



**Integrated Evaluation for Sustainable
River Basin Governance**

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**Comparison of the Institutional Context of
the five case-studies**

Report

Giorgos Kallis and Harris Coccossis

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**Department of Environmental Studies,
University of the Aegean**

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1. Introduction

Project evaluation was a political process. This observation was echoed, in one form or another, in all five Advisor case-studies that assessed the evaluation processes of water management projects and plans in different European contexts. Reality deviated from the rational decision-making ideal of well formulated objectives and alternatives, clear evaluation rules and implementation of outcomes.

This should not come as a surprise. Indeed, Advisor recognised from its inception the importance of the social “context” – economic, political, institutional, historical, cultural, ideological – as a key determinant of the evaluation process. “Context” was built in Advisor’s methodology as a constituent block of the conceptual tetrahedron of an integrated evaluation. This can be read in two ways: first, that there is no universal recipe of an “integrated evaluation” applicable to all contexts, but different principles that can be adjusted to local situations. Second, that the “context” itself may merit analysis and conscious intervention, as key constituent of a move towards a more integrated evaluation process. In this paper, we focus primarily on the second aspect.

The aforementioned notion of “context” is too broad for meaningful analytical purposes as it includes virtually everything that surrounds the evaluation process. It is self-evident that the political, cultural or historical environment are decisive for a particular decision-making process, and that, as confirmed in the Advisor cases, important aspects of the decisions are pre-taken and beyond formal evaluations. But, as in any analytical task in social science, the objective is to “decompose” and characterise this broad context and infer some broader generalisations in its interaction with the evaluation process, hopefully meaningful as a guide for future action.

Becoming more practical, we will approach “context” through the analytical lens of the concept of *institutions*. There has been a growing interest on the role of social institutions as determinants of environmental change and respectively, as loci of intervention to combat environmental problems (O’Riordan and Jordan, 1999). In the broadest sense, institutions refer to a social regularity or convention. There are however several and different perceptions, definitions and operationalisations of the concept of institutions, in economics (Nelson and Sampat, 2001, Eggertson, 1990), sociology (Powell and di Maggio, 1991, O’Riordan and Jordan, 1999) and political science (March and Olsen, 1999)¹. Definitions of institutions range from the more concrete, such as property rights, laws and regulations, to the more abstract, such as social norms, culture, dominant discourses and ideologies (Bakker, 1999). As Nelson and Sampat (2001) suggest, there is not such thing as *the* right definition of institutions, but different conceptions / definitions suitable for different analytical purposes and questions.

In section 2 we present such an operational conception and definition of institutions for the purposes of the Advisor project and structure an approach for their analysis. Next we relate institutions with evaluation and the conceptual Advisor tetrahedron of integrated evaluation. In section 3 we examine the institutional frameworks in the five case studies and relate them to the characteristics (and the differences) of the studied evaluation processes. Institutional deficiencies in comparison to an “integrated” ideal, point to some important policy directions for institutional re-design.

¹ All papers are reviews of respective literature

The Water Framework Directive (WFD) is first and foremost such an attempt to change the institutional frameworks governing water resource management all over Europe. In section 4 we discuss whether (and how) new EU policies take account of the observed deficiencies and identify the issues that remain still open.

2. Institutions & Evaluation: a theoretical framework

2.1 Defining institutions

Theories of institutions

There are many contrasting definitions of institutions. In general, an institution can be described as “a relatively stable collection of practices and rules defining appropriate behaviour for specific groups or actors in specific situations” (March and Olsen, 1999). An institutional approach is one focused on human interactions and one that emphasises the role of these interactions and their development in understanding human actions and changes in those (Nelson and Sampat, 2001). In other words, an institutional analysis attempts to explain a phenomenon (in our case, water management evaluation) by focusing on the social regularities and interactions that govern it.

Figure 1 provides a heuristic diagram for classifying institutional approaches in social science on the basis of two general criteria (after March and Olsen, 1999). The first is the behavioural assumption for individual action. This can emphasise an intentional logic of consequences - fully or bounded rational – or alternatively, one defined by cultural/identity norms and habits, sequential processes of learning, etc. The second is the view on history and social change. This can be seen either as a progressive, efficient process towards a pre-determined by external conditions equilibrium or as a partly accidental historical and path-dependant process, where there is no clear direction nor unique efficient/equilibrium or other end-point.

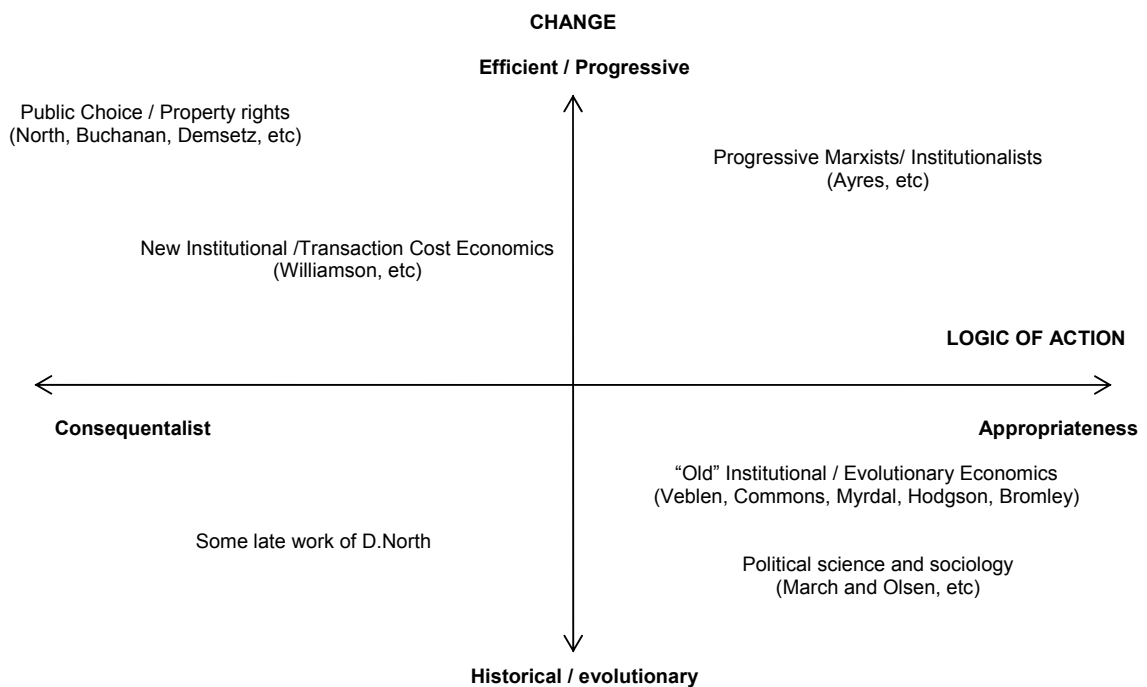


Figure 1 – A rough classification of institutional writings with indicative names of prominent scholars (details in Kallis, 2002, 2003)

The perception of institutions adopted in this paper is positioned in the bottom right quadrant and draws from the works of institutional economists who view change as a complex co-evolutionary, non-predictable and path-dependant process where the actions of individuals are partly rational, partly accidental and in mutual interaction with the social environment (Hodgson, 1993).

A general operational definition

Thromogton and Fisher (1993) have put forward a definition of institutions which summates well the perspective of institutionalists. An institution is defined as a set of working rules governing relations and interactions (a subset of which is transactions) among individuals. An institution is effective for a particular community - a set of individuals whose behaviour falls under the jurisdiction of the institutions – and for a particular set of interdependencies among the citizens of that community. For this community and for these particular interdependencies, the institutional rules then specify certain rights, exposure to the rights of others, privileges and responsibilities of the members of the community. An institution establishes, in other words, the rules by which decisions are made, bargains are struck, claims are granted legitimacy and adjudicated, sanctions are applied, and resources are managed and distributed (Thromogton and Fisher, 1993). Laws, regulations, administrative rules and formal and informal guides to action and decision fall under this definition of institutions.

Institutions both constrain and liberate humans in their dealings with each other. They can be thought of as the paths in a jungle. On the one hand, they allow individuals on their way through the jungle. On the other, they constrain their movements through it (Nelson and Sampat, 2001). A path suitable for one purpose e.g. to go out as quickly as possible) may not be suitable for another (e.g. to hunt). And a path suitable in one moment in time may not be so later on, that is as the conditions in the jungle or the goals of the crosser change.

Institutions vs. markets and property rights

For some mainstream economists (upper left quadrant of figure 1), the only set of rules recognised are property rights. Other legal rules are considered as unwarranted “constraints” to the free market transactions of rational individuals. Bromley however is clear that property rights are only a subset of an institutional structure: “Property is not an object but rather a social relation that defines the property holder with respect to something of value (the benefit stream) against all others. Property is a triadic social relation involving benefit streams, rights holders and duty bearers. Rights can only exist when there is a social mechanism that gives duties and binds individuals to those duties ... Rights only have an effect when there is some authority system that agrees to defend a rights holder’s interest in a particular outcome” (Bromley, 1991, 15). Property rights are therefore a particular type of institutions, though by no means the only type.

For institutionalists, *the market* of mainstream economists does not exist as such. What exists in reality is a complex array of interdependent and interrelated set of rules, constraints and standardised codes of behaviour governing transactions and exchange relations. Markets do not arise spontaneously; they are institutionalised (Polanyi, 1976). From this perspective legal rules are not barriers to the free market, but the structures that make it work. They define, for example, who has access to what information, who guarantees compliance with a contract and which are the sanctions for non-compliance. Without legal rules and standardised codes of

behaviour, the transaction costs of exchange would be so high that would render it unfeasible.

The often quoted in literature dichotomy between “markets vs. command and control” instruments is conceptually limited (Swaney, 1992). Institutions, such as legal rules, do not simply command and control. A quota for example on maximum water use, may approximate what is referred to as a “command and control” instrument, but the same can not be said, for example, about a law which sets the rules of water allocation and the rights and responsibilities of different parties (of which quotas or water exchange markets can be a subset). Institutions determine which costs are reckoned by which decision-makers and hence determine which outcomes appear efficient (Bromley, 1982). For Bromley (1982), “externalities” are not market failures, but cases of missing institutions (contracts). Cost-shifting between individuals, firms or communities is pervasive in a world of interdependencies (Kapp, 1983) and not the exception of a hypothetical perfect market, that never existed nor can ever exist. It is by its institutions that society expresses what it sees as the most proper way of allocating such costs (and the related benefits) between individuals and groups, in space and time (Martinez-Alier and O’Connor, 1999).

Institutions vs. stakeholders

In everyday language and in many policy documents, institutions are often confused with organisations and “stakeholders” (agencies, associations, communities, etc) such as, for example, the World Bank or the International Monetary Fund. “Institutions are not equivalent to stakeholders; rather they regulate the activities of stakeholders, whilst simultaneously being created and enacted by stakeholders” (Bakker, 1999). Organisations are defined by institutions. “When institutions define a going concern – be it a farm, an insurance company, or a government bureau – we must distinguish between the institutions as the norms and principles that define the organization and the organization itself which is the operationalization of the institutions” (Bromley, 1982).

Institutions vs. ideologies

Ideologies as paradigms and as shared social norms are decisive for individuals’ and groups’ actions. Bakker (1999) drawing from Emel and Roberts (1989) emphasises the importance of ideologies as “institutions” of justification of specific rights and actions.

Bromley’s (1982) classification may be helpful in maintaining a distinction between institutions and ideologies. At the most general level of abstraction, he recognises three major components of a social system: first, the natural environment and the physical capital that has been created to modify/utilise it (productive system). Second, the structure of social conventions and rules that govern the dealings of humans with each other (institutional system). Third, “the superstructure wherein we find the belief system, values, art, religion and science. The superstructure has a dual role of legitimizing those relationships in the structural component, as well as searching for new structures”. Bromley therefore retains a hierarchical distinction between institutions and ideologies (his “belief system”). This simplifying distinction is also maintained in this paper, where our emphasis will be mainly on the structural component of conventions and rules.

Nested hierarchical levels

As Ostrom observes (1986) most researchers are well aware that there are multiple levels of analysis involved in rules and behaviour. Ideologies for example and legal rules form at very different hierarchical levels and have very different time scales and degrees of permanence. The distinction between institutions operating at multiple, geographical and organisational scales may be useful in this respect (Bakker, 1999).

Rules may be set at a local level, a national or a supra-national (e.g. local ordinances vs. national laws vs. international treaties) (“spatial / geographical scales”). Institutions may also operate at a decision level, a policy level or a strategic level (“organisational scales”). A simple example of such a hierarchical arrangement can be illustrated with the system of water permits (Waterstone, 1996). At the operational/decision level, water users may have permits which describe the conditions under which they can utilize water. The deployment of such a permit system as well as the contents of particular permits is usually determined by a water agency at the implementation / policy level. The rules under which such a water agency operates are usually determined by a state legislature at a strategic level. Even higher, the constitution may set the basic principles of property rights and environmental protection.

Although it is important to remember that institutions are both hierarchical and nested, operating at different spatial, organisational, time and authority scales, it is very difficult to maintain these distinctions in practice. A real-life action is influenced by several, partly overlapping and operating at different scales institutions. Definition of hierarchical “levels” is partly dependant on the purposes of the analysis and the phenomenon studied. It is then the role of the analyst to judge which specific institutions and which specific classifications are relevant for which purposes.

Regularities vs. rules

The definition of institutions maintained in this text has primarily referred to institutions as formal (legal, regulatory, standardised) rules. This partly reflects the institutional economic approach that has been endorsed which has primarily focussed on legal conventions and their effect on economic performance and behaviour (in the “legal” tradition of Commons). Sociologists and political scientists, however, and many other institutional economists (in the tradition of Veblen) have examined institutions primarily as informal rules and regularities in socialised behaviour.

The distinction between formal and informal rules may be illustrated with the example of the difference between “the rules of the game” (formal institutions) and the way a game is played (informal institutions). A football game, for example, has a number of formal rules observed by the referee (e.g. rules for fouls, goals, etc). On the other hand, there are also the informal, “unwritten” rules of the game. Players, for example, will not try to score against their own team, they will pass the ball in order to attack, they will continuously run and not sit back and wait, etc. Certain tactics will be employed for certain modes of game. These are standardised practices of certain permanence as well “institutionalised” as the rules of the game itself. Both sets of rules define football as a game and are constitutive of its character. Of course, depending on purpose an analyst may focus on either or both sets of rules in order to explain a phenomenon (e.g. why football is becoming less spectacular).

Standardised sets of behaviours, regularised patterns of interactions between stakeholders, power relations, etc, all fall in the category of informal institutions. The “policy community” or “policy network” approaches focus on policy-making and the relationship between governmental and non-governmental actors (Jordan, 1990). The terms “stakeholders’ analysis” or “institutional analysis” often refer to such an analysis of the formal-informal relations between actors in a governance system that show a certain degree of regularity and permanence and are constitutive of observed actions.

