

Integrating the Principles of Integrated Water Resources Management? River Basin Planning in England and Wales

Oliver Fritsch^{a,*} and David Benson^b

^a*University of Leeds*
E-mail: o.fritsch@leeds.ac.uk

^b*University of East Anglia*
E-mail: d.benson@uea.ac.uk

Integrated Water Resources Management (IWRM) is now a globally generic concept encompassing a multitude of environmental governance approaches in different national contexts. However, conspicuous gaps in the IWRM literature concerning the application of this concept in practice are still evident suggesting a need for further theoretically driven comparative research. In view of these gaps, this article examines IWRM in one leading national context with a long established tradition of holistically managing water resources, namely England and Wales. The article assesses how this discourse has been interpreted, the extent to which it has been integrated into water management, the key country-level variables shaping IWRM and the potential for lesson drawing for other states, particularly in the European Union (EU). Analysis shows that IWRM principles are being implemented under current EU legislative measures and integration appears advanced. A significant exogenous driver of change is the EU Water Framework Directive. However, problems have emerged relating to aspects of IWRM integration, linked primarily to endogenous path dependency of institutions and regulatory culture. While this approach could therefore be considered ‘integrating’ it has some way to go before being fully ‘integrated’. On this basis, England and Wales provide lessons, both negative and positive, on IWRM for policy makers in other comparable states.

Keywords: Integrated Water Resources Management, IWRM, Water Framework Directive, river basin management, Europeanisation, lesson drawing, path dependency, regulatory culture.

1. Introduction

Integrated Water Resources Management (IWRM) is now a globally generic concept that has evolved over the last few decades to encompass a multitude of environmental governance approaches in different contexts. As we go on to discuss, definitions of IWRM vary but in essence it is commonly understood to constitute a process of integrating environmental, social and economic concerns into the sustainable management of water resources. The discourse

* Corresponding author.

of IWRM has been heavily promoted at the international level by the United Nations and associated agencies to developing countries, resulting in multiple national examples (see the introduction to this Special Issue). Principles underpinning the global IWRM discourse are also reflected in water management in developed nations. This combined activity has inspired a growing corpus of theoretical and empirical research into how IWRM is being operationalised in national contexts. However, many questions still remain over how the IWRM concept is being interpreted in different countries such as the United Kingdom (UK), the extent to which IWRM principles are integrated in practice, what is driving IWRM uptake and what can be learnt from comparative research in terms of lesson drawing.

A critical review of the IWRM literature would support the need to address these questions. First, the discourse of IWRM has been interpreted differently in different contexts. Much research has focused on the implementation of IWRM in non-Western countries, for example in Central Asia (Sokolov, 2006), the Middle East (Fischhendler, 2008), Asia (Horlemann & Dombrowsky, 2012), South America (Calizaya, Meixner, Bengtsson, & Berndtsson, 2010) and Eastern Europe (Leidel, Niemann, & Hagemann, 2012). Other studies have focused on practice in Western nations such as Canada (Mitchell, 2006), the USA (Ballweber, 2006) and the European Union (EU) (Timmerman, Pahl-Wostl, & Moltgen, 2008). One feature of this diverse literature is the varying forms in which IWRM has been operationalised cross-nationally in practice. Yet surprisingly only a few studies have specifically examined how IWRM has been interpreted in the UK (but see Green & Fernández-Bilbao, 2006; Jeffrey & Gearey, 2006; Collins, Blackmore, Morris, & Watson, 2007; Ison, Röling, & Watson, 2007). Perhaps the most comprehensive research to analyse UK water management from an IWRM perspective is conducted by Kidd & Shaw (2007) but their focus is primarily on the implications for spatial planning. With the full implementation of the WFD process only just becoming apparent in terms of UK river basin management planning, it would be timely to conduct a macro-level analysis of principal IWRM trends.

Second, IWRM requires greater assessment of how successfully it is being integrated into water management, and indeed how we can measure 'success' in practice. For many academics and global development organisations, IWRM has become a normative project to be promoted to water practitioners worldwide. However, Biswas (2004, p. 249), incriticising both the opaqueness of the IWRM concept and its implementation, notes the need for its greater assessment. The author returned to this subject in 2008 after conducting empirical assessments, arguing that: '[i]n spite of the fact that its promoters have spent hundreds of millions of dollars in recent years, the facts remain that the definition of this concept remains amorphous, and the results of its application in a real world to improve water policy, programmes at macro- and meso-scales have left much to be desired' (Biswas, 2008, p. 5).

Questions of the effectiveness of water management processes have occupied scholars in multiple national contexts (see for example, Sabatier et al., 2005) suggesting it remains a significant research question for comparative study. We might well ask therefore how and to what effect IWRM principles are being played out across EU states such as the UK.

Third, the factors driving the growth of IWRM are not explicitly clear and vary between contexts. The exogenous influence of global policy actors such as the UN and the Global Water Partnership (GWP) in spreading IWRM norms, via direct advocacy or through international conferences, has received some analysis (see Savenije & Van der Zaag, 2008). Studies have also analysed the impacts of EU legal requirements on river basin management in member states under the WFD (for example, Fritsch, 2011). Yet little research has drawn explicitly on the extensive EU policy implementation literature (Bulmer, 2007) to determine the nature of IWRM in different EU states. Finally, researchers have also sought to explain IWRM in terms of endogenous factors such as national political structures (for example, Gerlak, 2006) and regulatory cultures, but this research does not generally examine how important determinants such as path dependency and historical context of institutional structures (Thelen, 1999) can impede or facilitate IWRM.

