head of Dir. of Waters of the Regional Authority,  a representative of each Prefecture within the Regional Authority,  a representative of each Municipality,  a representative of Management Body when there is a Natura2000 site,  a representative of Water, Sewage local companies,  a representative of farmers' unions  a representative of environmental NGOs  a representative of Land Reclamation Organisation</p>
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<p><b>6. Which other parties are engaged in that process?</b></p>	
<ul style="list-style-type: none"> <li>• (stakeholders, NGOs)</li> </ul>	<p>x</p>
<ul style="list-style-type: none"> <li>• General public</li> </ul>	<p>-</p>

**CORRELATION BETWEEN IMPLEMENTATION OF WFD AND CLIMATE CHANGE**

<p><b>7. Which role do climate change issues play in the implementation process of the WFD?</b></p>	<p>-</p>
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<p><b>8. Who is responsible for integrating questions regarding climate change into the implementation process of the WFD?</b></p>	<p>Ministry of Environment</p>
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**9. How are the participation requirements in § 14 WFD interpreted? (see table 1 in the appendix)**

As described in Article 6 of Law 3199, Official Gazette A', 280/9-12-2003

Participation is done as	
• Information provision	X
• Consultation	X
• Active involvement	X
• Shared decision making	?
• Awareness raising	?

**10. Participation: who is (should be) involved? to what extend?**

See questions 5, 6 and 9

• Administration, public bodies	
• Stakeholders (key persons, NGO's)	
• Open to the general public	

## PROBLEMS AND PRIORITIES

<b>11. WHAT PROBLEMS DO AUTHORITIES / DECISION MAKERS HAVE TO SOLVE IN TERMS OF DECISION MAKING FOR IMPLEMENTING THE WFD?</b>		
<b>Priority of problem, please insert (highest=5; no problem =0)</b> <b>Examples:</b>	<b>Missing data / data gaps</b>	<b>Assessment methods</b>
calculating acidification (N + S deposition)	<b>4</b>	<b>0</b>
calculating nitrification (N-/P- pollution): hardly sufficient data series for lakes and rivers, for isolated case only data are sufficient	<b>3</b>	<b>0</b>
calculating water abstraction	<b>2</b>	<b>1</b>
fauna, flora, habitat assessments	<b>0</b>	<b>0</b>
Data and assessments regarding economic aspects	<b>4</b>	<b>2</b>
Hydrology data	<b>3</b>	<b>0</b>

<b>12. Are there typical problems in the catchment (i.e. pollution through agriculture) and typical ranges of possible responses (management options, solutions)? (Answers to this could be helpful for designing typical management options as part of our DSS)</b>
<p>Typical problems such as:</p> <ul style="list-style-type: none"> <li>Agriculture as a diffuse source of N, P, chemicals</li> <li>Untreated municipal waste water</li> <li>Uncontrolled water abstraction</li> </ul> <p>Management options/solutions</p> <ul style="list-style-type: none"> <li>Shift to less water-consuming agriculture</li> <li>Strict measures for water “stealing”</li> </ul>



## STATUS QUO OF MODELS/DSS USE

It is necessary to get a picture of the current use of models and Decision Support Systems in the different countries/catchments. Are they used at all? What kind of models?/To what extend?

13. Kinds of models used for the decision making process?	
<ul style="list-style-type: none"> <li>Scientific models/tools for internal use, Models for part/sub problems e.g.                             <ul style="list-style-type: none"> <li>Nitrate flow/influx</li> <li>hydraulic Models</li> <li>others (&gt;model for fish populations)</li> </ul> </li> </ul>	-
<ul style="list-style-type: none"> <li>Tools/models to be used by participants (stakeholders/ general public)</li> </ul>	-
<ul style="list-style-type: none"> <li>integrated Decision Support Systems (DSS)</li> </ul>	WEDSS was used experimentally in the test side Cheimaditida Catchment

14. Which models exactly are used in different fields?		
	(please give exact names)	Advantages and problems of the tools/models?
<ul style="list-style-type: none"> <li>Tools/models for calculating acidification (N + S deposition)</li> </ul>		
<ul style="list-style-type: none"> <li>Tools/models for calculating nutrification (N-/P- pollution)</li> </ul>		
<ul style="list-style-type: none"> <li>Tools/models for calculating water abstraction</li> </ul>		
<ul style="list-style-type: none"> <li>Tools/models regarding faunistic and floristic assessments (biodiversity)</li> </ul>		
<ul style="list-style-type: none"> <li>Tools/models regarding economic aspects</li> </ul>		
<ul style="list-style-type: none"> <li>No models used</li> </ul>		

<b>15. Who produced / produces models used in different fields?</b>			
	<b>In-house develop-ments</b>	<b>Scientists in academia</b>	<b>Consulting companies</b>
general			
• Tools/models for calculating acidification (N + S deposition)			
• Tools/models for calculating nitrification (N-/P- pollution)			
• Tools/models for calculating water abstraction			
• Tools/models regarding faunistic and floristic assessments (biodiversity)			
• Tools/models regarding economic aspects			

<b>16. How would you assess the various products regarding ...</b>	<b>(5= very good to 0 = very poor)</b>		
	<b>In-house develop-ments</b>	<b>Scientists in academia)</b>	<b>Consulting companies</b>
<b>Ability to produce solutions</b>			
<b>Value for money</b>			
<b>userfriendliness</b>			
<b>Adaptability to new tasks</b>			
<b>other</b>			

## **END-USERS' REQUIREMENTS AND SUGGESTIONS**

This is the core of the required information: What can Euro-limpacs do for the end-users?

In this case it is important to take into account not only the regional/catchment point of view. Some issues might be more relevant for the national level.

<b>17. General demand for information relevant for resp. catchment management provided by euro-limpacs</b>		
	<b>Policy level</b>	
	<b>national</b>	<b>regional</b>
Climate change scenarios / models / information	x	x
Influence of climate change on		
• Surface water	x	x
• Groundwater	x	x
• Biodiversity	x	x
• Economy	x	x
• other		

<b>18. General willingness to use Decision Support Systems</b>	
Role a DSS might play in the administrative work	Might confuse them more as it would demand extra “skills” to apply.  However local authorities realise the usefulness of such a tool as extra means of claiming support from the central government.
Preconditions for using DSS/models ...	There is a basic willingness to use DSS, but the preconditions have to be met first even though they have stressed they know the problem alright.

## DETAILED REQUIREMENTS REGARDING MODELS/DSS

<b>19. What kinds of models / regarding which issues are needed?</b>	
• Scientific models (see examples in question 14)	x
• Economic models	x

<b>20. Which kinds of information (formats) would be helpful for solving each of the problems? (see question 11)</b>
Water quality and quantity data is needed

<b>21. What kind /accuracy of output of the DSS is useful for end-users?</b>	
(for example: are 5 step scales detailed enough?)	5 levels of water-quality would be sufficient (WFD)
Questions concerning accuracy and uncertainties are not that important as long as the DSS is able to rank two or more different management options	4

<b>22. Requirements regarding user interface, layout</b>	
a) End-user requirements:	All parties should be satisfied! They don't really have an opinion/care about the layout at this point.
b) Requirements for stakeholder participation:	-

<b>23. Requirements regarding Databases</b>	
a) End-users' requirements: Formats, links	-
b) Requirements for stakeholder participation:	-

<b>24. Suggestions how to improve the participation process</b>	
For models to be used in participation they must be trusted. How can trust be instilled in models?	
• Reliability	
• Availability	
• Accessibility (for third parties)	
• Other	

25. Further comments:
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**Results - Norway National Level, reported by Oyvind Kaste, NIVA**

**META DATA**

<b>1. Where and when are workshops / interviews held?</b>
8 Nov 2005. Telephone interview.

<b>2. Who gives information?</b>		
Name	Role/Position	Institution
Jon Lasse Bratli	Senior adviser	Norwegian Pollution Control Authority (SFT), Oslo (directorate under the Ministry of Environment)

<b>3. How is information acquired?</b>	
• workshop	
• individual interviews	x
• questionnaires	
• internet investigation	

**“END-USER MAPPING”**

<b>4. Who is responsible for implementing the WFD?</b>	
• Name and Administrations Level of the authority (national/regional)??	National: Ministry of Environment Regional: The County Governors (in each Water Region*)

\* The exact number not decided yet.

<p><b>5. How is the decision making process (regarding water management plans) organised?</b> (tables, organisation charts)</p>	<p>Not yet decided in detail. A regulation document is presently on a hearing round and will probably be completed around summer 06.</p> <p>Many issues are presently delegated to a Directorate-group, containing of 9 directorates and led by the Pollution Control Authority (SFT).</p>
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<p><b>6. Which other parties are engaged in that process?</b></p>	
<ul style="list-style-type: none"> <li>• (stakeholders, NGOs)</li> </ul>	<p>Yes, but not decided how</p>
<ul style="list-style-type: none"> <li>• General public</li> </ul>	<p>Yes, but not decided how</p>

## CORRELATION BETWEEN IMPLEMENTATION OF WFD AND CLIMATE CHANGE

<p><b>7. Which role do climate change issues play in the implementation process of the WFD?</b></p>	<p>Has played a minor role so far in the implementation process. Will be considered later in the process.</p>
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<p><b>8. Who is responsible for integrating questions regarding climate change into the implementation process of the WFD?</b></p>	<p>The Directorate-group</p>
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<p><b>9. How are the participation requirements in § 14 WFD interpreted?</b></p>	
<p>Participation is done as</p>	
<ul style="list-style-type: none"> <li>• Information provision</li> </ul>	<p>x</p>
<ul style="list-style-type: none"> <li>• Consultation</li> </ul>	<p>x</p>
<ul style="list-style-type: none"> <li>• Active involvement</li> </ul>	<p>Probably*</p>
<ul style="list-style-type: none"> <li>• Shared decision making</li> </ul>	<p>Probably*</p>
<ul style="list-style-type: none"> <li>• Awareness raising</li> </ul>	<p>Probably*</p>

\* Will to a large extent be up to regional water authorities

<b>10. Participation: who is (should be) involved? To what extent?</b>	
See questions 5/6.	
• Administration, public bodies	To a large extent
• Stakeholders (key persons, NGO's)	To a large extent
• Open to the general public	To a certain extent

Four regional hearing conferences will be arranged during winter/spring 2006 (open for all interested parties)

## PROBLEMS AND PRIORITIES

<b>11. WHAT PROBLEMS DO AUTHORITIES / DECISION MAKERS HAVE TO SOLVE IN TERMS OF DECISION MAKING FOR IMPLEMENTING THE WFD?</b>		
<b>Priority of problem, please insert (highest=5; no problem =0)</b>	<b>Missing data / data gaps</b>	<b>Assessment methods</b>
<b>Examples:</b>		
calculating acidification (N + S deposition)	<b>2</b>	<b>0-2</b>
calculating nitrification (N-/P- pollution)	<b>4</b>	<b>4</b>
calculating water abstraction	<b>2*</b>	<b>2*</b>
faunistic and floristic assessments	<b>3**</b>	<b>4**</b>
Data and assessments regarding economic aspects	<b>2</b>	<b>3</b>
Other		

\* Depending on type. Abstraction of water for water power purposes: Good documentation. Irrigation purposes: Documentation much poorer

\*\* Await data/tools from the REBECCA Project (EU FP6)

<b>12. Are there typical problems in the catchment (i.e. pollution through agriculture) and typical ranges of possible responses (management options, solutions)? (Answers to this could be helpful for designing typical management options as part of our DSS)</b>
Not relevant for the national level. Problems in individual catchments are handled by the regional/local authorities

## STATUS OF MODELS/DSS USE

It is necessary to get a picture of the current use of models and Decision Support Systems in the different countries/catchments. Are they used at all? What kind of models? / To what extent?

