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Implementing the Water Framework Directive: How to Define a "Competent Authority"

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The European Union (EU) Water Framework Directive (WFD) has the overall objective of achieving good ecological status for all water bodies by 2015. It is up to the individual Member States to designate a "Competent Authority" that will be responsible for preparing and implementing River Basin Management Plans for each River Basin District, that is, the new unit of management of water resources introduced by the directive.

In addition to environmental standards, the Water Framework Directive requires public participation and cost recovery from primary water uses, including environmental costs, as part of the River Basin process. The requirements for public participation in the Water Framework Directive are not as strong as those contained in the Aarhus Convention (United Nations Economic Commission for Europe 1998) which requires public participation in environmental matters to be guaranteed. Active involvement is only to be "encouraged" according to Article 14 of the Water Framework Directive (European Commission 2000).

If stakeholder engagement is to be meaningful, it has to include defining priorities. This is in conflict with both economic analysis, which claims to be able to determine not only appropriate priorities but also the optimal outcome, and also with the fixed standards defined by the directive. Economic analysis claims to be able to determine what the optimum water quality standards are and this also conflicts with the fixed standards in the Directive (Green 2003). The Water Framework Directive consequently embodies a series of internal contradictions that had already become apparent during the development phase of the text (Kaika 2003).

In an attempt to solve these contradictions, the final text of the directive introduces scope for exceptions and derogations. Member States are allowed to take into account the local geographical and climatic conditions as well as economic, social, and environmental impacts of full pricing policies (European Commission 2000). There is also the option of not applying full cost recovery to a specific water use (Lanz and Scheuer 2001) and under Article 4.4, the deadlines to achieve the environmental objectives can be extended to a maximum of two updates of the river basin management plan, that is 12 years, as the plans must be updated every 6 years. The directive gives a list of reasons such as technical feasibility, disproportionate costs, and natural conditions. Hence, the key principles to improve the state of Europe's waters are also the source of important contradictions that may cause the implementation of the Water Framework Directive to become an endless process of obtaining derogations and exceptions, which may result in the relaxation of the targets defined in the directive.

Successful implementation of the Water Framework Directive could be measured ultimately in terms of achieving the environmental objectives and avoiding delays and relaxation of those targets. We argue that in order to be successful, the institution chosen to carry out the River Basin Planning (RBP) process needs to be able to influence other key stakeholders. The competent authority will also have to provide a forum in which to involve all the stakeholders relevant to river basin planning.

Within the United Kingdom (UK), there are increasing differences between practice in England, Wales, Scotland and Northern Ireland, both in terms of institutions and legislation. The implementation of the Water Framework Directive is no exception. Hence, this paper will focus on England, where 95 percent of water bodies are at risk of failing the 2015 objectives. High population densities and future development are the main threats to England's water resources.

In contrast with the principles of Integrated Water Resources Management (IWRM) and the Water Framework Directive, England is a very centralized country. This is reflected in the choice of the Environment Agency as competent authority. The Environment Agency (EA) is the public body responsible for planning and managing water resources (Environment Agency 2004) including water quality and abstraction licenses. The Environment Agency was established by the 1995 Environment Act and it is a non-departmental public body of the Department for the Environment, Food and Rural Affairs (Defra) in England but it has no direct democratic oversight.

England: Context

England has a temperate climate where rainfall does not vary greatly from month to month. Rainfall is 604 mm/year in the east, compared to 1312 mm/year in the west. Although per capita availability of water in some parts is similar to that of Somalia, this is a misleading comparison. Water scarcity tends to happen in countries were the major water user is irrigation (Berbel et al. 2005) and only supplementary irrigation is required in some parts of England (Weatherhead et al. 1994).

In European terms, English rivers are small, although there is a variety in length, width, and size. Most of the rivers are lowland, low-energy except in upland areas where there are high energy rivers that flood quickly. Rivers fulfill a variety of functions, including water supply, industry, commerce, irrigation and are also used for wastewater discharge from sewage treatment works and other sources. There is some very minor commercial fishing and most fishing is for recreation. However, the main recreational uses are riverside ones such as walking or enjoying the landscape and wildlife (Tunstall and Green 2003). Navigation is mainly recreational although there is a long history of commercial navigation (Environment Agency 2001).

