

Cyprus Conference – May 12-13 2005

Governance Regimes for Responsive Water Management

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How do governance structures respond to drought and water deficiency?

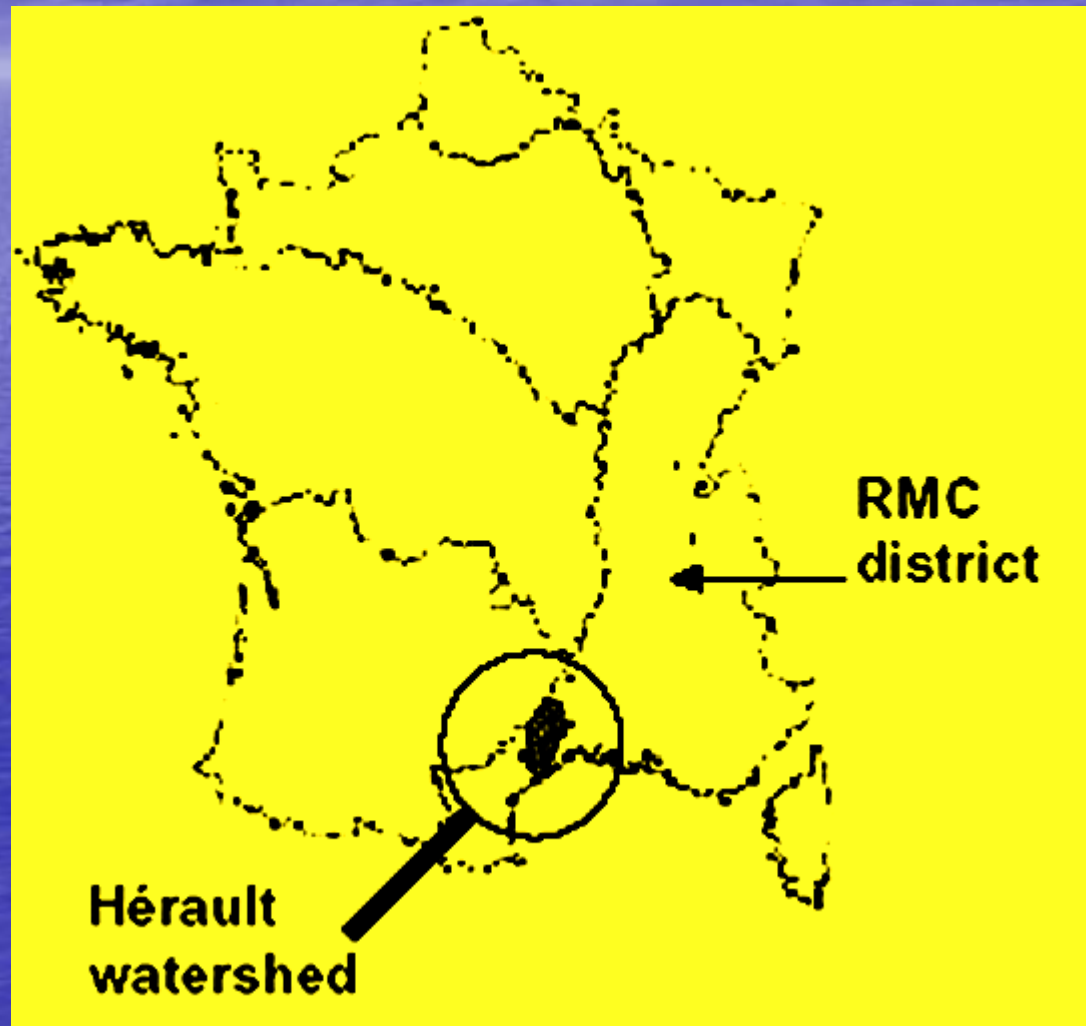
AQUADAPT - WP3 based on case studies in four countries:

- Spain - Marina Baja (water basin)
- France - Herault (river basin)
- United Kingdom - Nene (river basin)
- Netherlands - Maas (river basin)