Finally, lesson drawing on IWRM could provide a significant agenda for comparative researchers. Lesson drawing – the identification of policy lessons in one context and their non-coercive transference to another – and its analogous term policy transfer (Benson & Jordan, 2011, 2012) are common theoretical concepts in comparative research strategies. Some studies have already applied these approaches to IWRM and catchment management (for example, Swainson & de Loe, 2011; Benson, Jordan, & Huitema, 2012) providing significant scope for cross-national learning. In particular, little research has to date been conducted on the potential for lesson drawing from the UK context, particularly amongst other EU states as they implement the WFD.

This article is consequently structured in several sections, each addressing a specific question. First, what is meant by IWRM? Although a deceptively simple question, the rather diverse application of this concept makes measuring its development problematic. Therefore we initially unpack IWRM into its key ‘components’ (Global Water Partnership, 2011a) to establish a conceptual-analytical framework. Second, what is the history and extent of IWRM in England and Wales? We then go back in time to briefly examine the historical context of IWRM before and after 2000 to identify critical changes to water management, both at national level and within specific examples, primarily the Humber and the Anglian River Basin Districts (RBD). A particular emphasis is placed on describing the new water management institutions that have been created at the national and river basin levels. Third, how or to what extent has integration occurred as a measure of the success of IWRM in practice? Measuring integration in water resources management can be attempted in various ways (see Kidd & Shaw, 2007; Biswas, 2008) but here our focus is assessing how well key ‘components’ of IWRM (Global Water Partnership, 2011a) are integrated into management practices under the WFD. Fourth, what country-level factors are driving IWRM in this context? While Europeanisation (for example, Bulmer, 2007) — in this case the WFD — is one obvious exogenous influence, we also examine more endogenous factors such as political or regulatory culture and the impacts of pre-existing national institutional structures, i.e. historical institutionalism (Thelen, 1999). With respect to the latter the path dependency of UK water management institutions may be an important factor shaping the interpretation of IWRM under the Directive. Finally, what, if anything,

can we learn from England and Wales for potential lesson drawing? Although significant constraints are evident when transferring between political contexts (Benson & Jordan, 2012), thereby limiting the scope for learning, there are nonetheless some lessons that can be drawn for policy makers and practitioners elsewhere.

2. Defining IWRM: caveats and components

Before embarking on such research it is important to state up front one significant caveat *emtor*. With any comparative research there is a requirement for precise theoretical concepts in order to cross-compare when moving between jurisdictions, i.e. 'we need conceptual tools that are able to travel' (Sartori, 1970, p. 1034). One problem with many areas of comparative research is that theoretical concepts can be 'stretched', or applied uncritically, through time and geopolitical space between otherwise different jurisdictions meaning that 'gains in extensional coverage tend to be matched by losses in connative precision' (*ibid.*, p. 1035). Sartori's remedy for avoiding this so-called 'travelling' problem is to more tightly define concepts.

But herein resides a problem since IWRM is a contested concept leading to subtly different definitions manifest across a burgeoning academic and practitioner based literature. This problem is aptly summed up by Biswas (2004, p. 249) when he argues that despite the global popularity of IWRM 'not only no one has a clear idea as to what exactly this concept means in operational terms, but also their views of it in terms of what it actually means and involves vary very widely'. As a result, for some such as Savenije & Van der Zaag (2008) IWRM encompasses scales, water users and resources, others such as Pahl-Wostl & Sendzimir (2005) focus more on adaptive management processes, while others examine it in terms of institutions (Horlemann & Dombrowsky, 2012). Although this conceptual malleability has no doubt fuelled the universal popularity of the IWRM concept it makes comparisons problematic.

Despite the differing definitions of IWRM that litter the environmental management literature, several critical features can be drawn out to serve as generic analytical indicators of this process. An often used definition is that employed by the GWP (2011b). The GWP definition, we recognise, will not satisfy all scholars but on a global scale it is undoubtedly the most recognised variant in terms of guiding IWRM strategies. The GWP definition thus refers to 'a process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment' (*ibid.*). Six key 'components' or principles are now articulated by the GWP for operationalising IWRM, namely: establishing policy; practicing river basin or watershed scale management; developing 'intersectoral' or multi-stakeholder approaches; ensuring equity in resource access; optimising water supply; and, also demand management (Global Water Partnership, 2011a; see the GWP's website at <http://www.gwp.org> for a more detailed account). These components provide a useful conceptual yardstick to measure IWRM between and within national contexts: to an extent overcoming the

travelling problem identified above.¹ As discussed further below, most of these features are strongly visible in the WFD; which provides an EU wide legislative requirement for river basin management.

