



Collaborative environmental governance: Are watershed partnerships swimming or are they sinking?

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ABSTRACT

Several attempts have been made to explain the formation of collaborative watershed partnerships—that is, multi-actor groups which work together to resolve environmental problems at a watershed scale. But to what extent do these explanations ‘travel’ from their original home – namely the USA – to other jurisdictions, where similar claims are being made about the rise of collaborative environmental governance? To that end, this article critically evaluates how well one leading theory, namely the political contracting framework (PCF), explains their emergence in the rather different institutional context of the United Kingdom. Drawing on a survey of collaborative watershed practices, it argues that they are functionally equivalent to partnerships. Furthermore, when suitably amended, the PCF explains many important aspects of their emergence. The same critical factors are associated with their development, but these should now be assessed across the entire ‘life-cycle’ of partnerships. The implications of these findings are identified and explored, the underlying aim being to inform a much more comparative theoretical approach to understanding what appear to be important changes in collaborative environmental governance practices.

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Introduction

During the last few decades, water policy has allegedly undergone two fundamental transformations. Starting in the 1960s, important tasks were firstly centralised, with top-down, hierarchical (i.e. regulatory) forms of water governance emerging in many contexts, including the USA (Gerlak, 2006) and the various states of the European Union (EU) (Benson and Jordan, 2008). They tended to operate in a rather technocratic fashion (Sabatier et al., 2005a: 3), with the role of the public and other stakeholders limited to commenting on and responding to initiatives imposed from the top down. Secondly, in the period since the 1980s, this ‘traditional approach’ has, it has been widely argued, been transformed into what are increasingly termed ‘collaborative’ management approaches (Sabatier et al., 2005a: 3).

According to Sabatier et al. (2005b: 49) these approaches exhibit a number of specific characteristics: (1) the employment of the watershed as the principal ‘jurisdictional’ focus of management efforts; (2) a more active inclusion of a wider range of

stakeholders; (3) a ‘reliance on face to face negotiations’ to engender ‘civility’ and ‘trust’ amongst all the participants; (4) the aim of attaining ‘win-win’ solutions that address the three dimensions of sustainability; (5) a preliminary and ‘fairly extensive fact-finding phase designed to develop common understanding’ of the main problems and available solutions (for other definitions see Bidwell and Ryan, 2006; Margerum, 2008, 2011).

These approaches are not, of course, restricted to the water policy area; collaborative approaches in other, non-water sectors have also attracted a great deal of academic comment (for example, Wondolleck and Yaffee, 2000; Koontz et al., 2004; Heikkila and Gerlak, 2005). But it is in the US water sector that some of the most sophisticated analytical work has arguably been done to understand their emergence and prevalence (Benson et al., 2013). Sabatier et al. (2005a: 6) usefully identify three main varieties:

- *Collaborative engagement processes*: conflict management approaches that typically have a limited duration.
- *Collaborative superagencies*: formalised partnerships composed of multiple government agencies and external stakeholders that engage in negotiating and implementing management plans.

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These are limited in number and include the CALFED Bay-Delta Program in California.¹

- *Collaborative watershed partnerships*: relatively informal organisations involving a wide variety of stakeholders. They provide a forum for collaboratively negotiating plans, and then passing them over to partners for implementation. They have a relatively long duration (5–10 years) and are said to be common, with 150 alone recorded in California (Leach and Pelkey, 2001).²

In view of their popularity, the existing literature has tended to focus mainly on the third variety (for example, Duram et al., 2008). Yet even in the USA, collaborative watershed partnerships appear in a number of very different forms (Koontz et al., 2004; Margerum, 2007, 2008). Some, for example, are steered in a more top down fashion by government agencies and exist at an intra or even interstate scale (see Koontz et al., 2004). One well known example, the New York City Watershed Protection Program, arose through the efforts of city authorities to prioritise collaborative stakeholder engagement on drinking water issues, by agreeing a Memorandum of Agreement with the federal-level Environmental Protection Agency (Smith and Porter, 2010). Others are more community based and involve multiple actors. In one example, the Darby Creek Partnership was established as a non-profit organisation with only minimal input from central public bodies (Koontz et al., 2004). Scholars who want to understand the ‘collaborative turn’ in environmental management should be alive to these subtle but important differences.

Academics have responded to these changing patterns of collaboration by deriving multiple hypotheses to account for the existence of different kinds of partnership (for example, Leach and Pelkey, 2001; Lubell et al., 2002; Lubell, 2005; Sabatier et al., 2005c). One approach derives from the institutional rational choice (IRC) theories of Ostrom, and is based on the notion that collective action agreements emerge from the interaction of self-maximising individuals (Ostrom, 1990, 1999, 2005). In their landmark contribution, Sabatier et al. (2005c), drawing on Lubell et al. (2002), combine different insights from IRC to inform what they dub the *political contracting framework* (PCF). The contract in question is the collective action agreement between polluters and other stakeholders, which they analyse to determine a watershed group’s development (Lubell et al., 2002). They use this framework to generate hypotheses on how and why some watershed partnerships emerge and survive (i.e. ‘swim upstream’ – to paraphrase the title of their well-known book), whereas others quickly die (‘sink’) or perhaps never even emerge at all. Partnerships, they suggest, emerge in response to a number of biophysical, institutional and community factors, which are summarised in more detail below.