13. Kinds of models used for the decision making process?	
<ul style="list-style-type: none"> <li>• Scientific models/tools for internal use, Models for sub-problems e.g.               <ul style="list-style-type: none"> <li>- Nitrate flow\influx</li> <li>- hydraulic Models</li> <li>- others (&gt;model for fish populations)</li> </ul> </li> </ul>	Not used by decision makers themselves. Await more simple tools
<ul style="list-style-type: none"> <li>• Tools/models to be used by participants (stakeholders/ general public)</li> </ul>	- - -
<ul style="list-style-type: none"> <li>• integrated Decision Support Systems (DSS)</li> </ul>	No

14. Which models exactly are used in different fields?		
	(please give exact names)	Advantages and problems of the tools/models?
<ul style="list-style-type: none"> <li>• Tools/models for calculating acidification (N + S deposition)</li> </ul>	SSWC (Steady State Water Chemistry Model). Critical loads model run by NIVA	-
<ul style="list-style-type: none"> <li>• Tools/models for calculating nutrification (N-/P- pollution)</li> </ul>	TEOTIL (simple nutrient export model)	-
<ul style="list-style-type: none"> <li>• Tools/models for calculating water abstraction</li> </ul>	HBV? (run by the Norwegian Water Resources and Energy directorate)	-
<ul style="list-style-type: none"> <li>• Tools/models regarding faunistic and floristic assessments (biodiversity)</li> </ul>	-	-
<ul style="list-style-type: none"> <li>• Tools/models regarding economic aspects</li> </ul>	-	-
<ul style="list-style-type: none"> <li>• No models used</li> </ul>		



<b>15. Who produced / produces models used in different fields?</b>			
	<b>In-house develop-ments</b>	<b>Scientists in academia</b>	<b>Consulting companies</b>
general			
• Tools/models for calculating acidification (N + S deposition)		x	
• Tools/models for calculating nutrification (N-/P- pollution)		x	
• Tools/models for calculating water abstraction		x	
• Tools/models regarding faunistic and floristic assessments (biodiversity)		x	
• Tools/models regarding economic aspects		x	x

<b>16. How would you assess the various products regarding ... *</b>	<b>(5= very good to 0 = very poor)</b>		
	<b>In-house develop-ments</b>	<b>Scientists in academia)</b>	<b>Consulting companies</b>
<b>Ability to produce solutions</b>			
<b>Value for money</b>			
<b>Userfriendliness</b>			
<b>Adaptability to new tasks</b>			
<b>other</b>			

\* Too early to make assessments of this

## END-USERS' REQUIREMENTS AND SUGGESTIONS<sup>1</sup>

This is the core of the required information: What can Euro-limpacs do for the end-users?

In this case it is important to take into account not only the regional/catchment point of view. Some issues might be more relevant for the national level.

<b>17. General demand for information relevant for resp. catchment management provided by euro-limpacs</b>		
	<b>Policy level</b>	
	<b>national</b>	<b>regional</b>
Climate change scenarios / models / information	x	
Influence of climate change on		
<ul style="list-style-type: none"> <li>• Surface water</li> </ul>	x	
<ul style="list-style-type: none"> <li>• Groundwater</li> </ul>		
<ul style="list-style-type: none"> <li>• Biodiversity</li> </ul>	x	
<ul style="list-style-type: none"> <li>• Economy</li> </ul>	x	
<ul style="list-style-type: none"> <li>• other</li> </ul>		

<b>18. General willingness to use Decision Support Systems</b>	
Role a DSS might play in the administrative work	Positive, if the preconditions below are fulfilled.
Preconditions for using DSS/models ...	Must be simple to use and useful.

<sup>1</sup> The "guidelines" include a number of questions in *italic* letters which are identical with respective questions policy makers were asked in the HarmoniCa project (see section 5). The focus is more on participation aspects. Some of these questions are ± general or seem to be redundant, but we should get the answers as a by-product. This will allow to compare results.

## DETAILED REQUIREMENTS REGARDING MODELS/DSS

<b>19. What kinds of models / regarding which issues are needed?</b>	
• Scientific models (see examples in question 14)	X*
• Economic models	(x)

\* Need tools that include dose/response-relationships

<b>20. Which kinds of information (formats) would be helpful for solving each of the problems? (see question 11)</b>
No further comments

<b>21. What kind /accuracy of output of the DSS is useful for end-users?</b>	
(for example: are 5 step scales detailed enough?)	
Questions concerning accuracy and uncertainties are not that important as long as the DSS is able to rank two or more different management options	(I agree absolutely = 5, I don't agree at all = 0)  2

<b>22. Requirements regarding user interface, layout</b>	
a) End-user requirements::	Well arranged, easy-to-use
b) Requirements for stakeholder participation:	Well arranged, easy-to-use

<b>23. Requirements regarding Databases</b>	
a) End-users' requirements: Formats, links	-
b) Requirements for stakeholder participation:	-

<b>24. Suggestions how to improve the participation process</b>	
For models to be used in participation they must be trusted. How can trust be instilled in models?	
• Reliability	-
• Availability	-
• Accessibility (for third parties)	-
• Other	

**25. Further comments:**

**Results - Norway Regional Level, reported by Oyvind Kaste, NIVA**

**META DATA**

<b>1. Where and when are workshops / interviews held?</b>
8 Nov 2005. Telephone interview.

<b>2. Who gives information?</b>		
Name	Role/Position	Institution
Tyra R. Høyås	Adviser	County Governor of Østfold (South-East Norway)

<b>3. How is information acquired?</b>	
• workshop	
• individual interviews	x
• questionnaires	
• internet investigation	

**“END-USER MAPPING”**

<b>4. Who is responsible for implementing the WFD?</b>	
• Name and Administrations Level of the authority (national/regional)??	See questionnaire from national level

<b>5. How is the decision making process (regarding water management plans) organised?</b> (tables, organisation charts)	See questionnaire from national level
---	---------------------------------------

<b>6. Which other parties are engaged in that process?</b>	
• (stakeholders, NGOs)	x
• General public	x

## CORRELATION BETWEEN IMPLEMENTATION OF WFD AND CLIMATE CHANGE

<b>7. Which role do climate change issues play in the implementation process of the WFD?</b>	Not considered so far in the implementation process. Climate change will probably have a large effect on export of nutrients and suspended solids from agricultural areas (important issue in Østfold County)
--	---

<b>8. Who is responsible for integrating questions regarding climate change into the implementation process of the WFD?</b>	No specific institution/person on the regional level
---	--

<b>9. How are the participation requirements in § 14 WFD interpreted?</b>	
Participation is done as	
• Information provision	
• Consultation	
• Active involvement	*
• Shared decision making	*
• Awareness raising	

\* Important to involve local municipalities

<b>10. Participation: who is (should be) involved? To what extent?</b>	
See questions 5/6.	
• Administration, public bodies	
• Stakeholders (key persons, NGO's)	X*
• Open to the general public	x

\* E.g. Farmer organisations, etc.

## PROBLEMS AND PRIORITIES

<b>11. WHAT PROBLEMS DO AUTHORITIES / DECISION MAKERS HAVE TO SOLVE IN TERMS OF DECISION MAKING FOR IMPLEMENTING THE WFD?</b>		
<b>Priority of problem, please insert (highest=5; no problem =0)</b>	<b>Missing data / data gaps</b>	<b>Assessment methods</b>
<b>Examples:</b>		
calculating acidification (N + S deposition)	<b>4-5*</b>	
calculating nutrification (N-/P- pollution)	<b>3</b>	
calculating water abstraction	<b>4</b>	
faunistic and floristic assessments	<b>4</b>	
Data and assessments regarding economic aspects	<b>3</b>	
Other		

\* Have used very simple tools for preliminary characterisation of environmental status ('at risk/not at risk') so far. Need better tool for the next phase. It is therefore difficult to set scores for assessment methods.

<b>12. Are there typical problems in the catchment (i.e. pollution through agriculture) and typical ranges of possible responses (management options, solutions)? (Answers to this could be helpful for designing typical management options as part of our DSS)</b>
Eutrophication is the main threat to surface waters in the region.

## STATUS OF MODELS/DSS USE

It is necessary to get a picture of the current use of models and Decision Support Systems in the different countries/catchments. Are they used at all? What kind of models? / To what extent?

13. Kinds of models used for the decision making process?	
<ul style="list-style-type: none"> <li>• Scientific models/tools for internal use, Models for sub-problems e.g.               <ul style="list-style-type: none"> <li>- Nitrate flow\influx</li> <li>- hydraulic Models</li> <li>- others (&gt;model for fish populations)</li> </ul> </li> </ul>	Models not used in-house, except *
<ul style="list-style-type: none"> <li>• Tools/models to be used by participants (stakeholders/ general public)</li> </ul>	*
<ul style="list-style-type: none"> <li>• integrated Decision Support Systems (DSS)</li> </ul>	No

\* Assessment tool for Soil Erosion Risk and Nutrient Loss Risk ("Jordsmonn-risiko")

14. Which models exactly are used in different fields?		
	(please give exact names)	Advantages and problems of the tools/models?
<ul style="list-style-type: none"> <li>• Tools/models for calculating acidification (N + S deposition)</li> </ul>	-	-
<ul style="list-style-type: none"> <li>• Tools/models for calculating nutrification (N-/P- pollution)</li> </ul>	FOSRES (P-model for lakes) GIS-Avløp (nutrient export from sparsely populated areas) "Jordsmonn-risiko" tool	-
<ul style="list-style-type: none"> <li>• Tools/models for calculating water abstraction</li> </ul>	-	-
<ul style="list-style-type: none"> <li>• Tools/models regarding faunistic and floristic assessments (biodiversity)</li> </ul>	-	-
<ul style="list-style-type: none"> <li>• Tools/models regarding economic aspects</li> </ul>	-	-
<ul style="list-style-type: none"> <li>• No models used</li> </ul>		



<b>15. Who produced / produces models used in different fields?</b>			
	<b>In-house develop-ments</b>	<b>Scientists in academia</b>	<b>Consulting companies</b>
general			
• Tools/models for calculating acidification (N + S deposition)			
• Tools/models for calculating nutrification (N-/P- pollution)		x	
• Tools/models for calculating water abstraction			
• Tools/models regarding faunistic and floristic assessments (biodiversity)			
• Tools/models regarding economic aspects		x	x

<b>16. How would you assess the various products regarding ... *</b>	<b>(5= very good to 0 = very poor)</b>		
	<b>In-house develop-ments</b>	<b>Scientists in academia)</b>	<b>Consulting companies</b>
<b>Ability to produce solutions</b>		FOSRES: 5 Jordsmonn: 5 GIS-Avløp: 4	
<b>Value for money</b>		FOSRES: 5 Jordsmonn: 5 GIS-Avløp: 4	
<b>Userfriendliness</b>		-	
<b>Adaptability to new tasks</b>		-	
<b>other</b>			

## END-USERS' REQUIREMENTS AND SUGGESTIONS<sup>2</sup>

This is the core of the required information: What can Euro-limpacs do for the end-users?

In this case it is important to take into account not only the regional/catchment point of view. Some issues might be more relevant for the national level.