In this paper a mixed approach is adopted. Given that the aim is to yield some policy relevant conclusions on institutional design conducive to integrated evaluation and relate them to developments in EU water policy, the emphasis is on formal rules, primarily because these are subject to conscious human intervention. This is not to deny the overriding importance of informal rules and relations, social norms and relations and ideologies. The assumption rather is that within a context of social relations, a change of formal rules (e.g. legislation) is a, more or less, conscious way to affect and alter these relations (in the football example presented above, if the international football association wants to make football a more spectacular game, it is more plausible to intervene in the rules of the game and reduce the number of players than directly on the attitudes of the players and the tactics of the teams). This is however a reciprocal relation. In order to intervene in the rules of the game, one must have a clear understanding of the way the game is played. The way the game is played that is, affects the evolution of the rules of the game.

In an example closer to our analytical purposes: the Scottish Advisor case-study makes clear how the EU nitrates directive (a formal rule) changes the rights and the balance between farmers and agricultural production on the one hand, and environmental interests and environmental protection, on the other (informal relations). A new law, however, does not come out in a vacuum. It is formed through a political process, whereby informal policy networks and power relations (farmer unions, environmental ngos, agencies, etc) play an important role. Richardson (1997) for example, gives a detailed account of stakeholders, networks and coalitions active at the European level of water policy formulation. Farmers and environmental interests compete both at a national and a European level for the definition of new institutions.

We adopt therefore for section 3 a dual methodological approach whereby formal (regulatory) structures and informal relations (in the form of actors and their relations) as well as their inter-relations figure in the discussion.

2.2 Institutional change

Institutions, communities and values

Institutions embody values (Bush, 1987). A community of shared values is a prerequisite to establishing an institution or to institutionalizing a custom (Schmid, 1978). Institutions help to define and perpetuate a community and therefore provide a means through which communities (and societies) “recreate themselves” (Tool, 1995). “Through the establishment and reform of institutions, a community decides what kind of community it is to become” (Thromogton and Fisher, 1993).

An institutionalist theory of institutional change emphasises the importance of the process of socialisation and value formation as a “motor” of institutional change. Social values change and groups coalesce in order to see their shared values better reflected in institutions, moulding their communities towards their aspirations. Dissatisfaction of individuals at the ground level triggers demands for changes at the higher level of institutions (Aguilera Klink, 2002). Citizens act to see their demand translated at the higher policy and strategy levels, changing rules, rights, opportunities and constraints at the lower levels (Bromley, 1989). With respect to the hierarchical conception presented above, one might think of demands at lower levels (operational, implementation) demanding changes at higher strategic, constitutional levels which in turn modify the choices for future actions at the ground levels.

A general pattern of institutional change

Livingston (1993) has proposed a general pattern of the process of institutional change which summates the views of many institutional economists (Figure 2).

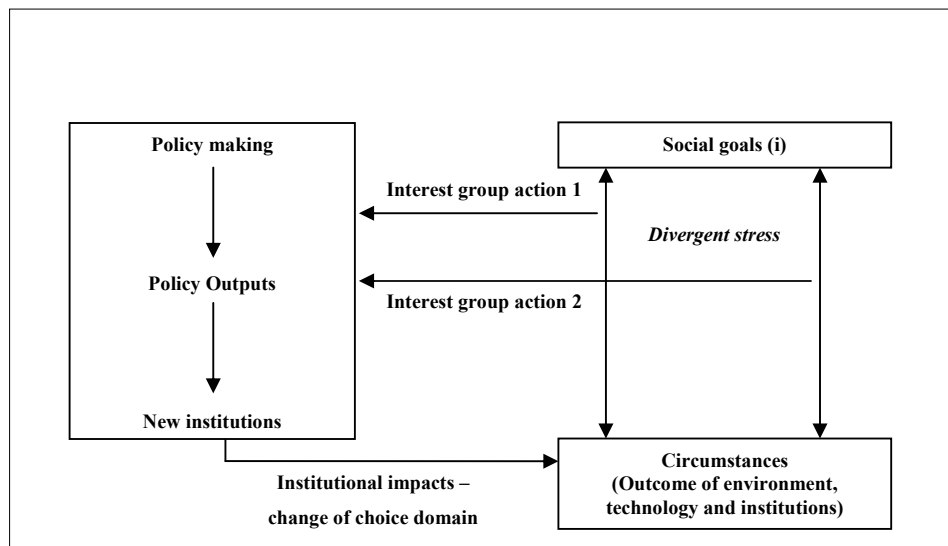


Figure 2: A pattern model of institutional change (after Livingston, 1993, Waterstone, 1996)

Change emanates when there is a divergence between what certain individuals perceive as the current state of affairs and what is thought to be desired. These individuals tend to coalesce into groups representing their particular interests. Dissatisfaction (or stress) is evident for example, in the coalition of local groups, regional authorities and environmental ngos in their reaction against the Spanish Hydrological Plan (Spanish case study). These individuals and groups perceive a certain dissatisfaction between their values and goals and the existing institutions and the outcomes these lead to (new water transfers). They act therefore to change such outcomes and produce a new choice domain which approximates better their values and aspirations.

Once a divergence is identified, this stimulates action to remove the dissatisfaction through strategies to close the gap. Action may take the form of changing the rules at the operational level, at the implementation level and possibly, at the policy (or even

higher) levels (Waterstone, 1996). Public protests, alternative policy and legislative proposals, petitions, etc, all observed in the Spanish NHP case, are visual evidence of dissatisfaction and action for institutional change.

Given constantly changing circumstances, there is always pressure on society to adapt via institutional innovation (Livingston, 1993). Changes in circumstances can be environmental (e.g. climatic change or pollution of waters), technological (e.g. new technological opportunities for saving water or recycling water for agricultural uses) as well as ideological / socio-economical (e.g. recession, shift towards privatisation of state services).

Many “progressive” institutionalists or Marxists (upper right quadrant in Figure 1) have isolated “technology” (in the broad sense of tools & knowledge) as the single most important factor driving institutional change. Technologies though do not arise in vacuum, but within institutions. These institutions greatly influence the kind of technologies that are developed and adopted and to what end (Thromogton and Fisher, 1993). Institutional and technological change are inter-related and path-dependant. It is therefore more appropriate to talk about a “co-evolutionary” change, where institutions, technologies, the natural environment and social beliefs change together, one affecting the other and where choices in each are constrained by choices and dominant variants in the other (Norgaard, 1994). Such an organic and evolutionary perspective negates views of a universal “arrow” of change (towards efficiency, progress and the likes) and provides a model whereby change is “over-deterministic” (not deterministic nor simply accidental), and may be more or less compatible with the values of the people that experience it (Norgaard, 1994, Kallis, 2002).

This pattern deviates from the mainstream economic perception which sees institutional change primarily as the outcome of changing opportunities of cost and benefits for different groups. Property rights theorists argue that institutional change occurs when the benefits from change surpass the total costs (including transaction costs) (Demsetz, 1967). As however institutionalists counter argue, the distribution of transaction costs is not incidental but an outcome of the existing institutional arrangement. Institutional change is thus partly dependant on existing institutional arrangements and the distribution of power and income. Thus the criterion of “economic efficiency” serves to strengthen the existing status quo and intensify “inequalities” (Bromley, 1989, Livingston, 1993).

The institutionalist pattern of Figure 1 has been developed as a response to the reductionistic mainstream economic model, and as such it makes a simple, yet strong case. It is however itself an over-simplistic model. Unlike economists, political scientists and sociologists have long recognised that change is a much more complex process than one of property rights, costs and benefits and have worked to analyse these complex social dynamics. In this respect, the model of Figure 2 suffices only as a general “umbrella” framework, within which there is room for several and very diverse theories of the details of co-evolutionary change and the factors that matter (from interest group dynamics to the role of technologies, ideologies and discourse, power, etc). Still, the pattern of Figure 2 suffices for the purposes of this paper, which is not to examine in detail processes of institutional change in the case-studies, but simply to maintain the notion that institutions are not constant, but do change and in complex ways, embodying new values or responding to changes in circumstances.

2.3 Institutions and integrated evaluation

Institutions and decisions

Humans make a number of decisions, both at an individual and a collective level. (project or plan evaluation pertain to the latter). Simplifying a complex picture, higher level institutions may be thought of as setting the rules and constraints for the lower - spatially and organisationally - levels of decisions.

Vatn and Bromley (1994) make a crucial, although as they admit difficult to sustain in real-life, distinction between decisions within the constraints of existing institutions, where “preferences” and individuals’ choice are important and the choice of the basic norms and constraints themselves (i.e. the institutions), where “judgement” and “collective choice” become more appropriate. In essence what they highlight is a hierarchical distinction between decisions and actions at the lower operational level and the social norms which set the rules governing such decisions (at higher policy and strategy levels). In relation they quote Douglas (1986, 124) who emphasises that decisions of greater importance are institutionalised and have a normative form: “justice has nothing to do with isolated cases ... individuals normally offload such decisions to institutions ... No private ratiocination can find the answer. The most profound decisions about justice are not made by individuals as such, but by individuals within and on behalf of institutions ... Choosing rationally ... is not choosing intermittently among crises or private preferences, but choosing continuously among social institutions”.

This “offloading” of certain issues to institutions has also a practical rationale. Norms and rules (written and unwritten) facilitate the dealings of humans one with the other and render feasible interactions and transactions.

Institutions therefore can be conceived as standardised conventions, embodying social value systems and agreements on “what is right” that facilitate and regulate decisions and dealings at lower levels. The theoretical framework developed below rests on such a general notion of a division between institutions (legal, etc) at a “higher” level regulating and constraining decisions at the operational level (i.e. where project evaluations take place).

Multi-dimensional evaluation and post-normal science

The objective of Advisor is the development of an integrated framework for project and plan evaluation at a river basin scale. In line with Martinez-Alier et al. (1998) we employ a multi-criteria framework as a paradigm (and an example) of an integrated decision process in the context of sustainable development.

A multi-criteria problem (with a discrete number of alternatives) may be described in the following way (after Martinez-Alier et al, 1998, Munda, 1995): A is a finite set of n feasible alternatives (e.g. rejection, approval or variants of a project). M is the number of different evaluation criteria g_i $i=1,2,\dots, m$ considered relevant in the decision (e.g. economic cost, environmental impact, social impact, contribution to certain social objectives, etc). An alternative a is evaluated as better than alternative b (both belonging to the set A) according to the i -th criterion if $g_i(a) > g_i(b)$. Given the sets A of alternatives and G of evaluation criteria and the existence of n alternatives and m criteria, it is possible to build an $n \times m$ evaluation or impact matrix.

Ideally, the goal of a decision process would be to find the “optimal” alternative for the given problem / set of criteria, i.e. the one that gets the best score in the multi-dimensional comparison. But this presupposes that:

1. There is an agreed weighing scheme for the different criteria.

Criteria $g_{i...m}$ need not all be of equal importance. In real-life cases, different actors or social groups will attach different importance to the different criteria or objectives of a decision. A local group where a dam is proposed to be built will give much more weight to “local impacts” than the financial cost of the project, which might be much more important from a water agency point of view. The assumption that democratically-elected (or democratically-controlled) decision makers express the weighting preferences of their constituents has been proved problematic in many real life cases of environmental management decisions which have generated controversy and conflict.

2. There is a common metric upon which to compare the values / “scores” of the different criteria.

Comparing performance in criterion $g_{1(a)}$ with $g_{i(n)}$ means that there is a valuing system upon which to compare the two scores. In practice, though different criteria are expressed in different terms (e.g. Euros vs. mg/lit). Comparing one with the other is not a simple task. Economists have developed valuation techniques to transform all physical and ecological values into monetary terms and cost-benefit analysis uses monetary value as the common metric rod upon which to compare different alternatives. These techniques have been criticised not only because of methodological deficiencies but for the very assumption that all values can be reduced to a single numeraire (Vatn and Bromley, 1994, Munda, 1995, Funtowisz and Ravetz, 1994). A species for example, may have a value beyond the money present individuals are willing to pay to preserve it, more so as it is part of a broader ecosystem, with complex and unpredictable interactions (Vatn and Bromley, 1994). Martinez-Alier et al (1998) reject any value monism and make a thesis for a “weak comparability of values” arguing that different values can not be reduced into a common metric although they can still be meaningfully debated and qualitatively-quantitatively compared upon agreed conventions.

3. The “scores” / impacts of the different alternatives can be accurately predicted.

Assessing the “score” of an alternative (e.g. a design of a project) in a certain criterion (e.g. environmental or economic impact) may be a complex and extremely contentious issue. In reality decisions are based on limited, unreliable and uncertain information and moreover, conditions may change in unpredictable ways.

Irreducible and disputed values and uncertain facts in a context of urgent decisions with high stakes make a case for what Funtowisz and Ravetz (1991) have called the “post normal scientific” paradigm, which is a basic epistemological choice of Advisor research. From such a perspective, there is not a single best algorithmic solution to a multi-dimensional problem irrespective of who values and how. Instead, what is needed is a procedure of debating and democratically judging on the conflicting values, weights and facts. This marks a shift from a substantive to a procedural conception of rationality and sustainability (Martinez-Alier et al, 1998, Kallis, 2003).

Multi-dimensional evaluation and institutions

What is then the role played by institutions in such a context of evaluation?

As noted above, institutions embody values and provide standardised rules and codes upon which lower level decisions are being taken. With reference to the multi-dimensional example presented above, the institutional framework may be thought of as:

- Providing a convention (or conventions) that define the different criteria and their different relative importance (“weights”). The nitrates directive (Scottish case study) for example may be thought of as an institution that expanded the range of criteria which agricultural producers are being asked to consider in their choices, raising the relative weight of environmental impacts. From a broader public perspective, it embodies a change in the “weights” attached to goals such as national self-sufficiency, agricultural incomes, etc vs. environmental degradation and public health risk. Note that institutions need not define directly the “weights”, but may set the processes through which these “weight” are to be settled by demarcating and regulating the “arenas” (markets, negotiated processes, evaluations) and the rules by which these settlements are to be reached. In this perspective, the provision for public participation as part of the EIA process is not simply an “instrument” to achieve predefined goals but sets new institutionalised arenas (with specific rules, rights, etc) for settling environmental vs. productive goals. The same holds true for example in the case of a water market.
- Providing the structures upon which the different objectives are being compared. Institutionalising a water market for example, means that monetary, exchange values provide the basic metric rod upon which to make the different water management decisions. The same holds true for a national law, for example, that mandates all environmental protection activities to pass a net present value cost-benefit test. Alternatively, institutionalising participatory processes for decisions, such as for example those foreseen in environmental impact assessments, shifts emphasis to different forms of valuation (i.e. through dialogue and consensus).
- Defining the acceptable standards of science or the processes to determine those. There have been for example a number of EU directives which define the rules and the measurement standards for water quality measurements (Kallis and Nijkamp, 2000). Another example: in most environmental directives, there is provision for a scientific committee of “experts” set-up by the European Commission responsible for revising or specifying pollutant standards. Such committees in practice resume the power of judging on what information is legitimate and reliable and what not.

Institutions therefore express “who has the right to impose a language of valuation [and how] and who has the power to simplify complexity [and how]” (Martinez-Alier, 2002). It follows that moving towards a post-normal scientific paradigm in evaluation presupposes a parallel shift in the design of institutions. A proper institutional framework is one that facilitates reasoned choice among a complex set of alternatives. A plural and participatory choice presupposes a plural and open institutional structure.