In terms of quality, the first problem faced is mainly diffuse pollution from both agricultural and urban areas. Secondly, England was the first country to industrialize and rivers were extensively adapted during that process, starting with construction of weirs and races for water mills, and going on through canalization for navigation, and reservoirs to support navigation. Petts and Wood (1988) have suggested that as a result of all these activities, around 89 percent of United Kingdom's rivers are regulated or modified to some extent. Rivers are an integral part of the potable water supply system and of the wastewater treatment system: given the small size of the rivers, it is not uncommon for the outflow of the wastewater treatment works to constitute 60 percent of the base flow of the river. Despite a great improvement in the quality of water bodies since the 1990s (Environment Agency 2002) 95 percent of rivers are currently at risk of failing the environmental objectives of the Water Framework Directive (Department for the Environment, Food and Rural Affairs 2005). Low-flows caused by over-abstraction of water is an important issue and the Environment Agency recently estimated that current abstractions should be reduced by under two per cent in order to avoid environmental damage (Environment Agency 2004).

England has, for Europe, quite high domestic water usage (150 liters per capita per day) and it is densely populated (343 people per sq km) accounting for 83 percent of the total United Kingdom population of 49.1 million. Around 21 percent of land is already in some form of urban usage and the areas covered by some form of environmental designation total 42 percent, including national parks, areas of outstanding natural beauty, sites of special interest, and green belts. Some areas are covered by multiple designations, so the proportion is somewhat less. By 2020 there will be around 4 million new homes and much of the growth will take place in south-east England, which is also the driest part of the country (Environment Agency 2004). In southeast England, an area roughly equivalent to the Netherlands in both population and size, the

population density exceeds 800 people per sq km and some 80 percent of non-urban land is covered by one or more environmental designations. Land is a scarce resource in England and in order to reduce new land take, there is a target of 60 percent of new homes to be built on Brownfield land (Office of the Deputy Prime Minister 2004) and to increase residential densities which currently average 27 dwellings per hectare.

Under pressure from reformers at different times, government in England has become progressively more centralized. The result was a reduction from around 11,000 parish councils, roughly equivalent to 35,000 communes in France, to the current 409 district, county or unitary authorities. It is true that there are an additional 10,000 or so District or Parish Councils, but these have negligible powers and funding. In turn, the powers and funding of local authorities have been progressively reduced. Since England has no written constitution, local authorities have no constitutionally reserved powers or sources of funding; 52 percent of local government funding is directly through grants from central government and only 26 percent is raised through local taxes (Office of the Deputy Prime Minister 2005). The local authorities are, however, responsible both for land use or spatial planning and the control of development—and enforcement levels for development control are high. In the nineteenth century, it was those who wished to see sanitation and water to be introduced by the local authorities who sought to reduce the number of local authorities (Best 1979), notably the abolition of the parishes which were roughly equivalent to the French communes. In the old rural areas there are some 220 or so Internal Drainage Boards. Originally, at least some of these were similar in nature to the Dutch *Waterschappen* but they were brought under the directing authority of central government in the 1930s. There is also a complete absence of the Water User Associations found in other countries, notably Germany, France, Spain, and the United States.

Wastewater and water services were privatized in 1989 primarily for ideological reasons so no attempt was made to promote efficiency either through competition or through the principles underlying IWRM (Green 2001). Instead, the then existing patchwork of combined water and wastewater companies and local water supply companies were privatized as they stood. Hence, in some areas one company supplies water and wastewater services, but across the street, the first company may supply wastewater services, with a water supply only company providing the water.

While the Environment Agency is the environmental regulator, the Office of Water Services is the economic regulator of the water and sewerage industry in England & Wales. The Office of Water Services set limits on what companies can charge and has a duty to ensure that companies carry out their responsibilities, are efficient, and meet the principles of sustainable development (Office of Water Services 2005).

