



Towards sustainable water management

Catchment planning in France and Britain

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Water management in European States is currently undergoing a series of major shifts linked to changing user and consumer demands, the increasing role of European Union legislation and, critically, the need to address sustainability in water uses. These shifts have a spatial expression. A comparative analysis of recent water management practice in two Member States of the EU, France and Britain (England and Wales), reveals both a new territorial focus in water management, as existing structures and institutions of water policy adapt to the changing environmental agenda, and the development of an integrated approach at the local level based upon river catchments. Copyright © 1996 Elsevier Science Ltd

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Research on which this article is based was financed by the Global Environmental Change programme of the ESRC, award no. L320273062, when the author held the post of Research Fellow at the Department of Geography, King's College, London.

¹Redclift, M *Sustainable Development* Routledge, London (1989)

²United Nations Conference on Environment and Development *The Rio Declaration* continued on page 290

A critical issue in the debate over sustainability is that of scale. Since its generalization and popularization, from the World Conservation Strategy to Rio via Brundtland, the concept of sustainable development has been located essentially at an international and global level,¹ with nation states and international environmental agreements clearly emerging as the principal actors and mechanisms in its promulgation.² Sub-national actors and institutions, often implicitly rather than explicitly linked to this supra-nationalism, are encouraged to 'Think Global, Act Local'. While there is a growing body of evidence to suggest that the lower tiers of government and policy-making are indeed acting and thinking in the appropriate manner,³ it is less clear whether they and other institutional and administrative structures of environmental policy making are necessarily well adapted to responding to the needs and demands of sustainable management.

This paper examines the relationship of sub-national environmental policy institutions to the developing sustainability agenda by considering the changing form and scale of water management structures within two Member States of the European Union, Britain (England and Wales) and France. Taking as our starting point Newson's⁴ reflection on the pertinence of river basin management as the basis for a new approach to sustainable water use, we investigate the shifting relationship between, on the one hand, the territorial units and physical areas which provide the spatial framework for water policy, and, on the other hand, the policy-making structures and institutions charged with developing and implementing that policy. In doing so, we demonstrate how the search for appropriate spatial units and institutional scales has become one of the defining features of contemporary French and British water policy. Throughout the second half of the current century, these two states have progressively adapted the territorial organization of water management in response to the changing circumstances of both socioeconomic and

environmental demands. The latest manifestation is a common emphasis upon river catchments. The French *schémas d'aménagement et de gestion des eaux* (SAGE) and the British catchment management plans (CMP) have both come into being over the last 5 years as integrated and local approaches to water resource management based upon ecological, hydrological or natural areas rather than upon predefined administrative units. Moreover, although they have emerged from very different national models of water policy,⁵ the CMP and SAGE represent the current end-points of broadly similar trends in water management development. This parallelism is revealing for it suggests that, irrespective of the different political, administrative and judicial contexts within which it operates at the national level, water management, in response to an increasingly common agenda, is moving in a single direction for which the need for sustainability provides a critical dynamic.

Undoubtedly, the European Union has emerged as a key, though until recently, largely indirect source of that dynamic. The expansion, mainly since the late 1970s, of European Union water legislation and the adoption of the principle of environmental sustainability,⁶ have forged a common European environmental agenda. Whereas we might contest the actual degree of policy harmonization between individual states that has resulted from EU policy, the establishment of water quality standards for certain water uses (for example, drinking water, bathing waters, waters used for shellfish farming) and the imposition of mandatory sampling and reporting procedures have clearly created a context for an increasingly common approach in national management procedures in the sense that, at the very least, Member States are being led to measure the same things in the same way.⁷ Nevertheless, this drive towards both increased water quality protection, through conformity to European standards and, in order to maintain it, sustainable long-term water resource management, has revealed a set of common limitations in existing national water management structures and, crucially, in their territorial organization and remit. In both the nations under study here, the challenge of identifying appropriate structures for effective management has taken the form of tension between the regional and local scales. If we assume a starting point in the original municipal organization of water management that characterized the early half of this century, we can observe an initial shift in scale towards the regionalization of water management. Later, as the reasons for that regional shift recede and are replaced by other demands, we see a resurgence of local management structures, albeit fundamentally different from those that preceded regionalization.

The regionalization of water management

A more holistic and sustainable water policy might differ from established practices in three fundamental ways. First, ecological or hydrological factors gain in importance with respect to traditional administrative, economic and political factors in the definition of policy territories. Second, the dominance of sectoral concerns related to specific water uses is replaced by a more transversal and ecological appreciation of water resource quality. Third, a linear and unidirectional conception of water, concentrating essentially upon rivers and the aquatic components of the hydrological system and their powers to remove waste away from places of work and habitation and out to sea, yields to a more integrated

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tion on Environment and Development UNCED, Paris (1992)

³Ward, S 'Thinking global, acting local? British local authorities and their environmental plans' *Environmental Politics* 1993 2(3) 453-478

⁴Newson, M *Land, Water and Development* Routledge, London (1992)

⁵Buller, H 'Privatisation and Europeanisation: the changing context of water supply in Britain and France' *Journal of Planning and Environmental Management* 1996 39(3) in press

⁶Commission of the European Communities *Towards Sustainability: The Fifth Environmental Action Plan* Publications Office of the European Communities, Luxembourg (1992)

⁷Bodiguel, M et al *Les Conditions d'Intégration des Politiques Communautaires Relatives à l'Environnement* Report to the DGXII of the European Commission, CNRS, Paris (1995); *Eurowater Institutional Dimensions to Water Resource Management* Report to the DGXII of the European Commission, Instituto Superior Técnico, Lisbon (1996); Ward, N, Buller, H and Lowe, P *Implementing European Environmental Directives at the Local Level: The British Experience with Water Quality Directives* Research Report, Centre for Rural Economy, University of Newcastle-upon-Tyne (1995)

notion of water resource use that takes into account both terrestrial and aquatic activities.