<b>17. General demand for information relevant for resp. catchment management provided by euro-limpacs</b>		
	<b>Policy level</b>	
	<b>national</b>	<b>regional</b>
Climate change scenarios / models / information		x
Influence of climate change on		
<ul style="list-style-type: none"> <li>• Surface water</li> </ul>		x
<ul style="list-style-type: none"> <li>• Groundwater</li> </ul>		
<ul style="list-style-type: none"> <li>• Biodiversity</li> </ul>		
<ul style="list-style-type: none"> <li>• Economy</li> </ul>		
<ul style="list-style-type: none"> <li>• other</li> </ul>		

<b>18. General willingness to use Decision Support Systems</b>	
Role a DSS might play in the administrative work	Might be an option to hire consultants to run the DSS
Preconditions for using DSS/models ...	Must be simple to use

<sup>2</sup> The "guidelines" include a number of questions in *italic* letters which are identical with respective questions policy makers were asked in the HarmoniCa project (see section 5). The focus is more on participation aspects. Some of these questions are ± general or seem to be redundant, but we should get the answers as a by-product. This will allow to compare results.

## DETAILED REQUIREMENTS REGARDING MODELS/DSS

<b>19. What kinds of models / regarding which issues are needed?</b>	
• Scientific models (see examples in question 14)	x
• Economic models	x

<b>20. Which kinds of information (formats) would be helpful for solving each of the problems? (see question 11)</b>
No further comments

<b>21. What kind /accuracy of output of the DSS is useful for end-users?</b>	
(for example: are 5 step scales detailed enough?)	
Questions concerning accuracy and uncertainties are not that important as long as the DSS is able to rank two or more different management options	(I agree absolutely = 5, I don't agree at all = 0)  4

<b>22. Requirements regarding user interface, layout</b>	
a) End-user requirements::	Results/information presented on maps Coloured diagrams, etc. for presentation to politicians, etc.
b) Requirements for stakeholder participation:	As above

<b>23. Requirements regarding Databases</b>	
a) End-users' requirements: Formats, links	Should be compatible to National IT-tool developed for the characterisation process.
b) Requirements for stakeholder participation:	As above

<b>24. Suggestions on how to improve the participation process</b>	
For models to be used in participation they must be trusted. How can trust be instilled in models?	
• Reliability	-
• Availability	-
• Accessibility (for third parties)	-
• Other	

<b>25. Further comments:</b>
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## Results from Romania

### META DATA

<b>1. Where and when are workshops held?</b>
Colibita lake - 19.07.2005
Water directorate Pitesti – 30.07.2005

<b>2. Who gives information?</b>	
<ul style="list-style-type: none"> <li>names</li> </ul>	<ul style="list-style-type: none"> <li>- Casandra Radu <a href="mailto:idue@dast.rowater.ro">idue@dast.rowater.ro</a>;</li> <li>- Mircea Vasilescu mircea.vasilescu@daavrowater.ro</li> </ul>
<ul style="list-style-type: none"> <li>roles</li> </ul>	<ul style="list-style-type: none"> <li>- biologist - WFD implementation;</li> <li>- Head of Department of Catchments Equipment and Management</li> </ul>
<ul style="list-style-type: none"> <li>institutions</li> </ul>	<p>The Romanian Waters National Administration – Someș - Tisa Water Directorate;</p> <p>The Romanian Waters National Administration – Argeș – Vedea Pitesti Water Directorate</p>

<b>3. How is information acquired?</b>	
<ul style="list-style-type: none"> <li>Workshop</li> </ul>	X
<ul style="list-style-type: none"> <li>individual interviews</li> </ul>	X
<ul style="list-style-type: none"> <li>questionnaires</li> </ul>	X
<ul style="list-style-type: none"> <li>internet investigation</li> </ul>	X

## “END-USER MAPPING”

In order to “tailor” our DSS, our models and interfaces we have to know who the potential users are (decision makers as well as participants) and what problems these people face in terms of decision making.

<b>4. Who is responsible for implementing the WFD?</b>	
<ul style="list-style-type: none"> <li>Name and level of authorities (national/regional)?</li> </ul>	The Romanian Waters National Administration/ Water Directorates

<b>5. How is the decision making process (regarding water management plans) organised?</b> (tables, organisation charts)	<p>Water law 107/1996 modified through law 310/2004</p> <p>A general management plan at hydrographic basin level; 11 regional management plans – based on 2002 information finalized in March 2005 and presented at Bruxelles.</p> <p>Publicly available</p> <p>Information on the national level through internet and/or through workshops and other information sources</p> <p>All parties should be involved in the WFD implementation process</p> <p>Departments/working groups</p> <p>Responsibilities: The Romanian Waters National Administration /Water directorates/Water management systems (county levels - 41)</p> <p>2 – 4 times / year - water basin committee meeting</p>
--	--

<b>6. Which other parties are engaged in that process?</b>	
<ul style="list-style-type: none"> <li>(stakeholders, NGOs)</li> </ul>	X (through water basin committee)
<ul style="list-style-type: none"> <li>General public</li> </ul>	X (through water basin committee)

## CORRELATION BETWEEN IMPLEMENTATION OF WFD AND CLIMATE CHANGE

<p><b>7. Which role do climate change issues play in the implementation process of the WFD?</b></p>	<p>The requirements of the WFD is very important</p> <p>Climate change does play an important role in the managerial option regarding WFD implementation.</p> <p>Climate change could give different results in the quality monitoring process.</p>
---	---

<p><b>8. Who is responsible for integrating questions regarding climate change into the implementation process of the WFD?</b></p>	<p>Ministry of environment and water administration</p> <p>National Meteorological Administration</p>
--	---

<p><b>9. How are the participation requirements in § 14 WFD interpreted? (see table 1 in the appendix)</b></p>	
<p>Participation is done as</p>	
<ul style="list-style-type: none"> <li>• Information provision</li> </ul>	<p>x</p>
<ul style="list-style-type: none"> <li>• Consultation</li> </ul>	<p>x</p>
<ul style="list-style-type: none"> <li>• Active involvement</li> </ul>	<p>x</p>
<ul style="list-style-type: none"> <li>• Shared decision making</li> </ul>	<p>x</p>
<ul style="list-style-type: none"> <li>• Awareness raising</li> </ul>	<p>x</p>

<p><b>10. Participation: who is (should be) involved? to what extend?</b></p>	
<ul style="list-style-type: none"> <li>• Administration, public bodies</li> </ul>	<p>X</p>
<ul style="list-style-type: none"> <li>• Stakeholders (key persons, NGO's)</li> </ul>	<p>X</p>
<ul style="list-style-type: none"> <li>• Open to the general public</li> </ul>	<p>X</p>

## DESCRIPTION OF PROBLEMS AND PRIORITIES

<b>11. WHAT PROBLEMS DO AUTHORITIES / DECISION MAKERS HAVE TO SOLVE IN TERMS OF DECISION MAKING FOR IMPLEMENTING THE WFD?</b>			
<b>Examples:</b>	<b>Missing data / data gaps</b>	<b>Assessment methods</b>	<b>Priority of problem (highest=5; no problem =0)</b>
calculating acidification (N + S deposition)	<b>yes</b>	<b>Chemical analysis</b> <b>Other methods in construction</b>	<b>1</b>
calculating nutrification (N-/P- pollution)	<b>Yes/yes</b>	<b>Chemical analysis</b> <b>Other methods in construction</b>	<b>5</b>
calculating water abstraction	<b>Yes/yes</b>	<b>Measurements and analysis</b>	<b>5</b>
faunistic and floristic assessments	<b>Yes/yes</b>	<b>inventories</b>	<b>5</b>
Data and assessments regarding economic aspects	<b>Yes/yes</b>	<b>Not known</b>	<b>5</b>
Others			
...			

**12. Are there typical problems in the catchment (i.e. pollution through agriculture) and typical ranges of possible responses (management options, solutions)?** (Answers to this could be helpful for designing typical management options as part of our DSS)

Diffuse and point pollution from various sources (especially from agriculture). The first step is represented by the identification of these sources. The solution refers to the application of norms for agricultural good practices.



## STATUS QUO OF MODELS/DSS USE

It is necessary to get a picture of the current use of models and Decision Support Systems in the different countries/catchments. Are they used at all? What kind of models?/To what extend?

13. Kinds of models used for the decision making process?	
<ul style="list-style-type: none"> <li>Scientific models/tools for internal use</li> </ul>	MONERIS, MIKE BASIN (for diffuse sources pollution with N and P)  METIMPRA (for point pollution sources)
<ul style="list-style-type: none"> <li>Tools/models to be used by participants (stakeholders/ general public)</li> </ul>	Not yet considered
<ul style="list-style-type: none"> <li>Stand alone models</li> </ul>	No
<ul style="list-style-type: none"> <li>integrated Decision Support Systems (DSS)</li> </ul>	No

14. Which models exactly are used in different fields?		
	(please give exact names)	Advantages and problems of the tools/models?
<ul style="list-style-type: none"> <li>Tools/models for calculating acidification (N + S deposition)</li> </ul>	No	
<ul style="list-style-type: none"> <li>Tools/models for calculating nutrification (N-/P-pollution)</li> </ul>	No	
<ul style="list-style-type: none"> <li>Tools/models for calculating water abstraction</li> </ul>	No	
<ul style="list-style-type: none"> <li>Tools/models regarding faunistic and floristic assessments (biodiversity)</li> </ul>	No	
<ul style="list-style-type: none"> <li>Tools/models regarding economic aspects</li> </ul>	No	

15. Who produced / produces models used in different fields?			
	In-house developments	Scientists in academia	Consulting companies
general	No	No	No

• Tools/models for calculating acidification (N + S deposition)	No	No	No
• Tools/models for calculating nutrification (N-/P- pollution)	No	No	No
• Tools/models for calculating water abstraction	No	No	No
• Tools/models regarding faunistic and floristic assessments (biodiversity)	No	No	No
• Tools/models regarding economic aspects	No	No	No

16. How would you assess the various products regarding ...	(5= very good to 0 = very poor)		
	In-house developments	Scientists in academia)	Consulting companies
Ability to produce solutions			
Value for money			
User friendliness			
Adaptability to new tasks			
other			

## END-USERS' REQUIREMENTS AND SUGGESTIONS<sup>3</sup>

This is the core of the required information: What can Euro-limpacs do for the end-users?

In this case it is important to take into account not only the regional/catchment point of view. Some issues might be more relevant for the national level.

17. General demand for information relevant for resp. catchment management provided by euro-limpacs		
	Policy level	
	National	regional

<b>17. General demand for information relevant for resp. catchment management provided by euro-limpacs</b>		
	<b>Policy level</b>	
	<b>National</b>	<b>regional</b>
Climate change scenarios / models / information		X
Influence of climate change on		
• Surface water		X
• Groundwater		X
• Biodiversity		X
• Economy		X
• other		

<b>18. General willingness to use DSS</b>	
<p>Role a DSS might play in the administrative work</p> <p><i>Goals – what purposes should models (and their tools) serve?</i></p>	<p>To help us in a better management plan in future; a more easily of decision making process in field of water administration and a more facility for the information of public and economic agents interested.</p>
<p>Preconditions for using DSS/models ...</p> <p><i>Constraints – under what constraints should models carry out these purposes?</i></p>	<p>A compromise between the volume of data and the quality of the results.</p> <p>The knowledge of the application of such systems in other zones.</p>

**Detailed requirements regarding models/DSS**

<b>19. What kinds of models / regarding which issues are needed?</b>	
<p><i>Models – participation in river basin management requires a range of models to support the entire planning process. Which ones?</i></p>	
<ul style="list-style-type: none"> <li>• Scientific models (see examples in question 14)</li> </ul>	<p>More or less all of them</p> <p>Tools/models regarding faunistic and floristic assessments</p> <p>Models for nutrient concentrations</p>

	Models for debits across a water course
• Economic models	X

**20. Which kinds of information (formats) would be helpful for solving each of the problems?**

- For models for calculating acidification (N + S deposition) – GIS
- For models regarding faunistic and floristic assessments – electronic format

**21. What kind /accuracy of output of the DSS is useful for end-users**

(for example: are 5 step scales detailed enough?)	5 step scales are OK
---	----------------------

**22. Requirements regarding user interface, layout**

a) End-user requirements:	The content must have complete information for support of DSS.
b) Requirements for stakeholder participation: <i>Results presentation – for participation, presentation of model results needs to be well done. How?</i> <i>Communication – without good communication of models to the participants, participation may fail. How can good communication be achieved?</i> <i>Useability – in participation, models need to be used easily and effectively by a wide variety of people. How can high levels of useability be achieved?</i>	The information needs to make for each stakeholder.