Furthermore, in addition to “weighing”, “correlating values” and “judging on scientific uncertainty”, institutions also set *constraints*. Typically, in a multi-dimensional

problem, not all solutions are acceptable, but only those that are within a spectrum of plausible scores (maximum – minimum) in specific criteria. In real life, this can be likened to legal institutions that may mandate that at least a minimum standard is being complied with (e.g. maximum concentration of nitrates in drinking water) and still allow choice of measures of achieving this together with other criteria (e.g. economic cost, administrative feasibility, etc).

Institutions and structure of the evaluation process

Likening the decision-making and the project evaluation process with a multi-criteria decision, although helpful and insightful for analytical purposes, is oversimplifying a very complex reality. Formal assessments, such as an Environmental Impact Assessment (EIA) or a Cost Benefit Analysis (CBA) are only parts of a broader, often informal and non-explicit multi-stage decision-making process (Hill et al, 2002). As the Advisor WP1 case-studies verify, seldom does there exist a truly multi-dimensional (strategic) type of assessment as part of the decision process. Even when it does, it falls short from being really inclusive (in terms of criteria and perspectives) or being important for the final decision. Decisions are also dynamic and co-evolutionary (Norgaard, 1994); the distinction between different means (criteria) or different means and ends is not in real-life so clear-cut as assumed in multi-criteria decision-making literature.

Contrary therefore to the initial inception of Advisor research based on a static, universal tetrahedron of evaluation that can be defined well in a moment in time, the picture emerging from analysis of the case-studies is one of a complex, iterative and difficult to trace decision-making process with certain actors of different perspectives, interests and powers being active in different moments in time. In such a context, *timing does matter*: the reduction of the environmental impact assessment into an ex-post decision of mitigation measures after the design of a project has been decided (Greek, Portuguese, Spanish case-studies) is a vivid example.

In such a frame, institutions not only guide and regulate specific decisions but also structure the overall evaluation process itself. Institutions regulate who decides what, how and at what moment in time. Institutions governing a certain decision, e.g. authorization of a new hydraulic project, may not have been designed with the total picture in mind, but in an additive fashion, through regulations governing different related functions. Environmental Impact Assessment for example, institutionalized in the Southern European countries after the EU directive in 1985, changed in certain ways the evaluation process of hydraulic projects. This may be further changed with the implementation of the Water Framework Directive (section 4). Understanding how institutions affect certain decision-making process needs a backwards tracing of relevant institutions and their time-spatial scales and how these define the total process.

Evaluation and institutions

The above may have given wrongly the impression that institutions should be viewed only as hierarchical, “top-down” rules determining individuals’ choices or collective decisions at operational levels. If this was the case, then change would be very difficult and institutions once defined would be permanent. But stakeholders, although operating within the rules and constraints of institutional structures, they also deviate from those (Bakker, 1999). A decision or an evaluation is based on the weighing conventions and constraints of existing institutional structures but provide

also an “arena” for the expression of new values and for the contest of existing ones. A decision for the authorisation of a new hydraulic project, albeit within unchanged institutional structures, might take an unexpected turn in comparison to a previous similar one, not only because of the difference in the scale and nature of impacts but also because of differentiated social dynamics. Fierce resistance against the NHP in Spain for example, has led to a cancellation of some of the initial transfers planned (and may still lead to a cancellation of the Ebro transfer) (Spanish case study).

As mentioned above, stakeholders also do act to change institutions when the outcomes they lead to deviate from their expectations. A specific project or plan evaluation provide critical moments in time when “divergence stress” is felt and exhibited and may provide triggers for processes of institutional change. Project evaluation may thus be seen as an opportunity or an “arena” for institutional change. This observation points then to a reciprocal, “fluid” relationship between the higher, institutional hierarchical levels and the lower operational ones.

Institutions and the Advisor tetrahedron

Figure 3 illustrates visually what has been discussed in this section, providing a rough analytical framework upon which the inter-comparison of the five cases in the next section will be based.

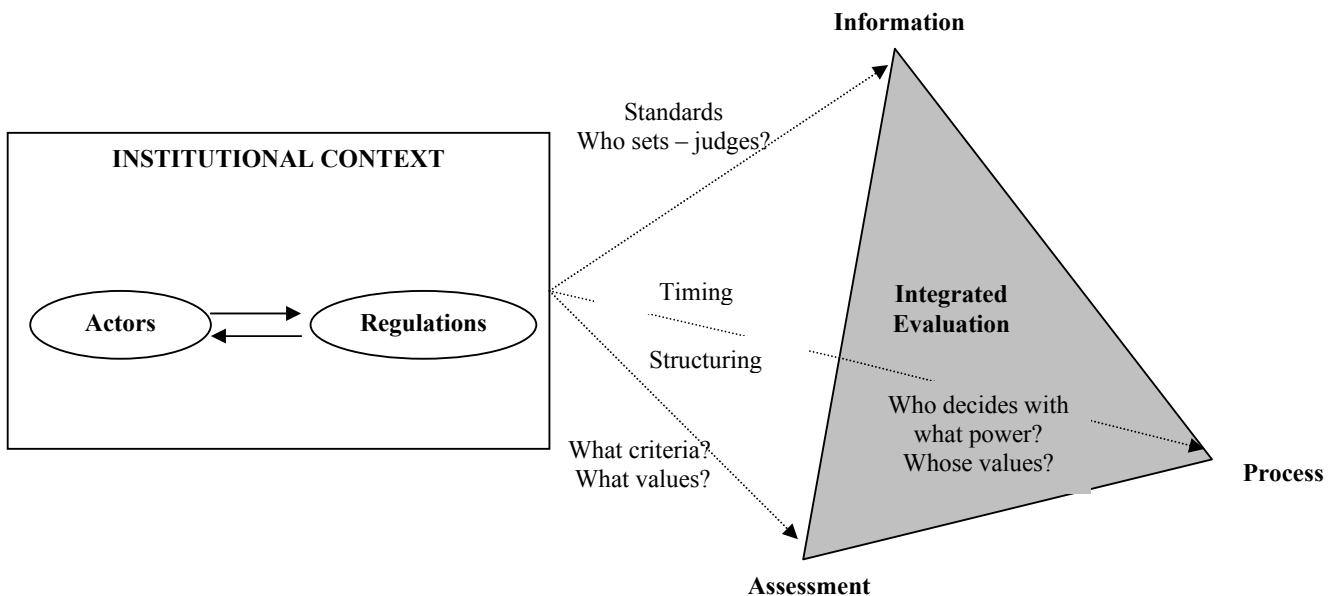


Figure 3: Institutions and the Advisor tetrahedron

The first task concerns a characterisation of the different institutional frameworks in terms of the main stakeholders / actors and the regulatory structures governing water evaluation. Next, a link is made between existing institutions and how these formulate the evaluation process (timing and structure). Dominant actors’ structures mediated by regulation determine also who shapes and how the evaluation process. Finally, institutions intervene on the accepted level of information and the procedures for judging on alternative claims. Obviously, there is an overlap with what is being

discussed in the other Advisor horizontal reports, although in the present one emphasis is on the existing rules rather than the processes observed in the case-studies.

As argued above, a shift to an integrated environmental evaluation requires a conducive institutional framework. But which are the desirable qualities of such an institutional framework in line with Advisor's conception of an integrated evaluation?

1. Institutions must regulate for a strategic (timely) and holistic (inclusive in terms of actors and criteria) evaluation process instead of an unclear and fragmented decision process.
2. Institutions must set standards of scientific quality and open up scientific debate to the public and the implicated persons.
3. Institutions must allow for multiple types and instruments of valuation.
4. Institutions must be conducive to an opening-up of decision processes (where closed policy networks exist) and allow for debated, transparent and legitimate choices. There are two issues here: first, the institutionalisation of processes and opportunities for participatory debate ("arenas" for participation) and second, the establishment of clear rules for who has the right to participate and with what powers and obligations.

The assessment of institutions in the five cases in section 3 is performed with these four criteria in mind. Further, in section 4 the new institutional structures in view of the WFD and other recent EU regulatory initiatives are assessed on the basis of these four goals.

3. Horizontal comparison of the five case studies ²

3.1 The five case-studies

Description of evaluated projects

Five cases of project/policy evaluation in five different EU countries were studied as part of the first work package of the Advisor project. Some basic information for each case is summarised below.

Greece: The Greek case study examined the evaluation process for the construction of a reservoir at the location of Agios Dimitrios in the Evinos river valley. The reservoir was built to serve the urban water supply of Athens and is located 210 km to the west of the city. Construction of the reservoir was decided as an immediate response to droughts faced by the city in 1990 and 1992. The reservoir has a storage volume of 131 Hm³, a surface area of 3.5 km² and is expected to regulate about 200 Hm³/yr (Kallis and Coccossis, 2000). A 30 km long pipe transfers water to the pre-existing Mornos reservoir and from there a 180 km long aqueduct to the drinking water treatment plants of Athens. The cost of the project is in the order of 235 million Euros. The evaluation process is emblematic of how water supply projects for important users (i.e. Athens) are being conducted in Greece.

Portugal: The Portuguese case-study examined the evaluation process for the construction the Alqueva Multipurpose Project (AMP). This is a strategic reservoir formulated to meet the needs of the semi-arid Alentejo region in southern Portugal. The reservoir is formed by the Alqueva dam located on the Guadiana river. It is one of the biggest dams on Western Europe, and will result in the largest artificial lake in Europe. The capacity of the dam will be over 4,000 Hm³, surface area 250 km², and will involve a total investment of around 1,768 million Euros (1998 prices). The project is emblematic of the way large-scale hydraulic water works are conducted and evaluated in Portugal.

Spain: The Spanish case study examined the evaluation process for the transfer of river Ebro from the north to the south-east of Spain. The river Ebro interbasin water transfer project is part of the Spanish National Hydrological Plan, the strategic objective of which is to achieve a general water balance throughout Spain by redistributing water resources from areas of surplus to areas of deficit. Approved by the Spanish Parliament in 2001, the proposal aims to transfer around 1,050 hm³ of water per year along canals of a total length 900 km. It has a budget of 6 billion Euros. The project is emblematic of the persistence the traditional “hydraulic paradigm” in the planning and management of water resources in Spain, but also of a growing resent against it.

The Netherlands: The Dutch case study examined the Grensmaas water project in river Meuse. The project aims to combine the commercial extraction of gravel (50 million tons) with protection against flooding and development of a large natural area (1000 ha). The project follows the Meuse River at a length of 45 km between Maastricht and Roosteren in the province of Limburg (there is also co-operation with the Belgium authorities). The total cost is 250 million Euros and is designed on a

² All information provided about the five WP1 Advisor case-studies draws from the respective team reports (see reference section). Proper author referencing is not provided each time for the sake of space and continuity of the text flow.

neutral budget basis, financing recovered by part of the revenue from gravel extraction. The project is characteristic of the Dutch consensual and voluntary, catchment-based approach to the design of water resource interventions.

United Kingdom/Scotland: The U.K. case-study looked at the process for the designation of the river Ythan and estuary in Scotland as a nitrate vulnerable zone meriting a special action programme for the control of nitrate pollution from agriculture. The River Ythan catchment is an intensively farmed lowland area in the North East of Scotland covering about 68,000 ha. About 90% of the area is under some form of agriculture production. The evaluation process is emblematic of the issues faced with environmental protection and the implementation of EU water directives in the UK in cases where a high cost is entailed for a productive sector.

Representativeness and Complementarities

The five cases cover different cases of water management evaluations, all relevant in the context of the Water Framework Directive. The Greek, Portuguese and Spanish case-studies concern hydraulic projects, which under the WFD will require prior authorisation, conditioned by their impact on ecological status and respect of the status objectives (derogations foreseen depending on public importance of the projects and the absence of economically feasible alternatives) (Kallis and Butler, 2001). The three cases are complementary in the sense that they are of different size and serve different productive uses (see below).

The Scottish case is concerned with the designation of a catchment as a protected area and the implementation of an environmental-quality oriented protection measures at the catchment scale, both key components of river basin management plans under the WFD.

Finally, the Dutch case-study concerns the authorisation of a productive activity which has environmental impacts and provides a practical attempt for a combined, “integrated” satisfaction of different functions, much in the spirit of the WFD.

Differences

Drawing conclusions from comparison needs first a clear demarcation of the differences between the examined cases.

Nature of project: The Greek, Portuguese, Spanish and Dutch cases involve a physical project which modifies the affected rivers, whereas the UK case involves a policy plan and a programme of measures to protect the environmental quality of water. The Greek, Portuguese and Spanish cases differentiate from the Dutch in that they concern hydraulic water-works, whereas the Dutch case includes a combined physical modification of the river where extraction of gravel (and not water, as in the other cases) is the main activity. The Greek and Spanish cases differentiate from the Portuguese in that they include an inter-regional transfer of water, whereas in the Alqueva dam, water is reserved for the needs of the region (the Alqueva project involves an inter-basin transfer of water but within the region of Alentejo). The Evinos project is differentiated from the Ebro and Alqueva water-works in terms of its scale; it is a small to medium size project in a medium-sized river and catchment. This contrasts to the gigantic character - and by implication, costs and impacts - of Ebro and Alqueva.

Policy arenas: Given the different nature of the projects and differences in national administration characteristics, the projects are also subject to different policy fields. In the three southern cases, the projects were part of regional economic / developmental policies, typically public infrastructure-driven in these countries. The projects were in a way subject to a water resource management (quantitative) policy (see below), a policy however which in all three cases remains waterworks-driven. In contrast, in the case of Ythan the evaluation was part of environmental and water quality policy and regulation and in Grensmaas a competency of regional (provincial) spatial and environmental policy. These differences are important as they imply that there were considerable differences in the institutional structures governing each case.

Importance/Scale: The Evinos, Alqueva and Ebro projects have all been presented as public works of a *strategic* regional and national importance by the respective governments. In contrast, the Grensmaas and the Ythan cases are more of a local/regional character and not of national magnitude, although in the case of Grensmaas the gravel industry and the securing of the necessary quantities of gravel appears to be an economic issue of national concern.

Functions served: Evinos serves the domestic and industrial needs of Athens, the capital of Greece where 40% of the country's population resides and where an even greater percentage of employment and economic activity is concentrated. Alqueva is planned to revitalise Alentejo, one of the least developed regions of Portugal, and Ebro, to sustain the economic growth of the arid Spanish east and south. Alqueva and Ebro in comparison to Evinos are planned to serve broader regional (and not only urban) needs and multiple productive uses (agriculture, tourism and power production in the case of Alqueva; tourism, urban areas and agriculture in the case of Ebro). Grensmaas serves a very specific industry (gravel), but the idea is to combine it with the satisfaction of flood protection and recreation (vis. a vis. ecological restoration). The Ythan case in contrast concerns primarily an environmental protection function (control of eutrophication) and a public health function (control of nitrate pollution-related health risks).

Distributional conflicts: In the Greek, Portuguese and Spanish cases a main conflict is between the productive function served and the environment, i.e. the impacts of the projects and the physical modifications they entail plus the impacts from the abstraction and transfer of water. A difference between the Evinos and Ebro projects on the one hand and the Alqueva on the other, is that the first two have an important spatial dimension, as water (and the related benefit streams and income opportunities) is transferred from one region to another. Still, a notable difference between the two is that in the case of Ebro there is a strong reaction from both local/regional communities and authorities and environmental groups, whereas in the Evinos case, the transfer has been relatively unproblematic. Note that the Alqueva case in practice also leads to a transfer of water, from the north to south of Portugal, as it was part of a transboundary agreement with Spain, where Portugal conceded to the diminishment of the minimum downstream river flow of northern river Douro in exchange for a guarantee of adequate supplies of the Guadiana river to the Alqueva dam (Verges, 2002). The "virtual" (political) character of this transfer may have alleviated acute inter-regional conflict such as those observed in the case of Ebro.

