

Applied methodology

1. *Historical country screenings*

The case studies and case study comparison is not the whole Euwareness study. Next to the case studies also 'country screenings' are made, describing and assessing policy and property right developments on the national level over a prolonged period.

The historical screening of water resource regimes in the different countries is used to examine whether the emergence of resource regimes corresponds to our theoretical phase model and whether the suggested transitions from complex to integrated regimes can be identified. These are analysed in detail in a later phase in the case studies. This development of national regimes is examined for a period extending over approximately one hundred years. The methodology is descriptive, and as much as possible making use of previous studies and publications. The screening concentrates on changes in the central elements of the policy design and property and use rights. This diachronic analysis makes it possible to make a statement on the breadth of the regime and reveals the goods and services for which the use of the water resources was regulated using specific public policies, or by means of the introduction of property and use rights over time. It is particularly important that the transitions are identified, i.e. those historical moments when the resource regime actually changed. We are particularly interested in the change from complex to integrated regimes. As part of this perspective, the analysis will also document politically perceived scarcities of resources.

All country screenings have addressed the following items:

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1. Introduction: the national context
 - 1.1 Administrative-political structure (in general)
 - 1.2 Water resources and uses (in general)
 2. Property rights on water (PR)
 - 2.1 Evolution of property rights (phases)
 - 2.2 Comments on extent and coherence
 3. Public policies on water (PP)
 - 3.1 Evolution of public policies (phases)
 - 3.2 Comments on extent and coherence
 4. Water regimes and their sustainability performance
 - 4.1 Regime evolution in terms of coordination between PR and PP
 - 4.2 Identification and explanation of regime transitions
 5. Conclusions
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2. *Selection of cases*

In the Euwareness project two cases are studied in each of the six participating countries. In a first period of six months a first set of six cases (one in each country) was studied. In a next period of six months the second set of six cases followed.

These were the main criteria for the selection of the case:

- The demarcation of a case should follow the hydrological and geographical boundaries of a water basin at a regional scale or with a tributary character.
- We have been looking for cases of rivalry between heterogeneous / homogeneous uses / users of the same water resource. We preferred cases where several rivalries show up to allow intra-case analysis. It was not necessary that these rivalries are manifest in the whole case area, they might also be at stake in just a part of the case area.
- There was a preference for cases where not only public ownership but also private ownership of water resources could be found.
- Cases should be selected on the presence of at least attempts to get transitions towards more coherence during the last two decades.

The sample of case studies is based on a combination of similarities and differences. In some respects it seeks similarities (e.g. medium size river basins) that define boundaries of the research subject. In some respects it deliberately encompasses different situations (e.g. 'wet' cases and 'dry' cases). But the most significant decision has to do with how the cases relate to the main three variable-groups, since these relations influence the inferences that can be made about the hypotheses that relate these variables (see 2.5).

There are various modes of sample selection, depending on the sort of inferences one wants to make (cf. Patton, 1980). Some modes refer to the dependent variable, some to the independent variable. Opinions about what is best differ and in any case there are different pros and cons involved. Most prefer the dependent variable as a basis for the sample selection. In EUWARENESS we have not one but two main links in the causal chain ($A \rightarrow B \rightarrow C$). We have chosen to connect the case selection to the second variable (dependent in the $A \rightarrow B$ relation, independent in the $B \rightarrow C$ relation).

On the surface the criterion looks the same as the other (similarity) criteria, namely that there should be the ex ante impression that a serious attempt to attain more integration in the regime took place in the proposed case. Nevertheless this criterion is a combination of an extreme case sampling strategy and a random variation driven strategy. It is extreme case sampling in the sense that it leaves out all possible cases where there is no ex ante evidence that attempts towards more integration have been made. The implication of this is that when we don't find improved factual ('real') integration in our cases, the chances are dim to find it on any large scale outside of our sample.

It is also a random variation strategy though, since any attempt to attain more integration surely doesn't imply the success of it in close observation. On the contrary, we expect to see anything from major improvements to only symbolical alterations and everything in between, due to the various conditions of the case. To re-use a metaphor from above: we confine ourselves to cases where seeds have been sowed, in the expectation that these will be shown to bear fruits in very divergent degrees. This gives the opportunity to make an inventory of change agents observed and test expectations about beneficial conditions. On a separate case level the disadvantage is that in case that in practice little or none regime change towards more integration could be shown, it is not possible to look for sustainability effects of these non-existent regime changes. Nevertheless on a comparative level we'll find some variation in the independent variable, with the hypothesis to be tested that improved integration will show connections with some improved aspects of sustainable resource use.