**23. Requirements regarding Databases**

End-users' requirements: Formats, links	Function of possibilities, database need to make in GIS format, too.
<i>Stakeholders requirements</i> <i>Data requirements – participation in river-basin scale management has particular demands on data. What demands?</i>	Function of possibilities, database need to make in GIS format, too.

**24. Other suggestions how to improve the participation process**

<i>Trust - For models to be used in participation they must be trusted. How can trust be instilled in models?</i>	All of these need to realize in the same time.
• <i>Reliability</i>	X
• <i>Availability</i>	X
• <i>Accessibility</i>	X
<i>Maintaining involvement – participation needs to be maintained over long periods of time or else models need to take into account changes in their users. How?</i>	
<i>Integration – participation in river basin scale management means that models need to integrate a large amount of different knowledge and support different roles. What should be integrated?</i>	

**25. Further comments:**

- The climate changes have influences for flood causes;
- Public participation is a requirement of WFD but for the moment it is possible just engagement of water users in the implementing of WFD;
- A series of methodologies and models for the assessment of impacts (ex: nutrient loading, evolutions of debits across water course, impacts of pressures on aquatic ecosystems, evaluation of economic impact, cost-benefits analysis, etc.) are necessary;
- The rising of reliability of stakeholders in future decisional models by accessibility, availability and truthfully of information provided.

**Results Austria, reported by Thomas Horlitz, entera**

Project no. **GOCE-CT-2003-505540**

Project acronym: **Euro-limpacs**

Project full name: **Integrated Project to evaluate the Impacts of Global Change on European Freshwater Ecosystems**

Instrument type: **Integrated Project**

Priority name: **Sustainable Development**

### **Deliverable No. 129**

**Report from first Inn catchment meeting (Task 3.3)**

**Summary from the consultations in Austria**

#### **A National Level (Vienna)**

Thomas Horlitz, entera, Hannover

#### **B Regional Level (Innsbruck)**

Thomas Horlitz, entera, Hannover

Ulrike Nickus, UIBK, Meteorologie

Hansjörg Thies, UIBK, Limnologie /Ökologie

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Due date of deliverable: **31 July 2005**

Actual submission date: **[Date submitted]**

Start date of project: **1 February 2003**

Duration: **5 Years**

Organisation name of lead contractor for this deliverable: **entera**

<b>Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)</b>		
<b>Dissemination Level (tick appropriate box)</b>		
<b>PU</b>	Public	
<b>PP</b>	Restricted to other programme participants (including the Commission Services)	
<b>RE</b>	Restricted to a group specified by the consortium (including the Commission Ser-	
<b>CO</b>	Confidential, only for members of the consortium (including the Commission Services)	X

## Reports from first Inn catchment meeting (Task 3.3)

Summary of results from national level and regional level

### META DATA

#### 1. Where and when are workshops held?

8.6.2005, Innsbruck, Tyrol State Government (Amt der Tiroler Landesregierung)

9.6.2005, Vienna, Federal Ministry for Environment, Water etc. (Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft (BMLFUW) =Lebensministerium)

Formatted: German (Germany)

#### 2. Who gives information?

Name	Role/Position	Institution
Frau Dr. Koller-Kreimel	Manager	<b>Lebensministerium (Ministry for environment etc.)</b> Dept. VII / 1 National Water Management
Frau Vogel	Assistant Manager	(same)

Name	Institution	Adresse	Telephone	E-Mail
Dr. Christian Sossau	Abt. Wasserwirtschaft	Herrengasse 1-3 6020 Innsbruck	0512/508-4273	<a href="mailto:c.sossau@tirol.gv.at">c.sossau@tirol.gv.at</a>
Dr. Wolfgang Gattermayr	Abt. Wasserwirtschaft / SG. Hydrographie	Herrengasse 1-3 6020 Innsbruck	0512/508-4250	<a href="mailto:w.gattermayr@tirol.gv.at">w.gattermayr@tirol.gv.at</a>
Mag. Klaus Niedertscheider	Abt. Wasserwirtschaft / SG. Hydrographie	Herrengasse 1-3 6020 Innsbruck	0512/508-4266	<a href="mailto:k.niedertscheider@tirol.gv.at">k.niedertscheider@tirol.gv.at</a>
DI Viktor Hofer	Abt. Wasserwirtschaft	Herrengasse 1-3 6020 Innsbruck	0512/508-4200	<a href="mailto:v.hofer@tirol.gv.at">v.hofer@tirol.gv.at</a>
Mag. Eva Loithold	Abt. Umweltschutz	Eduard-Wallnöfer-Platz 3 6020 Innsbruck	0512/508-3481	<a href="mailto:e.loithold@tirol.gv.at">e.loithold@tirol.gv.at</a>

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#### 3. How is information acquired?

• workshop	X
• individual interviews	
• questionnaires	
• internet investigation	X



## “END-USER MAPPING”

<b>4. Who is responsible for implementing the WFD?</b>	
<ul style="list-style-type: none"> <li>Name and Administrations Level of the authority (national/regional)?</li> </ul>	national level: Ministry for the Environment etc. (Lebensministerium), Dep. VII / 1 National Water Management (see appendix)

<b>5. How is the decision making process (regarding water management plans) organised?</b> (tables, organisation charts)	<p>Arranged through the Federal Water Act.</p> <p>Information on the national level partly over the internet, partly from exhibitions.</p> <p>All affected parties should be involved as soon as possible regarding decisions /regulations.</p> <p>Working groups.</p> <p>Parellel „round-table“ setup. (analogue to „Wasserforum“ in Bavaria)</p> <p>Organisation of federal and state level responsibilities see appendix</p>
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<b>6. Which other parties are engaged in that process?</b>	
<ul style="list-style-type: none"> <li>(stakeholders, NGOs)</li> </ul>	X
<ul style="list-style-type: none"> <li>General public</li> </ul>	-

## CORRELATION BETWEEN IMPLEMENTATION OF WFD AND CLIMATE CHANGE

<p><b>7. Which role do climate change issues play in the implementation process of the WFD?</b></p>	<p>Up to now (almost) no role</p> <p>Reasons:</p> <ul style="list-style-type: none"> <li>• The requirements of the WFD is already set (too) high.</li> <li>• Work capacity problems</li> <li>• Unclearly regarding the meaning of general climate change (does it have to be acted upon now?)</li> </ul> <p>Monitoring plays an indirect roll: Changes in natural circumstances can show the effects of climate change.</p>
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<p><b>8. Who is responsible for integrating questions regarding climate change into the implementation process of the WFD?</b></p>	<p>Federal Ministry for Environment, Water etc. (Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft (BMLFUW) =Lebensministerium) /</p> <p>Federal Environmental Agency</p>
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<p><b>9. How are the participation requirements in § 14 WFD interpreted? (see table 1 in the appendix)</b></p> <p>Regulated in § 55i Federal Water Act. Recently details concretised. Participation started already back in 2000. Every year one big meeting within the framework of the „Stakeholder participation process“. Generally it is open for the general public; actually mainly affected institutions / organisations / enterprises participated.</p>	
<p>Participation is done as</p>	
<ul style="list-style-type: none"> <li>• Information provision</li> </ul>	<p>X</p>
<ul style="list-style-type: none"> <li>• Consultation</li> </ul>	<p>X</p>
<ul style="list-style-type: none"> <li>• Active involvement</li> </ul>	<p>(X) is being strived for</p>
<ul style="list-style-type: none"> <li>• Shared decision making</li> </ul>	<p>At present not being considered</p>
<ul style="list-style-type: none"> <li>• Awareness raising</li> </ul>	<p>Partly happening.</p>

**10. Participation: who is (should be) involved? to what extend?**

See questions 5/6.

<ul style="list-style-type: none"><li>• Administration, public bodies</li></ul>	
<ul style="list-style-type: none"><li>• Stakeholders (key persons, NGO's)</li></ul>	
<ul style="list-style-type: none"><li>• Open to the general public</li></ul>	

## PROBLEMS AND PRIORITIES

11. WHAT PROBLEMS DO AUTHORITIES / DECISION MAKERS HAVE TO SOLVE IN TERMS OF DECISION MAKING FOR IMPLEMENTING THE WFD?		
Priority of problem, please insert (highest=5; no problem =0) <b>Examples:</b>	Missing data / data gaps	Assessment methods
calculating acidification (N + S deposition)	Individual investigations are present <b>1</b>	<b>0</b>
calculating nitrification (N-/P- pollution) No problems with lakes, missing data regarding rivers	<b>± 0</b>	
calculating water abstraction	<b>3</b>	<b>0</b>
faunistic and floristic assessments	The fundamentals are present. The biological assessments in the framework of future monitoring (until 2007 by waters over 100k <sup>2</sup> )  Gaps: Benthos, Phytoplankton	
Data and assessments regarding economic aspects	<b>4</b>  Elaborations exist regarding 4 „core issues“ (domestic water services, industry, waterpower, agriculture, sewage disposal)	<b>4</b>
Other		

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**12. Are there typical problems in the catchment (i.e. pollution through agriculture) and typical ranges of possible responses (management options, solutions)?** (Answers to this could be helpful for designing typical management options as part of our DSS)

- Introductions in „point“ form represent a minimal problem.
- Diffuse entries through agriculture (nutrients, partly pesticides) are found locally in the more intensively farmed areas in the east of Austria. Almost no problem in Tyrol.
- The main problems are represented by the hydromorphology, water use and extraction
- The most important measures must concern the continuity of reconstruction measures (removal of transversal elements etc., reconnection of tributaries) and the guarantee of sufficient residual water flow.

## STATUS QUO OF MODELS/DSS USE

It is necessary to get a picture of the current use of models and Decision Support Systems in the different countries/catchments. Are they used at all? What kind of models?/To what extend?

