

“I have learned but I haven’t changed...”: Social learning and collaborative management in two European river basins”

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Natural Resources Management (NRM) processes are undergoing major transformations: technical and regulatory mechanisms are no longer considered sufficiently adaptive to address the complexity and uncertainty which characterise sustainable natural resource management challenges, thus motivating wider use of integrated and collaborative approaches. Against this background, new models of participative management are promoted which emphasise social learning among stakeholders. Indeed, social learning is increasingly stressed as an essential element of sustainable NRM and a prerequisite for social change. However, research which unambiguously demonstrates the dynamics and benefits of social learning is still limited. This paper presents the results from a comparative study of social learning based river basin governance processes in Germany and the UK. To capture the effects of social learning, we opted for a pre-test/post-test research design which included partially identical data being collected at two points in the stakeholder consultation process. The questionnaires explored the respondents’ motivations, aspirations, and attitudes, relational aspects as well as the collaborative process, its format and organisation. Responses from both data collection activities were compared to look for evidence of social learning processes and outcomes and to shed some light onto the conditions under which they occur. Although findings sustain some of the arguments put forward in the debate on social learning in NRM, they clearly illustrate the multitude of factors which constrain the occurrence of learning processes and eventually limit the extent to which these can contribute to sustainable NRM, collective action and social change. Whilst these results do not diminish the importance of learning processes or their potential in creating new opportunities for NRM they highlight the challenges of planning and managing appropriate collaborative processes.

1 Introduction

Natural Resources Management (NRM) is undergoing a major transformation: technical and regulatory mechanisms are no longer considered sufficiently adaptive to address the complexity and uncertainty which characterise sustainable NRM challenges. Sustainable development is widely viewed as a wicked problem (Rittel & Webber 1973) whose realisation ultimately depends on the capacity of different actors and groups to communicate, negotiate and reach collective decisions (Meppem & Gill 1997; Pahl-Wostl 2002; Schusler *et al* 2003). Against this background, new models of participative management are promoted which emphasise social learning among stakeholders (Meppem & Gill 1997; Röling & Marleveld 1999).

Social learning describes a process of communicative action where multiple stakeholders collectively learn about and understand each others’ interests, concerns and preferences through dialogue and deliberation (Röling & Marleveld 1999). Social learning in this sense facilitates the reflection of ones’ own views and fosters acceptance towards other stakeholders, their

interests and beliefs. These processes open up new opportunities to arrive at a shared understanding of a specific environmental situation and to develop new solutions as well as ways of acting together in pursuit of a shared ambition (Webler *et al* 1995; Pahl-Wostl 2002; Röling 2002). Webler *et al* (1995) for instance, stress that the crucial point of social learning in a participatory setting is when the group transforms from a collection of individuals pursuing their private interests to a ‘community’ which defines a common purpose and is oriented towards shared interests.

Despite a growing emphasis on social learning processes, empirical research which unambiguously demonstrates the dynamics of social learning remains sparse. Mostert *et al* (2007) report findings from 10 cases studies of participatory river basin management across Europe. In most cases, researchers found evidence of positive, mainly social-relational outcomes of the participatory processes such as an increased understanding of river basin management issues as well as a better understanding of the roles and views of other stakeholders. These accounts are consistent with the findings of other studies (Webler *et al* 1995; Schusler *et al* 2003; Rist *et al* 2006,; Steyaert & Jiggins 2007) which report similar effects of stakeholder involvement activities. Schusler *et al* (2003) for instance claim that the investigated search conference helped the participants to discover areas of agreement and disagreement and eventually lead to the identification of a common purpose for future planning efforts. Yet, whilst the cited studies provide many accounts of past experiences, there are also reports of mistaken learning (Schusler *et al* 2003), the intensification of conflict (Steyaert and Jiggins 2007) or a failure to reach agreement or verifiable consensus (Leeuwis 2000). We are not suggesting these cases considered to be of mixed success indicate a lack of social learning but they beg the question of why some collaborative initiative are more successful than others in encouraging social learning among stakeholders. After all, social learning is thought to be naturally occurring social process which is intensified when stakeholders with different perceptions come together and engage with each other (Mostert *et al* 2007). Although several studies highlight factors which are considered key to the creation of a learning environment, such as openness, diversity, opportunity for interaction and facilitation (e.g. Webler *et al* 1995; Mostert *et al* 2007), it remains difficult to judge the role social learning can play for natural resource management or under which conditions it might help pave the way for collaboration, collective action and new solutions to resource management problems.

