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ORIGINAL ARTICLE

Integrated and adaptive water resources management: exploring public participation in the UK

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Abstract Contemporary water management practices worldwide are informed by two leading paradigms: integrated water resources management and adaptive management. While previous scholarship has already studied the two paradigms, as well as their central principles, in isolation, there are few attempts only to theorise their interaction and to explore empirically their parallel implementation and coexistence. This article contributes to this emerging literature. Its ambition is to review and complement current frameworks conceptualising the impact of integrated water resources management on adaptive capacity. To this end, the article analyses the involvement of non-state actors in UK water and flood risk management, specifically in England and Wales. This is an exciting case to study: for many decades, environmental management in England and Wales had a reputation for being a technocratic exercise. In the past 15 years, however, environmental authorities undertook major efforts to lay the foundations for enhanced collaboration and stakeholder participation, amongst others encouraged by two European Union initiatives reflecting integrated and adaptive management principles: the Water Framework Directive and the Floods Directive. The empirical evidence suggests a spurious link only between the two paradigms. This contradicts conventional wisdom which, so I argue, tends to oversimplify a complex relationship. I introduce three theory-informed arguments—relating to conceptual diversity, path dependency, and the nature of the dependent variable—to address these shortcomings and to contribute to theory building.

Keywords Adaptive capacity · Flood risk management · Integrated water resources management · Public participation · UK

Introduction

Contemporary water management practices worldwide are informed by two leading paradigms: integrated water resources management (IWRM) and adaptive management. IWRM promotes the integration of all water-related management activities, including land and forests, with a view to ensuring water is used in fair, sustainable and economically beneficial ways (Global Water Partnership 2011).

Adaptive management, in contrast, advances flexible, learning-oriented and experimental management principles so as to enhance the resilience of socio-ecological systems in response to uncertainty and nonlinear environmental change. The analytical focus of this literature lies on organisations and their abilities to monitor current activities, learn from previous experiences, process knowledge and adjust prior decisions (Medema et al. 2008). This scholarship is tightly linked to the concept of adaptive governance, which goes beyond the organisation as unit of analysis and looks at the institutional arrangements enabling adaptive management (Folke et al. 2005). The extent to which actors, organisations or socio-ecological systems are able to adapt to new challenges is captured by the concept of adaptive capacity (AC); adaptive management and governance thereby become constitutive features of AC (Engle 2011).

While extant scholarship has already studied IWRM and adaptive management, as well as their central principles, in

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isolation, there are few attempts only to theorise their interaction and to explore empirically their parallel implementation and coexistence. Relying on a case study of water and flood management in England and Wales, the article contributes to this emerging literature.

Previous work discusses the linkages between IWRM and AC (or adaptive management), in five ways. First, authors compare the two paradigms but make no concluding statement on their compatibility (Ludwig et al. 2014). Second, IWRM and AC are interpreted as being mutually inclusive; they represent necessary conditions for each other's effectiveness (Pahl-Wostl 2007). Third, the relationship between the two paradigms is characterised by tensions, if not contradictions. Specifically, IWRM's tendency to achieve integration through institutionalisation stands in contrast to attempts in AC to maintain flexible decision-making and response mechanisms (Engle et al. 2011). Fourth, authors may concede that there are tensions yet look out for ways to reconcile them (Rouillard et al. 2013). Finally, authors unpack those paradigms and look at the compatibility of their constituting principles (Gain et al. 2013). This is the route taken in this article.

Its ambition is to review and complement current frameworks which conceptualise the impact of IWRM on AC. I do so with a particular focus on increased flood risk due to climate change. To this end, I analyse the involvement of non-state actors in UK water and flood risk management. In the UK, the environment is regulated nationally, implying specific authorities, policies and approaches to implementation in England and Wales, Northern Ireland and Scotland; since 2013 England and Wales have as well been regulated separately. This article focuses on England and Wales, an exciting case to study: for many decades, environmental management in those parts of Britain had a reputation for being a technocratic exercise. In the past 15 years, however, the Environment Agency (EA) undertook major efforts to lay the foundations for enhanced collaboration and stakeholder participation, amongst others encouraged by two European Union (EU) initiatives reflecting IWRM and AC principles: the Water Framework Directive (WFD) and the Floods Directive (FD). The empirical evidence however suggests a spurious link only between the two paradigms, at least in the context of England and Wales. This contradicts conventional wisdom which tends to oversimplify, so I argue, a complex relationship. I introduce three theory-informed arguments—relating to conceptual diversity, path dependency, and the nature of the dependent variable—to address these shortcomings and to contribute to theory building.

The article is organised as follows: The next section discusses theory and concepts and, in doing so, raises three objections to previous work analysing the linkage between IWRM and AC. Section 3 analyses the WFD and the FD as expressions of IWRM and AC building, respectively, before moving onto Sect. 4, which explores the role of public participation in those two policies. Section 5 presents an in-depth case study of water and floods management in England and Wales, and of the role of participation therein, illustrating the relevance of my reasoning. Finally, the last section is dedicated to the conclusions.