The following cases were selected¹:

Belgium

Case 1 -

The Vesdre River Basin

The Vesdre is a tributary river in Wallonia. Its basin is 710 km² and it contains two rivers, de Vesdre (71 km long) and the Hoëgne (29 km long). It is an independent basin, since all rivers take their source inside the basin. Next to quality aspects, also quantity aspects are relevant in this case. Since it is a 'wet' case, here the latter means the risk of flooding.

Case 2 -

The Dender River Basin

The Dender is also a tributary river, but now in Flanders. Its basin is very similar (708 km²) in size. In fact it is larger (1384 km²), but half of it lies in Wallonia. The Dender flows only in its lower part into the basin. Both flooding and quality aspects are relevant. There is no drinking water production in the basin.

France

Case 1 -

The *Audemarois Basin*, including the Aa River Basin and the Audemarois Marsh as its spreading area. The river Aa is 40 km long and is the main river of the region. The borders of the Audomarois Regional Park, encompassing some 550 km², best define the area. There are various rival uses at stake: agriculture and market gardening vs. navigation and nature, industrial pollution and nature and nature protection vs. extraction for drinking water and industry.

Case 2 -

The *Sèvre Nantaise River Basin* is rather large, 2.493 km², but not very densely populated (290.000 in 1999). There are several smaller rivers in the area, but the Sèvre Nantaise itself is 135 km

¹ Of course, far more extensive information about these cases is provided in the 12 Euawareness case study reports, which form a separate and essential part of the reporting on the Euawareness research.

long. On its turn it is a tributary river to the Loire. The rivalries consist of agricultural drainage and irrigation vs. nature (because of floods and low water periods) and pollution from different sources and nature.

Italy

Case 1 - The *Idro Lake*, a natural basin artificially regulated, and the Chiese River, that is flowing across the regions Trentino and Lombardia, generating the Idro Lake and finally flowing down the Sabbia Valley into the River Oglio. The Chiese flows for 148 km. The whole water basin covers 934 km². The Idro Lake is a natural lake, artificially regulated. Its surface is 11 km²; its total catchment area covers 617 km². The main rival uses are agriculture, hydropower, tourism, nature and protection from floods, soil erosion and land sliding. The rivalry focuses on the maximum variation of the water level of the lake and a minimal flow of the river.

Case 2 - The *Marecchia-Conca Basin*. Here the main rivalry is between water for drinking (residents, but also tourists) and irrigation for agriculture. But there are also some other rivalries and institutional conflicts. The basin covers 1347 km². The water basin includes the Marecchia cone, the biggest hydrological sink of the region.

The Netherlands

Case 1 – The *IJsselmeer* is a freshwater lake and former Inland Sea in the heart of the country. It covers about 2000 km², surrounded by about 600 km of shore. Rivalries in use concern fishery (a homogeneous use rivalry), between gas drilling and the protection of water quality for nature and drinking water production, the rather Dutch issue of land reclamation vs. open water and between nature and recreation.

Case 2 – The *Regge River Basin* is a tributary river in the Province of Overijssel, joining the Vecht River, which is flowing at the end into the IJsselmeer. It is a small rain river with only 20 meters of height difference in a 900 km² large basin. The main rivalries are between protection against flooding (mainly for agriculture) and nature and landscape and between pollution and nature.

Spain

Case 1 - The *Matarraña River Basin*, a tributary of the river Ebro located in the north east of Spain. The Matarraña is a tributary to the Ebro river and has an extension of 97 km. The basin is 1.727 km² large. In this case irrigation – using 90% of the available water flow! – is rivalling uses for population supply, tourism and environmental protection.

Case 2 - The *Mula River Basin*, where irrigation by itself is already pushing to the limits, but also rivals uses for population supply, tourism and environmental protection. The Mula is a tributary of

the Segura and has an extension of about 25 km. Its basin is 695 km².

Switzerland

- Case 1 - The *Maggia Valley*, which is a mountain river basin situated in Ticino, the southern part of Switzerland, south of the Swiss Alps. The river flows into the Maggiore Lake, a large part of which is situated on Italian territory. The water basin is about 930 km² big. Main problems were with hydroelectric production, quarrying and flood protection, rivalling with uses like recreation drinking water production and nature and landscape.
- Case 2 - *Lake Baldegg and Lake Hallwil*, where the problems stem from wastewater from settlements, diffuse pollution by agriculture and the need to protect the lake shores. The first mentioned lake is 5 km², mainly supplied by river Ron. From lake Baldegg flows river Aabach that feeds the second lake of 10 km². The water basin of the two lakes is relatively small, some 138 km².