In contrast to the three southern cases, the "direction" of distributional change in the case of Ythan is reverse, marking a transfer from production functions (agricultural in this case) to preservation of the environment. An underlying conflict is also between the cost to agricultural production and the benefits for public health (risks and costs), though this appears to have figured less prominently in the debate. An important

difference though between the Ythan case and the other four is that whereas in Ythan the productive sector involved (agriculture) is not important at a national scale and is in decline, in the other four, the projects come to serve dominant economic sectors (tourism, urban-industry, gravel). This might partly explain the relatively more willingness of government to “side” with environmental protection in the Ythan case.

In the case of Grensmaas it appears that gravel extraction out of deep gravel pits along the Meusse River was a standard practice. But the local communities reacted in view of the impacts to the local environment and landscape. Their protest was taken-up by the Limburg Province which reconsidered the gravel extraction license. The project may thus be seen as effecting a transfer from productive activities (gravel extraction) to environmental and public (flood) protection. It is not clear though whether, like the Ythan case, productive activities are to loose from the new arrangement, or whether the Grensmaas is a “middle-solution” that maintains the status quo.

An interesting parallel between the Grensmaas and the Ebro cases is the continuous opposition of local communities, no matter what the planned compensation and mitigation measures, against the projects. In the case of Grensmaas, part of the local population sustains reaction against the continuation of the gravel activities *per se*. The plans for ecological restoration are rejected by part of the population, the argument being that the river should remain in its natural form and not “engineered” into a new ecosystem. In Ebro too, the Region and people of Aragon, despite the foreseen compensation and the – allegedly - sustainable levels of flow reduction, continue to oppose the diversion. To a certain extent, this reflects what Platt (1995) has called “our water” phenomenon, whereby local communities react against water projects (and transfers to other regions) not - or not solely - based on a clear economic or environmental impact rationale, but due to a strong cultural, historical and emotional connection with their local environment and landscape. This points to a more complex situation and diversity of values and views, than what can be grasped in terms such as “the goal of environmental protection” or “environmental functions”.

Local reaction does not appear to be the case in the Evinos dam, although a spatial transfer is involved. This is though rather an exception in a broader Greek context³ of water policy and evaluation, as other similar hydraulic projects in the region have seen some resistance from locals, though to a large extent on an economic and not so much – or predominantly - an “our water” rationale (Kallis, 2003). Still, it is accurate to say that reaction against hydraulic projects in Greece has not reached the intensity of the Ebro case in Spain.

³ The difference in the case of Evinos may be partly explained by the sense of an immediate national crisis that had been created by the drought of Athens (Kaika, 1999) and the fact that the river and the location of the dam are in a region very sparsely populated. Around Evinos there are a few small villages (around 5.000 population) of an ageing population. Indicatively, the villages were not connected to the national electricity grid and road network prior to the commencement of the works for the construction of the project.

3.2 Institutional structures and actors

A brief presentation of the regulatory structures and the main actors in the water sector in each country is given below.

Greece

In Greece, responsibility for water resource management and planning at the national level rests to the Ministry of Development (MDEV). The Greek territory is divided into 14 regional water departments, corresponding to hydro-administrative units aggregating river basins. Although the regional water departments were initially designed to be autonomous units, they were later incorporated as “water offices” within the administrative structures of the existing regional authorities. These water offices are supposed to draft a regional water resource strategic and master plan, allocating water to the different users (including environmental uses and the maintenance of a minimum flow). The plans should provide the basis for the authorisation of new abstractions (competency of the water offices) and the planning of the necessary water-works to satisfy anticipated needs (MDEV, 1996, OECD, 2000). Although the national water law was enacted in 1987, plans have not yet been ratified for all regions. Plans were not prepared by the regions themselves, but by experts of the National Technical University (NTU) on behalf of the MDEV and consisted of basic analyses of water availability vs. demand for each department. Regional water offices remain understaffed, with little resources and unclear competencies, other than authorising small groundwater abstractions (Kallis, 2003, MDEV, 1996).

It is more accurate to talk about a centralised water resource management organisation in Greece, decisions taken at the central government level, instead of a decentralised, integrated river basin management as foreseen in the 1987 national water law. Indeed, for specific large-scale uses such as the water supply of Athens or public irrigation works, even the law assigns the authorisation competencies to the respective ministries at the national level (with due respect, it is supposed, to the regional plans if and when available at the necessary level of detail). Responsibility of Athens’ water supply rests to the Ministry of Environment, Spatial Planning and Public Works (MESPPW). The public works division of the Ministry is responsible for the planning, construction and financing of Athens’ water infra-structure and for regulating the majority publicly-owned, Athens Water Company Inc (EYDAP).

Urban water management is reactive and waterworks-driven. When Athens’ supply-demand deficit narrows and water reserves fall, MESPPW starts planning for a new water work for Athens (Kallis and Coccossis, 2000). This process is not constrained by an external regulatory mechanism. MESPPW itself is responsible for authorising a new work/abstraction for Athens’ water supply, subject to the agreement with a bi-ministerial committee foreseen for water issues of “national importance”.

Beyond the formal actors, an active role in all aspects of water resource management is played by engineers and the construction sector. The construction sector has been and still is very important for the Greek economy and has strong links with the political system (Madouvalou, 1985). The professional association of engineers (Technical Chamber of Greece – TEE) is a formal consultee in national public works and participates in all committees in relation to national water policy and Athens’ water supply. Prominent engineers change roles and positions between public and administrative bodies, TEE, the directorate of EYDAP, NTU and private consultancies and construction companies (Kallis, 2003). The model of an “iron”,

“hydraulic policy” community (Miller, 1985), of private interests, “experts” and politicians sharing an interest in the maintenance of a waterworks- driven agenda represents pretty accurately the situation in Greece (Kallis, 2003). In this context, environmental and local organisations have a marginal role and no institutional access to water management decision-making. The same holds true for regional authorities and municipalities, as given the “national importance” of Athens’ water supply and other major public waterworks, these are exempted from the (few) controls foreseen at the regional / basin level.

Portugal

The institutional structure of the water sector in Portugal is very similar to that of Greece. The Portuguese administrative system, much alike the Greek, is very centralised. Water management relates to the responsibility of the Central Government for investment and construction of water infra-structure. The Ministry of the Environment concentrates most main duties, powers and budget related to all areas of water resource management, including the financing and building of primary waterworks (dams, etc) (Correia et al, 1998).

Like Greece, where much of the hydraulic agenda is formulated in the “public works policy” sphere through the Division of Public Works of MESPPW, in Portugal central is the role of the Ministry of Planning. This ministry has the duty for the planning of public infra-structure works and critically, the management and allocation of EU regional support funds. In the absence of elected regional authorities, the five Regional Coordination Commissions (CCR) of the Ministry of Planning (regional directorates of the ministry) assume an important role. Many water projects are discussed and pushed by CCR before they are adopted and technically implemented by the Ministry of Environment. In the case of the Alqueva though and in view of its strategic, national importance the project was pursued and managed by the Ministry of Planning itself at the central level.

Despite early plans, there are no river basin authorities in Portugal. Relevant competencies were incorporated in the five Regional Directorates for the Environment. Together with the Institute for Water (INAG), these are under the competency of the Ministry of Environment, and have the power to issue licenses and permits for all uses of water, to control compliance with its terms, investigate all situations of non conformity and to decide on administrative penalties. INAG and the Regional Directorates are also responsible for the drafting of 15 river basin plans for the Portuguese territory and the National Water Plan. The nature and form of these plans is very similar to those in Greece, defining availability and needs, judging on the allocation of water between different uses and identifying a plan of waterworks to meet anticipated demands (Correia et al, 1998). The Ministry of Environment is currently preparing a new National Water Law in accordance with the WFD to amend the 1994 law, but it is not decided yet whether formal river basin authorities will be established, or (as now) only plans be drafted at the river basin level, with the overall administrative responsibility remaining at the central level.

Similar to Greece is also the stark difference between what is foreseen in the law and what is happening in the field. Enforcement of water, and more generally environmental, policy is weak in Portugal. “Regional structures have a tremendous lack of human and financial resources and the very strict conditions imposed on public administration in general will not allow significant improvements in the short term” (Correia et al, 1998, 43). This statement about Portugal represents perfectly the situation in Greece too (see similar statements in MDEV, 1996). Water

management in Portugal thus remains centralised and waterworks-driven, regional planning remaining superficial, whereas control of abstractions, waterworks, etc, limited and ad hoc. The civil engineering (hydraulics) community has had a very important role, while critical in the promotion of a hydraulic policy has been the Portuguese Electricity Company. Less important, e.g. in comparison to Spain, has been the role of agricultural interests and irrigators' communities in the water policy arena.

An important characteristic of the Portuguese political system, differentiating it somewhat from the Greek one, is the historical importance of the municipalities, whose consent is crucial for the implementation of national policies at the local level. Municipalities are responsible for domestic water supply and given their heavy investment needs and their limited means, they are active in trying to convince the central government to give priority to their needs. This "clientilistic" relationship between local authorities and the central government, where the latter fulfils its role by financing and constructing public infra-structure, seen as a central tenet of regional development, resembles however this in Greece (Leontidou, 1997). Other ministries responsible for sectoral uses, such as those of Agriculture and Economy (industry, energy, etc) are also important "players" in national water policy, mainly in terms of acting as representatives of their sector's "demands" vis. a vis. waterworks (again much alike what is happening in Greece).

Spain

Although in essence similar to Greece and Portugal, the institutional structure of the water sector in Spain has the key difference that there is a strong tradition of planning and management at the level of the river basin (since the 1930s). Hydrographic Confederations (HCs) at the level of the river basin are responsible for regional water plans, the planning of projects and the allocation of water (or more accurately, water works) among users. At the national level, the responsibility for water resource management rests with the Ministry of Environment (MIMAM) which is the supervising authority of the HCs, and has direct responsibility for shared basin between more than one regional communities. Until recently, responsibility rested on the Hydraulics division of the Ministry of Public Works. In relation, HCs have a deeply rooted engineering ethos and a bureaucratic structure tied to the design and construction of new hydraulic works.

The planning process is conducted at the river basin level, with the preparation of plans by the HCs and at the national level with the preparation of a National Hydrological Plan (NHP) by MIMAM, part of which is also the river Ebro inter-basin water transfer (Spanish case study). In principle regional plans should be drafted first and provide the input for the drafting of the national plan. In the case of the NHP, the first draft of the plan was put forward by the government before regional plans. It was subsequently retreated and presented anew after the drafting and approval of the regional river basin plans. The fact that the content of the amended NHP was not significantly changed highlights that beyond the formalities of the law, important issues of water planning are still decided at the national level and that the formally foreseen "bottom-up" process remains largely inactive.

The water resource planning system of Spain, although better organised and more functional than those of Greece and Portugal, still in essence functions as a programme for the construction of hydraulic works and not as an integrated process designed to question and balance competing needs (del Moral, 2001).

Much alike Greece and Portugal, the water policy system in Spain can be characterised in terms of a traditional and closed, hydraulic policy community. The main actors of the water policy community consist of the Corps of civil Engineers, the main agricultural organisations, construction companies, electricity companies and chief bodies of hydraulic administration (Spanish case study, after Perez Diaz, 1996). A difference, however, from Greece and Portugal is the intense on-going process of pressure to open up this closed policy community, challenged by new actors as part of the debate over the NHP (Spanish case-study). Academics, local groups and regional communities and environmental associations are vocal and very active in their resent against the maintenance of the “hydraulic paradigm” (del Moral, 2001, Sauri and del Moral, 2001). This difference between Spain on the one hand, and Portugal and Greece on the other, may be partly explained by the considerably more power that regional authorities have in Spain (“Autonomous Communities”). Although national government remains powerful and centralistic, many competencies (among which environmental protection) have been transferred to the autonomous communities as part of a decentralisation move. Institutionalising an existent sense of regional identity, Autonomous Communities in Spain are very distinct from the powerless and understaffed regional authorities of Greece and Portugal, which have limited capacities to fulfil their roles. Autonomous Communities from “donor regions” in the planned inter-basin transfers have arisen as a key force of resistance to the NHP and the Ebro transfer (Spanish case study). This contrasts with Greece and Portugal where regional authorities have a very small role in the institutional system for the planning and design of waterworks.

The Netherlands

The political system in the Netherlands has been historically decentralised and multi-polar. Central government retains a coordinative role developing policies of a framework nature and leaving implementation at the regional (provincial) and local levels. Provincial authorities have also the capacity to initiate their own policies.

The Ministry of Transport, Public Works and Water Management (V&W) is responsible for general water legislation and policy and for the planning and management of “state waters”, which include the river Meuse. The “Rijkswaterstaat” directorate is a functional unit of the Ministry responsible for the management of state waters and has its regional delegations. The Ministry of Housing, Physical Planning and Environment (VROM) is responsible for environmental and spatial planning and for drinking water supply. The Ministry of Agriculture, Nature Management and Fisheries is responsible for the protection of natural areas and the preservation of the “ecological corridor” of the Netherlands. Regional water management is at the hands of Provinces which can delegate their tasks to Water-boards, functional authorities operating at the local level and governed by councils elected by specific interest groups. Provinces have also competency in regional spatial and environmental planning. V&W issues four-year water policy documents with general guidelines for water resource management. Provincial authorities are then responsible for operationalising those into provincial water plans and co-ordinating them with physical/spatial and environmental plans. Water serves prominently as a co-ordinating factor in recent spatial and environmental policy documents (key concepts: “water as order” in regional development, “water test” for new physical developments) and there is a growing pressure to bring more integration between spatial development and water management.

Water planning and management in the Netherlands is based on a notion of “functions” that the water bodies serve (Perdok and Wessel, 1998). Water managers

(at the national level for state waters and at the provincial for groundwaters) have to attribute the function(s) to the specific water body and then try to make sure that the water system complies with the demands of the attributed function (expressed in quantitative and qualitative criteria). Tools to meet functions include a combination of zoning, emission-standards and permitting (Perdok and Wessel, 1998).

The Dutch political structure is one that is strongly rooted in a tradition of “consensus” and co-operation. Given the multiple levels of government, the “joint preparation” of plans with the participation of the implicated administrative bodies forms a central instrument to achieve co-ordination and integration. This concerns particularly co-ordination between spatial-physical, water and environmental (nature) planning. Voluntary “project organisation” schemes with the participation of implicated stakeholders are encouraged and considered as a key tenet of the “area based approach”, i.e. water management at the catchment scale. These organisations are not formal or enforced by the central government and often they do not have legal power. They rest on the willingness of the parties to participate (Kuijpers, 1990). Typically, they are limited to formal, administrative actors though private and social organisations may also be actively consulted or even engaged in some activities (Perdok and Wessel, 1998).