Theory and concepts

The relationship between IWRM and AC has so far rarely been addressed in a systematic fashion. One of the most ambitious attempts has been made by Gain et al. (2013). The authors examine key principles of IWRM and AC with a view to assessing their potential to mutually reinforce, strengthen and support each other. To this end, Gain et al. identify six IWRM principles—integrated management, river basin planning, water policy, public participation, demand management and equity of access—and four principles central to AC, namely flexible decision-making arrangements, participatory mechanism, adaptive management cycles, and supply of resources. This results in a 6×4 matrix, which describes 24 combinations of factors that may potentially influence each other (Table 1 below). The authors then speculate whether those combinations are likely to take the form of positive, negative or case-dependent causal relationships; this includes the possibility of

Table 1 Linkages between IWRM and adaptive capacity to climate change impacts (Gain et al. 2013)

Linkages between IWRM and adaptive capacity	Supply of resources	Adaptive cycle	Flexible decision-making	Accessible participatory mechanism
Integrated management	++	0	+/−	++
River basin management	++	0	−−	+
Water governance	++	+/−	+/−	++
Multi-stakeholder approach	++	++	+/−	++
Equity of access	++	0	0	++
Demand management	++	0	0	++

no causal connection at all. To illustrate, it is suggested that demand management, a cornerstone of IWRM, is positively correlated with public participation in the AC discourse; on the other hand, river basin planning, central to IWRM, is negatively correlated with flexible decision-making arrangements, key to the AC paradigm. The analysis relies on conceptual reasoning and is not supported by empirical data. However, the authors have later tested its applicability in a Bangladesh case study (Rouillard et al. 2014).

In fairness, Gain et al. (2013) do not use terms such as 'hypothesis' and 'causality'. Still, the title of their paper undeniably articulates a causal interest, and it is generally difficult not to interpret their analysis as a set of hypotheses or, at least, a springboard for theory building. I believe there is much to be learnt from Gain et al. However, not all statements made by the authors appear to be intuitively convincing, and some seem to be at variance with the empirical data. In the following, I will explain why this is so. To this end, I will present three sets of arguments and argue that they are likely to change our reading of the above table and, in doing so, of the way we conceptualise the linkages between IWRM and AC. These sets of arguments relate to conceptual pluralism in the IWRM and AC literatures, to the temporal dimension, and to the under-theorised nature of the dependent variable.

Conceptual pluralism

IWRM is a leading approach in the global discourse on water (Global Water Partnership 2011) and has attracted wide scholarly attention; to date the search terms 'IWRM' and 'integrated water resources management' return more than 1230 finds in the Web of Knowledge. The approach has been described (Kidd and Shaw 2007), explained (Fischhendler 2008), evaluated (Fritsch and Benson 2013) and explored in conceptual terms (Grigg 2014). The overall message this literature, and the wealth of policy documents building on IWRM, sends out is one of conceptual pluralism. This refers to its form, substance and ambition. Its form has been described as a theory, a concept, a discourse, a paradigm and the like (Giordano and Shah 2014); in terms of substance, the number of principles associated with IWRM is legion. Furthermore, policy makers as well as scholars disagree with regard to the degree of ambition associated with the paradigm. Studying integrated water management in Germany, Theesfeld and Schleyer (2013) distinguish light from more ambitious interpretations of IWRM. This is certainly a useful way to bring some order out of the chaos. To illustrate their argument, the authors unpack the principle of 'integration', arguing that degrees of ambition relate to the number of policy levels and sectors being integrated in a management process. The literature on AC shows similar patterns of diversity. Likewise, practical applications of IWRM differ across the globe (see, for instance, the special issue 3–4/2013 in the International Journal of Water Governance on IWRM applications in various countries). The implication is twofold:

First, attempts to explore the extent to which IWRM increases the AC to climate change impacts are challenged by the fact that IWRM and AC do not reflect clearly defined, theoretically consistent concepts. They describe paradigms crafted in political discourse and practice and are loaded with competing understandings of their mission and underlying principles. In fact, it is exactly because of their plurality and open-ended nature that they have become so powerful (Grigg 2014). It thus follows that there is not only one IWRM and one AC, making any causal analysis a much more complex exercise than suggested by the literature. True, scholars always operate in definitional minefields, and one legitimate way out is to take an established understanding, ignore alternatives and simply do research (as did Gain et al. 2013); academics need to take decisions at times. However, the diversity that exists in terms of ambition—strong versus weak, light versus more ambitious understandings of IWRM and AC—is less easy to ignore. After all, the distinction between strong and weak interpretations enables, if not forces, us to rethink entirely the causal direction of the above hypotheses. I will illustrate this argument further below when I talk about path dependency.