Together, this work abundantly satisfies their main objective—‘to set a new standard for studies of collaborative management approaches’ (Sabatier et al., 2005a: 13). It is undoubtedly a big step beyond the rather ad hoc, non-cumulative case studies that once represented the state of the art in this field. But although their work offers a plausible explanation for partnership formation processes in the US, we know nothing whatsoever about its applicability outside that particular setting. The question that we wish to pursue in this paper is whether or not these arguments and their associated theories and analytical concepts ‘travel’ (Peters, 1998: 39) to a very different institutional context namely the UK, which is politically much more centralised (see Pierson, 1994). Although understanding ‘travelling’ was not their initial purpose

(but see Sabatier et al., 2005a: 12, 19), the value of the PCF would now seem to be sufficiently well established to justify taking this additional analytical step. Then we would know whether it is indeed transferable to a different jurisdiction or just applicable to the US. Furthermore, is it sufficient to do what Sabatier et al. have done and focus mainly on the emergence and development of such partnerships, or is a longer term perspective (assessing their potential to endure or ultimately extending throughout their full life cycle) now warranted? These are the broad challenges that we seek to address in this paper.

We do so by tackling a number of questions. Firstly, we investigate what kinds of collaborative approaches are developing in the UK and we ask if they are functionally equivalent to those in the US. This is an extremely important question to pose, because without careful and tightly framed analysis of common concepts, we run the risk of ‘conceptual stretching’ (Sartori, 1970: 1034). That is to say, by taking a context specific concept (such as ‘watershed partnerships’) and uncritically applying it in a different context could mean that ‘gains in extensional coverage... [are] matched by losses in connotative precision’ (Sartori, 1970: 1035). This feature is arguably already apparent in the environmental geography literature on collaboration, where the concept of collaboration is subject to multiple but subtly differing interpretations across political cultures, jurisdictions, time and space (see for example, Wondolleck and Yaffee, 2000; Margerum, 2011; Benson et al., 2013). Such differences between jurisdictions are of course the very essence of insightful comparative research, without which social science understanding would struggle to advance beyond essentially non-cumulative single case studies. But if we do not think about functional equivalence (and thus compare like with like), we would experience a ‘travelling problem’ (Sartori, 1970: 1033), which Peters (1998: 86) argues is the most fundamental of all inhibitors of good comparative research.

Secondly, if partnerships are functionally equivalent in the two countries, then just how prevalent are they in the UK, why are they forming and what are their life histories? Are they relatively short lived phenomena (i.e. do they quickly ‘sink’) or do they have the potential to endure (‘swim’) over longer periods of time? In this section, empirical data from a broad-based survey covering England and Wales (Cook et al., 2012) is used.

Thirdly, how well does the PCF explain the full development of partnerships in the two jurisdictions—in other words how well does it, the theory, ‘travel’ from the empirical setting of the US to the UK? Unlike much theory in the policy sciences (see Peters, 1998), the PCF is fairly precisely articulated, contains testable hypotheses, and is grounded in empirical research. In principle, it therefore represents a good candidate for ‘travelling’ as it already explains a good deal. In this paper we aim to explore the limits of its explanatory power. In the final section we conclude by evaluating the wider implications of our research for: (i) the practices of collaborative environmental governance; and (ii) comparative academic research more generally.

Before proceeding we would like to make two further points. The first concerns case selection. The UK is different to the USA in terms of its governance (Pierson, 1994; Pierre, 2005). Moreover, the key differences between the two are relatively well known and understood. Most obviously, the USA is a multi-level federal system composed of state, federal and local governments (Watts, 2008). By contrast, the UK is a devolving unitary state (Connelly et al., 2012). Secondly, there are important differences in the way in which decision making powers or tasks are allocated between levels in these two systems. Tasks in the US are shared between local, state and federal governments to a relatively greater extent than in the UK, where powers are still more heavily concentrated in central or devolved government agencies (Benson et al., 2012, 2013). Indeed the UK has increasingly adopted a more centralised

¹ Although the authors use this example, other such governance forms could include The Chesapeake Bay Program and the Great Lakes Commission.

² Duram et al. (2008) record the existence of over 1000 local watershed groups in the USA.

approach to environmental management, whereas in the USA there has been relatively greater autonomy at the state-local level consistent with the precepts of federalism (for example, Gerlak, 2006; Fischman, 2006).

Secondly, in this paper we are primarily interested in the emergence and not the environmental and/or democratic effectiveness of collaborative partnerships. Although the latter is important to some scholars (including Sabatier et al., 2005a), it is difficult to analyse all three empirically in one jurisdiction let alone comparatively in a journal article. Therefore we opt to look at what Sabatier et al. term the 'process' dimension rather than policy outputs (the formulation of restoration plans for example) or watershed outcomes (i.e. improvements in ecological conditions) (Sabatier et al., 2005a: 14). On this aspect, there is some ambiguity in their conceptualisation of 'success' (Sabatier et al., 2005a: 15). They subsequently argue (Sabatier et al., 2005c: 184) that their PCF hypotheses can be used to explain the initial formation of partnerships over an extended time period but do not really clarify whether this includes 'success' beyond this start-up phase, i.e. do they 'swim' or do they eventually 'sink'? Therefore in this paper we attempt to explore the limits of this particular aspect of their approach by distinguishing between different stages in the life history of partnerships, namely birth ('diving in'), indicators of potential for development and sustained activity ('swimming') and expiration ('sinking').

The data describing watershed-scale collaborative approaches in England and Wales was collected in the third quarter of 2009 using a standardised questionnaire comprised of both closed and open questions covering the local biophysical, institutional and community conditions. The sample unit for the survey was defined as "an assembly of stakeholders who convene (periodically or regularly) to discuss, negotiate, plan or implement the management of streams, rivers or catchments (including land based measures and best practices designed to influence water quantity or quality) on a catchment-wide basis". The sample frame of such groups that exist on a non-statutory basis was identified through the combined use of the expert knowledge of key informants, a web-based search and access to the database of The Rivers Trust (the 'umbrella' body of the rivers trust movement). Candidate groups for interview were contacted and from this initial search and screening, thirty nine were identified and subsequently surveyed. This definition excluded narrow single interest groups such as angling or canoeing clubs. The sample frame identified by this process is considered a close approximation to the actual population of relevant groups at the time of the survey (Cook et al., 2012).