3. Data sources

This article focuses on IWRM in England and Wales, one of three jurisdictions in the United Kingdom. England and Wales follows a single legal system distinct from Scotland and Northern Ireland whereby policies are implemented on basis of regulations and statutory guidances separate from the other two British jurisdictions. The Environment Agency is the leading government body in England and Wales when it comes to managing natural resources and tackling pollution problems. In order to use research resources efficiently, we have studied two English river basin districts, the Humber and the Anglian basin, in detail and the other eight basins in England and Wales on a more general level. Our research is based on interviews with the Environment Agency staff organising public participation, including the respective Regional Directors and River Basin Programme Managers; with participants in the regional stakeholder panels including at least one representative per sector, for instance Associated British Ports, Natural England, the Chambers of Commerce, British Waterways, and the National Farmers Union; and with stakeholders outside the panel, e.g. representatives of green organisations. Further, we consulted legal acts, implementation guidelines, action plans, and strategy papers. In order to ensure that our findings are representative for England and Wales, we interviewed four (out of seven) River Basin Programme Managers in river basin districts other than the Humber and Anglia.

4. From management boards to river basin districts: IWRM in England and Wales

As Biswas (2004, 2008) reminds us, IWRM is hardly new. Principles of water management involving multiple stakeholders, river basin management and integrated sectoral approaches are visible in several countries well before the modern conception of IWRM emerged in the early 1990s. Indeed, in jurisdictions such as England and Wales, similar water management practices date back to the early 20th century.

The history of water management in England and Wales is one of increasing integration of water tasks at the regional scale (Parker & Sewell, 1988; Pitkethly, 1990; Maloney & Richardson, 1994; Cook, 1998; Jordan, 2002). As in many European states, responsibilities for water resources were originally vested in local authorities. Britain was one of the first countries to introduce national legislation to address water pollution in the form of the

¹ Despite Sartori's valid observations, it is however clearly not possible to compare exactly like for like when travelling between national contexts as all concepts are in some way subject to cultural interpretation. In our research, the functional equivalence of river basin management with other similar governance forms such as watershed management or integrated catchment management is assumed in order to comparatively examine the different variables shaping IWRM.

Public Health Act 1875 and Rivers Prevention Act 1876. However, water services were still primarily the preserve of municipalities well into the 20th century. Following the Land Drainage Act of 1930, functions for land drainage became assumed by a network of district bodies predicated on 47 catchments. This rather piecemeal approach changed in 1948 when the River Boards Act created a nationwide system of 34 river boards, reduced to 29 river authorities in the 1960s, with regulatory tasks for managing water pollution and abstraction. Even greater integration of water tasks occurred in the 1970s when Regional Water Authorities were created to encompass most responsibilities for water supply, sewerage and other use functions, thereby replacing the river authorities. While a recognisable form of IWRM was therefore already emerging, conspicuous problems with the effectiveness of the regional bodies created led to further demands for change. As both regulators and primary users of water resources, there was a clear conflict of interest in the role of these bodies that did little to address chronic pollution problems. Under the neo-liberal Thatcher administration, powers over water management were split in 1989 between a regulator for water quality, flood control, and pollution prevention, the National Rivers Authority, and newly privatised water companies, in charge of sewerage and sewage disposal and drinking water supply. This step could be seen as a step back from integration since splitting licensing and management reduced coordination. However, both the National Rivers Authority and the water companies were organised on a regional scale. Further reorganisation then occurred in 1996, when the regulatory responsibilities of the National Rivers Authority were absorbed by the new national Environment Agency. Bringing together the responsibilities of the National Rivers Authority, Her Majesty's Inspectorate of Pollution and the local waste management authorities, organisations with very different organisational cultures and management styles, the newly founded Environment Agency failed for a long time to effectively bring about policy integration in the field of environment (McMahon, 2006). Subsequently, different plans were introduced for flood management, water protection zones and abstraction management, thereby representing something of a turn back from integration.

Change occurred again with the introduction of the WFD. British actors were instrumental in developing the Directive in the 1990s (Benson & Jordan, 2007). Responding to the perceived loss of sovereignty and imposition of costs from earlier sectoral EU water legislation, British politicians attempted to repatriate several legal measures under the EU's subsidiarity principle which emphasises that policy problems should be dealt with at the lowest or least centralised governance unit, i.e. the nation state. While the European Commission successfully fought off these attempts, demands for a radical rethink of the entire legislative body of EU water policy making grew thereafter. Commission proposals for a new directive on the ecological quality of waters in 1994 were rejected by EU institutions. Acting on requests from the Council of Ministers and the European Parliament, the Commission then drafted proposals for a more integrated approach; largely incorporating but not explicitly mentioning the United Nation's 1992 Dublin Principles for IWRM and Agenda 21 recommendations. A formal legislative proposal for the WFD was issued in 1997 and subsequently adopted in 2000. Reflecting the strong influence of UK actors in drafting the Directive, its key features of devolving water tasks to the river basin or

catchment scale mapped on to existing regional institutional structures for British water management. However, the Directive also introduced a number of novel features which were to reshape UK practices significantly.