Second, if the essence and objectives of the IWRM and AC paradigms are in dispute, then so must be the essence and objectives of their underlying principles. For instance, IWRM scholarship—and, for that matter, the broader literature on environmental policy and management—is characterised by healthy debates as to what integration, participation or equal access to natural resources actually means. Sometimes it is possible to map those understandings on a weak–strong scale, but oftentimes things are more complicated. The concept of 'public participation' differs across many dimensions, including the 'who', 'when', 'why', 'how', modes of decision-making within, and degrees of power transferred to, those participatory forums and the like (Arnstein 1969; Rowe and Frewer 2005). Consequently, any statement on whether IWRM principle a enhances AC principle b depends to a large extent on the meaning that we attach to a and b. This is because those components describe complex social processes that come, both in the literature and in policy practice, in a variety of forms. To illustrate, Newig et al. (2012) identified 250 factors that are supposed to influence the outcomes of public participation in environmental decision-making, and while we would hope that some of them were discarded as unimportant during fieldwork, the sheer number already suggests that 'participation' is not simply 'participation'. In

my estimation, the only useful way to think of the linkage between IWRM and AC is to depart from oversimplifying statements and ask: Which type of IWRM principle a has an impact on which type of AC principle b?

Path dependency

IWRM principles and measures designed to adapt to climate change are rarely implemented at the same time. Usually, one precedes the other; often countries turned towards IWRM before considering climate change policies. This brings in the temporal dimension which is not adequately reflected in previous frameworks. The concept of path dependency suggests that existing institutional paths are sticky and resistant to change. Authors have proposed different explanations for this phenomenon. Rational-choice theorists refer to utilitarian cost–benefit calculations of political actors whereby long-established institutions promise increasing returns over time. Power explanations, in contrast, emphasise the stabilising effect of elite group support for existing institutional arrangements, whereas, third, functional approaches theorise the increasing adaptation of subsystems towards system needs. Finally, legitimacy-related explanations maintain that institutions are reproduced because actors believe in their appropriateness and justice; beliefs are in turn reinforced by institutions. As diverse as those arguments are, they agree that decisions taken at a point t influence choices made at $t + 1$ and that it is usually easier for social actors to maintain the status quo rather than to initiate policy change (Thelen 1999; Mahoney 2000; Pierson 2000; Kay 2005).

I argued in the previous section that the IWRM and AC paradigms may take different forms and are associated with more or less ambitious policy goals. Likewise, many underlying components come in variants. According to research on path dependency, the variant chosen at a point t, when IWRM was implemented, influences the variant chosen at $t + 1$, when climate change policies entered the policy agenda. For the sake of simplicity, let us assume that every IWRM and AC principle comes in two variants only, a strong and a weak one. Four scenarios are possible:

- Scenario 1: weak IWRM variant → weak AC variant
- Scenario 2: strong IWRM variant → strong AC variant
- Scenario 3: strong IWRM variant → weak AC variant
- Scenario 4: weak IWRM variant → strong AC variant

Plausibly, the first three scenarios are more likely to occur than the fourth scenario. Scenarios one and two describe situations in which the chosen IWRM variant lays the ground for an equally ambitious AC variant, be it strong or weak. Scenario three discusses a 'non-path dependency' setting in which departure from established tracks would actually be easier, cheaper, less conflict prone and perhaps also more popular than staying on established tracks—and a shift from strong to weak environmental management principles would be easier, cheaper, less conflict prone and at least in the western world also more popular. Scenario four describes a situation in which a weak IWRM variant becomes the motor for a strong AC variant. This is not at all in line with what the concept of path dependency would predict. Unfortunately, many countries across the globe have implemented IWRM principles in their light version only (see, for instance, Theesfeld and Schleyer 2013), suggesting that scenario one is most likely to occur.

I draw two conclusions from this thought experiment: the causal pathways sketched out by Gain et al. (2013) are less linear than envisaged; only one out of four scenarios describes a situation in which a strong AC variant is likely to be implemented, and its precondition—a strong IWRM variant—is empirically rare. This implies that the degree to which IWRM is a strong driver of change towards AC building (symbolised by two + symbols in Gain's framework) is at times weaker than anticipated. In other words, weak IWRM variants, so my hypothesis, will slow down ambitious AC interpretations and result in weak policies instead.

The dependent variable

Conventional wisdom lack precision as to what exactly the dependent variable is, i.e. what exactly in adaptive management, governance or capacity is maximised through IWRM. I suggest that the dependent variable may take four different forms:

- Processes: Both the integrated management of water resources and measures taken to adapt to climate change impacts are processes. Policy makers communicate with upper and lower decision-making levels, liaise across sectors, consult stakeholders and the public, draft guidelines, management plans and strategies, secure funds, coordinate management cycles and so forth. The original hypothesis may therefore be interpreted such that activities, procedures and routines developed in IWRM contexts enhance activities, procedures and routines carried out to enhance AC, i.e. make them quicker and smoother, not the least because actors are familiar with them and rely on existing working relationships defined by mutual respect and trust.
- Institutions: Management activities do not take place in an institutional vacuum. They rely on functioning organisations, decision-making arrangements, legal frameworks and guidelines, but also training and funding. In this sense, we may rephrase the original hypothesis such that well-functioning institutions in the water sector enhance the establishment and operation of institutions in the field of climate.