<b>13. Kinds of models used for the decision making process?</b>	
<ul style="list-style-type: none"> <li>• Scientific models/tools for internal use, Models for part/sub problems e.g.               <ul style="list-style-type: none"> <li>- Nitrate flow/influx</li> <li>- hydraulic Models</li> <li>- others (&gt;model for fish populations)</li> </ul> </li> </ul>	MONERIS  X  FAME
<p>Models hardly used in connection with analyses, but for developing measurements. There are a number of hydraulic and hydrologic models, decisions regarding their actual use are made on the regional (State) Level. More Information: Hydrografisches Zentralbüro (reinhold.godina@lebensministerium.at)</p>	
<ul style="list-style-type: none"> <li>• Tools/models to be used by participants (stakeholders/ general public)</li> </ul>	-  (Stakeholders will consider Models to be unsuitable)
<ul style="list-style-type: none"> <li>• integrated Decision Support Systems (DSS)</li> </ul>	-

14. Which models exactly are used in different fields?		
	(please give exact names)	Advantages and problems of the tools/models?
<ul style="list-style-type: none"> <li>Tools/models for calculating acidification (N + S deposition)</li> </ul>		
<ul style="list-style-type: none"> <li>Tools/models for calculating nutrification (N-/P- pollution)</li> </ul>	MONERIS (comment th: this is also used for the German Elbe DSS)	
<ul style="list-style-type: none"> <li>Tools/models for calculating water abstraction</li> </ul>		
<ul style="list-style-type: none"> <li>Tools/models regarding faunistic and floristic assessments (biodiversity)</li> </ul>	FAME	
<ul style="list-style-type: none"> <li>Tools/models regarding economic aspects</li> </ul>	First steps have been made without covering all necessary aspects  Contact: <a href="mailto:erna.etlinger@lebensraumministerium.at">erna.etlinger@lebensraumministerium.at</a>	
<ul style="list-style-type: none"> <li>No models used</li> </ul>		

<b>15. Who produced / produces models used in different fields?</b>			
	<b>In-house develop-ments</b>	<b>Scientists in academia</b>	<b>Consulting companies</b>
general	Hardly any	Prerequisites: Useability \ avail- ableness through the appointed enterprise  (practical applica- bilty, licences).	mainly insti- tutes/ compa- nies are com- missioned
• Tools/models for calculating acidification (N + S deposition)			
• Tools/models for calculating nutrification (N-/P- pollution)			
• Tools/models for calculating water abstraction			
• Tools/models regarding faunistic and floristic assessments (biodiversity)		Habitat simulation subject to amounts of discharge: ARGE Limnologie (Tel 0512/36411814, Ma. Moritz) use model developed by the University of Hohenheim	
• Tools/models regarding economic aspects			

<b>16. How would you assess the various products regarding ...</b>	<b>(5= very good to 0 = very poor)</b>		
	<b>In-house develop-ments</b>	<b>Scientists in academia)</b>	<b>Consulting companies</b>
<b>Ability to produce solutions</b>	no comments		
<b>Value for money</b>			
<b>userfriendlyness</b>			
<b>Adaptability to new tasks</b>			
<b>other</b>			

## END-USERS' REQUIREMENTS AND SUGGESTIONS

This is the core of the required information: What can Euro-limpacs do for the end-users?

In this case it is important to take into account not only the regional/catchment point of view. Some issues might be more relevant for the national level.

<b>17. General demand for information relevant for resp. catchment management provided by euro-limpacs</b>		
	<b>Policy level</b>	
	<b>national</b>	<b>regional</b>
Climate change scenarios / models / information		x
Influence of climate change on		x
• Surface water		x
• Groundwater		x
• Biodiversity		x
• Economy		x
• other		x

<b>18. General willingness to use Decision Support Systems</b>	
Role a DSS might play in the administrative work	<p>At present and on a regional scale there is little...! In general the necessary measures are so obvious that there is no present need for the DSS. In the future however, this will become more important.</p> <p>Advantages might be:</p> <ul style="list-style-type: none"> <li>• Transparency of decisions</li> <li>• Decision making process reproducible</li> <li>• Under certain circumstances reduction of personal cost</li> <li>• Accelerated Decision making process</li> <li>• Might be interesting for decisions concerning most cost efficient measurements</li> </ul> <p>There is a basic willingness to use DSS, but the preconditions have to be met first!</p>
Preconditions for using DSS/models ...	<p>High level of certainty, reliability,</p> <p>Should contain "health warning" (only to be used for defined purposes/scales)</p> <p>Trust.</p>



## DETAILED REQUIREMENTS REGARDING MODELS/DSS

<b>19. What kinds of models / regarding which issues are needed?</b>	
• Scientific models (see examples in question 14)	Basically all of them
• Economic models	X

<b>20. Which kinds of information (formats) would be helpful for solving each of the problems? (see question 11)</b>
This has to be answered on a more operational level. Generally spoken GIS-data would be helpful

<b>21. What kind /accuracy of output of the DSS is useful for end-users?</b>	
(for example: are 5 step scales detailed enough?)	5 steps according to the water-quality classification categories would be sufficient  at regional level minimum half steps
Questions concerning accuracy and uncertainties are not that important as long as the DSS is able to rank two or more different management options	(I agree absolutely = 5, I don't agree at all = 0)  no answer

<b>22. Requirements regarding user interface, layout</b>	
a) End-user requirements::	Firstly the content has to be correct. Before this is achieved it is not worth discussing the layout.
b) Requirements for stakeholder participation:	It is definitely important to create different (graduated) presentation levels for different user-Groups.

23. Requirements regarding Databases	
a) End-users' requirements: Formats, links	No comment
b) Requirements for stakeholder participation:	No comment

24. Suggestions how to improve the participation process	
For models to be used in participation they must be trusted. How can trust be instilled in models?	On all points in this sequence! But how exactly?  (the answer aims more generally on the use of models than on participation)
<ul style="list-style-type: none"> <li>• Reliability</li> </ul>	
<ul style="list-style-type: none"> <li>• Availability</li> </ul>	
<ul style="list-style-type: none"> <li>• Accessibility (for third parties)</li> </ul>	
<ul style="list-style-type: none"> <li>• Other</li> </ul>	

25. Further comments:
<ul style="list-style-type: none"> <li>• There is scepticism concerning DSS because the system is extremely complex. On the other hand it might be helpful to have if it worked.</li> <li>• <u>The contradiction between generalisability and concrete reference has to be solved</u></li> <li>• <u>The system firstly should be used for a couple of cases to show it's plausibility</u></li> <li>• The expectation is to get something to compare alternatives on a higher (national) level</li> <li>• A DSS might not come too late because the first Management Plans won't be much more than a framework.</li> </ul>

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**Appendix : Organisation of the Austrian Water Administration**

level	competence	field of work
national level	field of responsibility of division VII – water at the BMLFUW dept. VII / 1: national water management <b>VII/1b: <a href="#">Koller-Kreimel Veronika, Dr.</a></b> +43 1 71100 7122	development of general framework, Implementation of the WFD
	dept. VII / 2: international water management dept. VII / 3: water balance dept. VII / 4: professional principles of water management dept. VII / 5: Schutzwasserwirtschaft (flood protection) dept. VII / 6: urban water management	implementation of major projects
Federal state level (example Tyrol)	group: water management and agriculture → department: federal water act, energy legislation	legal matters concerning the execution of the federal water act
	group: Landesbaudirektion ↔ department: water management Hofrat Dipl.-Ing. Viktor Hofer (++43(0)512/508-4200) → department: urban water management → department: hydrography  Außendienststellen der (outposts of ) Landesbaudirektion: Baubezirksämter → urban water management → Schutzwasserwirtschaft (flood protection)	Among others: Implementation of WFD river engineering, register of springs, redevelopment of groundwater, waste water disposal catchment area (register of the austrian river basins, watersheds)  Among other things Water supply, agricultural hydraulic engineering
	Group Water and Agriculture Department Water and Energy Legislation Dr. Georg Zingerle (++43(0)512/508-4200)	Legal aspects of the WFD
District level Bezirk Imst	department: environment	federal water act
municipal level Community Ötz	Due to the responsibility of all national departments for water management, at the municipal level only small tasks in terms of supply and disposal are administrated.	

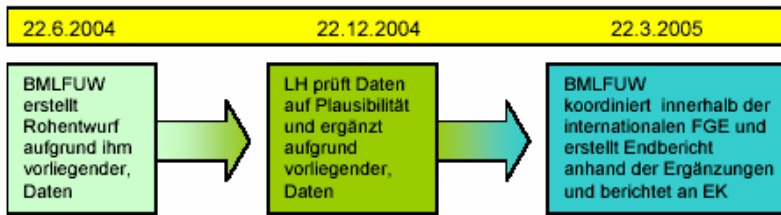
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Fig. 1: Flow Chart: Responsibilities for the status quo analysis

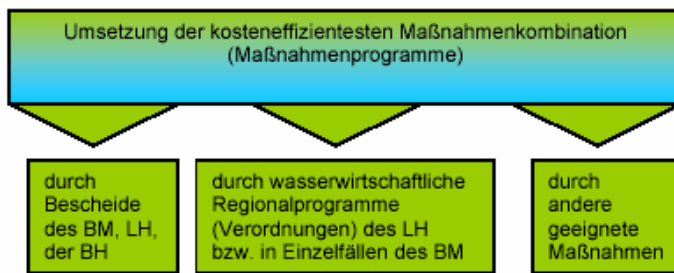
Abbildung 4.2.1: Ablaufschema der IST – Bestandsanalyse



Das in Abbildung 4.2.1 anhand der IST- Bestandsanalyse dargestellte **Kooperations-Verfahren** ist auch für die Durchführung der **Abweichungsanalyse** und die **Aufstellung der Maßnahmenprogramme** gesetzlich vorgesehen.

Fig. 2 : Implementation of the programm of measurements

Abbildung 4.2.2: Umsetzung der Maßnahmenprogramme (Flussgebietspläne)



In Österreich erfolgt die Vollziehung des Wasserrechtsgesetzes im Rahmen der mittelbaren Bundesverwaltung (Art. 102 B-VG). Dies bedeutet, dass neben dem Bundesminister das (Bundes-)Land durch den Landeshauptmann bzw. die Bezirksverwaltungsbehörde als funktionale Organe der Bundesverwaltung mit der Vollziehung der wasserrechtlichen Vorschriften betraut sind.

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**In Austria the main competence lies in the hands of the federal authorities**

Fig. 3: Gesetzgebung – Vollziehung des Wasserrechtsgesetzes (Execution of the Federal Water Act)

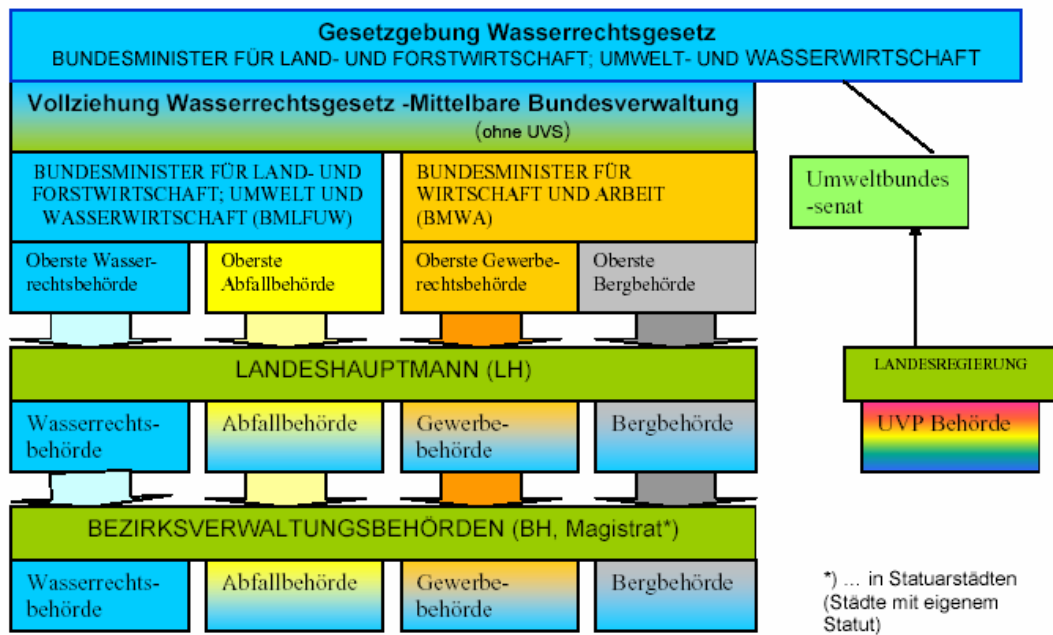
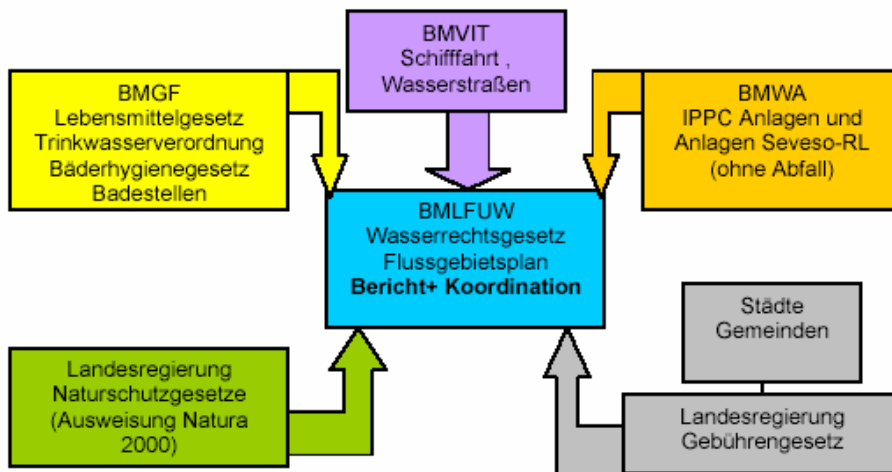