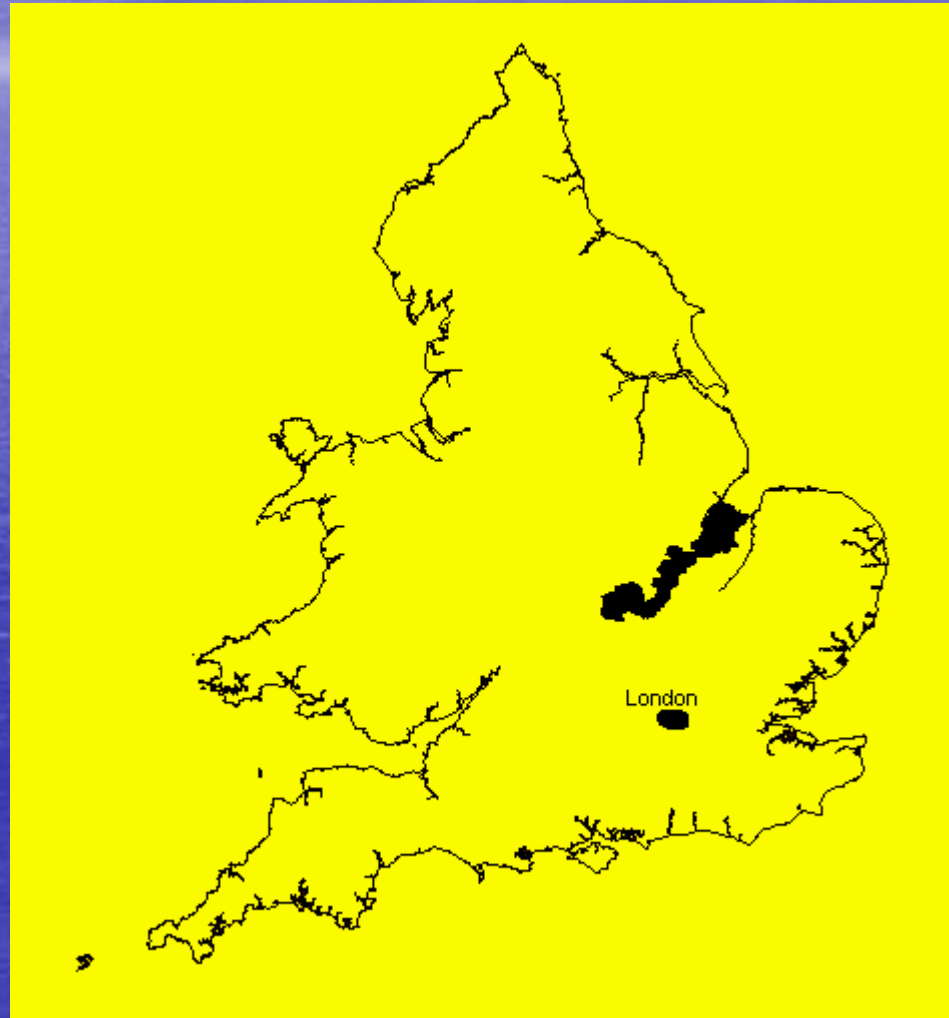
Spain (Marina Baja)



France (Hérault)



United Kingdom (Nene)



Netherlands (Maas)



Main research questions

Case studies:

- Identify changes in water utilization pattern
- Identify water management responses
- Assess the prevailing governance structure

Comparative analysis:

- Compare the adaptive capacity of governance structures
- How to get from research to policy making?

Increasingly intensive water utilization pattern

- Natural factors:
 - Natural conditions of water basin
 - Climate change and changing rainfall patterns
- Socio-economic factors:
 - Traditional water demands expanding, creating homogeneous rivalries
 - New water demands (values) getting into, creating heterogeneous rivalries
 - Demands for other natural resources creating rivalries (for instance land use in floodplains)

Rivalries in terms of property rights

Property rights!

- Increasing water demand for agriculture (Marina Baja), for domestic use (Nene, Marina Baja) or for tourism (Marina Baja): water as a commodity; unlimited consumption of a limited stock?
- Urban and agricultural land use in floodplains (Nene, Maas): property rights on land use restrict the river dynamics and thus affect the storage capacity and the natural function of a river basin.

Property rights?