Rather than specifying harmonised environmental quality or emission standards, as typified by early EU water legislation from the 1970s and 1980s, the WFD mandates that member states set objectives for 'good' ecological and chemical status for waters in specific RBDs across the EU, set according to localised conditions. A network of over 110 RBDs have been established in Europe, many of them cutting across existing national boundaries; thereby necessitating the creation of international institutional bodies to manage water resources. Each RBD must engage in river basin management, involving initially characterising the extant environment, developing a programme of implementing measures, incorporating them into a long term management plan, implementing it and then monitoring its impacts on the ecological status of water as a basis for subsequent adaptive revision. Plans must include a register of protected areas, thereby integrating with other EU legal instruments such as the Habitats, and Birds Directives (1992/43/EEC; 1979/409/EEC). Stakeholder engagement and public participation in the planning and implementation process is also a legal requirement. The initial implementation phase is designed to last between 2000 and 2015, with two six-year planning cycles thereafter. Since the introduction of the Directive, several earlier outmoded water directives have been, or are in the process being, repealed² while subsequent EU legislation such as the Floods Directive (2007/60/EC) were designed to integrate into the river basin management approach.

Implementation in England and Wales was conducted according to a specific timetable relating to the requirements of the Directive. The WFD was implemented in national law in 2003 along with identification of RBDs. Characterisation of the environment in each RBD began in 2004 using a pressure-impact methodology, while economic analyses and protected area registers were conducted. In 2006, the lead implementing body (or 'competent authority'), the Environment Agency began monitoring waters as part of the WFD characterisation process. The following year, the Environment Agency was then able to initially define key water resource management issues in each newly created RBDs as a basis for plan development. Eleven RBDs were established in England and Wales, with one, the Solway Tweed, shared with Scotland. The actual planning process started in 2007 when stakeholders were consulted by the Environment Agency on draft River Basin Management Plans (RBMP). By the end of 2009, the legally required date for completing the initial planning process, these plans were published, water objectives set and details submitted to the European Commission. Currently, the Environment Agency is implementing each plan and will review progress towards meeting environmental objectives in 2015. So while the Directive has, to an extent, reshaped water management in England and Wales to what extent does its implementation reflect IWRM principles?

² To date, three early directives relating to surface water abstraction have been repealed, while the Freshwater Fish Directive (78/659/EEC), Shellfish Waters Directive (79/923/EEC), Groundwater Directive (80/68/EEC) and the Dangerous Substances in Water Directive (76/464/EEC) will be replaced by the WFD.

5. IWRM in practice

Subsequent implementation of IWRM principles in England and Wales, in particular through the WFD, can certainly be viewed through the lens of the different ‘components’ of IWRM identified above. For this we employ a variety of data on implementation to provide a macro- or national-level overview and more micro-level evidence from specific case studies such as the Humber and Anglian RBDs.

5.1. Policy

According to the Global Water Partnership (2011a), policy involves inter alia the establishment of ‘water quality norms and standards’ for implementing IWRM. These are certainly evident in England and Wales. A statutory instrument, The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003, provides the policy context for implementation of the WFD in England and Wales. It transposes the WFD’s legal requirements into English law. Responsibilities for implementation lie with the EA, under the control of the Department for Environment, Food and Rural Affairs (Defra), charged with applying the regulations.

5.2. River basin management

Water management in England and Wales most obviously incorporates another of the GWP’s IWRM components, namely the requirement to conduct river basin management. As suggested above, England and Wales were among the first countries to have introduced river basin management at catchment scales. Following the boundaries of major watersheds, post-WFD water management relies on an institutional structure implemented as early as 1973 when the above-mentioned Regional Water Authorities were established in order to manage RBDs (Maloney & Richardson, 1994). Within this structure, the Environment Agency as the successor of the National Rivers Authority which replaced the Regional Water Authorities in 1989, operates from eight regional branches and manages nine RBDs, namely the Anglian, Dee, Humber, North West, Severn, South East, South West, Thames, and Western Wales RBDs. The Solway Tweed RBD is managed jointly with Scottish authorities. Regional water authorities other than the Environment Agency regulate river basins in Scotland, Northern Ireland, and Gibraltar.

The WFD requires member states to review the quality of water bodies with the aim of implementing measures leading to ‘good’ ecological status and to protect existing water bodies, which are already in ‘good’ status, from deterioration. In England and Wales, these activities are carried out by the UK Technical Advisory Group on the Water Framework Directive, a partnership of statutory agencies in England, Wales, Scotland and Northern Ireland. The partnership produced two important documents with statutory relevance for WFD implementation: a 2006 report on environmental standards and conditions supporting the classification of rivers, lakes, and coastal waters and, two years later,

a report which focused on groundwater standards, specific pollutants and surface water standards (UK Technical Advisory Group on the WFD, 2006, 2008). These reports, as well as research carried out by the Environment Agency, suggest that: 'almost a fifth of all river waterbodies are at risk or probably at risk of failing to reach good ecological status by 2015 because of pollution from point sources. The risks are greater for diffuse pollution washed by rainfall from the land into groundwater, with over 90 percent of groundwater bodies at risk or probably at risk of failing to meet good ecological status from this pressure under the WFD.' (Environment Agency, 2008b, p. 15)

These standards and classifications provide the basis on which, since 2007, the Environment Agency has engaged with stakeholders and statutory agencies in order to produce detailed assessments of the ecological status of water bodies in each individual RBD, RBMPs and, subsequently, programmes of measures. In doing so, the agency follows departmental guidance which complies with the schedule outlined by the EU (Defra 2006, 2008).