The 12 cases display a large variety of rivalries that include most of the common ones in the European Union at this level. They are similar however in their approximate scales.

3. Case study design

In many case studies normally two parts have their place. The first one is a descriptive one, in which the emphasis lies on the story or stories to be told. The second one is an analytical one in which the values of the variables are assessed that play a role in the theory that is used in the intra and/or inter case comparisons to build an answer on the research questions of the project (Dente, Fareri & Ligteringen 1998).

Some of the cases contain more than one more or less independent development or 'story'. In these cases there are *sub-cases* discerned. There is only one case-story under the following conditions:

- If there is only one (major) or at least only one selected rivalry
- If there is only one line of development or only one aspect with which the regime has changed
- If the regime changes observed are highly interdependent, and/or
- If the rivalries in the case are highly interdependent

If none of these hold true, we discerned separate subcases when analysing the variables and hypotheses in chapter 4. A subcase is than a set of observations for which of the above criteria *do* hold true². In many instances this also meant that not only regimes on the water resource, but also regimes on land use, nature protection and other natural resources (e.g. fish) were at stake.

² Compare a detective story in which more than one murder takes place. If these are interconnected it makes no sense, when analysing the plot, to discern them into subcases, but if they are just connected by the fact that they take place in more or less the same period, they will probably have quite different plots that require separate attention when analysed.

The descriptive part of the case study follows mostly a historical logic. If there is more than one important story lines or sub-cases, these are dealt with separately. From the beginning though, the stories are selected ones. Only those developments that are relevant in the light of the variables and theories of the project are worth to be elaborated. Though the readability of the case studies may involve also other considerations, nevertheless it is attempted to use as much as possible the terms that fit those of the variables or indicators of them. This makes it easier for the second part of the case study to be linked with the descriptive part. Since all teams have extensive experience with case studies as such, the case study protocol used did not further elaborate on the descriptive part.

The analytical part consists of the assessment of relevant variables (translating 'real life' observations in theoretical language) and the inferences and conclusions that can be based on these variables and their relationships. For the case study protocol the identification of the key variables to be assessed and their indicators was most important. Since subcases are treated as equal cases in the analysis of the assessments of the relevant variables, cases that are split into subcases are in a sense over-represented in the data for the comparative analysis that is presented in chapter 4. Therefore we also constructed a '*weighted database*' in which all cases were assigned four units of research. That means that when a case is not split into 2 or 4 subcases but analysed as a single case, that case was included fourfold in the 'weighted database'. All the analyses presented in chapter were also done with this 'weighted database'. Commonly the results did not differ, though.

In order to answer the research questions and analyse the hypotheses, all the case studies have addressed the following items:

Case demarcation

- general description of the water basin (geographical and hydrological aspects)
- description of water uses involved (goods and services)

Regime development during last two decades

- general historical description of regime development
- paying attention to water rights, policy concepts, actors involved, rivalries

Identifying transitions towards coherence

- based on previous regime development description
- concluding what transitions are being found: is there more than one sub-case?

Detailed analysis (if necessary for each transition / subcase)

- describing what happened and what kind of rivalry/ies has/d been at stake
- analysing what forms of extent and coherence changes can be recognised: extent, internal coherence public governance, internal coherence property rights, external coherence between public governance and property rights
- analysing the relation between regime change (coherence) and sustainability; relation with hypotheses
- analysing the conditions for regime change; relation with hypotheses

Conclusions

While in our case studies it was seldom possible to give a complete overall assessment of the status of the regime (too many aspects would require attention), it was possible to assess the changes that have occurred in the research period of the case study. Do they simply add uses or users to the domain of the regime (extent), or are they also 'repairing' one or more mismatches (coherence), and if so which ones? Then the choice of 'issues' or 'rivalries' determines what changes are relevant in the context of the case story/ies. In our case studies it has proven that there is no escape from more or less artificial boundaries of the case as studied, boundaries that are set by the researchers. These boundaries are not only in terms of geographical area or time period, but also may exclude certain issues. An example of a change that is not as relevant for the case story is when national law sets general minimal quality standards when studying a clear mountain river where quality has never been any problem. Or when an existing but minor issue about water quality has been deliberately set outside the realm of the case study, while concentrating the study on other more important rivalries. This happened for instance with the rivalry between kayakists and fishers in both French cases. By viewing from the perspective of the rivalries under study it is possible to assess the impact of the changes on the regime's status in as far as it is relevant for the (sub-)case (more or less extent, more or less of various kinds of coherence).