- Recreational use as a new value (Herault, Nene) or increasing use for navigation (Maas)
- Ecology (minimum flow; river dynamics) as a new value (Marina Baja, Herault, Nene, Maas)
- Water transfer from one aquifer to another (Marina Baja, Herault): sustainability at what scale? where to draw the boundaries of a river basin or catchment area?

Water utilisation pattern

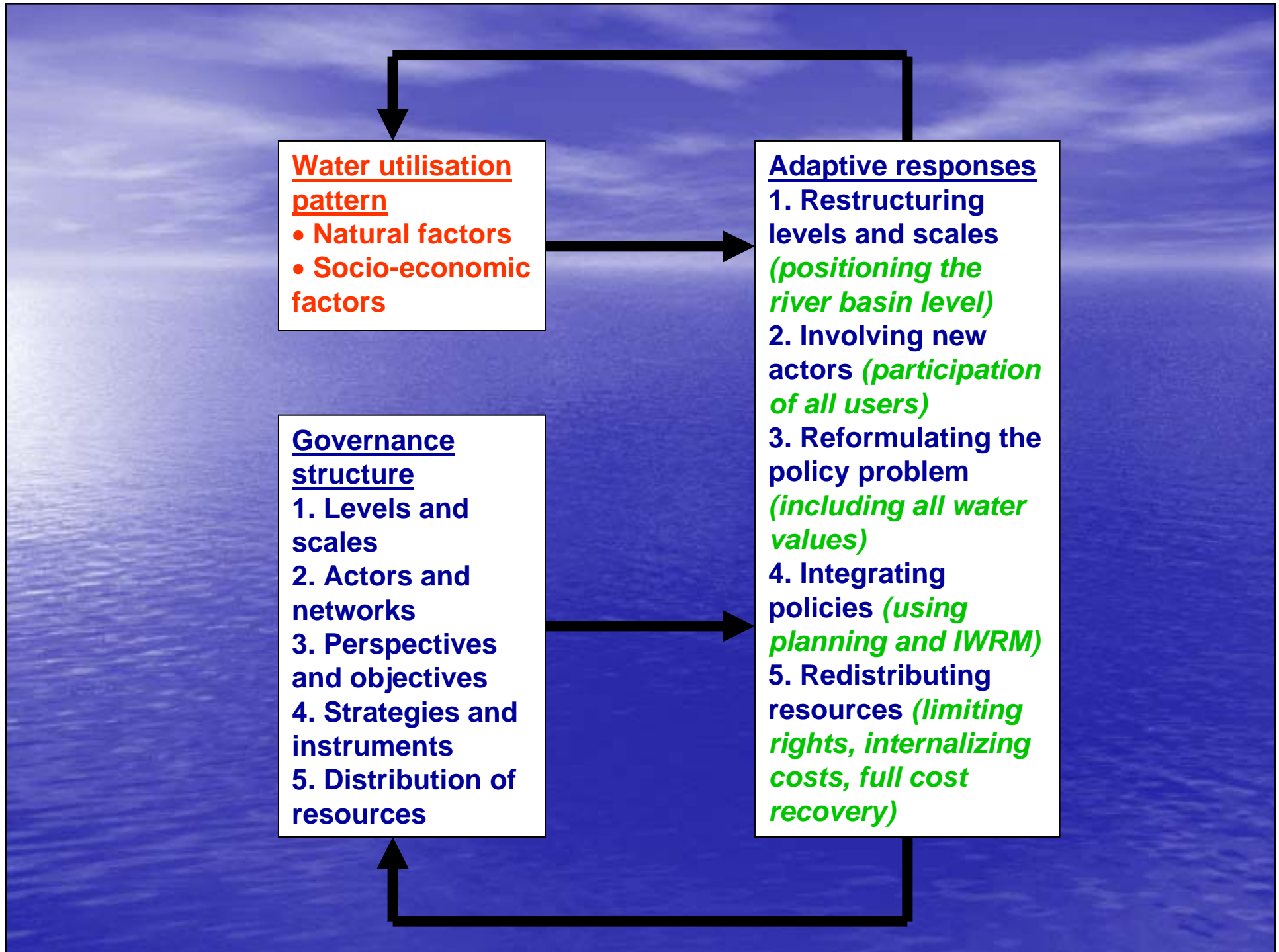
- Natural factors
- Socio-economic factors