- Effectiveness: IWRM and AC are no ends in themselves, and they serve to achieve specific water- and climate-related policy goals, in the context of this article: improved water quality and protection from flood risk. We may reinterpret the original hypothesis from a policy effectiveness perspective and explore whether the achievement of IWRM objectives facilitates the accomplishment of AC goals.
- Efficiency: Management activities bind scarce resources, and there is a general interest in achieving IWRM and climate-related policy objectives in a cost-effective way. From this perspective, the original hypothesis would take the following articulation: the more efficient we are in achieving IWRM objectives, the more efficient we will be in our attempts to adapt to climate change impacts.

Obviously, those dependent variables may not only be used to conceptualise the linkage between IWRM and AC, but also between individual IWRM and AC principles. For example, scholars may want to explore whether institutions created to enable river basin planning support the establishment of institutions that enable the participation of non-state actors in an AC context.

The nature of the dependent variable has direct implications for hypothesis building. This is because the above causal relationships are by no means linear. They rely on a large number of intervening variables, and those intervening variables vary, depending on whether we think in terms of processes, institutions, effectiveness or efficiency. Consequently, the validity of any causal claim hinges on the way the dependent variable is conceptualised. Even if it could be shown that key processes related to IWRM principle a improve processes of AC principle b, it does not automatically follow that the establishment of institutions will also be smoother or that policy objectives will be achieved more effectively and efficiently. This is, again, because the relationship between institutions, processes and outcome variables is not linear (Newig and Fritsch 2009).

To sum up, this section discussed three arguments that add to our understanding of the linkages between IWRM and AC: conceptual pluralism, path dependency, and the dependent variable. In the following I will illustrate their relevance using a UK case study and the example of public participation, a principle which pertains to both the IWRM and the AC paradigms.

Water and flood management in Europe

IWRM and AC are based on principles that provide guidance to policy makers and stakeholders. Consequently, scholars studying whether and how IWRM enhances AC are confronted with a variety of potential causal relationships between those principles. Qualitative researchers are unable to explore all of them in-depth in one journal article. What is more, the picture is likely to look even more complex if we took into consideration conceptual plurality, the temporal dimension and diversity of the dependent variable. I therefore examine one principle in detail, public participation, which takes a central place in IWRM and the AC discourse. To this end, I study participation in the implementation of the WFD and the FD. Methodologically, this is a 'most-likely' case (Gerring 2007); if IWRM does not enhance AC, here we need to rethink the linkages between the two paradigms anyway.

The WFD, adopted in 2000, is plausibly the most ambitious piece of EU legislation in the field of water. The Directive defines a general framework for integrated river basin management in Europe with a view to achieving 'good water status' by 2015 in all EU member states. Institutional novelties include IWRM key principles such as river basin planning, public participation and integrated management. The WFD deals with water quality problems and largely ignores challenges related to water quantity and access, which is why the Directive only partially embodies IWRM principles in Europe (Fritsch and Benson 2013).

The FD was adopted in 2007. The Directive requires EU member states to assess and map areas at risk from flooding and to prepare flood risk management plans in response to risks identified. To this end, it relies on a three-step procedure: a preliminary assessment of flood risks, the production of flood hazard and risk maps, and the preparation of flood risk management plans. The Directive reflects key principles of the adaptive capacity discourse, including public participation and adaptive cycles. Obviously, the FD tackles one specific climate change impact, flooding. Nevertheless, it is fair to say that the Directive represents a prime example of legislation designed to strengthen the AC of communities in Europe.

So far, the link between the two directives remains understudied. Blackstock et al. (2009) as well as Larsen (2011) report that environmental managers and stakeholders support the integration of climate change concerns into river basin planning yet prioritise short-term objectives related to WFD implementation. Newig et al. (2014) compare the role of public participation in the two directives, based on legal reasoning and text analysis, and present first findings of empirical research on participatory flood management in Germany. Earle et al. (2011), finally, argues that the two directives aim to manage the same water bodies with "competing policy objectives put upon them" (p. 2045) which is likely to result in negative policy outcomes.

Public participation in water and floods management in Europe

The WFD and the FD are amongst the first EU policies to rely on mandated participatory planning (Newig and Koontz 2013). Participation in this context involves three components: information, consultation, and active involvement. Information requirements mainly include obligations to make status and risk assessments, background information, and maps publicly available (Art. 14(1) WFD and 10(1) FD). In terms of consultation, member states must organise three rounds of public comment during the preparation of river basin management plans (RBMP) (Art. 14(2) WFD). The FD, in contrast, does not envisage consultations although respective opportunities exist in flood risk management, regulated by the Strategic Environmental Assessment Directive.