In contrast therefore to the three southern institutional systems presented above, the Dutch system is a less hierarchical and formalised one. Water policy making is closer to a model of open, multi-polar stakeholder networks. Still there are considerable problems with the consensus approach, as voluntary schemes are often dominated by the traditional and more powerful interests and fail to bring change (Kuijpers, 1990, Betlem, 1998) and the broader public is in some cases shielded from direct access to decision-making.

United Kingdom – Scotland

The British political system can be characterised as centralised, though in comparison to the southern cases is less based on direct regulation and more on policy and planning guidance from central government.

In the UK, the last twenty years has seen major reform of the water management sector. The water sector was drastically transformed with the Water Act of 1989. The operational and the regulatory function of water supply and waste-water management were separated. In England and Wales, the water utilities were subsequently privatised, whilst in Scotland a quasi-public sector model was adopted. This restructuring was aimed at creating more integrated water quantity and quality management functions. Strong enforcement of regulation by the environmental protection agencies has changed the attitude of industry towards water management and the environment. Overall, the restructuring of the water sector in the UK has significantly changed the institutional structure and nature of the roles within the water management sector with potential economic and environmental benefits.

In Scotland, the Scottish Executive is the devolved government responsible for planning and environmental matters. The Scottish Executive Environment and Rural Affairs Department (SEERAD) is responsible for advising Ministers on legislation and policy relating to agriculture, rural development, food, the environment and fisheries, and for ensuring the implementation of these policies in Scotland. SEERAD sponsors the Scottish Environmental Protection Agency (SEPA), the main regulatory and enforcement body for environmental protection and pollution control in Scotland. SEPA is a quasi autonomous government agency responsible for the transposition

and implementation of EU environmental directives in Scotland. Scottish Water, a public sector company, is responsible for water supply and waste water services. They are accountable to SEPA on environmental issues and to the Drinking Water Quality Regulator for Scotland in relation to water supply. Scottish Water is accountable to the Water Industry Commissioner for Scotland in relation to the economic aspects of its operations. All these agencies remain answerable to SEERAD and the Scottish Parliament.

The presence of a semi-independent regulator, entrusted with the protection of the environment marks an important difference from the three southern cases, where environmental responsibilities are typically weak, sidelined by other public agencies or even shared competencies within agencies with a developmental, infra-structural focus. The environmental dimension therefore of water management receives a particular focus.

Scottish Natural Heritage (SNH), a government agency, provide advisory services to government Ministers, the public sector and the public on matters which affect the natural heritage. SEPA, SNH and these other agencies liaise with Scotland's 32 Local Authorities to implement planning policy and provide guidance at a regional and local level. These Local Authorities are responsible for implementing physical (town and country/land use) planning legislation and guidelines under the Town and Country Planning Act (Scotland) 1997. Historically, town and country planning has had a strongly implicit presumption in favour of development. The physical planning system has recently been criticised for its lack of integration with environmental planning (Royal Commission on Environmental Pollution, 2001).

In Scotland, the emerging physical management structure of the water industry is developing in line with the main lines of discourse; public health; economic efficiency and sustainable development (Bailey, 2003). The public health discourse is largely concerned with drinking water quality. The economics discourse is largely concerned with the quasi-market operations of Scottish Water. The sustainable development discourse has been largely concerned with environmental pollution. In each of these discourses it is possible to identify different conceptualisations of both the environment and the public. For example, within the economic discourse water is conceptualised as a commodity and the public as customers or economic agents, reflected in the ongoing debate regarding privatisation of the water sector in Scotland. Within the sustainable development discourse, water is perceived as common pool resource requiring universal access and public participation in management. These perceptions largely determine how the water environment is managed, who is included in the process and how. Overall, water management in Scotland is characterised by a diverse range of communities and organisations with diverse notions of how water and the environment should be managed.

The role of the EU

The EU appears as a central institutional actor in water resource management in all cases in view of its environmental and regional policy competencies. Moral et al (2001) refer to a "Europeanisation" and a "rescaling" of water institutions in EU Member States (MS), with new powers transferred at a European level of institutions with considerable impacts at lower geographical levels of decisions.

There is evidence of this in at least four of the five Advisor case-studies. In the three southern cases, the EU has a dual, if not somewhat contradictory, role as the

financier of new hydraulic infrastructure through regional support funds and as the principal “guardian” of the environment through the competencies stemming from EU environmental directives, given the weak environmental legislation implementation of the MS themselves. In both the southern cases and the Scottish case, the EU resumes an important function as an external “arbitrer” of local compliance with environmental regulation. This has considerable ground effects, evident in the case of Ythan where EU intervention was critical in the change of balance against agricultural interests and for the designation of the area as a nitrates protected zone (Scottish case-study) and – less so – in the southern cases, where EU scrutiny of the environmental impact assessment processes may be related to improvements in the adoption of environmental impact mitigation measures. It is important to note that in the southern cases, the power of the EU does not stem – primarily, or not only – from its environmental competencies, but more from its power to attach conditions to its financing of the projects, given that it is the main, if not the only, source of funds. In the Dutch case part of the Grensmaas project is to be financed by the regional funds of the EU, but this does not appear to be such a central factor as in the three southern cases. Similarly, it appears that the decision-making process and the environmental planning had a momentum of their own, independent from any EU interventions (the EU intervened only recently in the tender for gravel extraction, asking that it is contracted in public, so that all European firms can assign).

3.3 Institutions and evaluation processes

The project evaluations in the three southern cases resemble strongly one another, reflecting the commonalities in the institutional (and social) context surrounding the processes. Water institutions, formal and informal, are directed to the satisfaction of productive concerns. This is what in the Spanish case study is called the dominant “productivist” logic in water resource management and the institutions governing it. Waterworks are seen as part of a developmental policy, which is strongly linked to public infra-structure works. In such a context, it makes little sense to talk about an “evaluation” of water projects. The Evinos and Alqueva dams and the Ebro transfer were not projects chosen among a set of alternatives to fulfil certain goals, but *strategic* projects, seen as part of the economic development process (much alike the national transport or electricity infra-structure), no matter what their exact costs and benefits or their distribution.

Institutional arrangements embody these dominant productivist values, which – at least, until recently – found in agreement the broader public in the countries. The Central Government, typically through one ministry, has the full control of deciding, planning, designing and authorising the projects (c.f. the British system where abstractors are regulated and controlled by the semi-independent environmental regulators). There is no division or control of powers between different regulatory competencies. Water management takes place mainly through the broader political system and the informal institutions that operate there. Sectoral goals get translated as political demands (from the municipalities of Alentejo and farmers in the Portuguese case, EYDAP and construction companies in Athens, autonomous communities and farmer associations of eastern Spain) and taken up by the central government which decides for a new waterwork at a political level and with a “political criterion”, rather than an accurate estimation of costs and benefits. Water resource plans and the planning process serve as instruments for rationalising the programming of the works, not as instruments of choosing between multiple alternatives for multiple goals. It is indicative that in none of the three countries is proper evaluation (cost-benefit or even more, multi-criteria) legally foreseen as part of water resource planning process, the planning process being primarily based on a

notion of balancing “regulated availability” and “needs” through infra-structural projects. In all three cases, first there was a decision about the project at the central government level and then came at a later stage, its inclusion in regional water plans (with a proviso for the case of Spain, where the NHP had to wait for regional plans, although in reality its basic components had been decided beforehand and affected the formulation of the regional plans).

The main conclusion therefore is that there is no institutional framework enabling a multi-dimensional evaluation and comparison of a broad spectrum of alternatives. The dominant and closed, hydraulic policy communities maintain a mono-dimensional approach to water management. Importantly, these communities are centralised and operate at a national level, in comparison to disadvantaged regional and local authorities and competencies. Water demands are taken as a given and “translated” into a desirable quantity of water to be regulated by the hydraulic work. Metaphorically speaking, this becomes the main “criterion-constraint” in the hypothetical decision-making evaluation process and different options are screened upon their promised “yield”, leading typically to the identification of one technically feasible option. Cost then enters the picture, mainly as a function important for choosing between alternative designs of the project (scale, etc). Then comes the environmental dimension through the Environmental Impact Assessment process, refining upon the narrowed down option of design.

Although the Ythan case is not directly comparable with the three southern cases, given the very different nature of the projects (hydraulic works vs. designation of a to be protected area), there is a notable similarity in that the institutional system (situated in the environmental policy sphere and not the water resources in this case) is also lacking a holistic consideration of the different alternatives. The maximum concentration of nitrates and the designation of an area are a political objective decided at a political level, beyond any multi-dimensional evaluation, much alike water projects are decided in the three southern cases. This forms the main constraint and then the available measures are compared in terms of cost and effectiveness. As raised in the Scottish case, this “rigidity” of the standards-based institutional system relying on a given threshold and assuming that a cause-effect relationship with agricultural activities can be reasonably established, misses opportunities of more effective (environmentally and cost-wise) alternatives. Like the southern cases, there is a lack of an institutional framework that would allow a more strategic consideration at a higher level, such as for example between different sources of pollution, impacts, risks and costs of controlling them at a catchment scale.

The only case where such an enabling institutional structure seems to be at place is the Dutch. As noted in section 3.2, the Dutch water institutional system differs from the others in that a higher level of integration is pursued through the function and area-based approaches, joint plan preparation and joint implementation through project organisations for specific water interventions and the duty for integrated (water, natural, spatial-physical) planning at the level of the province. This shows up in the Grensmaas project, which from its inception was conceived as an integrated and multi-functional project. The important differences in the evaluation process from the other cases, are the following:

- The project was developed as an integral part of the competencies of the province of Limburg in spatial physical, natural and water resource planning. C.f. the Spanish, Greek and Portuguese cases where there is a notable absence of links with a physical planning process, other than the implicit assumption that more water should be available to support growth. In the

Portuguese and Spanish cases even more important is the lack of co-ordination with irrigation planning, which seems to have a decision life-cycle and a set of objectives of its own, separated from water resource and environmental planning. In contrast the Grensmaas project was from the beginning developed as part of planning competencies of the Province of Limburg. Integrating its spatial, water and nature planning competencies in one scheme and given its power both as to license gravel extraction and to assign water function and carry out water interventions, the Province of Limburg created a single project/area-based plan (the Plan of Grensmaas) and a single organisation co-ordinating the various implicated administrative stakeholders.

- Environmental impact assessment was embedded in the design of the project from its early stages of planning. Similarly, “natural functions” were central to the design of the project, as part of the national “ecological corridor” policy-plan.
- There was a strategic and multi-dimensional type of evaluation, as reflected in the comparison of four integrated *visions* (and not projects) as part of the EIA.

Therefore in terms of the process and timing, the Dutch case is closer to the ideal of an integrated evaluation than the other four cases and this is in accordance with the relatively more progress towards an integration of the institutional structure of the water sector in the Netherlands.

Who pays and who benefits is central in order to understand the outcomes of the decision process. In turn, who pays and who benefits depends on the broader institutional structure. An important characteristic of the three southern cases is the presence of the EU as the financier of the projects. In the Evinos case, there are valid claims that the project was not the response to the drought crisis, but that the very crisis was “socially constructed”, in order to pave the way for the project and the much-needed “absorption” of EU support funds (Kaika, 1999). This is also hinted in the Alqueva and the Ebro cases, where EU funding retains central role in the realisation of the projects. This does not imply that the projects were decided *because* of EU funding. All three were long-held and conceived “strategic” public infra-structure projects. The high economic cost though (relative to the potential of the respective economies) in an era of austere public budgets, may partly explain the delay in the realisation of these projects. In relation, the availability of EU regional funding must have been central in the decision to go forward with these long-held, “strategic” projects of national importance. As long as the EU pays and the government and the public or the specific dominant interest groups (construction, agricultural sector) reap the benefits, there is a clear disincentive against a truly multi-dimensional type of evaluation and a distortion of the real costs and benefits of the project (from the point of view of the sole decision-maker, i.e. the government).

Highlighting this critical importance of the institutional system of EU regional policy as part of national and regional water policies and decisions, emphasises that this should be a main target of institutional change if decisions at the ground level are to change and become more “integrated” and environmentally-benign. Indeed, the EU itself seems to have realised this, and thus the mandate for a more integrated environmental impact study (in the philosophy of a Strategic Environmental Assessment) in all three southern cases. The informal and ex-post character of these mandates however (i.e. without exact specifications on how the assessment should be carried out and without criteria of validity, rules for participation, etc, more so, after the government had decided to implement the projects) contrasts to the formal and clear nature of the EU funding programmes. In the Evinos case, it was two “experts”

assigned by the EU (one Greek and the other French) who were contracted by the EU to judge on the combined impacts of the Evinos and the neighbouring Acheloos diversion. Who were these experts, what was their background and perspective and what information (and from whom) they used is unknown. Indicatively, the very fact that these experts had been contracted could only be “extracted” after research. In a way similar (though less informal) is the situation in the cases of Alqueva and Ebro where it is far from clear how the EU evaluates the accuracy, reliability and legitimacy of the conducted assessments (more on this in section 3.5).

The Ythan case brings out another important observation. EU environmental regulation should not simply be seen as a case of enforcement of quality standards but as a more fundamental effort for an institutional (and property rights’) change, which shifts the distribution of costs and benefits. More specifically, the nitrates’ directive, based upon the ‘polluter pays’ principle, shifts the cost of the cleaning up agricultural pollution from the public and the State to agricultural producers. As the authors of the Scottish case note, this marks a fundamental change with respect to the prior regime of property rights, whereby producers were ‘free’ to use their land as they wish and be paid by the State if they were to implement environmental protection measures. The new institutional structure, as shaped by the nitrates’ directive, and the fact that it is coming from a supreme (in terms of institutional and sanction powers), higher level authority (the EU) allows the Scottish government to pursue this change, despite the reaction it will reasonably meet from farmers who will see their income being threatened.

The case of Greensmas also presents a case of implementation of the “polluter pays” principle and a shift in property rights. Income from gravel extraction is to be used for the development of a new natural area and for the flood protection scheme.

3.4 Institutions and participation

Public participation can take place in various stages of the decision process. Therefore one question concerns the structure and timing of the decision process (i.e. which decisions are taken when and whether the decisions where the public has access are really the ones that matter) and the second concerns the rules governing participation of the public and access / contribution to the decision.

The first question was partly addressed in the previous section. Public participation in all cases but the Dutch, and particularly in the three southern cases, did take place at a stage of the decision, where the basic parameters of choice (if not the design of the intervention itself) had been decided. A second, partly related, issue was that in many cases participation was constrained to a part of the decision that was not looking at the whole picture, i.e. many important and determinant facets of the decision were taking place in other policy spheres. The Alqueva case is characteristic in this respect. Public participation was constrained in the assessment of impacts where only different designs of the dam (in terms of height) were debated (if at all), whereas public was screened out from a broader discussion on the merits and alternatives of the project in terms of development visions for the region. Indicative is the lack of debate and public participation over the regional irrigation plan, which formed the core justification for the Alqueva dam. Similar was the situation in Spain, where the development and irrigation plans that the Ebro transfer was presumably to service, were defined out of public debate. In Evinos too, the discussion about “solving Athens’ water supply problem” was constrained in the circles of the MSPPW and 15 top engineering consultancies it invited to identify the best (technically-economical) hydraulic project. Participation was foreseen only at a latter stage and in

a spatially limited level (i.e. the location of the Evinos dam itself, not Athens, not the region) and by definition constrained to environmental mitigation measures. Likewise in the Ythan case “the restriction of the consultation to a consideration of boundaries deprived the interested parties of the opportunities to influence the designation decision itself” (Scottish case study, 38). Improving participation therefore presupposes a move towards a more holistic and timely evaluation process, and it is exactly in such a process that the public should be granted adequate access.