In the following text, we present the results from a field study of social learning in participatory River Basin Management (RBM) planning initiatives in Germany and the UK which were established in compliance with the European Water Framework Directive (WFD). With this research, we pursued two objectives: firstly, to examine whether social learning occurred among

participants of two stakeholder panels and secondly, to understand the conditions which contributed to or hindered these learning processes. Since a presentation and discussion of all study results is beyond the parameters of this paper, we will focus our reporting on the analysis of the learning environment and only briefly summarise the social learning processes identified in the investigated cases. By doing so, we aim to provide insight into how the beneficial outcomes of social learning can be realised by planning and managing appropriate processes. The paper begins with a description of the case study background, followed by an outline of the methods for data collection and analysis. Evidence of social learning outcomes are presented briefly, before barriers to social learning in the investigated cases are identified. A discussion of these findings and description of their implications for further research and practice conclude this paper.

2 Case studies

A case study strategy was adopted since case studies provide the opportunity to observe a social process over an extended period of time and to collect comprehensive data to develop a better understanding of a social phenomenon (Walton 1992). Two recently established participation initiatives were selected for this inquiry. Their selection was based on a set of process features which are proposed in the literature to encourage social learning: a high level of participation, inclusiveness and openness (Webler *et al* 1995; Schusler *et al* 2003). Nevertheless, it should be noted that these stakeholder panels (SP) are representative of a multitude of new processes initiated to ensure compliance with the regulations of the WFD and to involve stakeholders in RBM.

The first of these cases (SP-G) is located in Germany and was established shortly before the beginning of the study period. The panel is as part of a pilot project which aimed to test methods and processes for selecting cost-effective measures as requested by Art 11 of the WFD. Local stakeholder groups and organisations were asked to nominate an official representative to serve on the panel which led to a list of twenty members representing agriculture, environment and nature conservation, industry and commerce, water supply, wastewater treatment, hydropower, fisheries, tourism (canoeing and motor boating) and the municipalities. Over the course of the 18 month project, stakeholders advised the responsible authority on the selection of cost-effective measures for water bodies within the remit of the pilot project. The project focused on a number of water bodies covering an area of approximately 4,756.6 km which form part of one of the ten River Basin Districts (RBD) in Germany (Regierungspräsidium Gießen 2006).

The second case (SP-UK) was one of eleven advisory stakeholder bodies which were established by the competent authority to support implementation of the WFD in England and

Wales. The fifteen panel members were appointed by the authority on a ‘Scheme of Appointment’ and took up their posts shortly before the start of the study period. The following sectors and institutions were each represented by one participant in the SP-UK: the Environment Agency, Regional Assemblies, Regional Development Agencies, Local Authorities, Natural England, the Internal Drainage Boards, National Parks, water companies, environmental NGOs, farming, business and industry, ports, extraction and minerals, consumers as well as fishing. During the period of this study, members specifically contributed to the development of the strategy to consult the wider public in the planning process and helped identify the RBD’s (27,890 km²) most significant water management issues (Environment Agency 2006).

Both the SP-G and SP-UK met approximately every three months; the SP-G usually for a half day and the SP-UK for a full day session. Meetings were in both cases chaired by the competent authorities who also suggested the agenda and work process for each meeting. Panel sessions followed the same format, with the authority or external experts giving a presentation followed by a discussion among the panel members.

3 Data collection and analysis

To capture the effects of social learning, we opted for a pre-test/post-test research design which included partially identical data being collected at two points in the stakeholder consultation process. Based on a review of previous theoretical and empirical research of social learning, we developed two structured questionnaires to elicit information from the stakeholders participating in the investigated panels. The analysis of social learning focused on two interrelated dimensions of change, namely socio-relational and cognitive changes as well as stakeholder interaction and communication and the process format.

Socio-relational changes are associated with an intensification of relationships and trust building. Stakeholder collaboration can transform relationships, defined by Weber (1981) as the way we feel and behave towards each other, in three ways: deepen existing relationships, modify adversarial relationships and establish new relationships (Schusler *et al* 2003). Trust building is a second indicator of socio-relational changes and refers to individual’s belief or expectancy regarding the attitudes or future behaviour of a person or group (Offe 1999). However, both relationship as well as trust building not only require shifts in the way individuals perceive others but also how they place themselves within the group. Webler *et al* (1995) speak of moral development which results in a sense of self-respect and responsibility to oneself and others, a sense of solidarity, commitment to the common cause and the adoption of collective interests as one’s own (see also Frame *et al* 2004). Rist *et al* (2006) use the term

connectiveness to describe an increased interest in pursuing shared interests and working as part of a group.