Governance structure

1. Levels and scales
2. Actors and networks
3. Perspectives and objectives
4. Strategies and instruments
5. Distribution of resources

Adaptive responses

1. Restructuring levels and scales (*positioning the river basin level*)
2. Involving new actors (*participation of all users*)
3. Reformulating the policy problem (*including all water values*)
4. Integrating policies (*using planning and IWRM*)
5. Redistributing resources (*limiting rights, internalizing costs, full cost recovery*)



The sense of urgency as a trigger for adaptive response

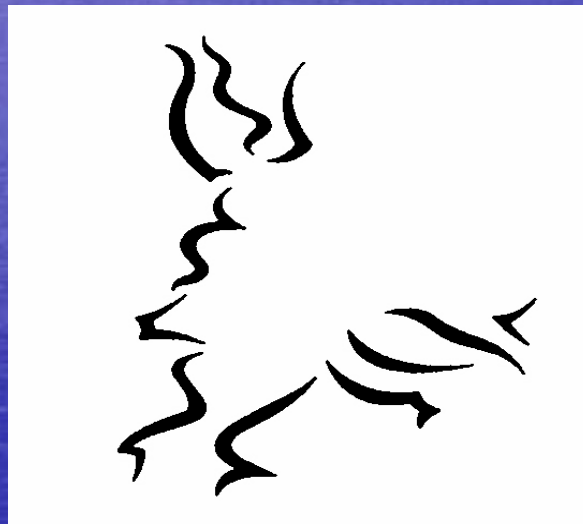
- Draughts (Marina Baja 1978) and floods (Nene 1998; Maas 1992 and 1995) do trigger
- Gradual developments do mostly trigger as a future threat
- Anticipation on future threats?
 - Marina Baja: anticipation on growing demands for agricultural, domestic and tourist uses by relying on water reuse, transfers and desalinisation (no demand restrictions)
 - Herault: threat of water transfer from aquifer to other region; dispute not solved yet
 - Nene: no anticipation on future construction of 400,000 new homes with resulting domestic demand in an arid area
 - Maas: anticipation on new flood threats slowed down due to implementation problems with flood defence policy

Institutional conditions that might trigger adaptive response

- There is already a longer *tradition of adaptation* in the water management sector.
- There is a common understanding that the counteracting (side) effects of non-adaptive water management harm sustainability and that this sooner or later will have to be stopped anyhow (*joint problem*).
- There is a notion of possible joint gains from adaptation, so-called 'win-win situations' (*joint opportunities*).
- There is a credible threat of a dominant actor accumulating power and altering the governance structure in his interest when no solution is reached (*credible alternative threat*).
- There are well functioning institutions that provide fertile ground for adaptive responses (*institutional interfaces*).

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Spain (Marina Baja)



Stressed water utilization pattern Spain (Marina Baja)

- Natural conditions:
 - Semi-arid area with annual rainfall decrease on average.
 - Frequent drought periods and a severe drought in 1978.
 - Frequent floods and irregular rainfall in autumn.
- Socio-economic:
 - Overexploitation due to agriculture (decrease dry crops, increase irrigated crop growing) in inland area.
 - Overexploitation due to urban growth and development and strong growing tourism in coastal area.
- Effects of over-exploitation on natural conditions:
 - Water deficiency
 - Salt water intrusion

Adaptive response

Spain (Marina Baja)

- Creation in 1978 of the Marina Baja Consortium, as an arrangement of municipalities with farmers to re-allocate water in such a way that treated waste water from urban areas can be re-used in agriculture.
- Municipalities in the coastal area are bearing most costs on the investments and exploitation, to keep the price of irrigated water as low as possible.
- The justification for contribution from the general budgets is the importance of tourism for the area's economy.