The Environment Agency has been nominated as "Competent Authority" in England. At no point was there any open discussion of possible institutional options for the competent authority; it seems that an early decision was taken that this would be the Environment Agency. It is not clear whether this was a decision thrust upon the Environment Agency or whether the agency actively sought this role. Our suspicion is that it was the latter. The problem for the agency is that it has neither the powers nor the funding necessary to deliver the requirements of the Water Framework Directive.

The Environment Agency has a number of characteristics that are relevant:

1. It is a scientific bureaucracy with a very strong public service ethos and a commitment to enhancing the environment. However, the traditional public service ethos was to determine what the public (or the environment) need, determine the best course of action to satisfy that need, and implement that course of action. It was reported that, immediately after the 1997 election, the incoming Minister said to the then Chief Executive of the agency that the institution needed to be more open and transparent. The agency went into shock because it believed that it was open and transparent, and responded as a scientific bureaucracy should be expected: it appointed an expert on a part-time basis to tell them it was involved in being open and transparent.
2. It is an agency of government with Chair, Chief Executive, and Board appointed through the public appointments procedure. It is thus

subject to only indirect democratic control.

3. The agency fulfills a number of overlapping roles.

The Agency was created by the Prime Minister Major government by amalgamating a number of different organizations. The discussions at the time make it clear that a major consideration at the time was to minimize costs rather than maximize effectiveness. The result is a body with two major regulatory and planning functions:

1. All media pollution control, and
2. Integrated water resource management coupled to a prime responsibility for constructing and maintaining flood risk and coastal defense works.

In financial terms, by far the largest element of income and expenditure is on flood risk and coastal defense works. The agency is essentially funded through grants from central government. Unlike the French *Agence de l'eau*, the agency has no real powers to directly raise revenue: the revenue from the water resource and other functions being intended solely to cover the administrative costs of issuing abstraction licenses and so on. These three areas of activity have created a major problem for the agency in terms of what its institutional structure should be, particularly when one of its tasks is to deliver the program of investment for a single function. If the catchment is the logical framework for managing water, it is not when considering either air pollution or solid waste in an all media integrated approach to pollution management. In a catchment approach, there is a danger that it will be captured by the flood risk management function simply because that is the one with money. The inherently multi- and inter-disciplinary nature of these activities makes defining an appropriate institutional structure even more difficult.

If this sounds critical of the agency, then this is because learning is the primary requirement for improving performance. If we do not review our performance, identifying successes and failures, then it is unlikely that we will do better. Equally, if we want (as we should) institutions that are both innovative and adaptive, then some of those experiments will fail. So, the faster we try to innovate, the greater the number of successful failures that we will experience: innovations that didn't succeed but from which we can learn useful lessons. We have, therefore, to accept and even welcome failures by our institutions, provided that those failures are the result of innovation and do not simply repeat past failures.

What is "Competency"?

Calling for a "competent" authority raises the obvious question of what do we mean by competent? In turn, how then should we seek to measure the success of an institution? This requires us to first define an institution and the conventional definition (North 1990, Scott 1995) is adopted here: that an institution is defined by the existence of a formal or informal system of rules. These prescribe what it must or may do and what it may not do, and where it can do it. In turn, these rules mean that any institution has both functional and geographical boundaries.

We have more general requirements for institutions as well: we need them to be adaptive, able to adjust successfully to changing conditions. We also want them to be innovative: introducing new and better means of resolving problems. They must therefore be capable of changing and learning. Since not all innovations will succeed, we have to expect institutions to fail on occasions. Indeed, we want more successful failures, those failures from which we learn how to be more successful or what is likely to be a successful innovation.

Any institution is also constrained by internal and external factors. Young (1999) has argued that institutions have to "fit" their context, and discussed the problems of scale and interplay. Thus, the external argument is that a competent authority for delivering IWRM must have a geographical reach over a catchment and combine all water function management as well as land use management. But this may then conflict with the internal constraints of an institution as to its ideal geographical and functional spread. We may ask: how big should an institution be if it is to function most effectively? This ideal size of an institution may be argued to occur at the point where the economies of scale and scope run into diseconomies of scale and scope, particularly those of information and communication. There is then no reason why these internal constraints should result in an institution whose boundaries coincide

with the physical system that it seeks to manage.