5.3. Stakeholder participation

Current water planning in the UK also complies with another key component of IWRM, namely an 'intersectoral approach to decision-making, where authority for managing water resources is employed responsibly and stakeholders have a share in the process' (Global Water Partnership, 2011a), i.e. stakeholder participation.

Article 14 of the WFD requires that member states take measures to promote the 'active involvement all interested parties' in the planning process, publish information on the planning process and make plans available for public comment. In implementing these provisions, the UK regulations and subsequent departmental guidance require the Environment Agency to publish material relating to the planning process and to consult with a number of specified actors and account for any external representations made in plan preparation. Public participation takes place in so-called Liaison Panels organised at two levels: the regional and the national.

Operating at the RBD level, Liaison Panels discuss the content of RBMPs as well as the measures needed to achieve the plan's objectives. Furthermore, Liaison Panels are involved in the monitoring and enforcement of all management activities. Although the panels are exposed to a number of political expectations and demands, legal responsibility lies solely with the Environment Agency. In this sense, all Liaison Panels are purely advisory (Defra 2006). Liaison Panels operate within templates developed by the Environment Agency's head office. This includes, first, templates for three rounds of consultations and the draft RBMPs. These templates considerably restrict ambitions developed at the regional level and the measures envisaged to achieve specific objectives. Environment Agency river basin managers justify this procedure with reference to saving resources and, more importantly, to ensuring consistency across all river basins in England and Wales. This includes, second, a list of statutory governmental bodies and organised interests which are to be approached for membership of the Liaison Panels. Although there is always one or two

seats to be allocated based on regional considerations, a vast majority of all seats, usually around 15, are reserved for specific sectors (discussed below). In terms of contents, the agency tends to restrict discussions about political goals and values and focuses entirely on measures to achieve the objectives that the Environment Agency has identified beforehand. Accordingly, the Environment Agency structures Liaison Panel meetings such that the technical challenges rather than the general political, social and economic implications of WFD implementation are reflected. The minor decision-making authority designated to the panels suggests that the Liaison Panel format in England and Wales is mainly an institutionalised notice-and-comment consulting, where the Environment Agency lets the stakeholders know what is going on and listens to their comments. Up until 2009, when the first RBMPs were completed in England and Wales, Liaison Panels met on average 13 times in order to discuss challenges to water bodies in each RBD and to explore management options. The second management cycle started in early 2010.

Apart from forums at the RBD level, the Environment Agency uses a number of other formats to interact with stakeholders at the regional or sub-basin level. Catchment-based forums at levels lower than the RBD were established in all river basins apart from the Humber and the Northumbria basins in order to better integrate local knowledge into RBD-level decision making. Sectoral forums and issue groups were established in all river basins, except the North-West, in which sectoral representatives together with Environment Agency officials transmit the outcomes of thematic forums to the respective RBD Liaison Panel. In order to facilitate enhanced dialogue between the agency and academia, some regional offices organise so-called science workshops.

The Liaison Panels at river basin level constitute the main tools for public participation in English and Welsh river basin planning. However, three other bodies were created at national level to facilitate WFD implementation and involve the public. The National Liaison Panel for England complements the Liaison Panels at the RBD level and provides strategic overviews on operations in English river basins. The WFD Wales Stakeholder Group established by the Welsh Assembly adopted similar functions. The Defra National Stakeholder Forum for England has been in operation since 2002 in order to facilitate the transposition of the WFD into English law and to discuss the Directive's implications for various sectors.

In order to incorporate the views held by citizens and interest groups which are not represented in the Liaison Panels, the UK regulations require the Environment Agency to consult the wider public on three types of documents which were prepared for each river basin: a strategy paper outlining timescales, modes of involvement and deliverables to be expected at the end of the first cycle of WFD water planning (for the Humber basin, see Environment Agency, 2006); a summary paper which highlights the most challenging problems in each RBD and discusses heavily modified water bodies in the region (for the Humber basin, see Environment Agency, 2007a); and the draft RBMP (for the Humber basin, see Environment Agency, 2008a). Disappointingly, the first consultation cycle, from 2006 to 2009, attracted little public attention, although the precise reasons are unclear. In the Humber RBD, only 23 stakeholders or individual citizens commented on the strategy

paper. Summarising the submissions, the Environment Agency finds that the ‘majority of responses agreed with our proposals’ (Environment Agency, 2009a, p. 11) although this might be an overly optimistic interpretation as many submissions actually express doubt or include suggestions for improvement (Environment Agency, 2007b). The consultation on heavily modified water bodies in the Humber basin resulted in 34 responses; 175 full consultation responses were submitted and 270 surveys filled in by stakeholders or members of the public on the draft RBMP. Response rates were similar in other river basin districts with an average of 111 responses per RBD. Case studies suggest that low turnout can partly be attributed to the overly technical language of consultation documents published by the Environment Agency (Wright, 2010). However, the sobering conclusions of green organisations reached during the Our Rivers campaign suggest that there was a general lack of public interest in water-related questions. The Our Rivers campaign was an unofficial public comment process, initiated by green non-governmental organisations in parallel to the Environment Agency’s consultations, aimed at including local knowledge and more ambitious measures into the final RBMPs. As a result of the campaign, 217 regional action groups and 1,269 individuals commented on their local environment. Despite these achievements, the number of ordinary people engaged is disappointing, given that the above-mentioned organisations usually mobilise several hundred thousands of members. The campaign was in fact only slightly more effective than the efforts undertaken by the Environment Agency in all ten river basins.