We'll now return to an overview of the variables assessed in order to discuss their operationalisation in the empirical case studies.

4. *Re-visiting the variables for further operationalisation*

There are three groups of variables. These are linked by the central relationships in the research questions.

- A. Change agents & conditions →
- B. Regime changes →
- C. Effects on sustainability aspects

'B. Regime changes' is the central variable. A should provide explanations for it. C should show the results of it. Therefore we'll start with explaining C.

Sustainable use

Though an overall assessment of the sustainability of the regime is for various reasons hard to give, the assessment whether the concrete regime changes lead in the direction of more or less sustainability was less hard to give. The expectation that more integrated regimes will *ceteris paribus* perform better for sustainability is part of European and many member states political ideology on water management. A more theoretical reasoning to base this expectation on is given in the previous section.

There are many indicators that can genuinely be considered to represent aspects of sustainability (cf. the 'good status' as specified in the EU water directive – see Appendix 4). It is not the purpose of the EUWARENESS research to assess the overall sustainability of the resource use. The approach to deal with this variable (-group) is the following. We start with the rivalries that are at stake in the case story/ies. In first instance the assessment of the changes in the sustainability of the resource use is limited to the natural/environmental indicators that are directly at stake in these rivalries. In second instance also the social and economical development consequences of the changes in these indicators and / or the measures taken for this purpose are taken into account. In last instance also a marginal check is made whether the observed changes have important side effects on other natural resource / environmental indicators and whether these have indirect social and economic consequences in their turn.

Regime changes towards coherence

The central key variable in the EUWARENESS project is: changes of the regime towards more integration (extent and coherence). This variable is the dependent variable in our most important research question and the independent in the other. It consists in first instance of three dimensions: change, regime and integration. We will deal with these dimensions successively.

Change

Change is placed at the foreground here, because in the case studies the transitions (towards more integration) themselves are the focus of attention. This means that it was not always important to sketch all aspects of the regime, but only those that are necessary to understand what the changes that are studied mean in the context of the rest of the regime.

In many cases the case study will not contain only one story of regime change, but more than one. This may imply developments that can be seen as partial integration in only geographical sub-units of the case study territory or only between certain aspects of the resource use and not between others. Our proposal was not to submerge these sub-stories and force them into one over-all case description, but to pay separate attention to them against the background of descriptions of the more general case situation and development.

We expected on beforehand non-trivial changes (even if they involve changes towards "consensual management" or the like) to often involve some kind of conflict, struggle or manipulation, with also losers involved. So, though it is not impossible that changes in problem perceptions (in combination with the existing 'regulative system' of property and use rights) invoke a real consensus that everybody is better off with more integration, this certainly needs not to be the case. (It is even likely in such a case that there has been some previous struggle about the problem perception itself.)

So, all in all: there can be more than one relevant changes described in the case studies, and even though these changes are heading towards

integration, the change process itself will often involve overt or hidden conflicts³.

Regime

The resource regime consists of two systems and their mutual relationships: the regulative system (including property and use rights) and the governance system (including public policies).

Concerning the regulative system it consists of the property rights (not only including the property titles, but also management rights and exclusion rights), use rights and disposal rights (a special kind of use right, but special in the sense that disposal directly affects water quality and its protection). In the EUWARENESS research proposals the following property rights were discerned: property title, exclusion rights, access & use rights, management decision rights.

Concerning the public governance system we think it is important to have a broader conception than just public policy. We use a public governance model that consists of five dimensions or 'elements', with an extensive list of indicators operationalized with the help of a survey of policy analysis literature. Together they form a more or less complete picture of the public governance system.

The coherence of the regime can be distinguished between internal coherence of the public governance, the internal coherence of the property rights and the external coherence between the two. For the last two, see section 2.3.

As for the internal coherence of public governance six forms of coherence may be distinguished:

- a. Coherence of levels and scales of governance*
- b. Coherence between actors in the policy network*
- c. Coherence of problem perception and objectives*
- d. Coherence of strategy and instruments*
- e. Coherence of responsibilities and resources for implementation*
- f. Coherence between the two subsystems of the resource regime*

We repeat them here in order to link them to the concepts that are used by the European Union.