Cognitive changes, including processes of self-reflection, of recognising each others' perspectives, co-creating knowledge as well as understanding the complexity of the system are considered key elements in the shift from multiple to collective cognitions, a process, often ascribed to social learning (Röling 2002). In the context of participatory resource management, multiple cognition describes a situation which is commonly found at the start of a collaborative effort, where stakeholders holding different views based on their beliefs, experiences and interests enter the process. By going through different stages of deliberation, reflection, and learning, stakeholders might accommodate and transform their views, eventually merging them into collectively held views and shared understandings. In other words, the process of transformative learning gradually changes an individual's view on the world and themselves which is seen as a first step towards mutual agreement and collective action (Pahl-Wostl 2002; Schusler *et al* 2003).

Factors which are thought to facilitate social learning can be grouped into aspects related to the structural design and organisation of a collaborative initiative, such as diversity, information exchange, opportunity for interaction over an extended period of time, and process control (Webler *et al* 1995, Schusler *et al* 2003, Tippett *et al* 2005) and properties of communication and interaction processes, such as openness and equal opportunity to participate (Frame *et al* 2002; Schulz *et al* 2003; Cheney *et al* 2002).

Table 1 specifies the indicators which were employed in this study. The questionnaires consisted mainly of closed questions with standardised response categories. Participants were asked to rate the extent of their commitment, interest etc. or indicate their level of agreement with a statement of a Likert-type scale. In order to explain the survey data and to develop a deeper understanding of stakeholder thinking and group dynamics, the questionnaires were used to collect both quantitative and qualitative data. Responses were recorded on the questionnaire sheet; any further comments were noted by the researcher. Since the post-test questionnaire was more extensive than the first, responses were tape recorded to ensure greater accuracy in the analysis of the qualitative data. Furthermore, experiences from carrying out the pre-test survey suggested that the complexity of the concepts under investigation prompted many respondents to elaborate on their responses. Oral consent to tape recording was obtained prior to post-test questionnaire administration.

Table 1: Indicators derived from the literature for inclusions in this study

Indicators	Craps & Maurel (2003)	Frame et al (2004)	Ison et al (2004)	Schusler et al (2003)	Schulz et al (2003)	Cheney et al (2002)	Webler et al (1995)
Process format							
Inclusiveness		✓		✓			
Extended timeframe		✓		✓			✓
Information exchange		✓		✓			✓
Interactive methods		✓		✓			✓
Process control		✓		✓			
Communication & interaction							
Openness							
Information sharing		✓		✓		✓	✓
Openness about interests & goals		✓		✓		✓	✓
Equal opportunity							
Ability to influence	✓	✓			✓	✓	
Own ability to influence					✓	✓	
Socio-relational changes							
Improved relationships	✓	✓		✓	✓		✓
Trust							
Commitment		✓				✓	
Interest in common good			✓	✓	✓	✓	✓
Interest in others' concerns				✓	✓	✓	✓
Connectiveness							
Sense of community		✓	✓		✓		
Interest in common good		✓					✓
Commitment		✓					✓
Cognitive changes							
Knowledge							
Factual knowledge	✓	✓	✓	✓	✓		✓
Knowledge about others	✓	✓	✓	✓			✓
Knowledge about oneself	✓		✓				✓
Changing views							
Changed views	✓		✓				
Common views	✓		✓	✓			✓

The pre-test questionnaire was administered to the stakeholders between August and October 2006, after the study had been described to the SP-G and SP-UK groups at their second and first meeting respectively and relevant permissions sought and granted. The post-test questionnaire was completed between May and October 2007, after each panel had convened on five occasions. No qualifying criteria were applied other than regular group membership. Since we opted for a re-test approach, the level of attendance could only be established in retrospect. However, since the SP-G had already convened twice prior to the time of the first data collection, a 'core' of regular panel members had already emerged. Consequently, only those 13 individuals, out of 20 invited members, who had attended both the first and the second meeting, were approached with the request to participate in the study. In the SP-UK, all Panel members

who had participated in the first meeting were contacted. In all, 14 stakeholders had attended of which one was a substitute and two were pro-temp members; one seat still had to be allocated, reducing the number of eligible respondents to ten. Seven out of thirteen stakeholders regularly attending the SP-G sessions and seven out of fifteen stakeholders on the SP-UK contributed to the findings reported here. Table 2 describes the interests represented by the study participants, the type of organisation they were affiliated to and the number of meetings attended by each participant.