The 'non-statutory' groups described above are the emerging phenomenon of primary interest but it is important to note that 'statutory' groups also exist in the sector for the purposes of consultation and information exchange with stakeholder representatives. In order to better differentiate the purposes and characteristics of statutory and non-statutory initiatives, a purposive sample of eight 'statutory groups' was also surveyed; four each from the Environment Agency Anglian and South West regions, and namely the Regional Fisheries, Ecology and Recreation Advisory Committee, the Regional Environmental Protection Advisory Committee, a Water Framework Directive River Basin District Liaison Panel and a Catchment Flood Management Plan Steering Group. Information was also gathered about the number of Catchment Steering Groups that inform the implementation of the England Catchment Sensitive Farming Delivery Initiative in selected priority catchments.

Interviewees selected for the survey were typically trustees or representatives regarded as either senior (such as chair or secretary) or otherwise well informed about the group's activities. Respondents were mainly interviewed by telephone using the structured questionnaire (a small number were interviewed in person or responded by post). Variables collected included: the age of the group; its organisational structure; size; membership; sources

and stability of finance; legal status; leading motivation; links with statutory bodies; perceived policy influence; modes of representation; knowledge exchange mechanisms; international linkages; and perceived constraints to mission achievement.

Theorising the life histories of collaborative partnerships

The existing literature is replete with arguments detailing the conditions under which collaborative watershed partnerships form and develop (i.e. 'diving in' and 'swimming'). The most significant and robust body of theory draws on institutional rational choice (IRC) arguments, themselves rooted in rational institutional theory (Chhotary and Stoker, 2009). Within this approach, individuals are assumed to be self-interested and utility maximising, while collective action is governed by specific institutions. In this sense, institutions are understood not as organisational entities but as rules determining the participation of individuals and organisations in environmental management. Subject to their resource constraints and bounded rationality, rational actors will engage in collaborative solutions to common property resource dilemmas if the benefits of the outcomes for them outweigh the transactions costs of collaboration.

Two complementary conceptual frameworks seek to apply IRC theory. The institutional analysis and development (IAD) framework seeks identification and description of multi-level action arenas in which decision making takes place, and the situational characteristics of relevant actors. Analysis seeks to show how observed patterns of actor behaviour, interaction and outcomes are determined by the constraints of the action arena and its actors (for example, Ostrom, 1990, 1999, 2005). The complementary political contracting framework (PCF) places emphasis on the process of consensus building and agreement of rules for collaborative behaviour. Collaborative arrangements are expected to succeed when, compared to the alternatives, they reduce the inherent transaction costs of political contracting; that is, the costs of devising mutually beneficial institutions, bargaining over trade-offs, and monitoring and enforcing agreements. The transaction costs of governance institutions are expected to be lower when the structure of political institutions is well matched to the characteristics of the policy challenge at hand (Lubell, 2003, 2004; Sabatier et al., 2005c). The work of such authors demonstrates that this framework offers an understanding of the formation of collaborative watershed management arrangements that can be used to hypothesise empirically grounded conditions for partnership success or failure.

The political contracting framework

Sabatier et al. (2005c) developed and applied the PCF as a synthesis and hybridisation of earlier arguments derived from the institutional rational choice approach described above, most notably the IAD theory (Ostrom, 1999, 2005) and earlier quantitative research by Lubell et al. (2002). It offers an institutional approach to understanding the formation and survival of US watershed management partnerships, using quantitative analysis to identify potential factors (biophysical, political-economic and social) influencing their development.

According to Sabatier et al. (2005c: 179–183), political contracting can offer effective and sustainable solutions to certain collective action problems in water management. They argue that solutions emerge through a process whereby stakeholders reach mutual agreement on, and cooperate under, a set of institutions governing collaboration. These institutions are perceived by the authors as a form of 'contract', analogous to a legal agreement between parties (Sabatier et al. (2005c: 180). In this sense, the contract provides mutually developed rules governing the collaboration of different

stakeholders in the management of environmental resources. A critical factor in the development of these institutions are 'transaction costs' (Sabatier et al. (2005c: 180)). Transaction costs are commonly understood in the economics literature as costs to contracting parties incurred through engaging in an exchange, for example, reaching an agreement or contract (Williamson, 1979; Dahman, 1979). These costs can be accrued both financially but also temporally, in terms of time devoted to developing institutions. Subject to bounded rationality, if transaction costs exceed the expected benefit from an exchange and actors are rational and utility-maximising, they will walk away from the transaction. In the context of watershed management, where transaction costs are perceived to outweigh the benefits, stakeholders will not willingly collaborate (see Lubell et al., 2002). For example, it may be costly for local people to engage in collaborative activities—the costs of transport for example or the opportunity costs of doing something else with their time. To be successful (i.e. 'swim') institutions should therefore provide a close match with watershed conditions to minimise such costs (Lubell, 2005).

In consequence, Sabatier et al. argue that:

'... the likelihood of partnership formation and success increases with stakeholder valuations of the benefits of partnerships, decreases with the magnitude of transaction costs involved in forming and running a partnership, and increases with the resources available to pay those costs' (Sabatier et al., 2005c: 180).

Consequently, one can measure formation and success in terms of institutional changes through time, i.e. what Sabatier et al. (2005a: 14) term 'process'. In their argument, it follows for collaborative arrangements that where transaction costs, such as the need for partnerships to develop a scientific understanding of any pollution problems in the watershed, exceed the financial or technical ability of stakeholders to undertake it, their birth or subsequent development will be impaired. Indeed, the authors identify the issue of life histories as something requiring future research (Lubell et al., 2005: 295).