This division is supported by the definitions of "integrated water management" as being adopted by the EU. In that context, an important source for us to consult might be the new European Water Framework Directive, which is defining and advocating coherence by:

- Administrative co-ordination at the level of a river basin as a whole (*"the best model for a single system of water management is management by river basin – the natural and hydrological unit – instead of according to administrative or political boundaries"*). This element is supporting the form of coherence focusing on levels and scales of governance.

³ As could be observed in several of the case studies.

- Involvement of all actors having an interest in water services (*“increasing public participation and balancing interest of various groups”*). This element is supporting the form of coherence focusing on actors in policy networks.
- Development of a water vision for a river basin (*“co-ordination of objectives – good status for all waters by 2010; the objectives for a river basin must be set out in a river basin management plan, based on analysis of the river basin characteristics, a review of the impact of human activity on the status of waters in the basin, estimation of the effect of existing legislation and the remaining ‘gap’ to meeting these objectives”*). This element is supporting the form of coherence focusing on problem perception and objectives.
- Streamlining legislation (*“the framework directive will take over operative provisions of several water directives”*) and getting the prices right by full cost recovery pricing (*“to ensure that the price charged to water users integrates the true costs”*). This element is supporting the form of coherence focusing on strategy and instruments.
- Co-ordination of the application of measures for a river basin (*“analysing if existing legislation solves the problem well and good, and if it does not, identify why and design whatever additional measures are needed to satisfy all the objectives established”*). This element is supporting the form of coherence focusing on responsibilities and resources for implementation.

Integration

The term “integration” is used as a label for the regime changes that might improve the sustainability record of water resource regimes. The term relates to the term “integral water management” that is in the core of attention now in the European Union and member states water policies and thus to the policy relevance of the research project.

For EUWARENESS next to these possible forms of integration (extent and coherence) in the public governance system also an extra focal point comes in: that of the internal coherence of the property rights system and the external coherence between the two systems of the resource regime. Such a possible incoherence is sought in the first place in a wrong match between the actors targeted by the public governance system and the actors with relevant rights in the regulative system (property and use rights). In the second place also a mismatch of the goods and services involved in both systems might lead to a lack of integration and thus a possible form of change towards more integration. Though this form of integration is hardly included in ideas about integrative water management in the EU and its member states, it is a typical and logical extension of the concept in the context of the EUWARENESS project, of which the combined attention to both systems of the regime is a characteristic feature.

Thus, the three main change variables are:

1. Extent
2. Internal coherence
 - a. within the public governance system
 - b. within the property rights system
3. External coherence (between a and b)

'Extent' reflects the domain of uses and users that are regulated by the regime. If a certain use of the water resource (e.g. fishing) is not regulated or considered by any of the regime elements, it does not belong to the extent. Likewise if only professional fishing is regulated, but not sports fishing, the sportsmen involved do not belong to the extent.

Change in extent will often mean that more uses and/or users are incorporated. Typical for many cases is that nature gets recognised as a use/user and considered in the regime. A larger extent makes the regime more 'meaningful' for the use of the resource. But there is also a danger. If the incorporation of additional uses/users in the regime takes place by new separate property rights and/or public governance aspects, this might lead to a decline of the coherence of the regime. In this way simple regimes evolve into complex ones. Therefore in we have also spoken of 'complexity' and 'fragmentation' in relation with this variable.

'Coherence' is the degree of 'fit' of the property rights, of the public governance elements and of their combination. When the European Union speaks of 'integral water management', it means - in our terms - a combination of an increased extent and more coherence in the elements of public governance. In the EUWARENESS project we are however also interested in the coherence of the property rights (2b) and in the coherence *between* public governance and property rights (3).

An example of a misfit in the elements of public governance is when a new problem perspective is accepted, but no new targets are formulated for that newly recognised problem or it is not recognised that the new targets are contradictory to the existing ones⁴. It would thereby create the risk that 'the left hand is undoing what the right hand is doing'. These are examples of a mismatch within an element. When the new objective is not followed by instruments to attain it, that is a mismatch between elements of governance. An example of a misfit in the property rights system is when new users are granted use rights without recognising that this may harm existing use rights⁵, for instance when water scooters are allowed in a lake where a sports fishing association holds an exclusive fishing right. An example of lack of coherence

⁴ In the Audomarais case nature protection was added, while the groundwater extraction did only reckon with industrial use and drinking water production and resources for that, but not with the needs of the natural area.

⁵ In the Audomarais case the water level in the canal was raised by the State company holding the management rights to allow for bigger boats, but without reckoning the rights of the users of the water for market gardening.

between property rights and public governance occurs when policy instruments address other actors than the ones that hold relevant use rights.