In all cases, public participation (in the moments and decisions it took place) was reduced to informing or at best, consulting the public. This is in line with the regulatory framework which did not provide for much more specific in this respect.⁴ The Environmental Impact Assessment Directive of 1985, which provided the key “arena” for public participation in the cases of Greece, Portugal and to a lesser extent Spain (see below) does not specify in detail the participation process and the duty of the State in this respect (Box 1 – our emphasis in text).

Box 1 – Public Participation as foreseen in Council Directive 85/337/EEC on the assessment and effects of certain public and private projects on the environment

Article 6:

1. Member States shall take the measures necessary to ensure that the authorities likely to be concerned by the project by reason of their specific environmental responsibilities are given *an opportunity to express their opinion* on the request for development consent. Member States shall *designate the authorities to be consulted* for this purpose in general terms or in each case when the request for consent is made. The information gathered pursuant to Article 5 shall be forwarded to these authorities. Detailed arrangements for consultation shall be laid down by the Member States.

2. Member States shall ensure that:

- any request for development consent and any information gathered pursuant to Article 5 are made *available to the public*,
- the public concerned is given the *opportunity to express an opinion* before the project is initiated.

3. The detailed arrangements for such information and consultation shall be determined by the Member States, which *may* in particular, depending on the particular characteristics of the projects or sites concerned:

- determine the public concerned,
- specify the places where the information can be consulted,
- specify the way in which the public may be informed, for example by bill-posting within a certain radius, publication in local newspapers, organization of exhibitions with plans, drawings, tables, graphs, models,
- determine the manner in which the public is to be consulted, for example, by written submissions, by public enquiry,
- fix appropriate time limits for the various stages of the procedure in order to ensure that a decision is taken within a reasonable period.

In practice, most MS did not proceed with setting-up a predefined list of authorities and social actors to be consulted in each case, and left participation to the EIA open or defined on a case-by-case basis Participation has been confined to the minimum

⁴ Information about EU regulation refers to legislation at the time of the evaluation processes. Changes since then and especially changes in relation to the WFD are examined separately in the fourth section.

required by the law through information sessions (“public hearings”) and consultation processes conforming with the directive’s mandate to “give the public the opportunity to express an opinion” and to make “information available to the public” (CEC, 1985). Importantly, this need not be before the decision for the project was taken, but as the directive prescribed, simply before the “project is initiated”.

In the nitrates directive (91/676/EEC) which governed the Ythan case, there has been no provision for participation in the designation of the protected areas and the programmes of measures. Of course, MS had the discretion to use such procedures and this is the case in the U.K. where public consultation is required by law for many procedures in relation to physical and natural resource planning, licensing, etc (Rees and Zabel, 1998). The stronger process of public local inquiry (where contesting parties have access to present their opinion though a court-like opinion to an inspector appointed by the Minister) is maintained for important plans and contentious decisions, while the process of consultation (submission of documents to interested parties and receipt of comments, discussion of documents in public hearings), like the one in the Ythan case, is implemented in the rest. The important observation (to which we return in section 4.3) is that participatory processes other than the public inquiries are taking place within an “institutional vacuum”, i.e. there are no standardised rules of who has the right to participate and with what rights, rules for incorporating the comments in the final decision, etc. No surprise then that as echoed in all Advisor case-study reports, public participation have remained to a large extent superficial and used as mechanisms of justification of an already taken decision rather than real instruments of public engagement in the spirit of an integrated evaluation.

Real participation should be embodied in the institutional structures that govern decisions at the strategic level. The Greek, Portuguese and Spanish laws foresee for some sort of democratic control and social engagement in the water resource planning process. In Greece the national water resource Law of 1987 foresees the institution of regional water Councils (one for each regional water department) and a national water Council, with powers in the approval of plans and the authorisation of large-scale projects. The Councils, which have remained largely inactive to date, are to be composed by public authorities’ representatives (from the local authorities in the case of Regional Councils and from various Ministries and Agencies – such as IGME, the Geology Research Institute - in the case of the National Council) and from formal social professional associations (national level or regional delegations), such as the Technical Chamber, the Commercial and the Industrial Chambers, the Association of Farmers and the Employee’s Association. There are no standardised rules for the formation of the Councils and the manner and rules of decisions. In the case of Evinos for example, a Council was set at the national level (note: not at the regional level of the water department of Evinos, but at the national level given Athens’ water supply “national importance”) consisting of various ministries (economy, interior, agriculture, development) under the direction of MESSPW and with the participation of “expert” organisations, such as TEE and IGME. The Council served basically as a mechanism to ratify the proposal of the 15 engineering consultancies for a project at Evinos, rather than a real social arena of debate over the problem and its alternatives (Kallis, 2003).

In Portugal too, the national law of 1994 established a National Water Council (CAN) and River Basin Councils (CBH) as high level advisory boards in the preparation of the national water plan and the 15 river basin plans (Correia et al, 1998). The Councils, where participation of representatives of society is foreseen, were supposed to play an important role in the allocation of water and funds. Yet their

formation and engagement has delayed together with the overall delays in the preparation of the National and River Basin Plans

In Spain the National Water Law of 1985 institutionalised the formation of Water Councils at the level of the river basin as well as a National Council. These were presented as an important step in the process of democratising water planning and management by providing small parliaments where citizen participation would be guaranteed. As however it is noted in the Spanish case-study (44) their “very composition, with an overwhelming majority of political representative from the governing political party and from the traditionally privileged hydroelectric and irrigator users” has failed to bring change and has effectively blocked the access to decision-making of new actors such as “the people affected by great reservoirs and transfers, the green movement, agricultural unions, labour unions, citizen and consumer organisations, fishermen associations, research and development institutions, universities”. The same holds true for the directorship of Basin Authorities Administration Boards, dominated by engineering-minded public administrators and traditional users. The National Council had the duty to collect and pass public comments and proposals for changes to the NHP to the Government. Their composition however implies that there was very little chance of oppositionary positions to surface out of the “democratic” process of the Councils. Donor basin authorities and interests, for example, were a minority in the National Council and thus unable to pass a petition against the Ebro transfer.

The Spanish case brings out some crucial – evident, yet often neglected – observations. It does not suffice to prescribe or mandate participation or participatory institutionalised mechanisms. Participation in other words, is not – only – a case of method. If outcomes are to change, the crucial question is who participates and with what rights. In other words, outcomes need not be different if representation remains the same. The crucial issues here are two: first, there is an important degree of “path-dependency”, i.e. institutions governing participation and access to decision are framed by those who are already controlling the decisions, and therefore (as in the case of markets too) there is an inherent bias in the preservation of the status-quo. The Spanish government, for example, would be fool to change the composition of the Water Councils and institutionalise majority representation from the “new actors”, as this would be equivalent to welcoming the rejection of the NHP. Similarly, when governments, the main “developers” of public works themselves, are asked to “determine the public concerned ... and ... specify the way in which the public may be informed ... and consulted” (CEC, 1985), they can structure a “participatory process” that would silence opposition to their plans.

A second – partly related - issue is one of “legitimacy”, i.e. if the democratically elected government is not suited to decide on the composition of the Water Council or the EIA discussion participants, then who is? There is no *a priori* reason why should the green movement, fishermen associations or certain academics, for example, have a more prominent role in the Water Councils (Spanish case) than traditional interests. Dominant representations reflect a still dominant social and economic model and society’s consensus, at least as expressed through parliamentary democracy. “Participation” therefore can not be simply “engineered”. It is the outcome of a broader social process and involves more important choices about society vis. a vis. our collective systems of representation and democracy.

We can not – and we should not – as part of the Advisor project suggest who should participate and with what rights in the water resource planning process. What however we can do is emphasise (and to this we return in section 4.3) that participation requires first and foremost a clear and institutionalised definition of who

participates (or who decides who participates) and how. Participation is meaningless without addressing the crucial questions of the appropriate institutional arrangement governing participation.

In the Dutch case, participation was mainly related to the approval of the regional plan of Greensmas (as part of the spatial and water planning competencies of the Province of Limburg), as foreseen by the law. Similar to the other cases, this was constrained to a process of public consultation through open hearing and free right to submit opinions to the project organisation. Groups of stakeholders for example (farmers, citizens), were consulted and gave their opinion on the various alternatives (visions) for the project. A higher degree of democratic legitimacy, in comparison to the more hierarchical and centralised structures in the other four cases, could be perhaps related to the more inclusive “project organisation” where different public agencies (with different agendas and interests) are allowed participate, leading to more consensual outcomes.

3.5 Institutions and information

The JRC Advisor horizontal report looks with more detail into how information was managed in the five project evaluations. The important observation to make here is that in none of the cases and the regulations governing the evaluation procedures (water resource planning, EIA and nitrates legislation) were there formal specifications on the handling and use of information, nor criteria for the checking of the validity of the information used or the process employed to analyse it. “Access of the public to information” is dictated in general terms and in practice reduced to availability of relevant studies (EIAs) to the public. But as the JRC report shows, there are various levels of information and analyses, and a spectrum of implicit assumption or methodologies, critical to the end results, and which are often kept on the “shadow” of the available reports and by implication, the public debate.

The nitrates directive (CEC, 1991), governing the Ythan evaluation case is a vivid example. The directive makes reference to “representative” sampling points, “regular” monitoring and to the defined sampling processes for nitrates, but does not specify who and how is to judge the accuracy of the measurements and the adequacy of the processes and more importantly, who and how is to decide in situations of high scientific complexity and uncertainty between cause (pollution) and effect (nitrates concentration and environmental-health impacts). However, as the authors of the Scottish case-study conclude on the designation of the Ythan catchment as a nitrate sensitive zone (34): “scientific understanding of the Ythan agro-ecosystem nutrient cycle is incomplete ... and once recommended for designation, the eutrophication of the Ythan estuary became framed as a problem related to agricultural nitrate pollution, despite high scientific uncertainty [and that] the Government’s interpretation of the existing scientific evidence was different to that of its own environmental agency”. The conclusion is that “the Directive places a high degree of faith in the ability of science to identify both causes of, and solutions to, river basin resource management problems ...[although] ... the highly complex nature of ecosystems, combined with gaps in scientific understanding, suggest that scientific knowledge alone is an inadequate basis”. At the end, “the process of designation was characterised by the need to make a political decision under a situation of high scientific uncertainty”. Interestingly, in the Ythan case, it was pressure from the EU which shifted the decision in favour of designation, presumably on the basis of the judgement of the Commission (or the experts it hired) on the evidence given by the UK government and the evidence in the complaint against the decision made by an

environmental organisation. How the Commission however reached this conclusion, in such an uncertain context, remains unknown. This was a political decision, taking place however, far from public light and scrutiny and certainly far from the “arenas” into which participation of the public and the interests’ groups was allowed. It serves to emphasise the importance of the institutional structure and the rules governing it in the critical aspect on the management and elaboration of information in the decision process.

Somewhat similar is the case with the EIA process where apart from a general wording in the directive about the developer being “reasonably ... required to compile information having regard inter alia to current knowledge and methods of assessment” and using all “data required to identify and assess the main effects which the project is likely to have on the environment” (CEC, 1985), there is no other specification on the handling of information and uncertainty. As confirmed in all Advisor cases, uncertainty remains high and most EIA studies suggest further research to resolve these uncertainties (albeit suggesting for an approval of the project). The lack of standardised prototypes for the handling of information and the resolution of disputed issues appears as a most – if not the most - serious deficiency in the institutional structures governing the evaluation processes.

A relative innovation of the Dutch system in comparison to the other four is the provision of a “Commission for EIA” that has the duty of advising the competing authority (Perdok and Wessel, 1998). This independent commission has been influential because of its superior expertise and has provided a more “objective” arena for the debate on the scientific credibility of EIA analyses. Experts have thus played a central role in the search for consensual solutions that would prevent conflicts. Still, even if better than the centralized, un-accountable assessments of the EIAs in the other cases, the Dutch example is far from the “post-normal scientific” ideal where lay and affected persons become part of the scientific dialogue. This would necessitate more active and institutionalized/regulated forms of citizen’s engagement in the workings of such a superior Commission.

Another issue which can only be briefly touched here, as it is beyond the scope of what has been researched at Advisor, concerns the handling of information and participation at the level of EU policy formulation itself. The setting for example of the nitrate standards and their revision was based on processes of consultation of the Commission with scientific “experts”. A certain degree of transparency and democratic accountability of the process is ensured by the active participation of the European Parliament in the process and the generally “open” nature of EU water policy networks (Richardson, 1997). Still there are concerns, first, for the procedures by which regulatory standards are changed in interim periods (the provision for Committees of MS and “experts” responsible for the interim change or redefinition of standards has been a constant issue of confrontation between Commission and Parliament in the water directives – Kallis and Nijkamp, 2000) and second, for the procedures through which the Commission judges on claims about compliance or non-compliance (see above).

4. Recent developments in EU policy and water evaluation

Since, or during the time of the project evaluations examined in Advisor WP1, there have been important developments in EU water and environmental policy. At the water policy field, the most important development has been the approval Water Framework Directive (CEC, 2000) and the commencement of its implementation process. Regarding project evaluation, the most important developments have been the amendment of the Directive on Environmental Impact Assessment (CEC, 1997), the new directive for the Strategic Environmental Assessment of policies and plans (CEC, 2001a) and the proposal (under discussion) for the provision of public participation in the impact assessment process (European Commission, 2001a).

In this section, the objective is to examine the extent to which these institutional changes are going to account for the deficits observed in past evaluation processes and in relation, identify what more is left to be done. First, the recent policy developments are briefly presented and then an attempt is made to assess how future evaluation processes will be affected. In line with the objectives outlined in section 2.3, the emphasis is on whether the new institutional structures are conducive to a strategic (timely) and holistic (inclusive) evaluation process, with a multiple use of evaluation instruments, an open, participatory and debated process and an accountable handling of scientific information.

4.1 Recent developments in EU policy

Changes in provisions for Impact Assessment

Directive 97/11 came to address some of the deficiencies of the implementation of the EIA process amending parts of the 1985 directive. First, the list of projects covered by the regulation was extended. With respect to the water sector, under the new regulation an EIA became mandatory for waste-water treatment facilities, groundwater abstractions and inter-basin water transfers. Second, the directive stated explicitly that the impact assessment process should be part of a development consent procedure, and that completion and approval of the impact assessment should be a pre-requisite for the grant of the consent⁵. Third, the developer is obliged to provide information in the assessment report about the “main alternatives studied ... and an indication of the main reasons for his choice, taking into account environmental effects” (CEC, 1997). Although this does not predicate a full, comprehensive comparison of different alternatives, it is a definite improvement to the prior status, where environmental assessment could be limited only to the specific project / design and the mitigation of its impacts.