At the same time, the land/water system is closely coupled to other systems, each of which has its own logical boundaries and whose management is subject to the same problems of economies versus diseconomies of scale and scope. Water management is often included in institutions that have responsibility for agriculture and also logically for food. It is then logical to include responsibilities for fisheries and forestry into that institution, and a general responsibility for rural development. There is a similar logic for including water supply and sanitation into an institution responsible for health; indeed, health was the rationale for development of water supply and sanitation in the 19th Century municipalities (Best 1979). If everything is related to everything else, then deciding where is the least damaging point to define boundaries is quite problematic. Seeking integration through the traditional approach starts to look unpromising. The problem is compounded if we cannot simply invent a new institution, either because there is path dependency (Putnam 1993, Cleaver 2000), or constitutional reasons define some areas of responsibility to specific levels of government.

Instead, we argue that the problem is how to deliver integration through a fragmented mosaic of institutions. This means that a successful institution is one that is highly successful at influencing the actions of others and that includes an effective means of co-ordinating the actions of different institutions. This approach is also consistent with the emergent approach to sustainable water management which stresses, for example, demand management rather than providing additional water sources, and source control rather than end of pipe treatment. Rather than building flood alleviation schemes, wastewater treatment works and reservoirs, water management institutions are increasingly focused on changing the behavior of others.

Therefore, in defining a "competent authority" under the Water Framework Directive, the logic is first to determine which institutions have the power to undertake, to fund, to regulate or otherwise influence the adoption of particular interventions or actions. These "institutional maps" (Green 2003) are defined by specific actions such as the setting of water efficiency standards for water fittings and for water using equipment. If a different intervention strategy is invented then it may prove that a new set of institutions are key stakeholders in the rate and success of the take-up of that technology or behavior. In addition, it may turn out that there are overlaps or gaps between the functional and geographic boundaries of the different stakeholder institutions. In the case of England, the most important of these stakeholders are:

1. Local and regional planning bodies with responsibility for development control;
2. Office of Water Services, the price and quality regulators, who agree on investment plans with the wastewater and water companies and determine the price rises required to fund those plans;
3. Department for the Environment, Food and Rural Affairs as the ministry responsible for implementing the Common Agricultural Policy, and thus farming practices as they impact upon the water environment; and
4. The Department for Communities and Local Government (former Office of the Deputy Prime Minister) as the ministry with overall responsibility for urban development, planning, and building regulation.

Population density is the biggest threat to water resources so perhaps the most critical of those stakeholders are the Regional Assemblies, made up of representatives from the constituent local authorities and others. The Regional Assemblies are responsible for preparing the Regional Spatial Strategy, the overarching land use strategy (Office of the Deputy Prime Minister 2004). It is clearly critical that these strategic land plans embody water management concerns. The worst possible outcome would be a plethora of plans, and particularly of river basin management plans, which sit beside and outside of the Regional Spatial Strategies. Those Regional Spatial Strategies are themselves required to be developed through a process of stakeholder engagement (Office of the Deputy Prime Minister 2004) as opposed to the mere consultative process required for river basin management plans under the Water Framework Directive. If the Environment Agency is not able to

influence these key stakeholders then it will not be able to deliver on the Water Framework Directive (Le Quesne and Green 2005).

Absent from this list of key stakeholders are the environmental non-governmental organizations. This is because the Environment Agency has a central commitment to environmental conservation. In particular, the Chief Executive of the agency was successively Chief Executive of the Royal Society for the Protection of Birds, the most important environmental non-governmental organization, and then of English Nature, the government agency with responsibility for environmental conservation. This leaves other environmental non-governmental organizations, such as the World Wildlife Fund, without an obvious ecological niche.

In seeking to influence these other stakeholders, the agency will have to recognize the asymmetries of interest among the stakeholders. The local authorities may have little to gain from working closely with the agency and a lot to lose. The local authorities have multiple objectives and constraints with which they must cope, including the needs either of socio-economic regeneration or of accommodating large inflows of development. Taking account of water management issues will add to their difficulties and will restrict both where development can take place and the form of that development.