In both the states under consideration here, initial moves towards a more holistic and sustainable water policy arguably took the form of regionalization. The result of the various changes introduced by the British Land Drainage Act of 1930, the 1948 River Boards Act, the 1963 Water Resources Act and, ultimately the 1973 Water Act was, on the one hand, to concentrate regulatory and management functions into the hands of fewer and fewer, increasingly centralized bodies and, on the other hand, to highlight the importance of large river basins rather than individual sections of river as the basic units of water management. This process of institutional concentration, linked to broad hydrographical management, was prompted by a series of concerns that included the need for effective flood control, the growing demand for sufficient and rationally organized water supplies for industrial and urban growth, and an increasingly scientific approach to water resource management, presented as a preferable alternative to local political control. The 10 British Regional Water Authorities (RWAs), created in 1973, fully embodied this approach. Spatially organized around 10 major river basins and associated families of smaller basins, previously under the control of the River Authorities and Water Boards,⁸ they represented a significant shift of management responsibilities away from local government and towards a technocratic⁹ and 'supply-fix'¹⁰ management style.

Yet while the British drive towards a broader geographical focus for water management ultimately led to the replacement of municipal authorities by regional bodies, the French experience, in characteristic style, was founded upon the creation of a new and supplementary regional tier to water management which left local water supply and sewage management initially unchanged. The establishment in 1970 (following the 1964 Water Act) of the six *Agences financières de Bassin* around the six principal river basins of France (the Loire, the Seine, the Somme, the Rhine, the Rhone and the Garonne) has been hailed as an innovative and unique initiative within Europe.¹¹ Lying at an intermediary level not only between central and local government, but also between water consumers and the water industry, the *Agences* play a role that has no direct parallel in the British experience. Empowered with no statutory regulatory functions, with regard to either local authorities or water users, they were set up as financial investment agencies benefiting from, what was at the time, an important new fiscal regime. The 1964 Act introduced mandatory charges (which vary according to the nature and abundance of the water resource), linked to abstraction and discharge permits (accorded by State regulators). The money from these is allocated directly to the *Agences* which then reinvest in local authority or private water management schemes that are seen as contributing to pollution reduction or more efficient water use. In this way, the *Agence de Bassin* have emerged as central players in redistributing the costs of water quantity and quality management and negotiating more balanced water use through financial incentives to water users: higher emission quality or more efficient water use being rewarded by lower discharge or abstraction levies and demonstrable progress towards improvements being rewarded by the possibility of loans or subsidies.

For the purposes of the current analysis, the importance of the *Agences de Bassin* lies less in their innovative fiscal approach to

⁸Porter, E *Water Management in England and Wales* Cambridge University Press, Cambridge (1978)

⁹Synnott, M 'Technical imperatives and the regional water authority/local planning authority relationship' Paper to the one-day Conference *Research in Local Land Use Planning* Oxford Polytechnic Planning School, 31 May 1995

¹⁰Rees, J *Water for Life: Strategies for Sustainable Water Resource Management* Council for the Protection of Rural England, London (1993)

¹¹Barraqué, B, Berland, J M and Cambon, S *Institutional Framework for Water Resources Management in France* Vertical Report, Eurowater Programme, LATTs, École Nationale des Ponts et Chaussées, Paris (1995)

negotiated water quality management than in their regional focus. At one level, the division of the national territory into six major river basins followed on from an implicit concern, during the period of post-war economic expansion; first, for identifying and distributing the real economic costs of water management and pollution control more effectively and, second, for finding a fiscal alternative to the largely ignored centralized regulatory regime.¹² At another level, the major river basins offered a new geographical dimension that possessed a number of attractive features; they were not linked to a pre-existing tier of local government, they facilitated a broad approach to both water quality and water quantity management (including flood control) that went beyond abstraction and discharge controls, and they were sufficiently large to generate appropriate levels of fiscal revenue. Finally, the choice of six *Agences* enabled an equitable division of staffing between the three, highly competitive, state engineering corps.¹³

Although they held very different powers, the parallels between the 10 RWAs operating in England and Wales between 1974 and 1989 and the six *Agences financières de bassin*, from their creation in 1970 to their reform in 1992, are significant. Both reveal an implicit acceptance, at the time, of the limited capacity of pre-existing local structures to respond adequately to the supply problems posed by urban and industrial growth and the quality issues raised by the need to conform to developing national and European pollution control legislation.¹⁴ Despite the fact that in France, the commune remained and indeed remains the basic administrative unit of water supply management, the *Agences de bassin* emerged, as much through their technical expertise as their geographical remit, as key actors in broad water planning.¹⁵ A second common feature is that both the *Agences* and the RWAs found themselves occupying an often controversial political territory between, on the one hand, water quality control and, on the other hand, water pollution. The RWAs have been widely criticized for their dual role in both policing water pollution, through the regulatory functions laid down in the 1973 Act, and being major polluters through their water treatment functions.¹⁶ Similarly, in France, debate has focused upon the relationship of the *Agences de bassin* to polluters. Despite being founded upon the polluter-pays principle,¹⁷ the *Agences*, in having no regulatory powers, have been most effective in negotiating, in what Barraqué *et al*¹⁸ describe as a 'give and take game', with the larger, and hence more identifiable, point-source polluters.