5.4. *Equitable access*

Public participation is related to another IWRM component, namely equitable access. While the previous component, stakeholder participation, describes the establishment of institutions which enable participatory water planning, equitable access refers to fair and equal opportunities for state and non-state actors to engage within these institutions.

In 2005, the Environment Agency conducted a stakeholder analysis and identified four types of publics that differ with regard to interests, affectedness, and competencies: ‘co-deliverers’, i.e. statutory authorities whose competencies overlap with Environment Agency tasks in delivering the WFD; nationally operating professional stakeholder organisations; non-professional local stakeholder organisations; and members of the public. The Environment Agency recommended involving statutory governmental bodies and professional stakeholders in Liaison Panels and to exclude non-professional local stakeholders and the wider public (Environment Agency, 2005). The underlying set of rationales were later published as departmental guidance, centring on the probability of achieving consensus in Liaison Panels, the importance of stakeholder groups for WFD implementation, and the potential contribution that participants could make in terms of knowledge, data, or other resources (Defra 2006, p. 41). Unfortunately, the relationship of these principles to the principle of representativeness, which is mentioned in the guideline as well, is not fully resolved yet and, to a considerable degree, a source of dissatisfaction among participant groups within the Liaison Panels and beyond.

The above considerations led the Environment Agency to develop a template for stakeholder participation on the basis of which the regional offices recruited the members of the Liaison Panels. This template was effectively implemented resulting in marginal differences only across RBDs (Schmid, 2011). 'Co-deliverers' such as British Waterways, Natural England, Associated British Ports, and delegates from local and regional decision-making bodies are represented in a majority of panels; stakeholders usually come from four sectors: business and commerce, agriculture, and the water industry. Green organisations usually take one seat per panel, whereby several environmental organisations follow the rotation principle and share a seat.

Interview data that a majority of participants find the panel composition fair and appropriate. Nevertheless, participants observe that, through the inclusion of the National Farmers Union and the Country Land and Business Association, farmers' interests are overrepresented. Likewise, through the involvement of sometimes several water companies and a water user interest group, the water industry seems to be in a more powerful position than civil-societal organisations. Participants agreed, however, that issues of underrepresentation were of minor practical importance due to the weak competences assigned to the Liaison Panel in the first place as indicated by the influence exercised by the Environment Agency's head office through national templates which restricted the activities of RBD-level Liaison Panels and regional Environment Agency offices.

5.5. *Managing demand*

Another core principle of IWRM, according to the GWP (2011a), is 'managing demand' which can include 'cost recovery policies, utilizing water-efficient technologies, and establishing decentralized water management authorities'. As discussed above, the WFD has led to the decentralization of water management to regional scale institutions. Economic analyses of water resources are also mandated by the WFD. Article 5 of the Directive stipulates that each RBD should include an economic analysis of water use, with procedures laid out in Annex II, while Article 9 compels member states to take account of cost recovery for water resources and enforce the polluter pays principle. Initial research suggests that integration of this principle across English and Welsh RBDs has occurred, although practice could be improved. To date, each RBMP contains an economic analysis report (Annex K) but assessments tend not to follow RBD boundaries and are often framed at regional or national scales. Cost recovery has however been a feature of UK water management for some time, with user charges levied by privatised water companies on households and businesses for drinking and sewerage services. But it remains difficult to assess how RBDs are meeting the WFD requirements to provide incentives for efficient water use. Little information is provided by RBMPs on cost recovery, with Defra itself stating in 2005 that it 'is not presently possible . . . to estimate the levels of environmental or resource costs' due to data deficiencies (Defra 2005, p. 6). As for the polluter pays principle, it is apparent that point sources from industry and water treatment are accounted for in water charges but non-point source pollution, mainly from agriculture, is still not being

addressed through economic incentives. While the WFD does not specify technical means (i.e. water-efficient technologies) it is nonetheless changing the investment strategies of water companies, although more research is required into how this is occurring nationally.

5.6. *Optimising supply*

Finally, our analytical criteria include consideration of optimisation of supply. This refers to ‘conducting assessments of surface and groundwater supplies, analyzing water balances, adopting wastewater reuse, and evaluating the environmental impacts of distribution and use options’ (Global Water Partnership, 2011a). The first feature is mandated by the WFD, which emphasises assessing the ecological status of water bodies, but wastewater and supply issues are not overtly addressed by the Directive. Member states are compelled to provide characterisations of each RBD as part of the planning process, under Article 5 of the WFD. Assessments should include the characteristics of each river basin and human impacts on water resources. There is evidence to suggest that this aspect of the Directive has been reasonably well addressed in England and Wales. All RBMPs contain detailed assessments of water status and the pressures and risks on water resources (Annexes A, G). For example, in Anglia ‘18 percent of surface waters meet good status or better; 82 percent do not meet good status . . . [while] 65 percent of groundwater bodies are at good status with the rest being poor status’ (Environment Agency, 2009b, Annex A, p. 6). Specific issues in the Anglian RBD with surface water status include phosphates, fish and invertebrates. It is evident that although data gaps remain in management plans, RBDs assess the ecological status of water bodies and the factors impacting it.