The idea of assessing alternative options and their environmental impacts at an earlier and more strategic stage of the decision process, i.e. the stage when objectives are formulated and the various technical options compared, is promoted by the more recent directive on “the assessment of effects of certain plans and

⁵ Note that although in some countries this might have been already the case, in principle for compliance with the law it sufficed to complete the impact assessment simply before commencement of the project (development consent not being a mandatory requirement). In the case of Evinos in Greece for example, the Environmental Impact Assessment process started after the decision for proceeding with the project had been taken up at the political level and was finalised after the tender procedure for the construction of the work had been completed.

programmes on the environment” (CEC, 2001a). The directive asks for an environmental report to accompany government plans and programmes. The report should contain relevant information identifying, describing and evaluating the likely significant effects of implementing the plan or programme together with an examination of reasonable alternatives. Water management is identified as one of the areas meriting this so-called Strategic Environmental Assessment (SEA). Although there is no detailed description in the directive about the type of information required, there is a mandate for a comprehensive assessment of possible environmental impacts, especially with respect to standards regulated by EU legislation. Importantly, the directive asks that the environmental assessment is prepared and approved before the legal or other formal submission and approval of the plan. Moreover, a SEA is mandatory for “plans and programmes co-financed by the European Community”.

The SEA directive emphasizes public consultation and access and transparency of information in the planning process. The aim is to “ensure that the information supplied for the assessment is comprehensive and reliable” by *consulting* “the authorities with relevant environmental responsibilities and the public ... during the assessment of plans and programmes”, setting “appropriate time frames and allowing sufficient time for consultations, including the expression of opinion”. The Directive goes one step further than previous legislation by asking MS to designate the authorities to be consulted “by reason of their specific environmental responsibilities” and the “public affected or likely to be affected by, or having an interest in, the decision-making subject to this Directive, including relevant non-governmental organizations, such as those promoting environmental protection and other organizations concerned”. The Directive is specific in that these consultations should take place before the drafting of the assessment and the approval of the plan and that the assessment report should have an explicit explanation on how the results of the consultation were taken into account in the final plan.

This emphasis on public consultation and access to information in the relatively recent (2001) SEA directive reflects the intention of the EU to harmonise Community Law with the UN/ECE Convention on “Access to Information, Public Participation and Access to Justice in Environmental Matters” (“the Aarhus Convention”), which the Community signed on June 1998. To this end, the Commission prepared a proposal for an amendment of the 1997 EIA directive incorporating the Aarhus principles and strengthening the participation component of the impact assessment process (European Commission, 2001a). The proposed directive defines the “public concerned” in line with the definition given in the SEA directive (“public affected or likely to be affected by, or having and interest in the development consent procedure”) and provides an explicit list of the issues for which the public should be informed and for which individuals and organisations be given the opportunity to represent themselves⁶. Most importantly, it defines a principle of “access to justice”: national legislatures should ensure that the public concerned (including non-governmental organizations) have “access to legal procedures .. to challenge the legality of acts or omissions which are subject to the public participation provisions”.

⁶ Public should be informed in a specific and visible manner about: the request for development consent; the fact that the project is subject to an environmental assessment; details of the competent, responsible authorities; the nature of possible decisions, and where there is one, the draft decision; any information gathered; main reports and advice issued to the competent authority; an indication of the times and places where and means by which the relevant information will be made available; details for public participation and consultation made in the national legislation.

The Water Framework Directive

The Water Framework Directive is the culmination of a long process of evolution of EU water legislation (Kallis and Nijkamp, 2000). The standard-based approach of early legislation (EU-wide standards for drinking and bathing water quality and for hazardous substances), was considered as limited when discussion moved to the regulation of ecological quality. Diversity of local conditions and the presence of multiple, site-specific cost-effective options rendered problematic the setting of EU-wide ecological water quality standards. Furthermore, there was a growing discontent with the lack of a co-ordinative framework for the various pieces of water legislation that had arisen over the years (Kallis and Nijkamp, 2000). This led to the replacement of a proposed (standards-based) directive for ecological quality, with a wider reformulation of EU water policy. In the “framework” approach, goals and processes to define standards (not specific parameters-standards) are set at the European level. Member States are then given relative flexibility in specifying these standards upon local circumstances and in choosing the best mix of options for achieving them (Kallis and Butler, 2001).

The overriding goal of the directive is the achievement of a “good” and non-deteriorating “status” for all water bodies (surface, groundwater and coastal) in EU territory. There are three basic classes of quality status: high (referring to undisturbed conditions or only very minor evidence of distortion), good and moderate. For surface waters the objective is that of a “good” ecological and chemical quality status. A surface water is defined as of good ecological quality if there is only slight deviation from the biological community that would be expected in conditions of minimal anthropogenic impact; a standard process is provided in the WFD for defining local standards accordingly⁷. Chemical status is classified only in two categories: “good” and “failing to achieve good”. A “good” water body fulfils all the standards set by EU legislation for the concentration of chemicals. For groundwater the goal is a “good” status defined in terms of chemical and quantitative properties (a groundwater body can be either of a “good” or a “poor” status). A chemically “good” groundwater should comply with all existing legislative standards, should not exhibit effects of saline or other intrusions and in general, should not result in failure to achieve the goals for surface waters or in significant damage to terrestrial ecosystems (like surface waters, a process is set to define such standards upon a first list of relevant parameters). In terms of a “good” quantitative status, the criterion is that the level of groundwater is such that the available resource is not exceeded by the long-term average rate of abstraction and result in failure to achieve the objectives for surface waters, any significant diminution in the status of surface waters or damage to terrestrial ecosystems and permanent alterations to flow direction. An important goal is that of “no-deterioration” for all waters upon implementation of the measures, or more specifically, no deterioration from a higher to a lower status (Lanz and Scheuer 2001). A principle of “no direct discharges” to groundwater is also established, though a number of exemptions are maintained for some common direct discharging activities (mining-related). The goal of non-deterioration is in force since the entry into force of the WFD, that is from 22-12-2000. The good status should be achieved

⁷ Quality elements for assessment are divided into biological, hydromorphological and supporting chemical and physico-chemical elements for rivers, lakes, transitional and “artificial / modified” waters (those created or resulting from a human physical modification and serving economic activities) (CEC 2000). The directive defines a specific process for defining harmonised, yet river basin – specific parameters and standards for status.

within 15 years. A 12 years extension may be granted from the Commission after request from the MS⁸.

The “good” and non-deteriorating status is the minimum goal for all waters; in addition where more stringent requirements are needed for particular uses, “protected zones” should be established and higher objectives set within them. These should include at least areas already protected by Community legislation, i.e. drinking waters, bathing waters, nutrient (nitrate and urban w/w) sensitive designated areas and areas designated for the protection of habitats or species. In addition other zones may be designated for the protection of economically significant aquatic species and for recreational activities.

In the new EU water policy the level at which goals and measures will be set and measures implemented is this of the decentralised, hydro-administrative unit of the river basin. The establishment and operation of the river basin authorities is the cornerstone of the implementation of the WFD. MS are required to designate river basins and competent authorities within their territory, or in co-ordination with other states for international waters. River basin agencies may be based on existing authorities but should not be based on other than hydrological administrative barriers. River basin districts correspond to large catchment basins as composites of multiple catchments (CEC, 2000). Each authority will be responsible for preparing and implementing in 6 year periods a River Basin Management Plan, which will include a description and mapping of the basin and the monitoring network as well as a summary of significant pressures and the measures taken to achieve the goals of the directive. Monitoring is central to the directive as it will determine the classification of the waters’ status and the necessity for additional measures in order to achieve goals in the directive⁹.

Each river basin plan should be complemented with a programme of measures, including a number of mandatory “basic” measures, referring to those required at a minimum to comply with the requirements of the directive. First and foremost these include the implementation of all other relevant Community legislation for the protection of water (i.e. IPPC, urban w/w, nitrates, drinking and bathing water directives), providing thus a mechanism for an effective co-ordination and integration of the various existing regulatory instruments. If application of the existing legislation does not suffice to achieve the “good” status objectives further measures may be necessary¹⁰.

⁸ The wording of the text raises concerns whether MS will be held legally liable if they fail to achieve the standards. In a loose interpretation, MS are obliged only to do their best, i.e. set up the river basin authorities, produce plans and implement the measures foreseen (see below) but they can not be held responsible if the measures fail to achieve the goals (Kallis and Butler 2001; Lanz and Scheuer 2001).

⁹ Specific details are given for the monitoring requirements for different types of water and assessment (i.e. ecological, chemical or quantitative) and monitoring performance quality standards should be respected (national or international, CEN/ISO when developed, etc) (CEC 2000).

¹⁰ These should include pollution control measures based on a combination of emission limit values and recipient quality standards where the more stringent will apply (the “combined approach”), requirements for prior authorisations of point source emissions not covered by the IPPC directive (which regulates integrated licenses for emissions from industries) and, where necessary, prohibitions. For diffuse sources of pollution, best environmental practices and controls are foreseen as well as prior authorisations or registrations based on binding rules. Measures should also account for the direct prohibition of all groundwater discharges (unless those derogated), conformance with standards for the future regulated chemical substances and elimination of pollution of the priority hazardous substances’ list. Protective and pollution-control measures should also be taken, if necessary, to ensure that the quality of drinking water sources conforms to the level of treatment at that place. The implementation of “supplementary measures” to complement the basic measures rests to the discretion of the authorities. A list of indicative options is given in the WFD including among other demand management measures,

Additional controls are foreseen for the abstraction or impoundment of freshwater including a register of abstractions and a requirement for prior authorisation. Moreover, MS are asked to “take account” of the principle of recovery of costs (operational, capital and environmental/resource) of water services in accordance with the polluter pays principle. This includes ensuring that “water pricing policies” are in place, which “provide adequate incentives” for efficient use of water and these different users provide an “adequate contribution” to the full cost of water (CEC 2000). Progress on the implementation of each of these measures should be reported on the river basin plans. Likewise other recent environmental directives, access to information and consultation of the public figure prominently in the WFD (Box 2). Going one step further, the WFD calls for *encouraging* “the active involvement of all interested parties in the implementation” (nonetheless without providing explicit provisions towards such an end).

Given its “framework” nature, the Directive leaves many implementation issues open, not least the definition of standards and water bodies and the harmonisation of such definitions, standards and monitoring systems across the EU as well as the operationalisation of specific tasks and goals (e.g. plans, analyses, implementation of principles such as cost recovery or public participation). With this in mind, EU Member States and the European Commission approved the WFD Common Implementation Strategy (CIS) in May 2001 for supporting the implementation of this Directive (European Commission, 2001b). Focus is on the sharing of information and experiences, the development of common methodologies and approaches and the involvement of experts and stakeholders. Committees of national representatives have been set and assisted in the preparation of the respective reports / guidelines by experts and representatives of the civil society (mainly, industry and environmental NGOs). The resulting reports are of a guiding and non-binding character¹¹.

4.2 Implications for the water evaluation process

How would future evaluation processes look like under the new institutional structures? Let us imagine a hypothetical scenario of two cases similar to those examined in the Advisor case-studies: the first one would concern a programme for pollution control, such as that for the eutrophication of a river, as in Ythan. The second would concern a new hydraulic project (such as the construction of a dam and the inter-basin transfer of water to another region) as in the three southern cases.

additional legal and/or economic instruments, rehabilitation projects, desalination plants, artificial recharge, education programmes, etc.

¹¹ Guidance documents are developed for the following tasks: analysis of pressures and impacts; designation of heavily modified bodies of water; classification of inland surface water status and identification of reference conditions; development of typology and classifications system of transitional and coastal waters; establishment of an inter-calibration network and inter-calibration exercise; economic analysis; monitoring; tools for the assessment and classification of groundwater; best practices in river basin planning; public participation; development of Geographic Information Systems (<http://europa.eu.int/comm/environment/water/water-framework/information.html>).

Box 2 – Requirements for Public Participation in the Water Framework Directive

Preamble 14:

The success of this Directive relies upon close cooperation and coherent action at Community, Member States and local level as well as on information, consultation and involvement of the public, including users.

Preamble 46:

To ensure the participation of the general public including users of water in the establishment and updating of river basin management plans, it is necessary to provide proper information of planned measures and to report on progress with their implementation with a view to the involvement of the general public before final decisions on the necessary measures are adopted.

Article 14 on public information and consultation:

1. Member States shall encourage the active involvement of all interested parties in the implementation of this Directive, in particular in the production, review and updating of the River Basin Management Plans. Member States shall ensure that, for each River Basin District, they publish and make available for comments to the public, including users:

- (a) a timetable and work programme for the production of the plan, including a statement of the consultation measures to be taken, at least three years before the beginning of the period to which the plan refers;
- (b) an interim overview of the significant water management issues identified in the river basin, at least two years before the beginning of the period to which the plan refers;
- (c) draft copies of the River Basin Management Plan, at least one year before the beginning of the period to which the Plan refers.

Upon request access shall be given to background documents and information used for the development of the draft River Basin Management Plan.

2. Member States shall allow at least six months to comment in writing on those documents in order to allow active involvement and consultation.

3. Paragraphs 1 and 2 shall apply equally to updated River Basin Management Plans.

Annex VII on River Basin Management Plans:

A. River basin management plans shall cover the following elements:

...

9. a summary of the public information and consultation measures taken, their results and the changes to the plan made as a consequence;

11. the contact points and procedures for obtaining the background documentation and information referred to in Article 14(1), and in particular details of the control measures adopted in accordance with Article 11(3)(g) and 11(3)(i) and of the actual monitoring data gathered in accordance with Article 8 and Annex V.

The very design of the WFD was based on the aim to surpass deficiencies such as those evidenced in the Ythan case. In particular, there was concern that the focus on specific standards *vis. a vis.* polluting activities (e.g. nitrates and agriculture) was not effective, nor economically inefficient (see discussion in Kallis and Nijkamp, 2000). The Ythan case highlighted well how the explicit focus on nitrates on the one hand and farmers on the other, was reducing from a complex set of factors contributing to eutrophication (and their respective variations in timing) and how the exclusive emphasis on the control of agricultural activities could be both economically inferior to alternative options and with limited results in combating eutrophication. Under the goal-based approach of the WFD, controls on agricultural practices will be just one among the potential “basic” measures for achieving the status objectives. The emphasis will no longer be on specific pollutants, such as nitrates *per se*, but on the status of the water body, which should be achieved by an integrated set of measures. The mandate for an “economic analysis” of the river basin programmes means that the most cost-effective mix of measures for achieving the status objectives will have to be selected, leading (in a certain sense) to a broader evaluation of alternatives. The CIS report on economics (European Commission, 2002a) outlines a staged methodology for the identification and analysis of cost effectiveness of different combinations of measures, recognizing however that the task “departs from the scope of pure economics” (confirming the rationale for the Advisor research, which focuses on integrated and participatory evaluation methodologies). Here it suffices to conclude that the WFD, if properly implemented, provides a conducive institutional structure for a more strategic and holistic evaluation of pollution control measures.