Nonetheless, regional water management structures in both states have remained intact. If anything, they have been strengthened. In France, the *Agences de bassin* have become the more powerful *Agences de l'eau*, following the 1992 Water Act, while the reorganization of the regional bureaux of the Ministry of the Environment has had the effect of concentrating certain formerly disparate state water planning functions under a single administrative roof, again at the regional level.¹⁹ In England and Wales the private water service companies, created by the Water Act of 1989 followed by the later Water Resources Act of 1991, have retained the regional organization of the RWAs that they replaced, while the National Rivers Authority (NRA), created under the 1989 Act as 'the guardian of the water environment', is similarly regionally structured.

However, what has changed has been the water policy agenda. Apart from the new political debate over private responsibilities and invest-

¹²Laurent, J-L 'Structures publiques de gestion' *La Jaune et la Rouge* 1992 476 17-20

¹³Valiron, M First director of the Seine Normandie Agence, quoted in Nicolazo, J-L *Les Agences de l'Eau* Johanet & fils, Paris (1987)

¹⁴Balland, P and Langenfeld, F 'A la recherche d'un équilibre perdu: les agences de l'eau et les milieux aquatiques' *Annales des Mines: Réalités Industrielles* October 1993, 40-46; Kinnersley, D *Coming Clean: The Politics of Water and the Environment* Penguin, London (1994)

¹⁵Laurent, J-L *op cit* Ref 12

¹⁶Kinnersley, D *op cit* Ref 14

¹⁷Malandain, G 'La gestion de l'eau en France: une histoire particulière' *Annales des Mines: Réalités Industrielles* 1993 (Oct) 29-31

¹⁸Barraqué, B, Berland, J M and Cambon, S *op cit* Ref 11

¹⁹Bodiguel, M and Buller, H 'Environmental policy and the regions in France' *Regional Policy and Politics* 1994 4(3) 92-109

ment priorities that the privatization of water services has opened,²⁰ the dominant issues have moved away from the regulatory control of discharges and point sources towards the definition of ecological standards of water quality, the protection of the aquatic environment as a whole and the integrated management of land and water uses. Here, regional structures have arguably proved less effective.²¹ As a consequence, the spatial emphasis is once again shifting, resulting in a resurgence of local management bodies and mechanisms based upon river catchments.

The new territoriality of water management

Recognition of the failings of water management institutions has formed part of a recent and fundamental re-appraisal of French policy.²² In his opening address to the 1991 Water Assizes, the Minister for the Environment at the time claimed that water policy should henceforth be based upon three fundamental principles: the unity and transversality of the water resource; the need for ecological management; and, finally, greater dialogue, as much between different state regulators as between water users and water managers.²³ Commenting on this period, the Director of Water of the Ministry of the Environment²⁴ writes:

The failure of piecemeal water resource management became evident by the end of the 1980s. The water assizes . . . clearly highlighted a social demand to end such compartmentalisation: we must stop managing quality and quantity separately, stop dealing individually with aquifers and the rivers with which they are associated. We need to take into account all human activities within a catchment and not solely those that lie along the river.

This latter sentiment is increasingly shared by the NRA who, in recent years, have stressed the need to reconcile broad land use control and water management.²⁵ The key concept here is integrated management. The NRA announced their Catchment Management Policy as 'an integrated approach to caring for the water environment',²⁶ while in France *gestion intégrée* is the latest in a series of lexical shifts (Figure 1) that have taken us from 'global' management, heralded implicitly rather than explicitly by the 1964 Water Law and implying a more unified and wide-scale approach to the management of water as both a resource for human use and an environmental medium, to 'balanced' management, typified by the 1984 Fresh-water Fishing Act and implying a more refined sense of the costs of management tasks and the need to achieve an equitable equilibrium between the competing demands of different sectors.²⁷ 'Integrated' management takes this one step further by implying the genuine integration of objectives and a move away from sectoral environmental policy making.

Land and water use control: the challenge of integrated management

A consistent weakness of existing water management structures has been their limited ability to control diffuse pollution sources effectively and, as a result, to attain durable water quality objectives. This weakness stems essentially from the traditional fragmentation of land and water management tasks and the absence of suitable levels of co-ordination between the different policy domains. Conformity to the growing number of EU water quality standards, and particularly those issuing from the 1976 Bathing Waters Directive, the 1980 Drinking

²⁰Bodiguel, M and Buller, H 'Gestion publique ou gestion privée de l'eau? Une réflexion franco-britannique' *Proceedings of the INSA Interceltic Colloquium on Hydrology and Water Management* INRA, Rennes (1996) 443–452

²¹Patterson, A 'Water and the State' *Geographical Paper* Department of Geography, University of Reading, Reading (1987)

²²Tavernier, Y *Le Financement à Long Terme de la Politique de l'Eau* Report to the French National Assembly, 17 May 1990

²³Lalonde, B *Opening Address to the Assises Nationales de l'Eau* March 1990, Paris

²⁴Laurent, J-L 'Le concept de gestion intégrée, sa nécessité, 2–4 in Société Hydrotechnique de France, *Les Schémas Directeurs d'Aménagement et de Gestion des Eaux* SHF, Paris (1995)

²⁵National Rivers Authority *Guidance Notes for Local Planning Authorities on the Methods of Protecting the Water Environment through Development Plans* NRA, Peterborough (1994)

²⁶National Rivers Authority *Catchment Management Plans: Information Leaflet* NRA, Peterborough (1995)

²⁷Sironneau, J 'La nouvelle loi sur l'eau ou la recherche d'une gestion équilibrée', *Revue Juridique de l'Environnement* 1992 1 137–233