Adaptive response

Spain (Marina Baja)

- Identified response
 - Restructuring levels and scales: yes
 - Involving new actors: no
 - Reformulating the policy problem: no
 - Integrating policies: no
 - Redistributing resources: yes
- Response triggered by
 - Urgency of immediate water scarcity: yes
 - Tradition of cooperation: no
 - Joint problem: no
 - Joint opportunities: yes
 - Credible alternative threat: yes
 - Institutional interfaces: no

Reactive response

Spain (Marina Baja)

- Intra-basin transfers within the Jucar river basin district.
- Construction of new dams.
- Construction of new wells.
- No use limitations or recommendations to reduce consumption (demand management), although public bodies are aware since the 1960s that urban growth and tourism would create water problems for the area. They have undertaken numerous studies on that.

Governance structure

Spain (Marina Baja)

- Perspectives and objectives

- Until recently an inconsistency in the National Hydrological Plan (2001) that on the one hand extended the eco-perspective but on the other hand aimed at more dams and interbasin transfers
- Since 2004 more orientation by central government on desalinisation and demand management
- At regional and local level the resource is not considered as a limiting factor (faith in re-use of treated water and in external contributions)
- Problems of underground water pollution and overexploitation causing saltwater intrusion are not included in problem formulation by the public

Governance structure

Spain (Marina Baja)

- Distribution of resources
 - Strong property rights on water resource use by agriculture
 - Tourist and urban development do not follow the water availability
 - Responding to the 1978 drought, municipalities formed the MB Consortium for the trading of used water, to improve use efficiency (re-allocation among users)
 - Water users are not bearing the full costs of infrastructure, exploitation and externalities (general budgetary funds of various administrations are involved)

Governance structure

Spain (Marina Baja)

- Levels and scales

- Integrative coordination is missing between administrative levels that are involved in water management
- The Environmental Ministry is supervising the river basin authorities which develop the main policy at water basin level
- However, the river basin authority Jucar is isolated from the Autonomous Community Valencia and the Municipalities, including the consortium
- The consortium is an initiative by municipalities, but not under the supervision of the river basin authority
- Intra- and interbasin transfers raise the issue of basin boundaries and scale of sustainability

Governance structure

Spain (Marina Baja)

- Actors and networks

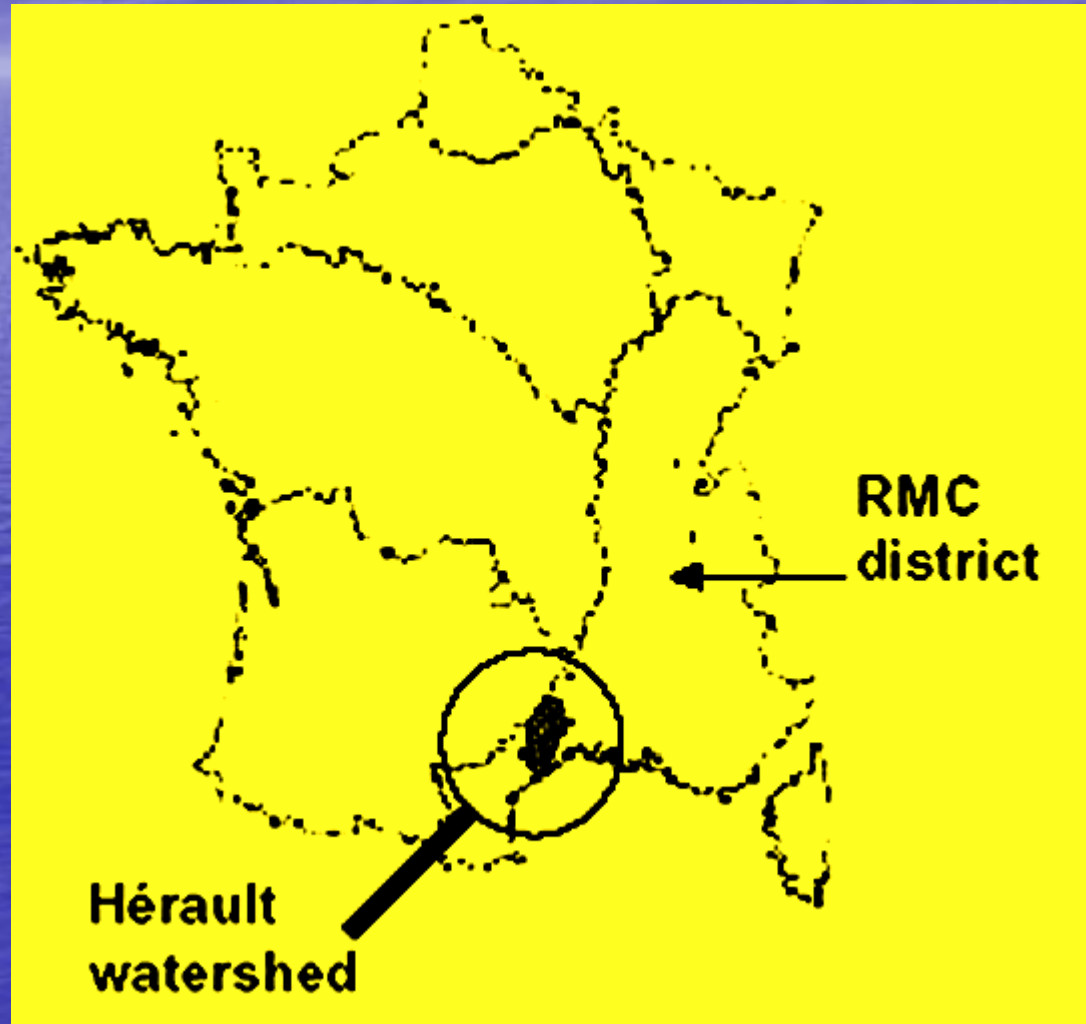
- The consortium is a closed community, protecting its strong economic interests
- It is a corporative institution, not very open to rival interests (like ecology) or linking up with land use development
- There is a low level of public participation
- There is a lack of access to information
- The consortium is locally embedded, but not in the top down structure of the administration