The emergence of watershed partnerships in the USA—empirical patterns

Watershed management has a long history in the USA (Sabatier et al., 2005b; Gerlak, 2006). Although watershed scale initiatives date back some time, early federal institutional responses such as the Tennessee Valley Authority (1933) were central agency dominated (Andrews, 2006). This situation began to change in response to a number of drivers, most saliently federal legislative intervention in state water pollution control under the 1972 Clean Water Act (CWA) amendments (i.e. top down). Section 303 of the Act compelled states to control non-point source pollution in impaired watersheds. Subsequent federal legislation, most notably the 1987 amendments to the CWA, has been employed by federal agencies to promote collaborative forms of watershed management in states for addressing non-point source pollution (Hardy and Koontz, 2008). Other federal legislation and policy, including agricultural extension and the Safe Drinking Water Act, also increasingly promoted these practices, for example in the New York City watershed (Smith and Porter, 2010). At the same time, there were also drivers of a more bottom up nature, both at state level, through legal and policy measures, and community level where groups emerged in response to factors such as public dissatisfaction with federal or state government measures to protect water resources, and frustration with the often contested and litigious nature of top down environmental management (Wondolleck and Yaffee, 2000; Sabatier et al., 2005b). As a result of these two kinds of drivers – top down and bottom up – the USA has experienced a rapid

expansion in the number and scope of watershed partnerships (see Leach and Pelkey, 2001; Duram et al., 2008), although as discussed above multiple definitions of them appear in the literature.

So what, according to the PCF, are the factors which most strongly affect partnership formation and sustainability? Sabatier et al. maintain that partnership 'formation and success' are more likely in certain biophysical, institutional and community conditions (Sabatier et al., 2005c: 181–182). Firstly, they argue that they appear where the benefits of collective action are high, as for the case of environmental problems that are non-homogenous, not easily addressed through top-down regulation and hence impose widespread transaction costs on regulators, for example non-point source water pollution. Partnerships are also argued to be more prevalent where: the problem is perceived to be chronic enough to require collaborative action; where available scientific knowledge on pollution sources reduces information costs; where higher level institutions such as central government agencies financially support partnership formation through the provision of grants and subsidies; where higher level institutions actively encourage some local autonomy; and where different forms of capital – both human and social – are sufficiently high in communities to stimulate and facilitate effective group or individual participation. In addition, the authors maintain that partnerships form and successfully grow under several other 'community attributes' (Sabatier et al., 2005c: 181–182), including where watersheds are dominated by a mixture of industries. By way of contrast, partnerships are deemed to be less likely where problems are homogenous, geographically defined (e.g. point source pollution), non-severe and where scientific knowledge is poor. Additionally, the authors suggest that partnerships are less prevalent where problems are being addressed by existing institutions, where there is a lack of subsidy and autonomy from existing institutions, where community attributes such as human and social capital are lacking, individual citizen involvement is low and 'extractive' industries such as mining dominate economically. The latter is deemed significant as such industries are argued to be short-termist in outlook, primarily concerned with extracting resources and often resistant to environmental regulation. In mixed local economies, where service sectors such as tourism attach greater value to environmental quality and lobby for regulation, conflicts could arise over resource use providing both a rationale and incentives for all parties to engage in collaborative management solutions.

Not all of the hypotheses identified by Sabatier et al. (2005c) are tested in this paper. Two hypotheses relating to social mobility, relating to the valuation of long-term benefits, and cultural heterogeneity were not tested because of the difficulty of assessing the former factor at the catchment scale (data of this type is generally generated for higher institutional scales in the UK), and defining 'cultural heterogeneity' in the UK context—a concept which is rather problematic to test. However, ten were employed to develop an analytical framework (Table 1) for further testing. As part of this research, several dedicated quantitative indicators were also developed to test each hypothesis which also draw on earlier research (Lubell et al., 2002) but adapt them specifically to testing the PCF (see Table 1).

In the next section we start to test how far these hypotheses explain the formation of 'watershed partnerships' in the UK.

Swimming or sinking? Catchment groups in the UK

Moving the focus to the UK immediately raises a conceptual travelling issue, because in the UK the popular term for a watershed is in fact a catchment. Moreover, management at a catchment scale is not an entirely novel practice in the UK, with the governance of water resources at the river basin scale dating back to the

Table 1
A political contracting framework for explaining “formation of watershed partnerships”.

Watershed attributes	Key hypotheses for partnership emergence	Indicators
Biophysical	'Partnerships are more likely to form where environmental problems are heterogeneous in nature and geographically dispersed, such as non-point source pollution.'	Type of environmental problems (i.e. point source, non-point source)
	'Partnerships are more likely to form where environmental problems are severe or perceived by most actors to be severe.'	Severity of environmental problems and their perception
	'Partnerships are more likely to form where scientific knowledge about the problem is very good.'	Access to scientific evidence
Institutional	'Partnerships are more likely to form when an existing institution has enough resources to subsidise initial transaction costs.'	Extent of funding
	'Partnerships are more likely to form when existing institutions are not actively addressing watershed problems.'	Trigger for group formation
	'Partnerships are more likely to form where higher-level institutions grant local autonomy.'	Source of leadership
Community	'Partnerships are more likely to form in communities with high existing stores of human and social capital.'	Extent of social capital (trust, participation) and human capital (income, education) etc.
	'Partnerships are more likely to form in communities where the costs and benefits of management actions are spread equitably over different segments of the community.'	Individuals participating in management
	'Partnerships are less likely to form in communities dominated by extractive industries.'	Land use in watershed, presence of a mixed local economy
	'Partnerships are more likely to form in communities dominated by service industries.'	

Derived from: Sabatier et al. (2005c: 182) and Lubell et al. (2002).

1940s (Cook, 1998). Although approaches to catchment management emerged at this time, they largely reflected the rather closed, technocratic style of environmental governance and pollution control found under the ‘traditional approach’ in the USA. As in the USA, more collaborative, multi-stakeholder catchment groups are, in contrast, a much more recent phenomenon, emerging in the last decade from bottom-up processes of community and special interest engagement in local scale resource management processes (Cook et al., 2012). We can better understand this temporally and geographically differentiated form of development through a brief overview of the history of water management.