Active involvement describes a more intense mode of participation. Art. 14(1) WFD stipulates that "Member States shall encourage the active involvement of all interested parties in the implementation of this Directive, in particular in the production, review and updating of the river basin management plans" (similarly Art. 10(2) FD). This includes planning face-to-face and in small groups and departs from the one-way communication that characterises information and consultation. However, the phrase 'shall encourage' weakens the legal bindingness of the provision, and legal experts hold that "the obligation to encourage involvement falls short of a duty to ensure that this actually occurs" (Howarth 2009, p. 404). This article mainly focuses on the active involvement provisions in the two directives. They vary, despite apparent similarities, along three dimensions: function, actors, and scale.

On the one hand, participation takes very different functions in European water and flood risk management. The WFD and its guidance documents conceive of participation as a tool to improve policy effectiveness: "public participation is not an end in itself but a tool to achieve the environmental objectives of the Water Framework Directive" (European Commission 2003, p. vi). Three mechanisms can be distinguished: first, participation is supposed to enhance the knowledge base of decision makers. Involvement procedures serve to "[c]ollect data, information and views of a range of stakeholders", the inputs of which help to "determine the pressures and impacts on water bodies" and to "set up a trend scenario which predicts the socio-economic trends for the future" (ibid., p. 28). Second, participation helps bring in previously neglected political viewpoints (ibid., p. 26). Third, participation increases acceptance rates with public decisions: "RBMPs are likely to be more successful through achievement of 'buy-in' to their objectives and delivery by promoting 'ownership', acceptability and the cooperation of relevant stakeholders" (ibid., p. 26). The FD, in contrast, does not promote a material policy goal; participatory flood risk planning is the goal, no matter whether the measures taken actually support adaptation to flood risk. To be clear, the instrumental approach is justifiable under reference to the demanding and legally binding 2015 WFD water quality goals. However, it comes with a caveat: it is exactly the distinction between 'being instrumental for a goal' and 'being a goal' that marks the distinction between closed, streamlined, weak forms of involvement and open, open-ended, strong participation. It shapes non-state actor involvement throughout the life cycle of a decision-making process, from process mandate to participant selection, process design, communication, decision-making modes and many others.

On the other hand, the two directives speak to different audiences. The WFD guideline explains that the "most important stakeholders … will be those who can really contribute to delivering solutions (e.g. other government bodies, water companies, wastewater treatment companies)" or "those who have technical expertise" (European Commission 2003, p. 29). This illustrates how instrumental rationales influence participant selection and the overall format of involvement, limiting participation to those who are able to help deliver the 2015 water quality goals. The spectrum of participants is much broader in a flood risk context. This is because the Directive "considers a larger range of 'goods' to be protected: environment, human health, cultural heritage and economy" and, therefore, "generates a variety of affected stakeholders" (Newig et al. 2014, p. 281). Importantly, authorities have little reason to streamline the process and to be selective about actors and their viewpoints. The FD does not, after all, promote a material policy goal that needs to be 'protected' from participants; it is 'procedures only' and, due to its open-endedness, much more ambitious and reflexive than instrumental notions of involvement.

Finally, those actors operate at different scales. The WFD refers to river basin districts and catchments, whereas flood risk is usually managed at community level. Art. 9 FD suggests coordinating the two processes at a strategic policy level, but EU guidelines provide little help as to how this could be achieved (European Commission 2009).

It thus follow that, due to the linkage of involvement to a previously defined policy goal, the WFD represents an instrumental and therefore weak approach towards participation. The FD, in contrast, promotes a more open format of involvement, compatible with strong notions of AM.

Public participation in water and floods management in the UK

The UK environment is regulated nationally, which implies specific authorities for England, Wales, Scotland and Northern Ireland. I have studied one English river basin district, the Humber, in detail and the other nine basins in England and Wales, until 2013 regulated jointly, on a more general level. This includes researching flood risk areas within the Humber basin. I thereby disregarded Northern Ireland and Scotland. I conducted more than 40 semi-structured interviews with public officials involved in organising public participation, stakeholders in participatory forums, stakeholders not represented in participatory panels, and policy makers involved in implementing the two EU directives in the UK. Further, I consulted legal acts, implementation guidelines, action plans and strategy papers. In order to ensure that my findings were representative, I interviewed lead officials in areas other than the Humber as well.

Participation in WFD water management

The WFD was transposed into English and Welsh law through the Water Environment Regulations of 2003 (Water Framework Directive) (England and Wales). According to Art. 10 (2ai), it is the discretion of the competent authority to decide whether it provides "opportunities for the general public and those persons likely to be interested in or affected by its proposals to participate in discussion and the exchange of information or views in relation to the preparation of those proposals". Active involvement in England and Wales is, therefore, not a legal requirement set by the British legislator, but a voluntary decision made by the EA.

The agency operates from eight regional offices. Two of the regional offices manage two river basins. The EA has sole responsibility for managing nine river basin districts and two jointly with the Scottish authorities. Regional water authorities other than the EA regulate river basins in Gibraltar, Northern Ireland and Scotland.