<u>1. 'Global' water management</u>	
1964	Water Act —created the <i>Agences de bassin</i> (1970) —established the principle of creating water quality indexes and goals, for which pollution control policy should aim
1978	Circular of 19 July 1978 —creation of the <i>Schémas d'aménagement des Eaux</i>
1981	Circular of 5 February 1981 —establishment of the River Contracts
<u>2. 'Balanced' water management</u>	
1984	Freshwater Fishing Act —established river flow minima to sustain aquatic fauna —established local river fauna plans —introduced an element of catchment planning with respect to fish stock protection at the level of the Département (the <i>Schémas départementaux de vocation piscicole</i>)
1990	Reform of the Ministry of the Environment —reformed and strengthened the regional management and regulation of water
<u>3. 'Integrated' water management</u>	
1992	Water Act —redefined the <i>Agences de bassin</i> as <i>Agence de l'eau</i> —established broad water plans at major drainage basin level (SDAGE) —established catchment plans (SAGE)
1995	Protection of the Environment Act —established the precautionary principle in water management —reinforced the principles of polluter-payer and sustainable development

Figure 1. Stages in the evolution of integrated water management in France.

Water Directive and the 1991 Urban Waste Water Directive, has been rendered increasingly difficult by the legal and political problems associated with linking the control of appropriate land uses, whether they be extensive livestock breeding in rural catchments or residential growth along coastlines, to the achievement of water quality objectives. Added to this have been problems of water quantity management. The need to meet mandatory EU water quality requirements and the investment that this entailed prompted the privatized water companies in England and Wales to divert needed funds from water delivery infrastructure, as the supply failures of the recent winter have so clearly demonstrated. In France, alternating periods of water shortage and widescale flooding, caused in part by agricultural land changes and by the extension of the built environment on to flood plains, have had catastrophic consequences in recent years in both the south (for example, Nice, Vaison la Romaine and Beziers) and the north (Seine et Marne, Sarthe) of the country. Institutional and management structures and the co-ordination between them in both nations have been found wanting.²⁸

Land use planning, agricultural land use and water planning have long remained largely distinct policy fields in France and Britain, while

²⁸Giraudi, A 'L'an II de la sécheresse' *Le Monde* 7 Sept 1990, 11–12; Slater, S, Marvin, S and Newson, M 'Land use planning and the water sector' *Town Planning Review* 1994 65(4) 375–397

standard water quality objectives have had only a marginal and non-statutory impact, being until now little more than vague guides to the granting of abstraction and discharge consents rather than the basis for effective ecological management.²⁹ Although in Britain, land use (though not agricultural land use) and water planning fall under the same broad ministerial umbrella, this has far from assured complementary resource planning. In France, at the national level, they fall under the competencies of at least four distinct ministries (Industry, Environment, Planning and Agriculture), each of which seeks to maintain and reinforce its particular mandate and resist encroachment from the others.³⁰ At the local level, French state agencies, co-ordinated through the departmental prefects, have the power to halt development if water supply and sewage facilities are judged inadequate or if proposed development is considered badly located with respect to flood plains and river channels. However, in reality, these powers have not been consistently applied or have been limited to declared polluting activities; with the widespread use of individual household sewage systems, particularly in rural areas, the increasing autonomy of local planning authorities following political decentralization during the 1980s only contributed to the lack of coherence. Only in certain areas, where diffuse pollution sources have become a major threat to urban water supplies, have attempts been made to plan certain land uses for the purposes of water quality control. The *département* of the Côtes d'Armor in Brittany, for example, has declared the entire departmental territory as a sensitive area for surface water pollution and as such seeks to regulate slurry spreading and the construction of new intensive livestock units.³¹

In England and Wales, the regionalization of water management in 1973 exacerbated the separation of land use planning and water management. Although the RWAs became statutory consultees of the land use planning process,³² commentators noted a growing discordance between the goals of local planning authorities and those of water authorities which, on occasion, led to distortions in planned housing growth.³³ Furthermore, RWA advice, and indeed the use made of it, varied considerably between local authorities. Bell³⁴ reports that in East Sussex the Southern Water Authority appeared to have very little influence in modifying the desired development pattern even in those cases where mains sewage was not available, while Gilg³⁵ shows that, in Devon, the absence of suitable sewage facilities enabled the Regional Water Authority successfully to challenge key settlement policy. What both examples demonstrate is that the consultation process between land use and water policy makers remained both *a posteriori* and essentially limited to technical assessments of accessibility to water supply and waste-water treatment facilities.

The privatization of the RWAs in 1989 and the creation of the NRA itself changed little with respect to the statutory role of water policy makers in the land use planning system. However, it did have the effect of raising the issue of the relationship of water management to land use planning higher on the policy agenda and of revealing the relative distance that persisted between these two key policy areas.³⁶ The NRA (replaced on 1 April 1996 by the Environment Agency) has been, from its inception, a statutory consultee in the land use planning process and, in its own words, 'seeks to ensure that local authorities take into account the needs of the water environment when preparing development plans

²⁹Haigh, N *EEC Environmental Policy and Britain* Longman, London (1989)

³⁰Malandain, G *op cit* Ref 17

³¹Bodiguel, M and Buller, H 'Agricultural pollution and the environment in France' *Tijdschrift voor Sociaal Wetenschappelijke Onderzoek van de Landbouw* 1989 3 217–239

³²Addyman, O T 'The utilisation of research results in catchment control' pp 243–248 in Hollis, G E (ed.) *Man's Impact on the Hydrological Cycle in the UK* Geobooks, Norwich (1979)

³³Blacksell, M and Gilg, A *The Countryside: Planning and Change* George Allen and Unwin, London (1981)