Fig. 4: Zuständigkeiten außerhalb des BMLFUW in Verbindung zur WRRL - Responsibilities of other authorities (than BMLFUW = Lebensministerium) in connection with the WFD



**Results for Tamar, UK, reported by Conor Linstead, SWIMMER**

**META DATA**

<b>1. Where and when are workshops held?</b>
25/6/2005 telephone interview with Senior Environment Officer Environment Agency
27/7/2005 Devon Wildlife Trusts
27/7/2005 Department of Planning and Regeneration - Tamar Estuary Consultative Forum (Local Government organisation acting as forum for stakeholders in the Tamar estuary)

<b>2. Who gives information?</b>		
Names	Role/Position	Institution
Sonia Thurley	Senior Environment Officer	Environment Agency
Maeve Nightingale	Planner	Plymouth Local Authority
Ivan Buxton	Conservation officer	Devon Wildlife Trust

<b>3. How is information acquired?</b>	
• workshop	
• individual interviews	X
• questionnaires	
• internet investigation	X

**“END-USER MAPPING”**

<b>4. Who is responsible for implementing the WFD?</b>	
• Name and Administrations Level of the authority (national/regional)??	Environment Agency (in England and Wales) – national with responsibility devolved to regional level

<p><b>5. How is the decision making process (regarding water management plans) organised?</b> (tables, organisation charts)</p>	<p>Department for the Environment, Food and Rural Affairs (DEFRA) has policy responsibility (in England). Nominated Environment Agency (EA) as responsible agency.</p> <p>WFD transposed to legislation through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003</p> <p>Decision making carried out by EA but through stakeholder consultation process.</p>
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<p><b>6. Which other parties are engaged in that process?</b></p>	
<ul style="list-style-type: none"> <li>• (stakeholders, NGOs)</li> </ul>	<p style="text-align: center;">X</p>
<ul style="list-style-type: none"> <li>• General public</li> </ul>	<p style="text-align: center;">X</p>

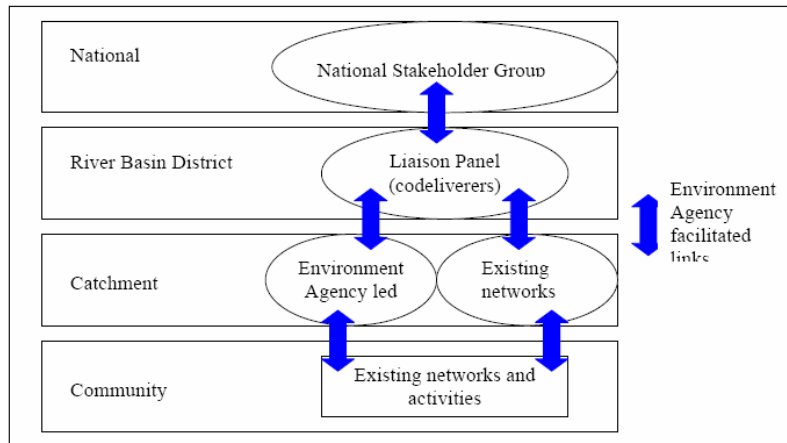
**Correlation between implementation of WFD and climate change**

<p><b>7. Which role do climate change issues play in the implementation process of the WFD?</b></p>	<p>Climate change is principally an issue from the perspective of its impact on flood risk.</p> <p>Climate change <i>per se</i> is not influencing the implementation process of the WFD</p> <p>Climate change issues will be considered later with regard to monitoring status of water bodies and understanding changes</p>
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<p><b>8. Who is responsible for integrating questions regarding climate change into the implementation process of the WFD?</b></p>	<p>DEFRA</p> <p>Environment Agency</p>
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**9. How are the participation requirements in § 14 WFD interpreted? (see table 1 in the appendix)**

Consultation will be carried out at a number of scales with linkages between different levels. According to the EA’s policy document on stakeholder consultation, at a national level, national organisations and institutions with policy interest will be consulted. At *River Basin District* (RBD) scale, the EA will work in partnership with a small number of agencies and institutions with statutory powers to implement the basic measures needed to deliver RBMPs, as well as other key stakeholders as appropriate. At *catchment* scale the primary emphasis will be on the use of existing arrangements to engage with a range of groups who have an interest in or are likely to be affected by the plans. At *community* scale, the EA will target discussion with individuals and local networks to where the need or risk across the catchment is greatest and within the resources available.



Participation is done as	
• Information provision	X
• Consultation	X
• Active involvement	X
• Shared decision making	X
• Awareness raising	X



**10. Participation: who is (should be) involved? to what extend?**

Government departments, statutory consultees, national NGOs, trade associations (water and other industry), regional development agencies, local NGO and interest groups

• Administration, public bodies	X
• Stakeholders (key persons, NGO's)	X
• Open to the general public	X

## PROBLEMS AND PRIORITIES

11. WHAT PROBLEMS DO AUTHORITIES / DECISION MAKERS HAVE TO SOLVE IN TERMS OF DECISION MAKING FOR IMPLEMENTING THE WFD?		
Priority of problem, please insert (highest=5; no problem =0) Examples:	Missing data / data gaps	Assessment methods
no specific problems		

12. Are there typical problems in the catchment (i.e. pollution through agriculture) and typical ranges of possible responses (management options, solutions)? (Answers to this could be helpful for designing typical management options as part of our DSS)
<ul style="list-style-type: none"> <li>• Deciding where limited resources are best applied to deliver the most effective outcome</li> <li>• System for managing and interpreting the large quantities of data they already hold</li> <li>• Tool for reviewing discharge consents to water bodies would be helpful</li> <li>• Diffuse pollution from sediment, nitrate and phosphate is a key issue</li> <li>• Predicting impact of landuse change - e.g. trend away from dairy to sheep in the catchment because of drop in income from milk</li> <li>• Landform changes in the estuary (SAC) as</li> </ul>

## STATUS QUO OF MODELS/DSS USE

It is necessary to get a picture of the current use of models and Decision Support Systems in the different countries/catchments. Are they used at all? What kind of models?/To what extent?

13. Kinds of models used for the decision making process?	
<ul style="list-style-type: none"> <li>- users of model outputs rather than models themselves</li> <li>- used outputs from distributed diffuse pollution model</li> <li>- interested in models with a social dimension</li> </ul>	

<b>14. Which models exactly are used in different fields?</b>		
no model names known		
	(please give exact names)	Advantages and problems of the tools/models?

<b>15. Who produced / produces models used in different fields?</b>			
	<b>In-house developments</b>	<b>Scientists in academia</b>	<b>Consulting companies</b>
general		most of the models are developed or applied by academics	commercial models tend to be used for decisions relating to capital intensive projects
• Tools/models for calculating acidification (N + S deposition)			
• Tools/models for calculating nutrification (N-/P- pollution)			
• Tools/models for calculating water abstraction			
• Tools/models regarding faunistic and floristic assessments (biodiversity)			
• Tools/models regarding economic aspects			

<b>16. How would you assess the various products regarding ...</b>	<b>(5= very good to 0 = very poor)</b>		
	<b>In-house developments</b>	<b>Scientists in academia)</b>	<b>Consulting companies</b>
<b>Ability to produce solutions</b>			
<b>Value for money</b>			
<b>userfriendliness</b>			
<b>Adaptability to new tasks</b>			
<b>other</b>			

## END-USERS' REQUIREMENTS AND SUGGESTIONS

This is the core of the required information: What can Euro-limpacs do for the end-users?

In this case it is important to take into account not only the regional/catchment point of view. Some issues might be more relevant for the national level.

<b>17. General demand for information relevant for resp. catchment management provided by euro-limpacs</b>		
	<b>Policy level</b>	
	<b>national</b>	<b>regional</b>
Climate change scenarios / models / information		X
Influence of climate change on		
<ul style="list-style-type: none"> <li>• Surface water</li> </ul>		X
<ul style="list-style-type: none"> <li>• Groundwater</li> </ul>		
<ul style="list-style-type: none"> <li>• Biodiversity</li> </ul>		X
<ul style="list-style-type: none"> <li>• Economy</li> </ul>		X
<ul style="list-style-type: none"> <li>• other                             <ul style="list-style-type: none"> <li>○ hydromorphology</li> </ul> </li> </ul>		X
<p><b>Related comment:</b></p> <p>Sometimes there was a conflict between the regional policy and the local policy where the best decision at a local level went against the regional policy. Some took the approach that it was best to stick to the regional policy regardless, others that best local decision should be implemented. DSS needs to be able to support the decisions taken to allow decision makers to defend decisions and give them confidence in decisions.</p>		

<b>18. General willingness to use Decision Support Systems</b>	
Role a DSS might play in the administrative work	<ul style="list-style-type: none"> <li>• see a role for a DSS that operates at a site level and can help with individual local decisions</li> </ul>
Preconditions for using DSS/models ...	<ul style="list-style-type: none"> <li>• must be simple to use and quick to apply</li> <li>• must give confidence limits on the results</li> <li>• must give the correct result</li> </ul>

## DETAILED REQUIREMENTS REGARDING MODELS/DSS

19. What kinds of models / regarding which issues are needed?	
<ul style="list-style-type: none"> <li>Scientific models (see examples in question 14)</li> </ul>	diffuse pollution hydromorphology water quality (including diffuse pollution and point sources)
<ul style="list-style-type: none"> <li>Economic models</li> </ul>	costs and social impacts

20. Which kinds of information (formats) would be helpful for solving each of the problems? (see question 11)
Graphical, map based

21. What kind /accuracy of output of the DSS is useful for end-users?	
(for example: are 5 step scales detailed enough?)	
Questions concerning accuracy and uncertainties are not that important as long as the DSS is able to rank two or more different management options	0
Confidence limits are very important	
Absolute values are not necessary – 5 step scales are sufficient	

<b>22. Requirements regarding user interface, layout</b>	
a) End-user requirements::	GIS interface is needed but should be compatible with already existing systems  ArcView  Mapinfo
b) Requirements for stakeholder participation:	No requirements for stakeholder participation with user interface

<b>23. Requirements regarding Databases</b>	
a) End-users' requirements: Formats, links	no specific requirements
b) Requirements for stakeholder participation:	

<b>24. Suggestions how to improve the participation process</b>	
For models to be used in participation they must be trusted. How can trust be instilled in models?	
• Reliability	X
• Availability	X
• Accessibility (for third parties)	X
• Other	clear confidence intervals accuracy

<b>25. Further comments:</b>
<p>Users not expecting DSS to answer their question. Definitely saw them as needing a user that can think about and understand the process of applying the DSS. The DSS should be for structuring and guiding the decision making process.</p> <p>Users are interested to know how far down the modelling route it was necessary to go before a sound decision could be reached. Aware that it is not necessary to have 100% understanding and accuracy or complex models to make a sound decision.</p>

## Results for The Netherlands / Regional - local Level

Reported by Ron Janssen and Hasse Goosen, IVM

### META DATA

#### 1. Where and when are workshops held?

- IVM held 15 interviews with stakeholders in the catchment (farmers, representatives of the local water authority, the nature organisations, the recreation sector and of the province of Overijssel).
- IVM held 7 interviews with experts (hydrologists, ecologists and policy makers) to identify knowledge needs.
- An end-user meeting was held on 23 February in Almelo to discuss the requirements for decision support development.
- Two catchment-user meetings involving both stakeholders and end-users were held (on 26 May 2005 in Weerselo and on 7 July 2005 in Almelo).