Non-state actor involvement takes place in so-called Liaison Panels. Operating at the river basin district 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 EA. In this sense, all Liaison Panels are purely advisory (Department for Environment Food and Rural Affairs 2006, p. 40). In order to ensure that Liaison panels interpreted their mandate such that it was compatible with the 2015 WFD water quality goals, regional EA offices operated with templates developed by the EA's head office.

This includes, first, a list of statutory governmental bodies and organised interests which were to be approached for membership of the Liaison Panels. Although there were always one or two seats to be allocated based on regional considerations, 90 % of all seats were reserved for specific sectors. For instance, in the Humber basin (general picture confirmed by managers of the other river basins), British Waterways, Natural England, Associated British Ports, and delegates from local and regional decision-making bodies were involved. Stakeholders came from four sectors: business, agriculture, the water industry, and NGOs dedicated to the protection of nature.

This involves, second, templates for the three consultation rounds and the draft RBMPs. These templates considerably restricted ambitions developed at the regional level and the measures envisaged to achieve specific objectives. EA 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. Stakeholders, in contrast, expressed concern about the degrees of power delegated to the Liaison Panel and found that "the national team in the Environment Agency are dictating the regional team". Consequently, the "silly, annoying" national template frustrated many stakeholders in their efforts to contribute substantively to the panel: "Yorkshire Water and colleagues in other regions got on okay with the regional Environment Agency colleagues and managed to arrange things eventually and everything. EA got away, talked to their national people, come back and say: No, national people did not okay. So that's made it quite awkward".

Finally, the organisers of the panels seemed to restrict discussions about political goals. Instead, the panel focused entirely on measures to achieve the goals that the EA had identified beforehand. Accordingly, the EA structured Liaison Panel meetings in a way that reflected the technical challenges of WFD implementation. While EA staff deny one-sidedness and claim that there was scope for discussions about procedures and objectives, Humber panel members tend to disagree. In particular, stakeholders with a more general profile, e.g. those representing local communities or regional assemblies, experienced major problems in following panel discussions. In their view, this undermined their ability to represent their constituency effectively: "It was very technical and difficult for people, unless they are specialists. I found it quite difficult to understand sometimes what actually was going on at the panel meeting, what was actually being discussed, what the implications would be."

Top-down framing through the EA's head office and a technocratic way of handling the panels resulted in disappointment among stakeholders and a lack of ownership for the final RBMPs. In the Humber basin, stakeholders comments ranged from "worthwhile" and "reasonably pleased with it" to judgments which suggested that panel members found "the whole process difficult to understand", "slightly frustrating" and "of not much use". In particular, green actors take the view that they have been "hijacked" by the EA and exposed to a process of "acceptance management".

Apart from forums at the river basin district level, the EA used a number of other formats to interact with stakeholders at the regional or sub-basin level, including catchment-based forums, thematic forums, and workshops to facilitate enhanced dialogue between the EA and academia. Furthermore, the National Liaison Panel for England, the WFD Wales Stakeholder Group established at the Welsh Assembly, and the National Stakeholder Forum for England provide strategic overviews on operations in Anglo-Welsh river basin districts at national level. Interviews with participants suggest that these meetings were mainly held to provide information from state to non-state actors and statutory regulators.

In sum, through the establishment of Liaison Panels at the river basin district and national levels, the EA engages directly with regulatees and other statutory organisations in order to discuss matters of concern that arise during the implementation of the Directive. However, the critical observations above testify that the hopes of those advocating stronger forms of participation have certainly not been fulfilled as of yet.

Explaining modes of participation in WFD implementation

In order to understand this pattern, we have to travel back in time. For many decades, secretive relations between inspectors and polluters were a key characteristic of British environmental policy and management (Rhodes 1981; Jordan and Richardson 1982; Moran 2003). Cooperation mainly followed functional imperatives as inspectors required additional information from polluters that they were unable to collect themselves due to low staff numbers. Further, transgressions were extremely difficult to prove so that informal negotiation was the most effective way to trigger behavioural change. 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, pp. 91–92).

This style came under fire during 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 (Parker and Sewell 1988; Pitkethly 1990; Maloney and Richardson 1994). Regulatory agencies supervise, regulate and monitor policy sectors that are characterised by a high degree of specialisation. Agency operations, therefore, require expert knowledge and technical skills that elected politicians or bureaucratic generalists rarely possess. Consequently, the legitimacy of agency decisions rely less on democratic elections and competence delegation, and more on expert judgments made independently from political concerns and interest groups. Unlike similar developments in the USA, endeavours to formalise the relationship between regulators and regulatees were not paralleled by public involvement programmes in order to compensate for the loss of democratic legitimacy (Moran 2003). Supported by domestic and European legislation such as the 1990 Environmental Protection Act and the 1999 Pollution Prevention and Control Act, the EA and other regulatory agencies saw 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).