Governance structure

Spain (Marina Baja)

- Strategies and instruments
 - Fragmentation exists between urban planning and water resource management
 - Water quality aspects are insufficiently included in water resource management
 - There is a lack of integrated planning and IWRM
 - A strategy for demand management is missing; the prevailing strategy is supply oriented

France (Herault)



Stressed water utilization pattern France (Herauld)

- Natural conditions:
 - Water shortage periods in summer, yearly a few weeks irrigation constrained, but rarely a ban on crop irrigation
 - No shortage for drinking water supply and industrial use in summer
 - No pattern of increasing drought
 - Very violent flash-floods in autumn and winter
- Socio-economic:
 - Changing population: new settlers from outside the area who now represent the majority of the inhabitants
 - No changing demand, but changing sensitivity of new citizens to irrigation affecting recreational use options.
 - Tourism is an increasingly important source of income for the area.
- Effects on natural conditions:
 - Drinking water supply, irrigation and hydropower cause sometimes together very low river discharge, creating sanitation problems.

Adaptive response

France (Herauld)

- Responding to perceived water stress, government agencies in the area have promoted the principle of collaborative management and planning of water resources.
- They made use of a planning instrument - the SAGE procedure (Local Integrated Water Planning) – defined at the national level by the 1992 French Water Act.
- SAGE creates a platform where stakeholders can debate and negotiate.
- Applying this model means a change from the traditional top down model to a more flexible participatory model.

Adaptive response

France (Herauld)

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 - Institutional interfaces: yes

Governance structure

France (Herauld)

- Levels and scales

- Government agencies, traditionally working at the level of the Departement, have to cooperate at basin level
- This strengthens the cooperation between central and decentral level (co-governance)
- Although public agencies should join forces, not all of them support the SAGE planning procedure

Governance structure

France (Herault)

- Actors and networks

- SAGE is a drastic change in the sense that environmental associations, canoe rental companies, and so on, can contribute to policy making
- However, not all stakeholders are well represented. Government agencies select representatives, so there legitimacy could be contested. Non-organised stakeholders are not represented. Consultation is very formal, the general public is not involved.
- Participation in an expert community is difficult due to rather technical language used.

Governance structure

France (Hérault)

- Perspectives and objectives
 - It is difficult to get to a joint problem formulation. Traditional stakeholders refuse to accept the existence of water stress due to the inclusion of new values.
 - As a result, public agencies avoid speaking about water conflicts. They prefer to consider it as future tensions that might happen.