UK water management was initially characterised by strong local control followed more recently by a trend towards regionalisation, privatisation and greater central agency direction. Bell and McGillivray (2000) show how, prior to the Second World War, most tasks for water management, primarily water supply and sewage treatment, were allocated to local authorities, while other tasks such as pollution control, drainage and fisheries came to be institutionalised at the catchment scale through the creation of a skein of small technocratic agencies. Attempts to rationalise this loose patchwork of institutional arrangements began in 1948 with the River Boards Act, thereby creating a national system of catchment based river boards, followed by river authorities, that assumed control of water tasks apart from supply and sewage treatment (Bell and McGillivray, 2000). By the mid 1970s, control over virtually all water functions in England and Wales had been shifted to regional water authorities, whose activities were organised around specific river basins (Haigh, 2005: 4.1). Increasing problems caused by these changes led to more radical government restructuring of water management in the Water Act 1989 through the creation of a set of privatised water companies to provide services (Cook, 1998). A new national government agency, the National Rivers Authority was formed at the same time to police water pollution (see Weale, 1992: 105–106); it was subsequently incorporated into the newly-created Environment Agency in 1996.

Introduction of the EU Water Framework Directive (WFD) in 2000 was significant both for setting ambitious targets for improvements in water quality and because its Article 14 necessitates information to be provided to, and consultation to take place with, the public and relevant stakeholder groups during implementation, and in particular for preparation of River Basin Management Plans (RBMPs) (Carter and Howe, 2006). At least three levels of

stakeholder involvement are envisaged: access to information and documents used to guide the RBMPs; consultation at various stages of the RBMP preparation process; and active involvement during implementation and any subsequent modification of the plans (Carter and Howe, 2006; European Commission, 2000). The Environment Agency is designated as the competent authority for implementation of the WFD and did organise a process of public consultation as part of the preparation of RBMPs which included formation of the multi-stakeholder representative WFD River Basin District Liaison Panels.

In contrast to these government or water industry-inspired approaches, locally initiated stakeholder catchment groups, including partnerships of responsible agencies, do not have a long history in the UK. Until recently such groups were rare and little was known about their characteristics. The primary purpose of the survey (Cook et al., 2012) – the first of its kind – was to reveal their essential attributes. In the next section we provide a brief overview of the main patterns in the data, address the issue of functional equivalence and then sketch out their life histories.

UK catchment groups: a quantitative survey

General characteristics

The survey revealed that two major types of catchment group are discernible in the UK context. As in our description of the survey approach above, we have termed these ‘statutory’ and ‘non-statutory’ groups. As regards the former the leading examples are the Environment Agency organised River Basin District Liaison Panels in each of the eleven river basin districts in England and Wales. Other similar state directed multi-stakeholder consultation fora are the Catchment Flood Management Plan Steering Groups, Regional Environment Protection Advisory Committees (REPAC), Regional Fisheries, Ecology and Recreation Advisory Committees (RFERAC) and Regional Flood Defence Committees (RFDC, now Regional Flood and Coastal Committees (RFCCs)). With a narrower focus on delivery of farm advice, capital grants and adoption of best management practices to control agricultural water pollution, the England Catchment Sensitive Farming Delivery Initiative has operated in fifty priority catchments, each with a stakeholder Catchment Steering Group (CSG). The function of each CSG is to engage local stakeholders, primarily farmers, in implementation of the initiative in

conjunction with the statutory agencies Natural England and the Environment Agency.

Secondly, as revealed below, a number of more collaborative *ad hoc* catchment groups have appeared (or ‘dived in’) independently of government influence in the period since 1995. The survey revealed the existence of thirty nine such groups in England and Wales. In comparison to the USA, where Duram et al. (2008) record over 1000 local watershed groups, this number is very low and limits the potential for quantitative ‘meta-comparisons’ of the type cited in Sabatier et al. (2005a). This disparity may be related to the much larger physical scale and population of the USA, and to differences in higher level governance; factors that are returned to in our conclusions. An overview of this overall ‘population’ of thirty nine in England and Wales shows several general features for this sub-type of groups. In terms of legal status, most were constituted as either charities (46%) or limited companies (36%). A majority, moreover, had limited incomes, with 69% surviving on an annual income of £50,000 or less.

Exploring the functional equivalence with US practices

The first question posed above was whether the concept of catchment groups in the UK is functionally equivalent to that found in the US based literature. If they are, then there are good reasons for believing that it could serve as a basis for comparative research. Using the definitions of collaborative watershed management approaches supplied by Sabatier et al. (2005a: 6–7), several features are apparent. Firstly, little evidence was found of what the authors refer to as ‘collaborative engagement processes’ comprised of dispute resolution for catchment management planning in the UK, suggesting this concept is not really equivalent (Sabatier et al., 2005a: 6–7). Secondly, their notion of collaborative superagencies only partly resonates with the state-led groups identified in the UK study. In England and Wales, the bodies described above are formalised fora for discussion of catchment scale issues that include private, public and civil society agencies, but they remain advisory in nature and lack decision making power or responsibility for implementation (such responsibilities continuing to reside with the Environment Agency as designated competent authority). Yet one clear difference is in terms of their number and coverage. Sabatier et al. argue that in the US they are ‘still quite rare’ (Sabatier et al., 2005a: 7), but in England and Wales there are eleven River Basin District Liaison Panels that provide a national coverage.

Functional equivalence is more apparent if we take the concept of ‘collaborative watershed partnerships’. Just as in the USA, UK groups were primarily informally convened, often by non-governmental stakeholders although they included a variety of government and state actors. Indeed, the majority of UK stakeholders were landowners, community and interest groups (see below). Many groups, like their US counterparts, engaged in developing management plans for countering a variety of environmental issues, from specific projects to land use problems and water quality concerns. Catchment groups in the UK were also found to be established as long-term management options rather than created to deal with a specific problem and then wound down. Another interesting comparison revealed by the survey was that UK groups also had little statutory or legal authority in respect of environmental management, often being constituted as charities (46%) or limited companies (36%), mirroring the non-profit organisational status of many US partnerships (see Koontz et al., 2004). Finally, UK groups also acted primarily as negotiating forums working with established agencies, thereby complimenting their functions rather than replacing them. As in the US, some UK groups (such as River Trusts) also received funding from state agencies.