Change agents and conditions

The second question of the EUWARENESS project asks for the change agents and conditions for change. We elaborated that in three directions: the change agents, the conditions for successful changes and the more detailed form of the changes.

The general idea is that regime changes in many cases are the result of processes not intending to produce a change in water management, or to do so, but in many cases for other reasons than water management purposes (alone). The interactions of actors with their resources and within an institutional context produce the initial change. Behind these dynamics often more external change agents can be recognised which in their turn affect motives and resources of the actors involved. In the project proposal recognition of developments in the problem situation was mentioned as such a factor. We listed also some other 'major societal developments' as candidates when one asks oneself the question "why was this process triggered there and then?" Since many of these circumstances could trigger processes of changes affecting (ultimately) the water management regime, we don't want to include only these in the comparative analysis.

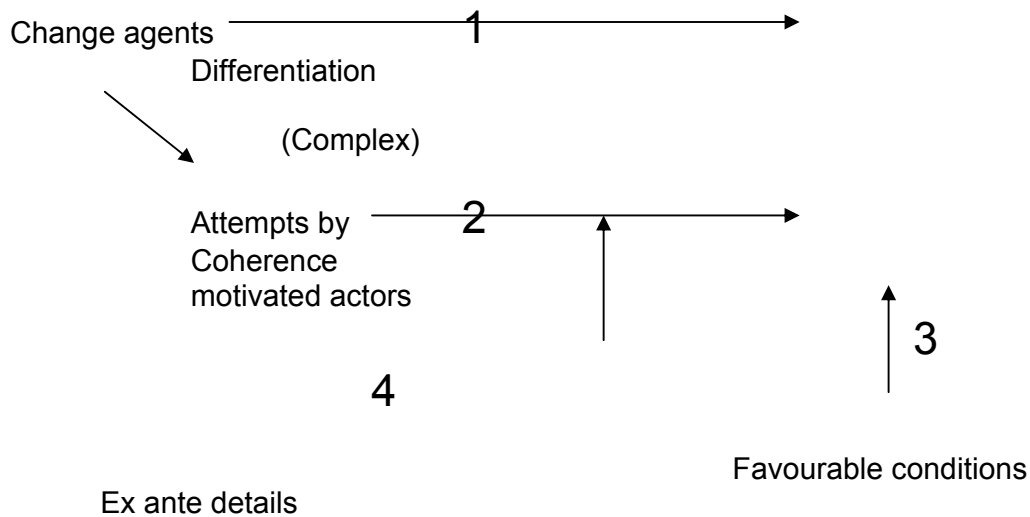
For the specific kind of changes that can be labelled 'moves towards more coherence', the expectation is that these changes will not occur unless there is some deliberate attempt by motivated actors towards coherence. Examples from the French cases are the Regional Park in the Audomarois case and a regional State administration SREA, in the Sèvre Nantaise case. The reason is that real coherence implies not only a reshuffle of power etceteras (that can be produced also at random by various external developments) but precisely that this reshuffle is NOT at random, but leads to the (in a world of randomised pressures) unlikely effect of more coherence. In our perspective coherence will often meet resistance, like any other major change in relationships. So, next to 'losers', probably also 'proponents' should be identifiable (hypothesis 2). Otherwise changes will lead more often to only an increased extent and thus increased complexity (hypothesis 1).

The second thing that we want to test in the EUWARENESS project is whether attempts to integrate need the same sort of favourable preconditions as some other forms of co-ordinated collective action. We stipulated five of these in hypothesis 3 (by the way: a process goal oriented intermediate actor is regarded here as a form of 'institutional interface'). In the comparative analysis thereafter we will try to discern patterns that are maybe not necessary but in any case sufficient to accompany 'successes' in regime change towards more coherence.

The third and last idea that we want to test stems from our scepticism regarding the nature of many developments that are 'sold' as integrated management. We want everybody to be aware of the possibility that what at the surface looks as coherence has in fact not much promise for sustainability in use, since the more detailed form that the changes took, can be even harmful. Here the division between use-driven changes and protection driven

changes is extremely important. If new aspects of the problem gain recognition and are included in the weighting of objectives, it matters whether these are sustainability related ones (often protection driven) or not. The characteristics of the regime elements not initially affected can encapsulate the initial changes, even to the extent that these are effectively neutralised: “plus ça change, plus ça reste la même chose”. This aspect is not so much a variable than a point of attention.

The operationalisation of the causes for regime change follows the four hypotheses on regime change. In the diagram below the position of the four hypotheses is shown.