The picture is more complex with respect to hydraulic projects. Evaluation and approval of such projects in the future will be governed by the WFD as well as the SEA and EIA directives. Article 11.3(i) of the WFD mandates basic measures to control actions with “significant adverse impacts on the status of water ...”, in particular measures to ensure that the hydromorphological conditions of the bodies of water are consistent with the achievement of the required ... status”. This description is a clear reference to physical interventions, such as dams or water transfers. Relevant controls for this purpose “may take the form of prior authorization or registration based on general binding rules where such a requirement is not otherwise provided for other under Community legislation”. In addition, Article 11.3(e) asks more generally for control over all significant abstractions of fresh surface water and groundwater and impoundment of fresh surface water. A derogation though from these limitations is maintained if the failure to achieve status or no-deterioration objectives is the “result of new modifications to the physical characteristics” of the water body (i.e. dams and the likes) and the following conditions are met:

- (a) “all practicable steps are taken to mitigate the adverse impact on the status of the body of water;
- (b) the reasons for those modifications or alterations are specifically set out and explained in the River Basin Management Plan required under Article 13 and the objectives are reviewed every 6 years;
- (c) the reasons for those modifications or alterations are of overriding public interest and/or the benefits to the environment and to society of achieving the objectives set out in paragraph 1 are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development; and
- (d) the beneficial objectives served by those modifications or alterations of the water body cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are a significantly better environmental option”.

These exemptions mainly target modifications relating to drinking water or hydroelectric energy production (presumably, irrigation could qualify with more difficulty as an activity of “overriding public interest” or a “sustainable human activity”). As recognised in the CIS report on economics, the reference to “beneficial objectives”, “disproportionate costs” and “better environmental options” means that some sort of a cost-benefit plus environmental assessment of the proposed modification vs. other alternatives should be performed. Again, as recognised in the report (and confirming the Advisor rationale¹²): “how to judge whether costs are disproportionate is not developed here, as it encompasses many complex decisional, institutional and socio-economic elements ... [and] ... will require co-ordination with other experts and consultation of key stakeholders and the public” (European Commission, 2002a: 35).

The important point to keep is that new modifications should be explicitly included and justified in the river basin plans that will be first put as drafts for consultation in 8 years time. This means that contrary to what was observed in the cases of Evinos or Alqueva for example, new water projects will have to be integrated into the river basin planning process of the WFD and at least, a more strategic and comprehensive evaluation of alternatives (including both economic and environmental-social) dimensions will have to take place. A first evident question is what will happen if the hydraulic project is to take place earlier than the timing for the authorisation of the river basin plans. The NHP in Spain is an example; would it have to wait 8 years before the construction works commence. Similarly, in a situation similar to this of Evinos where the project was decided and executed in emergency, supposedly to combat an imminent drought (Kallis, 2003): would the Greek government under the WFD have to wait for the next round of river basin plans in order to commence works?

The EIA and SEA directives provide an assessment process parallel (and hopefully complementary) to this of the WFD. The wording of the WFD however provides for a more comprehensive evaluation than that of the EIA. First, it brings into the discussion the issue of costs and benefits, which is not explicitly addressed as part of the EIA process. Second, while the EIA directive makes reference only to a duty of the developer to provide an “outline of the main alternatives studied ... and an indication of the main reasons for his choice, taking into account the environmental effects”, i.e. leaving open the room for comparing only project design alternatives, the WFD makes clear that it is alternative “means” that should be compared on the basis of the “beneficial objectives served”, broadening thus the spectrum of options and dimensions to be taken into account. On the other hand, the EIA is complementary to the WFD in that it provides a useful platform for carrying out the environmental assessment of the alternative options (as required in the criterion of a “significantly better environmental option”).

Normally (though not always – see for example the Evinos case) such projects should be components of broader regional and national water resource or infrastructure plans. At this level, the SEA directive may have an important role to play. Again though, the wording of the WFD is stronger than that of the SEA, which requires only to “identify, describe and evaluate the likely significant environmental effects of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographic scope of the plan or programme” and document in the final plan how environmental considerations and the findings of the

¹² The Advisor project is aiming to develop integrated and participatory methodologies for evaluation in exactly such contexts.

environmental report were taken into account. The SEA complements the WFD in that first, it provides an additional mechanism of control for the water resource planning process, which might operate at different time scales and in different policy spheres than this of WFD-related river basin planning (e.g. competency of regional development or public infra-structure agencies instead of environmental). Second, it assesses the development plans which feed into the water resource plans (e.g. irrigation or town country plans) in terms of their environmental and water resource impacts. This for example, would be important in the case of Spain, where a main criticism concerns the unrealistic assumptions of the national irrigation plan, which forms the basis for the NHP.

In certain cases, there might not exist formal planning or programming mechanisms (not for water resources nor for development and infra-structure policies), but still in these cases, new hydraulic interventions will be controlled by the WFD planning and EIA consent mechanisms.

An important question concerns the co-ordination between these three regulatory instruments. The SEA directive foresees that “when obligations to carry out assessments of the effects on the environment arises simultaneously from this Directive and other Community legislation, such as ... Directive 2000/60 establishing a framework for Community action in the field of water policy, in order to avoid duplication of the assessment, Member States may provide for coordinated or joint procedures fulfilling the requirements of the relevant Community legislation”. Such an integration however may encounter barriers related to different timings (see above about project vs. river basin plan timing) and due to different organizational competencies (e.g. different agencies responsible for the different procedures).

Concluding, EU regulation seems to encourage a transition of water project evaluation towards a more strategic and holistic type of assessment. Still, there are some issues for concern:

1. There is no explicit guidance on the range of alternatives to be considered. MS could limit the range of alternatives considered without being in breach of the law. The only mechanisms to enforce an “opening-up” of the range of alternatives considered (e.g. beyond supply-side to demand-side interventions) are an open and transparent process (see next) *vis. a vis.* the ability of the Commission to follow and assess developments closely and its power to apply sanctions.
2. There is no explicit guidance on the evaluation methodologies and instruments to be used and the handling of scientific complexity (this gap comes to be served by the Advisor project). Evaluation as part of the WFD remains loosely defined and can in theory range from a simple cost-benefit assessment to a qualitative ranking of alternatives, without being necessarily in breach of the WFD. This is in sharp contrast with the formally established and well-tested methodology of EIA (with all its problems in handling scientific complexity and uncertainty).
3. Much is left to be done with respect to the integration of sectoral policies. A truly comprehensive evaluation would necessitate some sort of evaluation of the objectives *per se* that come to be served (e.g. what degree of reliability is necessary for an urban water supply system? should a certain type of agricultural production increase? should a certain type of urbanisation be supported?). The SEA directive provides only limited controls in this respect (see above). At an EU level, more needs to be done concerning the integration between development policies / funding mechanisms (agricultural, regional) and environmental regulations. As funding is subject to compliance with Community law, a WFD-

related authorisation and an SEA/EIA would be necessary before a water work could be financed. The grounds however upon which the directorates responsible for financing should base their decision are unclear. Does it suffice if the MS themselves approve the consent for the plan or the water-work? Is it the Directorate for Environment that should judge and if yes how, and with what judicial legitimacy? If challenged in courts on environmental grounds, would the decision for financing have to wait for the verdict? Some of these issues will surely be tested in the on-going confrontation over the Spanish NHP, where opponents claim that it is in breach of the WFD, whereas the Spanish government is pressing to get financial support of the plan from the EU Structural Funds.

4.3 Implications for participation and information in the evaluation process

The extension of the planning process towards a more strategic and comprehensive framework creates appropriate “arenas” where the public can access and intervene timely and potentially meaningfully in the decision-making process (see discussion in section 3.4). In the WFD, information and consultation of the public is foreseen in various stages of the implementation of the directive and the preparation and operationalisation of the river basin plans. The public should be informed and have an opportunity to respond in writing form about the time-table and the work programme for the production of the river basin plan (including a statement of the consultation measures to be taken), the interim overview of the significant water management issues identified in the river basin and the draft copies of the river basin management plans (CEC, 2000). Similarly, the EIA and SEA directives foresee a consultation procedure over the draft environmental impact reports. In comparison to the Advisor cases examined in section 3, this is a definite improvement as the public will have – some – access to the strategic level of decision-making and no longer be constrained to secondary issues or belated stages of the decision cycle.

In all three directives, a common model of “participation” is endorsed. It consists of the *consultation* of key stakeholders and the public. As defined in the regulatory texts, consultation refers basically to the right of interested parties to know about the content and details of the plans and to have an opportunity to comment on those. The Directives are explicit in that the MS should do the most to aware the public on the moments and places where information will be available. The right to comment on the draft plans is established and facilitative procedures are set (visible and easy to access events are mandated). Authorities then are responsible to “take into account” these comments. This does not mean that all comments must be incorporated in the final decisions / plans, but at least that they should be explicitly addressed (“due account should be taken”) and authorities must be clear in the final plans and their reports to the Commission on how they conducted the participatory process and how did this contribute to the final result.

But who should and could participate, and more importantly, with what rights and power in the process? The model of participation endorsed by the EU makes reference to truisms such as involving all “public concerned”, referring to all those affected or having an “interest” in the decision. Basically as a minimum, all individuals and organisations should be given the right to participate (or more accurately, “comment”). However, the “detailed arrangements ... including identification of who may participate are left to be determined by the MS taking into account the aim ... to ensure a wide participation by the public, including NGOs promoting environmental

protection, having regard to the particular circumstances of the case” (wording from the 2000 proposal for amendment to the EIA directive; similar expressions used in the WFD and SEA directive). Self-positioning as a stakeholder, but the authorities has the final say in deciding the legitimacy of these claims. The C.I.S guidance report on public participation goes on to provide some practical ideas to authorities on how to identify the public to be consulted (“stakeholder analysis”). As a basic structure, it provides a typology of stakeholders into professionals, authorities - elected people, local groups – non professional organised entities, individual citizens, farmers and companies. The general logic of the guidance is that the authorities should “prioritise which stakeholders are vital to an issue in a specific phase of the project”. This is an instrumental logic, seeing participation as a tool to achieve consensus around the plan and to get information from the ground experience of the local stakeholders.

The fact that the Spanish Water Councils system is presented as a “best practice” of participation in water planning in the guidance report of the C.I.S (European Commission, 2002b: 23, 29) brings us back to the fundamental issues raised in section 3.4. No matter how many neat diagrams are produced on “how to” perform a good participatory process, the crucial question remains whether participation goes as far as effective engagement or is relegated to consultation and a tool for “legitimising” decisions taken elsewhere. Mapping and selecting the relevant stakeholders is not simply a technical issue, but a deeply social and political one, as long as authorities can choose to structure participation in a fashion that suits their interests. Therefore while the recent EU institutions go one step more in the right direction, becoming more explicit in the responsibility of the governments to consult the public, they are still far from setting, as they should, clear rules and rights for participation.

The counterargument could be that these are too broad and deeply political issues to be settled by an environmental regulation. Others might well argue that according to the principle of subsidiarity the Commission can not, and should not, go as far as interfering with the democratic decision systems of the MS. As however, Swyngedouw et al (2002) forcefully argue¹³, EU environmental regulation is effecting a dramatic shift in the spatial scales of decisions and the relevant power of social actors. This is a definite trend, has been confirmed in other empirical work (Moral et al, 2001) and was evident in the Advisor cases too, where EU has had a prominent role in all cases (saving for the Dutch). This retreat of the national governments in favor of the markets on the one hand, and the EU supra-national governance on the other, leads (according to Swyngedouw et al, 2002) to a governance deficit, decisions being left to unlegitimate “grey” arenas, beyond the standard accountable procedures of parliamentary democracy (see for example, the intervention of Commission in the Ythan and the Spanish NHP cases).

The proposals of Swyngedouw et al (2002) for a transition towards a real participatory governance reflect well the findings of our report and the emphasis on the “institutionalization” of participation:

“If innovative and sustainable participation is to be achieved the European Union should urgently address the following interrelated and interdependent set of issues:

- a) clear and transparent procedures that establish the lines of control and hierarchy between scales of governance, including clear procedures for

¹³ The paper was prepared as part of the EU-funded, FP5 research project on “Achieving Sustainable and Innovative Policies through Participatory Governance in a Multi-Level Context” .

- identifying and including relevant 'holders' need to be formulated and implemented ...
- b) Criteria and mechanisms that define and regulate 'entitlements to participate' need to be established. It is not sufficient to leave this to either the autonomous forces of civil society based pressure groups or the selective randomness of 'invitations to participate' as practices ... in national and European arenas of governance.
 - c) The 'entitlements to participate' have to be accompanied by clear and formalised procedures of defining the content of entitlement. Power positions vary decidedly on whether participation involves consultation, intermediation and/or actual exercise of power (by means of a voting system, consensus formation or the like). Entitlements to participate need to be complemented by guarantees of effectively sharing power.
 - d) The inclusion of participants needs to be accompanied by clear and verifiable lines of representation and by transparent and reproducible mechanisms of accountability and feedback.
 - e) Effective and sustainable participation must take into consideration the power choreographies between participating partners, not only within the institutional setting, but also their power position within civil society. Power within civil society invariably translates, unless mitigated, into systemic power within governance, a tendency that becomes more outspoken in the absence of channels or procedures of accountability".

The lack of such institutional specifications is a major drawback of EU environmental policy and a key barrier against a shift towards a truly integrated water evaluation.

Equally important is the lack of standardized protocols for the handling of scientific information and the lack of provisions for this in Community's regulations and institutional structures, although this has been recognized as a key problem with the implementation of the EIA directive. The revised EIA directive makes reference to the developer required to "compile information having regard inter alia to current knowledge and methods of assessment" (CEC, 1997 – similar wording in the SEA directive). Yet it does not go further than this in defining standards, criteria or processes and institutions for judging in this respect. The assumption is that the right of public to access information and the provision for consultation procedures would suffice. The consultation procedure however described above is far from the post-normal science ideal of citizens being actively engaged in the use and application of science and the handling of uncertainty and complexity. Consultation is constrained to the plans themselves and there is no provision for interaction at the state of collecting and processing information *per se*.

The WFD is somewhat better in this respect, in that the provision for Committees as part of the Common Implementation Strategy provide a broader scientific consensus on the application of science, with some social input also (in terms of participating individuals, companies and NGOs), albeit ad hoc and with all the problems concerning the "legitimacy to participate" discussed above (i.e. who participates in these committees and why). An open question concerns first, the way in which science-related decisions will be taken at the MS/river basin levels (e.g. in setting specific standards, determining status, etc) and second, the way in which the Commission will monitor the compliance with the directive, especially in cases where there will be scientific controversy.

5. Conclusions

This report examined the interaction between the institutional context and the water evaluation process. The conceptual framework adopted perceived the broader social context as mediated by the legal conventions, which in turn define the rules, constraints and norms upon which evaluations are based.

In three of the five Advisor cases (Greece, Spain, Portugal), there was a predominance of productivist values in the respective societies and in relation, in the institutions of the water sector. While this is not the case in the Scottish case, a fragmentation of institutional structures and administrative responsibilities similar to this of the three southern cases was also observed. Only in the Dutch case was there a more open and inclusive institutional model. These differences are reflected in the evaluation processes with the Greensmaas case approaching relatively more than the other 4 cases the model of an integrated evaluation.

EU regulations and authorities were identified as critical components of the water governance structures in all cases. Recent institutional changes at the EU level reflect an increasing weight attached to values and goals related to environmental protection. New EU water and environmental impact assessment directives are promoting a transition towards more integrated forms of water evaluation. Project evaluations are to take place within more integrated and strategic planning platforms, while opportunities of the public to know about and influence the decisions are strengthened. Still, there are important deficiencies concerning the definition of rules and entitlements to participate and a lack of institutionalized protocols and procedures for the handling of scientific complexity and uncertainty. If these are not resolved, although evaluation processes and practices will change in the future, results may not.

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