Environmental regulators, as a result, showed little commitment to participation in water management. Instead, these agencies put a high premium on the technical and scientific expertise within their organisations. This did not prevent the EA and its predecessors from engaging 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 (Tunstall and Green 2003, pp. 39–54).

Since the election victory of New Labour in 1997, participation and network governance have become mantras that have further developed the regulatory changes which started in the late 1980s (Bevir and O'Brien 2001; Page 2003). While certainly none of these efforts marked a revolutionary turn towards participatory democracy, New Labour's agenda had a profound impact on the political landscape in Britain and put the EA under considerable pressure from governmental bodies and non-state actors. These organisations were consultees in various contexts and became potential stakeholders of the EA. As a result, the more participatory modes of governance reflected the

societal mainstream, the less compatible they were with the EA's technocratic regulatory style, which became the subject of an investigation by the Royal Commission on Environmental Pollution in 1998 and two House of Commons Select Committees in 2000 and 2003. The findings of all three reviews were remarkably negative.

The report which was published by the Royal Commission analysed the ethos and practices of British inspectors and concluded that environmental decision-making was a closed process in Britain. The report suggested that the values of citizens, rather than of standard setters and scientists, should guide the definition and analysis of problems as well as the development of policy proposals (Weale 2001). While the Royal Commission's study was an attack from a body of academic experts, the two reports published by the House of Commons Select Committee in 2000 and 2003 came from the centre of political life in Britain. Based on evidence which reflected the day-to-day experiences of stakeholders, EA staff and regulatees, the Select Committee revealed that agency operations suffered from a legitimacy deficit. This was not the least because the EA showed great reluctance when it came to including stakeholders in environmental planning. To be sure, this is not exactly surprising. The agency's regulatory style was, after all, a consequence of the function which it and many other science-based regulators in the UK had been given. Many stakeholders, however, have come to believe that the agency's managerial approach has caused a serious legitimacy deficit. The challenge for the EA was to process these insights.

At the same time, those investigations shed serious doubts on the EA's ability to successfully implement the WFD. During the inquiry, stakeholders and experts pointed out that, in order to achieve the ecological goals of the WFD, the EA was required to collaborate with a plurality of statutory authorities involved in land use planning, development planning and pollution control, and to exert influence on a number of policy fields outside the EA's area of competence (House of Commons 2003, Item 67). Tunstall and Green (2003, pp. 23–24) map the degree of cooperation required between the EA and other statutory or private actors. The authors list 26 activities related to water planning that the EA has to undertake or supervise during the implementation of the Directive. The overview suggests that, under the current legal and administrative framework, the EA neither possesses the political, technical, and organisational competences to regulate all the activities, nor is in control of all funds necessary for their implementation, thereby suggesting that the EA was ill-prepared for the coordinative and communicative tasks set by the WFD. The Select Committee found that in particular the EA's working relationship with agriculture was unlikely to resolve problems related to non-point source pollution, which would make the achievement of the WFD's 2015 goals unlikely. In order to implement "wholesale changes in such practices" (House of Commons 2003, Item 47), the EA would need to develop formats of collaboration incompatible with agency's current approach. In their response, the EA's Chief Executive acknowledged the challenges ahead explaining that "we are not complacent. We are a bit like swans, we may look very serene on the surface, but we are paddling like hell underneath the water." (ibid., Oral Evidence 221). As a consequence, the EA engaged in a collective learning process, facilitated by external consultants, resulting in a 'Framework for Stakeholder Relations' which laid the foundation for Liaison Panel system discussed above.

To summarise, two factors caused the EA to rethink their approach to regulation: societal and political pressure, and the insight that the WFD posed challenges that required organisation reform. However, neither the EA's self-perception nor the streamlined approach towards participation in the WFD encouraged the agency to go beyond weak forms of involvement.

Participation in FD flood risk management

A salient issue for decades, flood risk entered the UK policy agenda again in 2007 when floods destroyed thousands of homes and caused significant economic damage. In a government report (Cabinet Office 2008), Sir Michael Pitt identified institutional complexity and fragmentation as key factors explaining the poor performance in UK flood management, suggesting to simplify and unify responsibilities and, where various authorities are involved, calling for better collaboration between local, regional and national actors (Recommendations 15 and 17). These recommendations were implemented through the 2010 Flood and Water Management Act. However, those developments coincided with the adoption of the FD at the EU level, implemented in the UK through the 2009 Flood Risk Regulations.

Formally, responsibility for flood risk lies with the Department for Environment, Food and Rural Affairs. In practice, however, key decisions are made and implemented by the EA, together with unitary and county councils, i.e. municipalities and independent drainage boards (Johnson and Priest 2008). Active involvement tools are deployed at the local level and include private water companies, developers, British Waterways, the Highway Authority, Regional Flood and Coastal Committees, green NGOs and civic associations more broadly, National Rail and charities of all kinds (Nye et al. 2011).