#### 2. Who gives information?

Names	Role/Position	Institution
Nolten, M		Dienst Landelijk Gebied
Evers, T.		Gemeente Dinkelland
Plegt, H.		Gemeente Losser
Bekke, J.		Gemeente Oldenzaal
Beijen, J.W		Gemeente Tubbergen
Antonis, M.; Hazelhorst, H.; Potze, A		Provincie Overijssel
Hesselink, K; Beltman, H.; Dongen, R. van; Eugelink, G.; Heitbrink, L.; Medenblik, J.; Zonderwijk, M.; Zwijnenberg, R		Waterschap Regge en Dinkel
Braad, J.; Huge, M		Natuurmonumenten

#### 3. How is information acquired?

• workshop	X
• individual interviews	X
• questionnaires	
• internet investigation	X

## “END-USER MAPPING”

<b>4. Who is responsible for implementing the WFD?</b>	
<ul style="list-style-type: none"> <li>Name and Administrations Level of the authority (national/regional)??</li> </ul>	<p>National level: Ministry of Public Transportation and Water Management</p> <p>Regional Level: Province of Overijssel</p> <p>Local level: Water Authority Regge en Dinkel</p>

<b>5. How is the decision making process (regarding water management plans) organised?</b> (tables, organisation charts)	Guidelines are prepared at the national level, the province coordinates local level implementation which is a task of the local water authorities.
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<b>6. Which other parties are engaged in that process?</b>	
<ul style="list-style-type: none"> <li>(stakeholders, NGOs)</li> </ul>	X
<ul style="list-style-type: none"> <li>General public</li> </ul>	-

## CORRELATION BETWEEN IMPLEMENTATION OF WFD AND CLIMATE CHANGE

<b>7. Which role do climate change issues play in the implementation process of the WFD?</b>	Additional measures are required as a consequence of predicted impacts of climate change. CC thus plays an important role in the implementation process in the Netherlands at the moment. CC impacts have been taken into account in setting water policy at the national level.
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<b>8. Who is responsible for integrating questions regarding climate change into the implementation process of the WFD?</b>	All parties mentioned under point 5
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<b>9. How are the participation requirements in § 14 WFD interpreted? (see table 1 in the appendix)</b>	
Participation is done as	
• Information provision	X
• Consultation	X
• Active involvement	In some cases at regional – local level
• Shared decision making	In some cases at local level
• Awareness raising	X

<b>10. Participation: who is (should be) involved? to what extend?</b>	
See questions 5/6.	
• Administration, public bodies	
• Stakeholders (key persons, NGO's)	
• Open to the general public	

## PROBLEMS AND PRIORITIES

11. WHAT PROBLEMS DO AUTHORITIES / DECISION MAKERS HAVE TO SOLVE IN TERMS OF DECISION MAKING FOR IMPLEMENTING THE WFD?		
Priority of problem, please insert (highest=5; no problem =0) Examples:	Missing data / data gaps	Assessment methods
calculating acidification (N + S deposition)	0	
calculating nitrification (N-/P- pollution) No problems with lakes, missing data regarding rivers	1	
calculating water abstraction	0	
faunistic and floristic assessments	0	
Data and assessments regarding economic aspects	2	
Other		

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12. Are there typical problems in the catchment (i.e. pollution through agriculture) and typical ranges of possible responses (management options, solutions)? (Answers to this could be helpful for designing typical management options as part of our DSS)
<p>In the fifties much of the natural water system has been canalised to drain water to accommodate agriculture. The canalisation process has increased discharge velocities, causing drought upstream and floods downstream. CC impacts are expected to increase the frequency and intensity of such events and thus, measures need to be taken. Water management policy at the national and regional level suggests that water discharge should be limited by increasing water storage capacity in upstream areas. Possible measures are;</p> <ul style="list-style-type: none"> <li>· Restoration of meandering brooks</li> <li>· Increased ground water levels</li> <li>· Designated controlled flooding area's</li> </ul> <p>These measures will have an impact on functions that dependent on the water system. Restoring natural processes in the area will improve nature quality, however, this is likely to affect opportunities for agriculture. Other stakeholders potentially affected or interested in proposed measures are the estate holders, recreation organisations and local government.</p>

## STATUS QUO OF MODELS/DSS USE

It is necessary to get a picture of the current use of models and Decision Support Systems in the different countries/catchments. Are they used at all? What kind of models?/To what extend?

13. Kinds of models used for the decision making process?	
<ul style="list-style-type: none"> <li>Scientific models/tools for internal use, Models for part/sub problems e.g.               <ul style="list-style-type: none"> <li>Nitrate flow/influx</li> <li>hydraulic Models</li> <li>others (&gt;model for fish populations)</li> </ul> </li> </ul>	<p>x</p> <p>X</p> <p>X</p>
<p>Models hardly used in connection with analyses, but for developing measurements. There are a number of hydraulic and hydrologic models, decisions regarding their actual use are made on the regional (State) Level. More Information: Hydrografisches Zentralbüro (reinhold.godina@lebensministerium.at)</p>	<p>There is a great deal of information available on different aspects of the water system in the catchment. Technical knowledge is not lacking.</p>
<ul style="list-style-type: none"> <li>Tools/models to be used by participants (stakeholders/ general public)</li> </ul>	<p>All data is accessible via the internet.</p>
<ul style="list-style-type: none"> <li>integrated Decision Support Systems (DSS)</li> </ul>	<p>No interactive decision support tools have been applied to date.</p>

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## 14. Which models exactly are used in different fields?

	(please give exact names)	Advantages and problems of the

		tools/models?
<ul style="list-style-type: none"> <li>Tools/models for calculating acidification (N + S deposition)</li> </ul>		
<ul style="list-style-type: none"> <li>Tools/models for calculating nutrification (N-/P- pollution)</li> </ul>		
<ul style="list-style-type: none"> <li>Tools/models for calculating water abstraction</li> </ul>		
<ul style="list-style-type: none"> <li>Tools/models regarding faunistic and floristic assessments (biodiversity)</li> </ul>		
<ul style="list-style-type: none"> <li>Tools/models regarding economic aspects</li> </ul>	<p>First steps have been made without covering all necessary aspects</p> <p>Contact:  <a href="mailto:erna.etlinger@lebensraumministerium.at">erna.etlinger@lebensraumministerium.at</a></p>	
<ul style="list-style-type: none"> <li>No models used</li> </ul>		

<b>15. Who produced / produces models used in different fields?</b>			
	<b>In-house developments</b>	<b>Scientists in academia</b>	<b>Consulting companies</b>
general			
<ul style="list-style-type: none"> <li>Tools/models for calculating acidification (N + S deposition)</li> </ul>			
<ul style="list-style-type: none"> <li>Tools/models for calculating nutrification (N-/P- pollution)</li> </ul>			
<ul style="list-style-type: none"> <li>Tools/models for calculating water abstraction</li> </ul>			
<ul style="list-style-type: none"> <li>Tools/models regarding faunistic and floristic assessments (biodiversity)</li> </ul>			
<ul style="list-style-type: none"> <li>Tools/models regarding eco-</li> </ul>			

conomic aspects			
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16. How would you assess the various products regarding ...	(5= very good to 0 = very poor)		
	In-house developments	Scientists in academia)	Consulting companies
Ability to produce solutions			
Value for money			
userfriendliness			
Adaptability to new tasks			
other			

## END-USERS' REQUIREMENTS AND SUGGESTIONS

This is the core of the required information: What can Euro-limpacs do for the end-users?

In this case it is important to take into account not only the regional/catchment point of view. Some issues might be more relevant for the national level.

17. General demand for information relevant for resp. catchment management provided by euro-limpacs		
	Policy level	
	national	regional
Climate change scenarios / models / information	-	+
Influence of climate change on		
• Surface water	-	-
• Groundwater	-	-
• Biodiversity	+	+
• Economy	+	+
• other		

<b>18. General willingness to use Decision Support Systems</b>	
Role a DSS might play in the administrative work	The main role that has been identified is to contribute to exchange of information between stakeholders, the public and water managers. A DSS could help in finding agreement on a course of action in the catchment. Not all stakeholders and inhabitants are aware of future changes in the water system. The water authority is attempting to involve stakeholders and inhabitants in designing management options that will be widely supported.
Preconditions for using DSS/models ...	Easy to use, transparent, flexible and reflect what local stakeholders experience in their daily lives.

## DETAILED REQUIREMENTS REGARDING MODELS/DSS

<b>19. What kinds of models / regarding which issues are needed?</b>	
• Scientific models (see examples in question 14)	
• Economic models	

<b>20. Which kinds of information (formats) would be helpful for solving each of the problems? (see question 11)</b>
This is difficult to say a priori. Our approach is to offer a suit of different presentation tools (spatial representation, graphs and tables).

<b>21. What kind /accuracy of output of the DSS is useful for end-users?</b>	
(for example: are 5 step scales detailed enough?)	
Questions concerning accuracy and uncertainties are not that important as long as the DSS is able to rank two or more different management options	(I agree absolutely = 5, I don't agree at all = 0)

<b>22. Requirements regarding user interface, layout</b>	
a) End-user requirements::	
b) Requirements for stakeholder participation:	

<b>23. Requirements regarding Databases</b>	
a) End-users' requirements: Formats, links	
b) Requirements for stakeholder participation:	

<b>24. Suggestions how to improve the participation process</b>	
For models to be used in participation they must be trusted. How can trust be instilled in models?	
• Reliability	
• Availability	
• Accessibility (for third parties)	
• Other	

**25. Further comments:**

We found the questionnaire difficult to complete. Some questions were unclear but our main problem was that we already completed many of the interviews and workshops and could not ask all the questions listed in the questionnaire. Despite this we hope our results are helpful.