Governance structure

France (Herauld)

- Strategies and instruments
 - SAGE is applying to the new paradigm of integrated water resource management.
 - It is not clear yet (the SAGE procedure started in 2003) to what extent this new approach will be effective.

Governance structure

France (Herauld)

- Distribution of resources
 - Representation of stakeholders is missing 'legitimacy', which is an important resource for getting policies effective.
 - In fact, it is a matter of confidence among stakeholders that is missing, while the public agencies want to build on that instead of using their authority as a command and control approach.

Property rights in the Hérault case

- Rivalry exists between farmers (irrigation) and stakeholders making indirect use of water (fishing, swimming, canoeing).
- Fishing associations argue that farmers do not comply with the 1994 Fishing Act, which requires minimum flow. They also argue that farmers could prevent water stress by changing irrigation practice (turn to drip irrigation).
- Farmers argue that they represent the oldest water use in the basin. They claim historical legitimacy versus the recent increase of environmental sensibility.
- Cases are sometimes taken to court, but often political pressure is exerted to cancel the complaint.
- However, the social pressure on farmers is such, that they have started to explore the possibility to construct small reservoirs. This is also an adaptive response, triggered by a credible alternative threat!
- Financial institutions, such as the Rhone-Mediterranee-Corse Water Agency, support conflict resolution by subsidising studies and investments to improve irrigation efficiency.

Water utilisation pattern

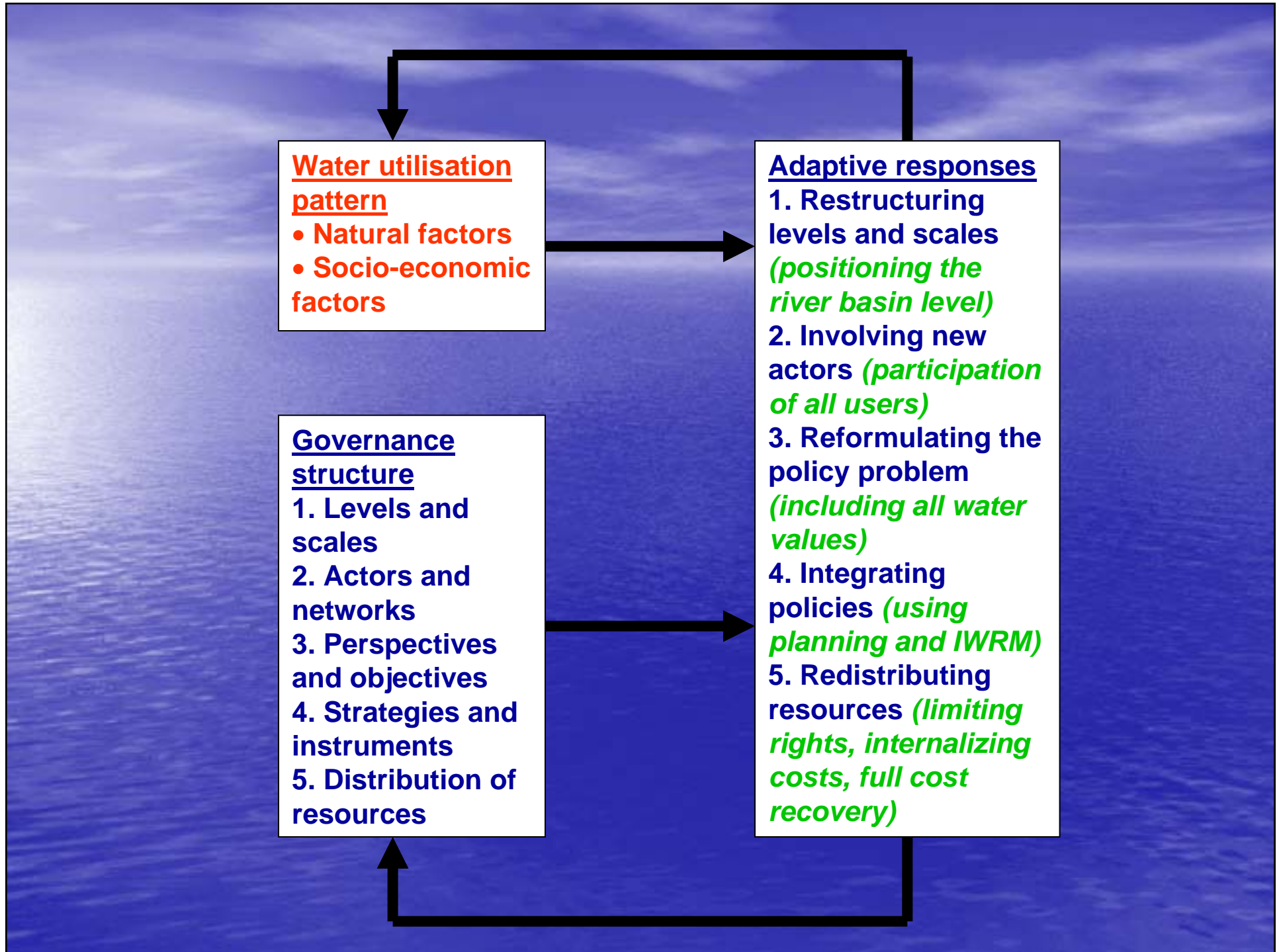
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Conclusions and policy implications: levels and scales