6. Discussion

So, how successful is the UK when it comes to implementing IWRM principles in water management? We use six dimensions suggested by the GWP (2011a) in order to assess water governance in England and Wales. Our analysis demonstrates that, to an extent, IWRM principles were already evident prior to the introduction of catchment management planning in the 1990s. There was then some degree of disintegration with the introduction of different plans for flood protection, abstraction and water protection. The Water Framework Directive has led to greater integration – but its effects have been variable.

The UK has successfully implemented and formally adopted some of these principles since 2000. Water management in England and Wales relies on a solid legal foundation, in particular the above-mentioned 2003 regulations implementing the WFD and various statutory guidelines (Principle 1: policy). These regulations and statutes strengthen the principle of water management at ecological scales which has already been in operation in various guises for many decades (Principle 2: river basin management). These legal frameworks also oblige state authorities to provide information to regulatees and to consult stakeholders and the wider public. Moreover, thanks to the 2006 implementation

guidelines (Defra 2006), the participation of non-state actors in water planning has become a legal requirement (Principle 3: stakeholder participation). These guidelines reflect as well on fair and equal opportunities for non-state actor participation (Principle 4: equity of access) but the implementation of this principle brings to light the general limits of the British approach towards IWRM.

Although key principles have been legally implemented, their practical application often lacks the spirit of IWRM. For instance, guided by notions of policy effectiveness and compliance with the WFD rather than equity, legitimacy or representativeness, the Environment Agency retains a dominant position in the involvement process, thereby discouraging deliberation and disabling power transfer from state to non-state actors. Even the principle of river basin management, practiced for many decades in England and Wales, seems to exist on paper rather than in practice. Although managers operate and produce RBMPs at river basin level, their actions are considerably restricted by the Environment Agency's head office with a view to ensure consistency of management practices and involvement techniques across river basins. This is reasonable in light of tight EU deadlines and ambitious water policy goals yet violates key principles of river basin management according to which water management should be governed by considerations at the catchment or river basin level. Nevertheless it is fair to conclude that the UK has, during the past 15 years, taken significant steps to implement IWRM principles and has developed tools that are, at times, more advanced than the ones used by its European neighbours.

One of the reasons why the British approach towards IWRM has underachieved so far is the fact that, ultimately, IWRM is not a British product. IWRM is a key discourse of the GWP and similar globally emerging initiatives which certainly found support within the British policy-making community, but is neither the result of genuinely British experiences nor particularly compatible with British regulatory culture.

For many decades, consensual relations between inspectors and polluters were a key characteristic of British environmental policy and management (Rhodes, 1981). Cooperation mainly followed functional imperatives as inspectors required additional information from polluters that they were unable to collect themselves due to low staff numbers. Furthermore, transgressions were extremely difficult to prove so that informal negotiation was the most effective way to trigger a change in behaviour. Not surprisingly, this approach provided little scope for collaborative learning and deliberation: 'British pollution control policy is basically made and enforced in private' and 'precludes opportunity for effective participation by other political constituencies' (Vogel, 1986, p. 91–92). This style came under fire through the Thatcherite reforms, which emphasised the privatisation of public services, the introduction of market mechanisms in the public sector, and the creation of more or less independent regulatory agencies. Regulatory agencies are supposed to supervise, regulate, and monitor policy sectors which are characterised by a high degree of specialism. Agency operations, therefore, require expert knowledge and technical skills that elected politicians or bureaucratic generalists rarely possess. Consequently, the legitimacy of agency decisions began to rely increasingly on expert judgments made independently from political concerns and interest groups. Unlike similar developments in the US,

endeavours to formalise the relationship between regulators and regulatees were not paralleled by elaborate public involvement programmes in order to compensate for the loss of democratic legitimacy (Moran, 2003). Supported by domestic and European legislation, for instance the 1990 Environmental Protection Act and the 1999 Pollution Prevention and Control Act, regulatory agencies such as the Environment Agency therefore spotted a window of opportunity to develop a more adversarial style towards regulatees, to enforce environmental rules more thoroughly and, despite industry-friendly rulings, to take polluters to the courts in cases of non-compliance (McMahon, 2006, p. 131). Consequently, environmental regulators put a high premium on the technical and scientific expertise within their organisations. According to Tunstall & Green (2003, p. 39-54), the Environment Agency and its predecessors engaged in a number of participatory exercises, for instance during the preparation of Local Environment Agency Plans, Flood Alleviation Schemes, Catchment Management Plans and through various advisory committees. However, only a few of these opportunities for involvement went beyond uncommitted note-and-comment procedures, while none of them were applied consistently across the country, and only the above-mentioned advisory committees were based on statutory obligations.