Results for Denmark, reported by Signe Kromann-Rasmussen, NERI

**META DATA**

1. Who gives information?		
Names	Role/Position	Institution
Mogens Krosgaard	Water Department	Ministry of Environment

(Question 2 and 3 are not relevant here)

**“END-USER MAPPING”**

4. Who is responsible for implementing the WFD?	
<ul style="list-style-type: none"> <li>Names and Administration Levels of the authorities</li> </ul>	<p>The Danish structure of authorities is changing. One of the areas that will be influenced significantly is the administration of the implementation of environmental policies and land-use planning.</p> <p>There is a group established to discuss and decide on parts of the further implementation of the WFD. It is lead by the Ministry of Finance. Other members are Ministry of Environment and Ministry of Agriculture</p> <p>The Ministry of Environment (Miljøstyrelsen (Danish Environmental Protection Agency)) is in charge of the policy development and the reporting to the Commission etc.</p> <p>Until now the Technical and Environmental offices in Amtet (regional authority) has been responsible for local information gathering and planning, but it is envisioned that in the future Regions and Environmental Offices will play a part of this role. However, the distribution of the responsibilities and decision-making between Local authorities and the Regions and Environmental Offices is not absolutely clear yet. For know it looks like this:</p>

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<p><b>5. How is the decision making process (regarding water management plans) organised?</b>                      (attach tables, organisation charts)</p>	<p>See attached chart. Again, this might be subject to changes over the next year.</p>
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<b>6. Which other parties are engaged in the process?</b>	
<ul style="list-style-type: none"> <li>Stakeholders, NGOs</li> </ul>	<p>Landbrugsrådet (Danish Agricultural Council), National Farmers Union (NFU),</p> <p>Dansk Industri (Confederation of Danish Industries),</p> <p>Danish Society for Nature Conservation (Danmarks Naturfredningsforening),</p> <p>Friluftsrådet (Danish Outdoor Council),</p> <p>Foreningen af Danske Vandværker (Danish Water Plant Association), KL (Local Government Denmark), Amdsraadsforeningen (Danish Regions, Danmarks Private Vandværker (VANDSAM) (Private Water Plants), Dansk Vand- og Spildevandsforening (DANVA) (Danish Water and Wastewater Association), Det Økologiske Råd (Ecological Council)</p>
<ul style="list-style-type: none"> <li>General public</li> </ul>	<p>At this stage the involvement has been centred around key stakeholders, including government institutions. The general public will officially be involved in the 2008 assessment of the Water Management Plans.</p>

## **CORRELATION BETWEEN IMPLEMENTATION OF WFD AND CLIMATE CHANGE**

<b>7. Which role do climate change issues play in the implementation process of the WFD?</b>	<p>The Ministry of Environment (Miljøstyrelsen (Danish Environmental Protection Agency)) is currently working on the Climate Strategy, which will also include water and the link to the WFD, which has not been very strong until now.</p>
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<b>8. Who is responsible for integrating questions regarding climate change into the implementation process of the WFD?</b>	<p>For now the Ministry of Environment (Miljøstyrelsen (Danish Environmental Protection Agency))</p>
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**9. How are the participation requirements in § 14 WFD interpreted? (see table 1 in the appendix)**

Participation is done as:	Examples
<ul style="list-style-type: none"> <li>Information provision</li> </ul>	<p>Websites for public and private stakeholders. Main website for information from MoE :  <a href="http://www.mst.dk/default.asp?Sub=http://www.mst.dk/vand/06000000.htm">http://www.mst.dk/default.asp?Sub=http://www.mst.dk/vand/06000000.htm</a></p>
<ul style="list-style-type: none"> <li>Consultation</li> </ul>	<p>The Aarhus convention is implemented in Denmark and includes decisions related to the Water Framework, for example:</p> <p>Water district authorities (River Basin Management Authorities) must make public work programmes for making the water management plans (3 years before start of period), management plans (2 years before) and water plans (1 year before), and give 6 months for comments and objections. The base-analysis of the Water framework Directive is not included, but the steps on appointment of drinking water occurrences, shellfish waters, will be publicised for public consultation with 8 weeks</p> <p>Wastewater: local wastewater plans must be submitted to Public consultation giving 8 weeks for comments</p>
<ul style="list-style-type: none"> <li>Active involvement</li> </ul>	<p>See # 6</p>
<ul style="list-style-type: none"> <li>Shared decision making</li> </ul>	<p>Agreement on Water Framework Directive between Ministry of Environment, Danish Regions and Danish Agricultural Council (includes coordination on basis analysis, reference conditions and economic analysis, and establishment of a group for actors (aktørgruppen) and working groups in relation to these subjects)</p>
<ul style="list-style-type: none"> <li>Awareness raising</li> </ul>	

## 10. Participation: Who is/should be involved

<ul style="list-style-type: none"> <li>Administration, public bodies</li> </ul>	<p>Article 3 working group:</p> <p>Indenrigsministeriet (Ministry of Interior)</p> <p>Finansministeriet (Ministry of Finance)</p> <p>Skov- og Naturstyrelsen (Danish Forest and Nature Agency, MoE)</p> <p>Danmarks Miljøundersøgelser (NERI, National Environmental Research Institution, MoE)</p> <p>Danmarks og Grønlands Geologiske Undersøgelser (Geological Survey of Denmark and Greenland, MoE)</p> <p>Landsplanafdelingen (Spatial Planning Department, MoE)</p> <p>Miljøstyrelsen (Danish Environmental Protection Agency, MoE)</p>
<ul style="list-style-type: none"> <li>Stakeholders (key persons, NGO's)</li> </ul>	<p>Article 3 Working Group:</p> <p>Landbrugsrådet (Danish Agricultural Council),</p> <p>National Farmers Union (NFU), Dansk Industri (Confederation of Danish Industries),</p> <p>Danish Society for Nature Conservation (Danmarks Naturfredningsforening),</p> <p>Friluftsrådet (Danish Outdoor Council),</p> <p>Foreningen af Danske Vandværker (Danish Water Plant Association),</p> <p>KL (Local Government Denmark),</p> <p>Amtsraadsforeningen (Danish Regions)</p> <p>Danmarks Private Vandværker (VANDSAM) (Private Water Plants)</p> <p>Dansk Vand- og Spildevandsforening (DANVA) (Danish Water and Wastewater Association)</p> <p>Det Økologiske Råd (Ecological Council)</p>
<ul style="list-style-type: none"> <li>Open to the general public</li> </ul>	

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## PROBLEMS AND PRIORITIES

11. WHAT PROBLEMS DO AUTHORITIES / DECISION MAKERS HAVE TO SOLVE IN TERMS OF DECISION MAKING FOR IMPLEMENTING THE WFD?		
Priority of problem, please insert (highest=5; no problem =0) <b>Examples:</b>	Missing data / data gaps	Assessment methods
calculating acidification (N + S deposition)		
calculating nitrification (N-/P-pollution)		
calculating water abstraction		
faunistic and floristic assessments		
Data and assessments regarding economic aspects		
Other		

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<p><b>12. Are there typical problems in the catchment (i.e. pollution through agriculture) and typical ranges of possible responses (management options, solutions)?</b> (Answers to this could be helpful for designing typical management options as part of our DSS)</p>

## STATUS QUO OF MODELS/DSS USE

It is necessary to get a picture of the current use of models and Decision Support Systems in the different countries/catchments. Are they used at all? What kind of models?/To what extend?

13. Kinds of models used for the decision making process?	
<ul style="list-style-type: none"> <li>• Scientific models/tools for internal use, Models for part\sub problems e.g.               <ul style="list-style-type: none"> <li>- Nitrate flow\influx</li> <li>- hydraulic Models</li> <li>- others (&gt;model for fish populations)</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>• Tools/models to be used by participants (stakeholders/ general public)</li> </ul>	
<ul style="list-style-type: none"> <li>• Integrated Decision Support Systems (DSS)</li> </ul>	

14. Which models are used in different fields?		
	(please give exact names)	Advantages and problems of the tools/models?
<ul style="list-style-type: none"> <li>• Tools/models for calculating acidification (N + S deposition)</li> </ul>		
<ul style="list-style-type: none"> <li>• Tools/models for calculating nutrification (N-/P- pollution)</li> </ul>		
<ul style="list-style-type: none"> <li>• Tools/models for calculating water abstraction</li> </ul>		
<ul style="list-style-type: none"> <li>• Tools/models regarding faunistic and floristic assessments (biodiversity)</li> </ul>		
<ul style="list-style-type: none"> <li>• Tools/models regarding economic aspects</li> </ul>		
<ul style="list-style-type: none"> <li>• No models used</li> </ul>		

<b>15. Who produced / produces models used in different fields?</b>			
	<b>In-house develop-ments</b>	<b>Scientists in academia</b>	<b>Consulting companies</b>
In general			
• Tools/models for calculating acidification (N + S deposition)			
• Tools/models for calculating nitrification (N-/P- pollution)			
• Tools/models for calculating water abstraction			
• Tools/models regarding faunistic and floristic assessments (biodiversity)			
• Tools/models regarding economic aspects			

<b>16. How would you assess the various products regarding ...</b>	<b>(5= very good to 0 = very poor)</b>		
	<b>In-house develop-ments</b>	<b>Scientists in academia)</b>	<b>Consulting companies</b>
<b>Ability to produce solutions</b>			
<b>Value for money</b>			
<b>User friendliness</b>			
<b>Adaptability to new tasks</b>			
<b>Other</b>			

## **END-USERS' REQUIREMENTS AND SUGGESTIONS**

This is the core of the required information: What can Euro-limpacs do for the end-users?

<b>17. General demand for information relevant for responsible catchment management provided by euro-limpacs</b>		
	<b>Policy level</b>	
	<b>national</b>	<b>regional</b>
Climate change scenarios / models / information		
Influence of climate change on		
• Surface water		
• Groundwater		

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**17. General demand for information relevant for responsible catchment management provided by euro-limpacs**

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	Policy level	
	national	regional
• Biodiversity		
• Economy		
• other		

**18. General willingness to use Decision Support Systems**

Role a DSS might play in the administrative work	
Preconditions for using DSS/models ...	

**DETAILED REQUIREMENTS REGARDING MODELS/DSS**

**19. What kinds of models / regarding which issues are needed?**

• Scientific models (see examples in question 14)	
• Economic models	

**20. Which kinds of information (formats) would be helpful for solving each of the problems? (see question 11)**

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**21. What kind /accuracy of output of the DSS is useful for end-users?**

(for example: are 5 step scales detailed enough?)	(I agree absolutely = 5, I don't agree at all = 0)
Questions concerning accuracy and uncertainties are not that important as long as the DSS is able to rank two or more different management options	

<b>22. Requirements regarding user interface, layout</b>	
a) End-user requirements::	
b) Requirements for stakeholder participation:	

<b>23. Requirements regarding Databases</b>	
a) End-users' requirements: Formats, links	
b) Requirements for stakeholder participation:	

<b>24. Suggestions how to improve the participation process</b>	
For models to be used in participation they must be trusted. How can trust be instilled in models?	
• Reliability	
• Availability	
• Accessibility (for third parties)	
• Other	

<b>25. Further comments:</b>
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## Appendix 2

**Tab: Who should be involved at each level of participation according to the guidance document on public participation in the Water Framework Directive. (Seecon 2004: 42-43)**

	<b>PUBLIC</b>	<b>STAKEHOLDERS</b>	<b>COMPETENT AUTHORITY</b>
<b>Information provision</b>	Obligatory	Obligatory	the competent authority should organise the participation
<b>Consultation</b>	Obligatory	Obligatory	
<b>Active Involvement</b>	Not prescribed	Encouraged	
<b>Shared decision making</b>	Not prescribed	Not prescribed	Solely responsible
<b>Awareness raising</b>	Encouraged	Encouraged	Encouraged