- Subsidiarity advocates decentralised decision making at river basin level, but central/national policy and decentral policy need to be connected in a coherent way.
- Bottom-up arrangements at local level (like drainage boards) should be embedded in the river basin arrangement.
- The central level should search its strength in guiding perspectives, the decentral river basin level should function as the interface between top down and bottom up.
- Multi-level governance: prevent levels to function isolated.
- Fit between scale of water basin and scale of sustainability seems to be important issue: at what scale do we allow water transfers, and where is the limit? (think of Herault case)

Conclusions and policy implications: actors and networks

- Rival values and users should have an opportunity to be represented in decision making on river basins and water catchments.
- Planning could be an institutional interface for that.
- Water policy communities are often expert communities with highly professionalized language which make them rather closed.
- To allow more participation of new users, they should become more open. They could create better access to information and make it possible for outsiders to understand their language and policy documents.
- Representation for taxation (more on that at 'distribution of resources').

Conclusions and policy implications: perspectives and objectives

- How do new values fit into the existing water culture in a country or an area?
- Various discourses can exist around water stress when anticipation is debated (in fact as many rival parties there are). Many stakeholders can only think in terms of future water problems, expecting that they can be solved in the meantime with engineering solutions.
- This is based on their perception of how water problems have been solved until now.
- Water management should more be communicated in terms of social dilemma's instead of physical problems that can be solved with technical interventions.
- To help a better problem formulation in society, more information should be disseminated with respect to the variety of values that water management can serve.
- Monitoring should also report on the side-effects of water uses and policy decisions. Development of performance indicators might help.

Conclusions and policy implications: strategies and instruments

- A strategy for demand management should be developed and discussed.
- Bottom-up organisations in water management are mostly not concerned about demand management; they are use oriented. Common pool resource structures are mostly dealing with homogeneous rivalry and re-allocation to solve that and keep the uses going. The protective orientation has to come from outside.
- More integration is needed between water and land use management.
- Create approval procedures for land use plans and have them screened on water effects by water authorities. Having countervailing powers improves the quality of decision making (checks and balances).

Conclusions and policy implications: distribution of resources

- Stimulate efficiency at the side of water users by fixing water stocks and creating tradable quota (for Spain this would be in line with the water market created by the 1999 amendment to the 1985 Water Act).
- Let users pay for the full costs of water services and try to internalize externalities in the price of water.
- Water is not only a commodity. Water management also creates values that are difficult to recognise as 'water services'.
- You do not only have to charge by means of water consumption prices. You may also charge by means of an additional water taxation.
- Give tax payers a say in the water administration (representation), not only farmers, also the urban population. Give them representation and property rights in exchange for water taxes.
- Attribute property rights to new values, because it will create a debate about re-allocation of rights.
- An important issue will be: when are financial contributions from the general or national budgets allowed, and when must water basins take their own financial responsibility for water management?