Some limited stretching of the concept of watershed partnership is, however, apparent: US watershed partnerships do differ to groups in the UK in terms of the political structures within which

they operate, i.e. multi-level federal vs. devolving unitary. So the question then is how much stretching is too much? Here, we move into slightly abstract theoretical territory. Researchers invariably cannot, contra Sartori (1970), find an exact conceptual match for specific phenomenon when moving between contexts unless the concept has a universally common interpretation.³ Therefore our pragmatic response is to accept that for our purposes the two are indeed functionally equivalent.

Life histories

The life histories of some of these UK partnerships can be traced out from the information collected in the survey. Of the thirty-nine examples identified, only five surviving partnerships were established before 1990. Well over half the partnerships (22) were founded after 2001, with fourteen dating from 2006. Over time, greater numbers were clearly overcoming the inertia of initial transaction costs to establish and sustain themselves, i.e. ‘swimming’. What was not apparent from the data, however, was how many groups during this period had not survived beyond initial start-up (i.e. they ‘sank’). Such information proved difficult to collect, if it existed at all.

Theoretical interpretation

Having shown that the partnership concept does travel from the US to another context (the UK), how well does the PCF theory explain the development of collaborative watershed partnerships in the two jurisdictions? In other words, how well does it ‘travel’? In this section, each case is compared and contrasted on the basis of the main propositions of the PCF.

Main propositions

Biophysical factors

Some important, theoretically relevant trends emerge in the data. In terms of biophysical factors, according to Sabatier et al. (2005c: 182), emergence of partnerships is ‘more likely where environmental problems are perceived to be heterogeneous... and geographically dispersed’, for example non-point source water pollution, thereby increasing the benefits of collective action. The survey suggests this rationale was evident with respondents perceiving a variety of more diffuse environmental issues (as opposed to single, geographically limited issues) as significant in shaping their activities.

With regards to the perception of the severity of environmental problems (Table 1), respondents were questioned as to the relative importance of water quality improvement to the partnership. Over half – 54% – stated that this issue was ‘very important’, suggesting the perception of water pollution as an issue was a critical factor driving their emergence. Only 2.6% of partnerships suggested it was not important. Interestingly, the perceived severity of other environmental problems was also a factor, with over 50% of groups stating that habitat protection, landscape protection and water quantity management were either important or very important. This perception is correlated with the responses to questioning over the trigger factors that initiated partnership formation. A small majority of respondents (52%) stated their partnerships had formed specifically in response to concerns over existing environmental degradation, or in anticipation of future problems (17%).

In addition, the PCF hypotheses would suggest that in the USA, the availability of scientific knowledge on pollution sources

³ For example, the notion of public participation is defined in the Water Framework Directive according to specific legal requirements, although differing interpretations are placed on the concept in Member States (Benson et al., 2012).

promotes partnership formation and success. This feature may be significant in the UK. Respondents were asked how strong a barrier to meeting management objectives was the lack of access to technical data. From the sample, UK partnerships certainly found accessing technical information relating to catchments (for example, water quality data) relatively straightforward. Only 2.6% of respondents felt it was a significant barrier. In total, 73% disagreed in some way that it was difficult to access. The survey did not, however, focus on the sources of scientific information (and hence a matter for further investigation).

Institutional factors

Sabatier et al. (2005c: 181) maintain that partnership emergence in the USA is correlated with existing public bodies subsidising their formation to help them overcome transaction costs and situations where agencies are not addressing problems adequately (Table 1). By way of comparison, the survey shows that in the UK, subsidies from public agencies were in reality quite low. In fact, various public sector agencies contributed only 15% of revenues, with local government only providing 6.7% and central government 0.8%. Significant funding was provided by non-public sources including private individuals (18%) grant giving trusts (15%) and membership fees (12% of revenues). Evidently, UK partnerships were primarily privately self-funded but, critically, not financially independent of public institutions. It was also apparent that existing institutions were failing to actively address problems. As stated above, many partnerships (52%) stated that environmental degradation was a primary reason for their establishment. Very few argued that they formed in response to existing regulation, while there was generally a perceived disconnection with the regional scale Water Framework Directive process.

Existing state agencies and government bodies did, however, provide some support for both start-up and development. The survey found that state bodies forming the 'driving force' behind initial start-up were the Environment Agency (in 10% of partnerships), Natural England (5.8%) and local authorities (4.3%). Yet, other stakeholders – fisheries or landowner interests (35% of groups) – were perceived as being more critical in the birth of partnerships. In terms of their membership profile, existing public bodies provided limited ongoing support. Environment Agency staff constituted 2.6% of their membership, while other institutions such as Natural England (1.3%), local authorities (17%) and Regional Development Agencies (1.3%) also contributed members.

Yet, as Sabatier et al. predict for the US context, partnerships require sufficient autonomy from government agencies for collaboration to 'dive in' and then 'swim'. In the UK, decision-making in partnerships was generally undertaken in an autonomous manner. When asked about who 'leads' in decision-making, fisheries and landowner interests formed the most significant actors (23% of partnerships) along with private actors (18%) and environmental charities (8%). In fact, as predicted by the theory, government agency control was quite limited in these arrangements with the Environment Agency and Natural England providing leadership in only 7% and 5% of partnerships respectively.