The competent authority will have not only to be very successful at influencing the other stakeholders, but also at co-ordinating the actions of those other stakeholders. Key to both tasks is the establishment of some form of stakeholder forum for each catchment; what is at issue is the power that would reside in each of those fora and hence in each stakeholder. Each forum could be simply a sounding board and means of liaison between the different stakeholders, the Environment Agency's original proposal for implementing the Water Framework Directive (Environment Agency 2005). Or, it might make recommendations to the different stakeholders as to the actions each should take as part of the program of actions necessary to deliver the objectives of the Water Framework Directive. Finally, it might decide on the river basin management plan and the program of action necessary to implement it.

Given the lack of experience in England of such approaches, it would be useful to allow different forms to emerge in different catchments, as the local stakeholders decide. Within each catchment forum, there would then also be scope for adopting different processes; that process has been variously framed in quite different ways as "conflict resolution" (Acland 1990, Handmer et al. 1991, Priscoli 1996), "consensus building" (Innes 1996), "future search" (Weisbord and Janoff 1995), "social learning" (Pahl-Wostl 2002, Craps 2003, Ison et al. 2004, HarmoniCOP 2005) and "learning alliances" (Adank et al. 2006). What is required is an overall system for evaluating the relative success of each different forum. In the short run, that evaluation has to focus upon process rather than outcomes, and the key process characteristic is change: the nature and extent of the changes, particularly in the understandings of each stakeholder of each other (Green et al. 2004).

We are further faced with the problem of delivering integration through functional line budgets. Some general source of revenue which could be used for general purposes to enhance the performance of the catchment would be a useful lubricant here. In the past, the introduction of specific charges for abstractions and discharges to cover the administrative costs for permitting have been rejected when they have been considered as possible economic instruments (Department of the Environment, Transport and the Regions 1997, 2000). Our proposal here is instead for a levy as a source of revenue rather than any expectation that such a levy would have any effect upon land and water users. A small charge, the simplest form being that of a property tax, would generate funds which could then make it easier to put together other funding from the line budgets of the different public and private stakeholders. Decisions as to the appropriate spending of these funds would be determined by the stakeholder fora.

Conclusions

Introducing IWRM requires very different institutional practice than we have seen in the past in England. It is a challenge for which the centralized government tradition of England has ill-prepared the people. Indeed, the adoption without discussion of the Environment Agency as the competent authority under the Water Framework Directive is

a hang-over from that centralized tradition. If the Environment Agency as the competent authority is to be successful, and perhaps even survive, it has to rapidly become exceedingly good at two tasks:

1. Influencing the other stakeholders who have the power or funding to deliver the objectives of the Water Framework Directive.
2. Building and sustaining those fora of all stakeholders that enable the different stakeholders to co-ordinate their actions.

These, we argue, are the two key criteria for success of all competent authorities designated under the Water Framework Directive. A further more general criterion for successful water management institutions is that they have to be both innovative and adaptive.

We consider that a forum of stakeholders for each catchment, with responsibility for setting out the program of actions necessary to deliver the objectives of the Water Framework Directive is a necessary pre-condition for success. But, given the lack of experience in such fora, and in the processes which such a forum should adopt, it is appropriate to experiment with different approaches in different catchments, and compare the success of each approach.

A significant problem in implementing the Water Framework Directive is likely to be that of trying to do so using functional line budgets. A "catchment conservancy levy" on all land use, which could be used on any action that would improve the ecological and economic performance of the catchment could be a useful tool in this regard.

Finally, we argue that in a country where land is already being used very intensely, the most important form of integration is between land and water management. In consequence, it is within in the Regional Spatial Strategies and Local Development Frameworks that it is essential to embed water management concerns. If to do so it is necessary to sacrifice river basin management plans, then this would be a desirable sacrifice. Overall, we argue, it is institutional implementation both in structure and in process that is the critical element in delivering IWRM.

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