1 & 2. The first two hypothesis state that normally change agents will lead to more complexity and that it will need ‘deliberate attempts of motivated actors’ to turn change agents’ influence into a change towards more coherence. The conclusion whether or not this is true has political relevance. For it would mean that even when circumstances seems to demand more coherence, by no means one can trust this to evolve as a sort of automatic adaptation. Background of this is that real coherence will tend to ‘hurt’ somewhere in the system. For the case study these hypotheses are relative easy to assess. Is it true or not that in the case (in fact in each of the ‘story lines’) changes towards more coherence always involved some of these ‘attempts by motivated actors’?

4. The fourth hypothesis demands in the case study attention for not only the degree of integration, but also the details of its elaboration. The expectation here is that these details can be understood on the basis of the characteristics of the regime elements that are not directly affected from the beginning. The assessment of this hypothesis can only be done on the basis of the historical descriptions of the changes involved. The number of possible aspects (details) is simply too big to make a uniform list of indicators for all case studies. *So this expectation is not dealt with in this comparative analysis, but*

forms the theoretical background of many of the observations made in the case studies.

3. The third hypothesis specifies the 'favourable conditions' for 'regime changes towards more integration'. This hypothesis will be at the heart of the comparative analysis of the cases. Per case (story line) the degree and form of integration on the one hand will be linked with the status of the specified conditions as assessed by the researchers on the other hand.

The indicators for the relevant conditions used are:

3a Tradition of co-operation

- a dominant policy ideology that supports integration
- positive examples of integration known by the actors involved
- mutual respect and trust in 'fair play' of the actors involved

3b Joint problem

- knowledge bases in the form of reports and statements by respected sources on resource deterioration due to fragmentation
- information symmetry between the actors involved on these points
- a sense of responsibility for the future with the actors involved

3c Joint chances

- knowledge bases from respected sources on opportunities stemming from more integration
- information symmetry between the actors involved on these points
- a sense of respect for each others interests with the actors involved

3d Credible alternative threat

- sufficient imbalance of power favouring a dominant actor (government?) to enable unilateral action
- information on alternative options to 'solve' the problem from the perspective of the dominant's actor's perspective
- alternative option has more severe consequences for the other stakeholders than the specific form of integration would have

3e Institutional interfaces

(not all indicators below are evenly important to all forms of integration)

- clarity of assigned responsibilities (to prevent territorial battles)
- free and alert mass media to induce awareness of challenges into the system
- legal or practical possibilities to protect negotiated compromises from continuous litigation
- actors, independent or within the administration, with solely process objectives (brokers)
- a small number of stakeholders or a strong representative organisation for the major groups of stakeholders to enable authoritative small N interaction processes
- legal leeway for more integrative approaches
- official (not only laws, but also white papers and the like) policy guidelines to achieve more integration in water management (part of link with country screenings!)

5. Case study facts and assessments sheets

As an aid to the comparative analysis, forms were used that the case study researchers filled in. These "case study facts and assessments sheets" (see

Appendix 2) represent the variables and indicators of the theoretical model. Their purpose is to summarise the information in a uniform format so that the case information is comparable along the lines of the theoretical variables and hypotheses. Per variable the researchers were asked to mention the few most important facts of their case study ('key facts'). The exercises of filling in the forms proved also very helpful to get grip on the case analysis itself. Also the assessment of the variables in terms of values or 'scores' was this way not (as often in case study comparisons) done implicitly by the maker of the comparison, but put deliberately in the hands of the researchers themselves.

The advantage is that the assessments are made by people that have extensive knowledge about the cases at hand, often more than described in the reports. The possible disadvantage is that different researchers could interpret the items each a little differently. We tried to counter this possible disadvantage by providing the researchers with two 'pilot' completed 'case study facts and assessments sheets' as examples, namely on the two Italian case studies. Also we presented an additional explanatory paper.

Still sometimes, after the receipt of the filled-in electronic forms from the case study researchers, the makers of the comparative analysis had some doubt whether a variable was interpreted precisely correct (always partly on the basis of the key facts presented by the case researchers themselves). These hesitations were then communicated with the case researchers. Sometimes this resulted in changes in the assessments. Many times however a further clarification and underpinning by additional 'key facts' could be given as an adequate response.

As said, apart from the few short statements per variable ('key facts'), the researchers were asked to use a five-point scale to score the variables in order to make the cases comparable. Of course the score is not a fact, but a judgement, much like marks are with school test papers. Therefore we also wanted to know also the most relevant facts they observed that they had in mind while scoring ('key facts'). While it might give a case study researcher an uncomfortable feeling to transform observations into scores, in fact it gave them the case study researchers an influence on the way the case study comparison is made. For when comparing cases one makes always, explicitly or implicitly, these kinds of judgements on the rating of variables. We choose to do so explicitly.