³⁴Bell, P 'Implementation and the role of the water industry' pp 123–136 in Cloke, P (ed.) *Rural Planning Policy into Action* Harper and Row, London (1987)

³⁵Gilg, A *Countryside Planning* David and Charles, Newton Abbot (1978)

³⁶Slater, S, Marvin, S and Newson, M 'Land use planning and the water sector' *Town Planning Review* 1994 65(4) 375–397

and determining planning applications'.³⁷ However, it, and the Environmental Agency, possesses only limited formal powers in restricting land use practices and development. It is consulted on the designation of Nitrate Sensitive Areas (undertaken by the Ministry of Agriculture, Fisheries and Food), and can propose the designation of Ground Water Protection Zones and sensitive zones under the Urban Waste Water Treatment Directive. These measures, though giving the NRA/Environmental Agency an important coordinating role, none the less fall well short of formal powers to intervene in the uses to which land is put. Furthermore, they are essentially reactive.

There is, therefore, an increasingly evident need in both countries for the adoption of an integrated and forward-looking approach to land use and water planning for reasons of water quality maintenance, water ecosystem protection and water resource planning. This need, we would argue, has given rise to a new territoriality in water management based upon catchments³⁸ or river basins, valleys or sub-basins (as defined by the French 1992 Water Law). Newson's 'academically justifiable units'³⁹ have become the basis for a new breed of policy instruments.

Catchment planning

The French *Schémas d'aménagement et de gestion des eaux* (SAGE) and the broader water resource plans, the *Schémas directeurs d'aménagement et de gestion des eaux* (SDAGE), established under the 1992 Water Act, follow a two-tier tradition already well established in French land use planning. A large-scale forward planning document is established at the regional level, in the case of the SDAGE at the level of the *Agences de l'eau*, which identifies broad trends for the integrated management of water resources over a 10 to 15 year period and locates zones where potential investment or more detailed planning is needed. At the local level, a more precise planning document seeks to harmonize the roles and needs of different private and public actors by identifying and evaluating the current state of water quality and quantity within a catchment, and by setting out specific management options and a more detailed assessment of future actions. Apart from their scale, with the SDAGE concerning the major drainage basins of France, and the SAGE focusing on coherent local hydrographical structures, the principal difference between the two documents lies in their juridical status. While the regional documents are obligatory, and have to be published by January 1997, the SAGE are discretionary, emerging from local political will rather than central dictate. Like their English counterparts, what the two documents share is, first, their non-binding status with respect to third parties, though statutory bodies are bound to take them into account and, second, the fact that they accord no new regulatory powers to the bodies that establish them. Additionally, both documents involve elaborate public participation exercises, bringing together water users, consumers, regulators and policy makers, the SDAGE through the existing Basin Committees, and the SAGE via the new local water commissions. The SAGE thereby respond to a specific set of management concerns:

- the need to break out of the sectoral approach to water management;
- the need to unite water planning and land planning;
- the need to achieve more effective ecological management of the water environment;

³⁷National Rivers Authority Thames Region Lower Lee Catchment Management Plan: Consultation Report NRA, Waltham Cross (1995)

³⁸National Rivers Authority 'Proposals for Statutory Water Quality Objectives' *Water Quality Services 5* NRA, Bristol (1991)

³⁹Newson, M *op cit* Ref 4, p 310

- the need to facilitate contact between different, and often opposed water users;
- the need to plan for and anticipate future water management requirements;
- the need to create a rational focal point for the many state and local government actors involved in water management;
- the desire to validate the catchment structure as a hydrological and ecological unit.

Certain precedents already existed for an integrated and local approach to water management, notably the *Schémas d'Aménagement des Eaux*, set up in 1978 as an attempt to address water resource management issues, and the River Contracts, created in 1981, though more orientated towards the protection of the aquatic environment, but these forerunners had a mixed success. The *Schémas* remained too administrative and were, in any case, rendered partly redundant by the political decentralization of the 1980s.⁴⁰ The River Contracts, and later the Bay Contracts, though widely regarded as a useful approach (and indeed in a number of regions they have been successfully transformed into SAGE) remained limited both in their spatial focus, essentially, the river channel, and in their wider take-up. By 1992 only 36 had been established throughout France.⁴¹ Under the new legislation, the existence of a SAGE has become a prerequisite for the establishment of a River Contract.

The integrated approach of the SAGE is founded upon three actions: first, the definition of a hydrologically and/or ecologically viable unit (preferably of between 1000 and 2000 km²) which must none the less accord with the exigencies of political feasibility; second, the creation of a local commission composed of all relevant public and private actors; and, third, the establishment of a medium-term (10 years) forward planning horizon.⁴² Each poses particular problems. The scientific bases for establishing the appropriate ecological, hydrographical and geographical units are not always clear and rarely coincide with convenient administrative divisions.⁴³ Of the 28 SAGE procedures currently formally initiated (out of the 71 planned), designated surface areas vary from nearly 11,000 km² in Brittany to around 200 km² in Provence. Furthermore, their average size varies considerably within the areas covered by the six *Agences de l'Eau* (Table 1). Finally, despite an important water quantity management agenda in France (which includes flood control and drought prevention), the existing SAGE demonstrate a wide range of often highly specific vocations. The Rhône–Mediterranean–Corse territory is characterized by a large number of small SAGE addressing, for example, the ecological restitution of single lakes, the provision of water-based tourism and the management of irrigation projects. SAGE within the Loire–Bretagne area are, by way of contrast, far larger (on average, double the recommended size) and are more orientated towards broader issues of drinking water quality protection and water resource management.