The emergence of an expert-based, managerial regulatory style in the early 1990s marked a new approach to pollution prevention in England and Wales. However, neither the classic British regulatory style – secretive yet cooperative – nor the one adopted after the Thatcherite reforms were particularly compatible with the emerging paradigm that emphasised collective learning, reflexive deliberation, and the involvement of non-state actors in water management (Fritsch, 2011).

Arguably, the WFD as a legally binding EU policy represents the most influential attempt to integrate key principles of IWRM into British water management. However, the challenges faced during the implementation of the Directive confirm established insights of Europeanisation research (Bulmer, 2007). Accordingly, the speed and quality of EU policy implementation depend on the degree of adaptation required by EU law in a given national context. Transposition deficits occur if, according to rational choice theory, policy adaptation incurs costs that are higher than the anticipated costs of non-implementation, e.g. through infringement procedures. Likewise, social-constructivist scholars ascribe implementation deficits to cognitive misfits that make the adoption of EU directives inappropriate in the light of prevalent socio-political norms, values and routines. As argued above, there has been a considerable misfit between IWRM principles and the British culture of environmental policy making, in particular with regard to stakeholder participation and equitable access. Not surprisingly, path dependency represents a powerful obstacle to profound regulatory reform in water management in England and Wales.

These considerations suggest that the experiences of the UK provide a helpful resource for lesson drawing. The concept of lesson drawing describes policy makers' systematic and comprehensive search for instruments in order to attain policy goals (Rose, 1991). Our analysis shows that the UK system provides positive lessons for environmental characterisation and monitoring, but it could learn from other states such as Australia when it comes to participation and equitable access (Benson et al., 2012). Yet where and how

could these lessons be transferred? Arguably, the ideal arena for lesson drawing, at least within Europe, is the Common Implementation Strategy. The common strategy is an initiative, established by the European Commission and the member states, to improve the implementation of the WFD, adopted in 2000. It brings together water managers from all EU countries and applicant states in order to discuss the challenges posed by the WFD and to develop more detailed measures supporting the implementation of the Directive. So far the European Commission has published 26 legally non-binding implementation guidelines that provide best-practice cases, advice for specific water management problems and benchmarks for 'good water governance'. As the UK is an active participant and supporter of this initiative (Fritsch, 2011), the Common Implementation Strategy constitutes an ideal environment for lesson drawing.

7. Conclusion

During the past 15 years, the IWRM discourse had a significant impact on British water management. This article identifies six key dimensions of IWRM – policy, river basin management, stakeholder participation, equitable access, managing demand and optimising supply – and assesses shortcomings and achievements with regard to these dimensions in England and Wales. To this end, we delineate key developments of water regulation in historical perspective, analyse key characteristics of water management in England and Wales, explore key drivers of policy change, and discuss the potential for lesson drawing from and to the UK. Three key messages emerge from this research.

First, it is arguable that IWRM in this context, while more advanced than some EU states, still cannot be considered entirely 'integrated'. Conspicuous problems are apparent with some aspects, most notably participation and to a lesser extent equitable access and managing demand. Although to an extent a subjective observation, we argue that for this reason, it is not possible (yet) to talk about integrated approaches in this context. No doubt as the WFD process evolves in the future and practices are refined, learning will translate into better planning but for the moment the pattern is more one of integrating water resource management. Second, the UK experience suggests that IWRM uptake is mainly driven by Europeanisation pressures. This highlights the potential for supranational policy makers to shape domestic water policy making in a way compatible with key tenets of IWRM, for instance through policies such as the WFD. Nevertheless, the implementation of the WFD also confirms well-established insights of EU policy implementation research according to which regulatory cultures and institutions are sticky and resistant to change. Path dependency is therefore a major obstacle to supranational policies alien to domestic political systems and cast doubt on any attempts to promote and implement IWRM principles in the short term. Third, the UK system provides positive lessons for environmental characterisation, and monitoring but negative lessons for public participation and equity of access – the UK could learn from other states such as Australia (Benson et al., 2012) or other EU member states, e.g. in the framework of the Common Implementation Strategy.

In light of these findings, three related research themes deserve further attention. First, we need to broaden our knowledge regarding the factors that influence the transition towards IWRM, in particular through comparative research across jurisdictions and continents. This requires an examination of the synergies between globally emerging initiatives such as the GWP and more institutionalised forms of supranational policy making, i.e. in the context of European integration, when it comes to the promotion of IWRM in Europe and other parts in the world. Sophisticated research designs have great potential to inspire both European Union studies and scholarship relying on the concept of lesson drawing. Second, performance considerations lie at the heart of many policy makers and are a key rationale for the promotion of IWRM. To date, there is a lack of empirical studies which explore IWRM performance. One co-author of this article has presented preliminary findings on the relationship between participatory governance and environmental outcomes (Newig & Fritsch, 2009; Fritsch & Newig, 2012), yet the empirical basis is still generally weak and fragmented. Third, both theoretical innovations and fresh empirical insights would contribute to normative considerations on how RBMP could become more integrated. Here, productive research could be conducted into how IWRM principles should be better achieved both within the UK context but also comparatively with other states as this concept continues to drive the water governance agenda on a global scale.

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