Community factors

Sabatier et al. (2005c: 182) then hypothesise that a variety of factors sustain partnership formation and success, i.e. 'swimming' (Table 1). While it was not possible to test all these hypotheses, the UK survey provided evidence for most of them. Firstly, the argument that partnerships are more likely where human and social capital is high appears partially true in the UK. Although it was not possible to determine exact income levels at each catchment scale, average incomes in England and Wales, despite regional and local variations, are generally high by international comparison (OECD, 2010). Also, education levels are similarly high in both

countries. But in contrast to the USA, participation by the 'public' in partnerships was rather limited with few exceeding 100 active members. Indeed, private individual participation constituted only 28% of membership, with the bulk of members represented by fisheries/landowner interests (18%) and various public institutions (22%). Yet 'trust', a key indicator of social capital in theoretical arguments (for example, Putnam, 2000), is strongly apparent within institutional development (and also noted as a mechanism that can reduce transaction costs, Sabatier et al., 2005c). When questioned, over 60% of partnerships stated that, to varying degrees, their experiences suggested that trusting other organisations in managing catchments was relatively easy. Less stated that trust was difficult to build. Although 'trust' is inherently difficult to quantify, and warrants further research, it does nonetheless appear a strong factor in relation to sustained activity ('swimming').

As discussed above, two of the PCF hypotheses were not tested in the UK context, although data showed how costs and benefits of management actions were spread between different actors, including individual citizens. It was apparent that local community individuals were contributing to partnership activities, although special interests are also heavily represented. Private individuals represented 28% of membership, suggesting local communities are strongly contributing and hence perceive the benefits of the contracting process. Fisheries and landowners (18%), NGOs (9%), parish councils (8%) and community groups (7%) were also represented, with businesses, water companies and various local authorities and public agencies making up the rest. Individuals, it would appear, were willing to bear some of the transaction costs, just as the theory predicts.

Finally, the data on land use provided some pointers to economic activity with respondents suggesting that, overwhelmingly, mixed (i.e. agricultural, industrial and urban) activities existed in the watersheds in which partnerships were located. Indeed, 57% of land in rivers trusts groups surveyed, was used for agriculture, generally dairying and arable – both well known sources of diffuse pollution. Unlike the USA, where extractive industries (for example, minerals mining, logging) are argued to prohibit partnerships, few of the UK catchments were in areas of significant extractive industrial activity. That said, primary productive activities such as farming were prominent in many catchments.

Testing the hypotheses

In this respect, the development of the partnerships in the two jurisdictions does appear to be occurring where certain factors combined to lower transaction costs. *Biophysical factors* related to the heterogeneous characteristics of environmental problems would appear to be just as critical in stimulating their emergence in the UK as they are in the USA. All the partnerships surveyed emerged or 'dived in' due to the perception of problems of various types and degrees, i.e. problems were not homogeneous. The perception of the severity of environmental problems did appear to be significant factors within partnerships. In addition, scientific knowledge on pollution was relatively widespread in the watersheds and may be helping reduce transaction costs.

Yet in *institutional* terms, government bodies in the UK have not widely subsidised the costs of collaborative activities. Clearly UK partnerships were finding alternative approaches to overcoming transaction costs associated with development than those predicted by the theory, i.e. they are 'swimming' harder than predicted. From the data collected, this would appear to include multiple sources such as charitable trusts and membership fees. This contrasts with the situation in the USA where although many partnerships emanate from the non-profit sector, federal, state and local government provide greater institutional support to watershed

initiatives (Lubell et al., 2002). State and local government agencies are often critical in this respect. Unlike in the UK, watershed partnerships in the US also receive significant funding, technical assistance and logistical support from federal and state government agencies through legal and policy mechanisms including *inter alia* soil conservation districts, agricultural extension and grants under the national Clean Water Act (1987). Critically, what was less clear from the data was whether lack of government support was impacting the survival chances (i.e. 'sinking') of UK partnerships, as the theory would infer. Data could not easily be collected on partnerships that had 'sunk', therefore it was impossible to explore the counterfactual.

From a *community* perspective, the data also show some slight divergences with practices in the USA. What is evident is the relatively strong engagement of special interests in UK watershed partnerships. Reasons for this are difficult to determine from the survey, and hence could be a subject of further in-depth qualitative study. Possible factors may be the differences in land ownership in the UK where private interests and fisheries tend to have a greater say in water management (Cook, 1998). Private citizens were, however, also engaged in UK partnerships. Yet whether greater human and social capital is more evident in the USA would require further investigation although it is nonetheless argued to be significant in overcoming transaction costs (Lubell et al., 2002). Finally, the notion that a mixed economy is a significant contributing factor to partnership development is difficult to substantiate in the UK context.

Conclusions

Collaborative approaches to watershed management have become much more common in the USA over the last decade. Their growth – allied to the normative appeal of local action and participation in pursuing sustainable development (Benson et al., 2013) – has led to big claims being made about the changing extent of collaborative environmental governance more generally. Yet the contemporaneous growth of similar forms in other, *non* US contexts such as the EU and Australia (Benson et al., 2012, 2013), raises important but as yet unanswered questions over why and in what form they are developing, and whether their development can be explained by the same theories.

The collaboration literature contains multiple interpretations of the concept of collaboration (Benson et al., 2012, 2013). Our analysis has shown that with more careful conceptual and empirical analysis, the putative shift towards 'more collaboration' in fact plays out rather differently in particular countries. It is apparent for example that only one of the three main sub-types of collaboration identified by Sabatier et al. (2005a) is present in the different institutional context of the UK, although a number of state-led fora that bear similarities to the conception of collaborative superagencies were detected. The national coverage established for these fora is a feature that is the reverse of the USA, where Sabatier et al. argue that the number of superagencies is low; a conclusion that resonates strongly with Pierson's (1994) argument that the UK is more politically centralised, although devolution processes are gaining momentum.