The setting up of local water commissions is a new initiative, specific to the SAGE. As laid down in the 1992 Water Act and its subsequent decrees, their composition must include local government representatives (making up 50% of the members), water users and their representatives (25%) and state representatives (25%). Although the Minister of the Environment has exhorted local mayors to seek as broad a college as possible,⁴⁴ consultative bodies of this kind do not always yield

⁴⁰Nicolazo, J-L 'Historique de la loi sur l'eau du 3 janvier 1992' pp 6–10 in Société Hydrotechnique de France *Les Schémas Directeurs d'Aménagement et de Gestion des Eaux* SHF, Paris (1995)

⁴¹Ministère de l'Environnement *Etat d'Avancement des Contrats de Rivière* Ministère de l'Environnement, Paris (1992)

⁴²Ministère de l'Environnement *Schéma d'Aménagement et de Gestion des Eaux: Guide Méthodologique* Ministère de l'Environnement, Paris (1992)

⁴³Wasson, J G 'Une approche systématique de la gestion de l'eau: utopie ou avenir?' *L'eau en Loire Bretagne* 1993 52 25–28

⁴⁴Royal, S *Application du Décret 92-1042 du 24 Septembre 1992* Letter to Préfects from the Minister of the Environment October 1992, Ministère de l'Environnement, Paris (1992)

Table 1. Current state of French SAGE by Agence de Bassin, 1995.

Agence de Bassin	Projected SAGE		Initiated SAGE		
	Total No. of SAGE anticipated	No. of SAGE initiated	No. of Communes concerned	Total surface area covered km ²	Average surface area per SAGE km ²
Adour-Garonne	7	0	0	0.0	0.0
Artois-Picardie	6	2	299	2 368.0	1184.0
Loire-Bretagne	19	6	1079	24 010.0	4001.6
Rhin-Meuse	4	3	371	3 716.0	1238.6
Seine-Normandie	12	3	288	1 706.0	568.6
Rhone-Méd-Corse	23	14	790	12 498.0	892.7
TOTAL	71	28	2827	44 298.0	1582.7

consensus over future management strategies. The experience of the River Contracts, for example, has demonstrated the difficulties of associating key actors, such as farmers, with the implementation of schemes frequently perceived as being implicitly against their interests.

The key to the success of the SAGE will lie in their ability to influence land-based activities that have a direct impact upon water resources and the aquatic environment.⁴⁵ Both land use planning and water supply and treatment fall within the competencies of the individual communes, and the creation of the SAGE might be seen as a reinforcement of communal authority, particularly as commune representatives dominate the composition of the water commissions. However, communal authorities have few direct powers over certain forms of land use, notably agriculture. Furthermore, the relationship of land use plans to SAGE has yet to be tested. Under the 1992 Act, communes have to identify future and existing development areas covered by mains drainage provision and those reliant upon individual cess-pit systems, but it remains to be seen whether developmental restraint will result from the voluntary SAGE. Finally, non-statutory environmental management is still a relatively new field. Where it has proved successful, it has usually taken the form of contractual management, focusing upon specific projects rather than general actions, and accompanied by financial aid. It is not yet clear how far communes are prepared to go down this path, or indeed for how long the State is prepared to wait before adopting a more regulatory stance, one that has, in the past, proved singularly difficult to implement effectively.

If the French approach to catchment planning has been in large part a State-led institutional response to the failures or inconsistencies of pre-existing management and regulatory structures, the British approach reflects more a pragmatic response to specific issues of land and water use reconciliation. Catchment Management Plans have emanated largely from the NRA's own need to respond effectively to the demands of its mandate,⁴⁶ as defined by the 1989 Water Act and form, in their final approved version, the basis for NRA actions within each catchment. Their emergence can be seen in terms of four contexts: first, the government's declared commitment to sustainability;⁴⁷ second, the recognized limitations of the *a posteriori* consultation system in permitting forward planning; third, the persistency of compliance failures with respect to EU water quality legislation due to diffuse sources of water contamination;⁴⁸ and, fourth, the NRA's commitment to integrated means of protecting and improving the water environment.⁴⁹

The introduction of CMPs has not changed the juridical regime

⁴⁵Nicolazo, J-L 'Eau et urbanisme' *Annales des Mines: Réalités Industrielles* October 1993, 69-70

⁴⁶Newsom, M D 'Catchment control and planning: emerging patterns of definition, policy and legislation in UK water management' *Land Use Policy* 1991 9(1) 9-15

⁴⁷HMSO *Sustainable Development - The UK Strategy* HMSO, London (1994)

⁴⁸Ward, N, Buller, H and Low, P *op cit* Ref 7

⁴⁹National Rivers Authority *Water Quality Strategy* NRA, Bristol (1993)

within which water management is undertaken. CMPs remain wholly consultative with respect to the planning process, with no binding force on land-users, developers or local planning authorities. In this sense, they would appear to have less of an immediate impact upon other statutory authorities than do the French SAGE upon the multiplicity of statutory actors involved in water management. However, the NRA/Environment Agency, as the lead organization in catchment planning, possesses a wide range of regulatory powers itself over those private and public bodies that directly affect the water environment, be they licensed dischargers or abstractors or simply those found responsible for polluting water courses. Thus, CMPs have a double function. On the one hand, they have introduced the possibility of more sustainable forward planning of land-based activities founded, first, upon the identification and assessment of catchment uses and, second, upon the scientific establishment of water quality and flow targets. Though recognizing the limitations of their consultative position with respect to land users, the NRA has none the less stressed the importance of setting objectives, if only to encourage other actors to follow suit.⁵⁰ On the other hand, they provide a set of specific actions and goals that the NRA/Environment Agency is itself able to achieve through regulatory control and its own undertakings such as the establishment of management protocols and monitoring programmes.