In a nutshell, participation in English flood risk management follows patterns similar to participation in WFD water planning: Interviews suggest, first, that the EA

dominates the planning process and steers decision-making in desired directions; second, that face-to-face meetings, if they occur, leave little scope for deliberation and open-ended discussions; and, third, that the information provided is insufficient and often too technical, thereby excluding non-experts from debates. This is in line with findings of Porter and Demeritt (2012, p. 2365 and 2375) who show how flood maps provided by the EA served to "standardize the process" and to "script the behaviour of its users" with a view to "ensure that planning decisions were aligned with EA views about avoiding development in zones at risk of flooding without actually banning such development outright".

At first sight, this may come as a surprise: on the one hand, the EA was not under pressure to achieve a previously defined policy goal, as was the case in WFD water planning. More specifically, because participation was supposed to be an end in itself, there was no functional reason to instrumentalise participation in some way or another. Yet this underestimates the pressure under which the EA (and local authorities) operate since the 2007 floods, the Pitt Report and the harsh criticisms they received from policy makers and the media. More importantly, the observed patterns are simply a continuation of deeply ingrained modes of operation, typical for an authority which likes to maintain the image of a rational, scientific and technical regulator rather than that of a communicator and facilitator (McMahon 2006). True, the EA has made significant moves from non-communication to streamlined participation when it began to implement the WFD, but without significant functional or political pressure there is no reason to expect the EA to abandon its top-down approach and to open up towards more advanced forms of involvement—this is exactly where path dependency kicks in.

Whether more recent developments will be able to challenge path dependency is an open question. In the last few years, the UK began to promote a catchment-based approach to water management with a view to better tackling issues related to water abstraction, diffuse pollution and artificial water bodies (Department for Environment Food and Rural Affairs 2013). It relies on existing catchment partnerships, but also promotes collaboration where such partnerships do not yet exist. The catchment-based approach takes management activities to a lower policy level, and there is little reason to assume that this would make the EA change their overall attitude towards participation. After all, we do not observe any fundamental difference in the degree and quality of participation in Liaison Panels at national and river basin district level (Benson et al. 2014). However, given that catchment management in England often builds on existing catchment partnerships, one might argue that this would somewhat loosen the grip of the EA on collaborative processes and provide more agency to non-state actors at local and catchment level. However, the empirical evidence so far is scarce, and existing works tend to confirm the importance of path dependency (Cook et al. 2012; Short 2015).

In sum, the evidence shows that public participation may come in different variants in IWRM and AM, variants that may reflect opposite poles on a weak–strong scale and that question the one-dimensional view taken in current frameworks. Because participation may describe very diverse modes of involvement, decision-making rules and ambitions, participation may also have varying social, political and ecological effects. This insight obviously challenges binary causal statements made in previous work. Second, the case study highlights the importance of the temporal dimension. The EA, as a regulator with a scientific identify, elected to implement the WFD's public participation provisions in a distinct way and, due to path dependency, followed this track a couple of years later in flood risk management, although this approach was clearly at odds with the ambitions of the FD. This case study illustrates, finally, the importance of a carefully constructed dependent variable. This is because the causal connection between IWRM and AM may be interpreted in very different ways, depending on whether we think in terms of institutions, processes, or effectiveness and efficiency. The case of the UK suggests a moderate positive effect with regard to institution-building. However, it is not very apparent that this affected processes, not the least because they occurred at different geographical scales and included different stakeholder groups. It is too early to assess policy effectiveness and efficiency, but given that participation had very different functions in the two processes there is little reason to assume that we will be able to observe mutual reinforcement in the future.

Conclusion

This article set out to explore the linkages between two leading paradigms in environmental management, IWRM and AC. Previous research has conceptualised their relationship as being either mutually inclusive, defined by tensions, tense but reconcilable—or suggested breaking those paradigms down into their constituting elements. This research followed the latter approach.

On the basis of a case study on participation in UK water and flood management, I find the link between IWRM and AC to be spurious. The empirical data suggest that active involvement in WFD water planning may indeed have been conducive to the creation of respective institutions in flood management. In terms of processes, however, there was little interaction, not the least because involvement took

place at different scales and involved other groups of people. It is too early to assess linkages from a policy effectiveness and efficiency perspective. Yet my argument is not that the hypotheses proposed by Gain et al. (2013) are misleading per se. I instead argue that they oversimplify a complex reality and would benefit from revision along three lines. Current frameworks need, first, to take into account the conceptual diversity present in scholarly debates on IWRM and AC; second, to consider the temporal dimension more systematically; and, third, to think harder about their definition of the dependent variable.

Future research may inform the debate in at least three ways: by creating a more sophisticated conceptual framework; by integrating literatures that have already theorised the interaction between potentially competing discourses, including scholarship on policy learning (Schmidt and Radaelli 2004), transfer and diffusion (Benson and Jordan 2011); and, finally, by developing research designs that include the comparative study of several cases.

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