In this way, we try to combine the better of two worlds: the depth of information realised in extensive case studies and the clarity and overview of a data-matrix enabling all kinds of comparative analysis (cf. Patton 1980). Compared with the direct, qualitative comparison of the case studies as reported, the risk is diminished of the bias that the comparative analyst is misled by surprising, but anecdotal evidence of only one or two cases that is not representative for the relationships in the whole sample of cases. On the other hand one might question whether the case study researchers are not tempted to 'fix' the case by assessing the variables not really independently from each other but having the scores on dependent variables influenced by their assessment of independent variables or vice versa. Luckily we were able to test this possible form of bias. In the theory both the forces of the change agents and the conditions for change explain regime change. The latter are

the less 'visible' elements of the causal set. In the case study reports far more attention is paid to the various change agents than to the conditions. This is even often a large part of the story in the reports. If the suspected form of bias would be real, then one could expect the degree of regime change variables and the force of change agents variable to be scored by the researchers in such a way that they would correlate strongly. But the opposite is true: the force of change agents is by far not correlated with regime changes than the conditions prove to be (see section 4.4). This attests that the researchers assessed the variables independently at their own merits.

All scores are from 0 to 4. In general 0 indicates that regime changes, sustainability changes and change agents are absent or even negative, and that conditions for regime change towards more coherence are unfavourable. Of course 4 indicates the positive other extreme: much more integrated regimes, much more sustainable resource use, forceful change agents in the 'good' direction and very favourable circumstances. The more precise meaning of the scores was explained per variable as help for the case study researchers.

Main deliverables

Below we present an overview of the main deliverables that resulted from the EUWARENESS project:

EUWARENESS Country screenings

1. Stefan Kuks, *The Evolution of the National Water Regime in the Netherlands*.
2. Frédéric Varone, David Aubin, *The Evolution of the National Water Regime in Belgium*.
3. Issa Sangaré, Corinne Larrue, *The Evolution of the National Water Regime in France*.
4. Meritxell Costejà, Nuria Font, Anna Rigol, Joan Subirats, *The Evolution of the National Water Regime in Spain*.
5. Alessandra Gorla, Nicola Lugaresi, *The Evolution of the National Water Regime in Italy*.
6. Corine Mauch, Emmanuel Reynard, *The Evolution of the National Water Regime in Switzerland*.

EUWARENESS Case Studies

7. Dave Huitema, *Netherlands Case Study 1: IJsselmeer Basin*.
8. Dave Huitema, *Netherlands Case Study 2: Regge River Basin*.

9. David Aubin, Frédéric Varone, *Belgium Case Study 1: Vesdre River Basin*.
10. David Aubin, Frédéric Varone, *Belgium Case Study 2: Dender River Basin*.
11. Iratxe Calvo, Jean-Marc Dziedzicki, Corinne Larrue, *France Case Study 1: L' Audomarois Basin*.
12. Isabelle Verdage, Jean-Marc Dziedzicki, Corinne Larrue, *France Case Study 2: La Sèvre Nantaise Basin*.
13. Joan Subirats, Nuria Font, Meritxell Costejà, *Spain Case Study 1: Matarraña River Basin*.
14. Joan Subirats, Nuria Font, Meritxell Costejà, Anna Rigol, *Spain Case Study 2: Mula River Basin*.
15. Alessandra Gorla, *Italy Case Study 1: Idro Lake and Chiese River Basin*.
16. Bruno Dente, Alessandra Gorla, *Italy Case Study 2: Marecchia-Conca Water Basin*.
17. Adèle Thorens, Corine Mauch, *Switzerland Case Study 1: Maggia Valley*.
18. Corine Mauch, *Switzerland Case Study 2: Lake Baldegg and Lake Hallwil*.

EUWARENESS Contextual and comparative reports

19. Ingrid Kissling-Näf and Stefan Kuks, *Country Screenings Overview Report*. Presented at the Seminar on "Water Basin Regimes in Europe and Institutional Conditions for their Sustainability".
20. David Aubin & Frédéric Varone, *European Water Policy: A path towards an integrated resource management*.
21. Hans Bressers and Stefan Kuks, *Case Study Comparison*. Presented at the Seminar on "Water Basin Regimes in Europe and Institutional Conditions for their Sustainability".