In their review of the relationship of development plans to the first round of catchment management plans, Slater *et al*⁵¹ report that the establishment of a common policy ground is nonetheless still hampered by the lack of a coherent institutional framework and suitable procedural mechanisms. Despite its potentially significant impact on water management, land use planning remains largely distinct from catchment planning in terms of both spatial fit and policy priorities. Furthermore, the privatized water companies constitute a third set of actors whose role in catchment planning has yet to be fully worked out. The institutional instability which has characterized the recent history of British water management has indubitably acted as a constraint to more consistent and durable outcomes. Nevertheless, the CMPs have broken the long-standing mould of *a posteriori* consultation and have created a still problematic context for the forward and sustainable planning of land and water uses.

Clearly, for both the French SAGE and the British CMP, the attainment and maintenance of water quality standards, over and above the more traditional practice of controlling emissions, is a major water policy objective.⁵² The NRA committed itself early in its life to the establishment of statutory water quality objectives⁵³ and to the harmonization of different internal standards for certain waters (notably shellfish waters), although progression to their formal definition and the setting of timetables of compliance have since been delayed.⁵⁴ In France too, water quality objectives form the intended cornerstone of current integrated water management with the 1992 Water Act and the emergence of catchment planning giving them a new pertinence and force. If we put aside, for the moment, those nation-wide statutory maximum values for certain parameters drawn essentially from European imperative standards, we can observe over the last 4 years a major turnaround in the French commitment to quality standards (Figure 2). Legislation issuing from 1964 Water Act originally charged the individual *Agences de bassin* with defining their own Water Quality Reference Standards to

⁵⁰National Rivers Authority, South West Region *River Taw Catchment Management Plan: Consultation Report* NRA SW, Exeter (1994)

⁵¹Slater, *et al.* 1994 *op cit* Ref 36

⁵²Newson, M 'The roles and potential of development planning and catchment management planning in bringing about sustainable use of freshwater capacity' pp 85–104 in Ward, N and Garrod, G (eds) *Water Quality: Understanding the Benefits and Meeting the Demands* Research Report, Centre for Rural Economy, University of Newcastle-upon-Tyne (1995)

⁵³National Rivers Authority *op cit* Ref 38

⁵⁴ENDS 'Government forces go-slow on water quality objectives' *ENDS Report* 1992 212 11–12

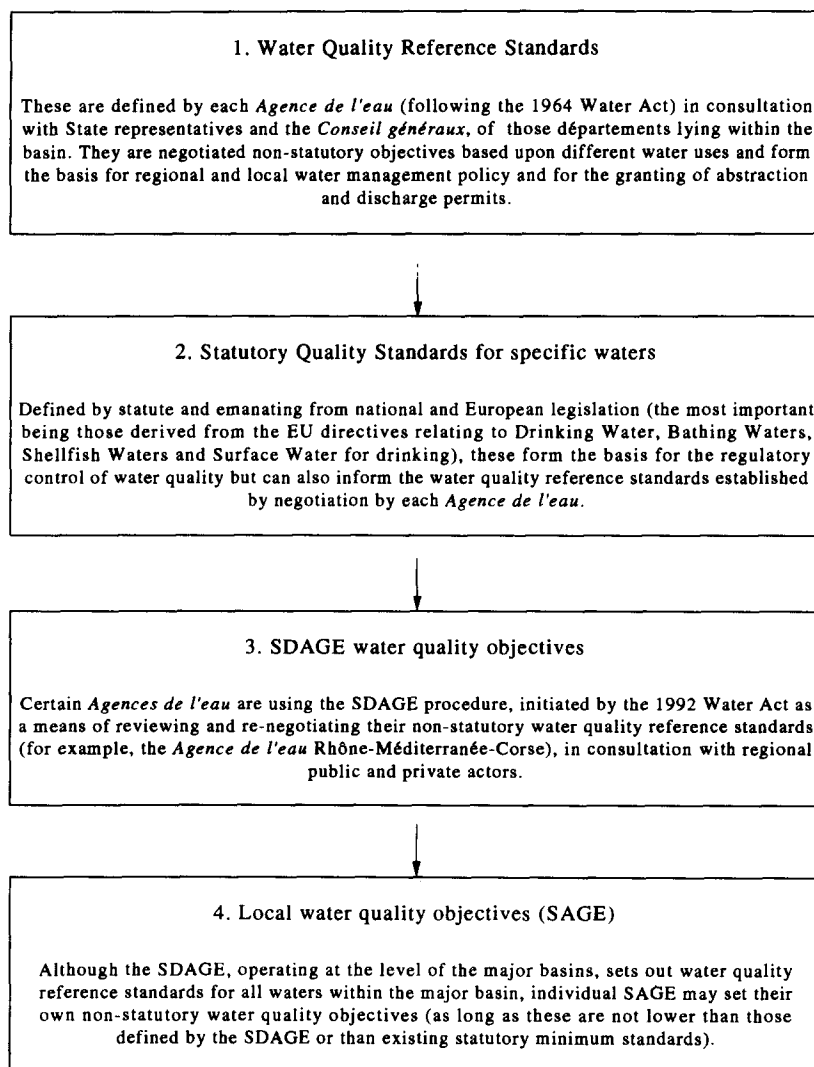


Figure 2. Water quality objectives in France.