On the basis of this finding, we explored whether collaborative activities in the two cases are functionally equivalent. Drawing on the distinguishing characteristics of collaborative watershed partnerships, it was apparent that UK groups do share many features with those in the USA. In other words, the partnership concept does appear to travel from the US to the UK. Our evidence also shows that UK partnerships, as Sabatier et al. (2005a) equally suggest, are complementing rather than replacing the actions of the state-led groups, although in empirically quite different ways.

Our data revealed a picture of a small but growing number of watershed partnerships, the majority of which have appeared in the last decade. They are evolving (or 'diving in' and 'swimming') in response to a number of environmental problems, although the perceived desire to address diffuse water quality issues appears to have been an especially important driver. These bodies have drawn upon resources from a variety of sources, although levels of funding still remain low. Most, however, have managed to retain autonomy over decision-making and, unlike the WFD and Catchment Sensitive Farming initiatives, are not agency-dependent. While difficult to define precisely, the degree of human and social capital within partnerships appears mixed with a variety of actors playing active roles in their management structures.

In many ways, the hypotheses do serve as accurate predictors of the factors influencing the development of UK partnerships. This observation is all the more surprising, given the obvious differences between the UK and the USA. These include their respective institutional characteristics, as well as land use patterns and the availability of funding. Yet our analysis also indicates some areas where the theory struggled to account for patterns of institutional development, most notably the apparent lack of government agency collaboration when compared to the US.

Overall, the PCF is broadly capable of explaining patterns of partnership development, although it remains constrained by several factors, which could be fruitfully subjected to further development. Thus, the transaction costs argument did identify the biophysical factors driving formation and development, but struggled to explain why a lack of centralised support was seemingly not a major determinant. It may well be that UK groups are emerging in reaction to – rather than because of – the traditional centralised form of control typical of environmental management. In the USA, collaboration and delegation are more embedded into the political system, although Lubell et al. (2002: 159) note that groups emerge in response to a 'disillusionment with state and federal alternatives'. In addition, the influence of the lack of funding and agency assistance can only really be tested over longer time scales. The PCF predictions in relation to the significance of high levels of social capital did, however, appear relevant. Collaboration did seem to be generating high degrees of trust between different stakeholders. While public participation was reasonably strong in the UK survey, subtly different dynamics in terms of socio-cultural attitudes to collaborative environmental management may exist *vis-à-vis* the US context. Another difference was the rather limited involvement of governmental agencies when compared to practice in the USA. 'Travelling', in other words, is possible, but not trouble free.

Yet, as noted above, we must also be wary of differences in physical, demographic and higher level governance conditions between the USA and the UK as these may also be influencing factors on the numbers of collaborative watershed partnerships. These governance forms may be more amenable to the US context which has a much larger and diverse landmass, more extensive catchments and a larger rural population. Collaborative approaches in fact may be one of the only viable means for agencies to manage certain water resources, and this is facilitated by strong traditions of local autonomy under delegated authority within multi-level federal structures.

Nonetheless, having examined one theory in some depth and found that it holds up to empirical testing, what is the scope for new work in this area? In modifying the main propositions to make them more generalisable, clearly collaboration (at least in the UK) is not entirely dependent on agency support, but that in order to overcome transaction costs partnerships have had to generate funding from external sources, including public bodies, at a very early stage. Our analysis suggests that the ability to generate funding *per se* rather than receiving it from central sources, is perhaps more critical, although as discussed above the lack of a counterfactual in

terms of 'sinking' in the UK makes it difficult to test new hypotheses. Community hypotheses may also require some additional modification. Catchment partnerships in the UK did, in some cases, appear to be developing without strong public engagement suggesting it is desirable but not exactly necessary to development. As opposed to the US, where public involvement in the provision of local environmental services is driven by a spirit of community self-help and civic responsibility, the situation in the UK is more complex. Environmental protection has traditionally been the preserve of government agencies and private companies resulting in relatively limited public engagement (Cook, 1998). High levels of human and social capital are therefore important in hypothesising but this must also take account of socio-cultural factors such as community identity. Finally, the claim that a mixed economy is required for development does travel, although hypothesising could be modified to focus more on the influence of primary rather than extractive industries, for example farming (and, in the UK, types of agricultural activity). A new hypothesis might explore whether partnerships are more likely to emerge where specific farming practices impact populations or industries such as water service provision, since it is in the latter's interests to seek collaborative solutions.

A major weakness – and thus a priority for further study in both the USA and the UK – is the lack of understanding of factors that will determine the longer term sustainability and success of collaborative watershed and catchment partnerships. In part, they remain a recent phenomenon and thus sufficiently long time series data for relevant indicators of process and outcomes are not available. Given funding constraints, self-monitoring by partnerships is also often inadequate as priority is given to implementation of on-the-ground catchment improvement measures. For key aspects of water quality, the physical response times of catchment bio-physical systems may also be long; important if demonstrable success is such a key factor for sustaining both stakeholder and partner engagement, and future sources of funding. Despite these limitations, the 'populations' of initiatives that now exist in the USA, UK and elsewhere provide a basis to researching these issues in future.

The key point we want to make in conclusion is that the scope for a more comparative analysis of these topics is great. Our findings identify new research directions that could be taken, both for the field of water policy and comparative environmental governance research more generally. Having shown that theoretical arguments and their associated concepts do travel, the door is now open to the development of more universally applicable theories of collaboration that transcend national contexts. This could proceed via a broader-based study of other EU states, where similar partnership approaches are emerging in water management, although this would need to be wary of concept stretching. This work could eventually be extended beyond the EU to other states where collaborative watershed approaches have also been established (Benson et al., 2012, 2013), such as Australia, New Zealand or Canada. In addition, more in-depth comparative case testing of the theory could also be envisaged. However, if this stretching deforms the core concept of watershed partnership too far beyond its original US-based conception, then perhaps new theories and concepts will eventually have to be considered. Either way, the opportunities for interesting new comparative work – both theoretical and empirical – in this important area of contemporary environmental governance are very significant.

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