act as the basis for negotiation with licensed polluters and abstractors. Substantially weaker in practice than they were originally conceived under the Act and by no means universally applied, these standards, which were derived following consultation with State regulators, the elected councils of relevant *départements* and water users through the aegis of the basin committees, became non-statutory intentions of debatable legal force rather than formal quality objectives. The introduction of the SDAGE/SAGE system has, however, substantially increased the importance and juridicial weight of quality standards. Not only do quality objectives have to be defined in the SDAGE process, leading the majority of *Agences* to review, strengthen and supplement their existing reference standards, but individual local level catchment plans (the SAGE) have to conform to them. Furthermore, these latter instruments can, in turn, choose to set their own, stricter objectives. Once established, SDAGE and SAGE water quality objectives have binding force upon those public agencies and authorities responsible for water management. An important difference between the current system and the preceding reference standards is that environmental and consumer groups can now take water management authorities to court if they feel that decisions taken are detrimental to the achievement or

maintenance of the defined quality objectives. What does not change, and indeed here the French system is characteristically different from its British counterpart, is that each *Agence* and each SAGE commission is free to set different water quality standards, as long as they conform to national (and European) statutory maximum values for certain parameters and, where appropriate, to each other.

Water quality objectives are thereby emerging as the linchpin of contemporary French catchment management. Classifications of river quality, traditionally based upon a single dominant use class, will become more complex, taking into account a wider plurality of ecological and human-use categories. Although their legal status and power have yet to be tried and tested by jurisprudence, quality standards are clearly destined to take a central place not only in defining water management strategies but also in focusing public debate. Two questions nonetheless remain: to what extent can water quality standards be sustained on the basis of negotiated actions, particularly when the principal threats to water quality come not from identified polluters but from diffuse activities which generally lie beyond the remit of strict regulatory control; and to what degree of regionally differentiated objectives run counter to the European Union's trend towards the normative definition of mandatory and universal quality standards? It is too early to answer these points but the future success of French catchment planning undoubtedly lies in its ability to address them.

Conclusions

In its current form, catchment planning is a half-way step to sustainable water management. Three particular 'sustainability' features stand out: first, the weight given to hydrographic and ecological parameters in the definition both of catchment plan areas and of water quality objectives; second, the focus upon negotiated strategies of action at the local level; and, third, the concept of integrated management which, critically, seeks to bring water and land uses closer together into a unified management structure. Regionalization and localization are clearly important trends in both the French and the British experiences and might be seen as management responses to the increasing Europeanization of the regulatory regime. In both states, they are expressions of the application of the subsidiarity principle to environmental management.

In Britain, the CMP reflect above all the assertion of local and regional actions in seeking environmental goals. The lead agency role played to date by the regionalized NRA and the new territorial focus on hydrographical units and natural areas suggest a *prima facie* case for devolved competencies providing a genuine lead in the achievement of sustainability objectives. In France, the subsidiarity debate is closely linked to that of formal political decentralization, and catchment planning might also be seen as a re-affirmation of the importance of territorial management. There is in France a persistent tension in the environmental policy domain, between the State, which is the principal source of environmental rule making, and local authorities which, though they might claim traditional competencies in environmental management, particularly in rural areas, are increasingly subjected to external environmental rules. The SAGE specifically seek to bring together the myriad state agencies who have responsibilities for water management. Both in this approach and in the general reform of water

policy introduced by the 1992 Act, one finds implicit recognition of the limitations of the existing division of statutory water management responsibilities. However, despite the creation of local water commissions, and the relative size of the local authority delegation to them, the persistent spatial and institutional fragmentation of local water responsibilities in France, bodes ill for the attainment of sustainable water management objectives, as the first round of SAGE would seem to confirm. Here, subsidiarity, in its current form, driven by political rather than environmental concerns, appears less immediately suited or adapted to the achievement of genuine sustainability goals.⁵⁵

Comparison of the French and British experiences unveils a seeming paradox. While the former state appears to be characterized by the strong centrality of its public policy making, the structures and institutions of water management have long displayed a high degree of fragmentation, leading to inconsistencies and jurisdictional and client jealousies at the central level. Britain, with a more critical tradition with respect to central state intervention, has established, by contrast, a far more unified water management structure in the form of the NRA. Careful examination of the French experience in water policy, however, reveals that the traditional state role of providing a regulatory context for citizen actions has not necessarily proved the most effective *modus operandi* within the environmental domain. Regionalization and the creation of the *Agences de bassin* were an attempt to achieve with fiscal actions what the State could not or did not wish to achieve through regulation. The new territorialization of water policy enshrined in the SAGE and the potential new powers implicitly given to environmental pressure groups by the definition of water quality objectives reveal a second shift away from state responsibility towards civil responsibility in achieving and maintaining environmental standards.

Increasingly, in both nations, responsibility for developing a durable environmental ethic in water policy is being placed in the hands of local actors. Feldman⁵⁶ believes that this is as it should be. Certainly as we move forward from the simple scientific and regulatory control of point sources along water courses to the negotiated and contractual management of non-point and diffuse sources within catchments, new social and political instruments and structures such as the SAGE and the CMP are required. Their sub-central institutional basis and their territorial rather than administrative focus are arguably more appropriate to the task of developing strategies for sustainable water use. However, if they are to achieve such a goal, they must be able to overcome the resistance of more established administrative and policy-making interests at both the central and the local level.

⁵⁵Buller, H and Bodiguel, M 'River basin management: British and French experiences compared' *Proceedings of the INSA Interceltic Colloquium on Hydrology and Water Management* INRA, Rennes (1996) 453–462

⁵⁶Feldman, D *Water Resources Management: In Search of an Environmental Ethic* Johns Hopkins University Press, Baltimore, MD (1991)