Table 2: Description of the study participants

Respondent	Interest represented	Type of organisation	No. of meetings attended
SP-G			
G1	Environment & nature conservation ; Water supply	Professional	5
G2	Environment & nature conservation ; Angling	Voluntary	3
G3	Environment & nature conservation ; Angling	Voluntary	5
G4	Region/Municipality	Professional	3
G5	Waste water	Professional	3
G6	Environment & nature conservation	Voluntary	4
G7	Business & Industry	Professional	4
SP-UK			
UK1	Region/Municipality	Professional	4
UK2	Farming	Professional	4
UK3	Business & industry	Professional	5
UK4	Navigation	Professional	4
UK5	Recreation	Professional	3
UK6	Water level management	Professional	3
UK7	Environment & nature conservation	Professional	4

Quantitative data was processed using Excel 2003 (Microsoft Office). The main objective of the data analysis was to identify changes and specifically the direction of change in the respondents' perceptions and attitudes by comparing their pre-test and post-test responses to closed questions. The tape recordings were analysed using the qualitative analysis software Transana 2.21 (Center for Education Research at the University of Wisconsin). A coding system was developed to summarise the textual and audio data. Once coding was complete, the responses were grouped into themes to aid interpretation of results.

4 Results

In the following, we briefly present the results of the analysis of social learning processes in both stakeholder panels which is mainly based on a pre-test/post-test comparison of responses (see Table 3). Primarily drawing from an analysis of the textual and audio data, we then identify factors which influenced learning among stakeholders in the investigated cases. Rather than simply stating the frequency with which certain statements were made, the text clearly indicates which respondents made a certain comment or statement by referencing their identification.

Table 3: Summary of socio-relational and cognitive changes recorded in the SP-G and SP-UK

Indicators		Stakeholder panels	
Socio-relational changes		SP-G	SP-UK
Relationships	Most existing relationships have not changed during the collaboration; individual accounts of deepened relationships with those representatives who pursued similar interests coincide with a strengthening of negative perceptions; more than half of the respondents claim to have established working relationships with previously unknown participants.	Most existing relationships have not changed during the collaboration; individual accounts of deepened relationships with those representatives who pursued similar interests coincide with a strengthening of negative perceptions; only few new relationships were developed.	Most existing relationships have not changed during the collaboration; individual accounts of deepened relationships with those representatives who pursued similar interests coincide with a strengthening of negative perceptions; only few new relationships were developed.
Trust	Trust was low among stakeholders at the beginning of the consultation process but increased slightly or remained at a moderate level throughout the collaboration; only one respondent developed a more negative impression of the other panel members during the time of the study.	Respondents displayed a remarkably high level of trust towards other panel members from the outset of the collaboration; although trust remains largely unchanged among UK panel members, we noted few slight negative changes.	Respondents displayed a remarkably high level of trust towards other panel members from the outset of the collaboration; although trust remains largely unchanged among UK panel members, we noted few slight negative changes.
Connectiveness	Sense of community has strongly increased; respondents remain highly committed to the process and the pursuit of shared interests.	Sense of community has strongly increased; respondents remain highly committed to the process and the pursuit of shared interests.	Sense of community has strongly increased; respondents remain highly committed to the process and the pursuit of shared interests.
Cognitive changes			
Knowledge	Most stakeholders have increased their knowledge of water resources and river basin management as well as their understanding of the interests and concerns of other panel members; self reflection was comparatively weaker.	Most stakeholders have increased their knowledge of water resources and river basin management as well as their understanding of the interests and concerns of other panel members; the majority of stakeholders used the opportunity to reflect upon their own interests in RBM planning.	Most stakeholders have increased their knowledge of water resources and river basin management as well as their understanding of the interests and concerns of other panel members; the majority of stakeholders used the opportunity to reflect upon their own interests in RBM planning.
Changing views	New understanding had no impact on the interests pursued or general views of the main issues and problems for RBM; only few respondents felt stakeholder group developed a common view of the current status of the water bodies as well as immediate problems and their causes.	New understanding had no impact on the interests pursued or general views of the main issues and problems for RBM; only few respondents felt the stakeholder group developed a common view of the current status of the water bodies as well as immediate problems and their causes.	New understanding had no impact on the interests pursued or general views of the main issues and problems for RBM; only few respondents felt the stakeholder group developed a common view of the current status of the water bodies as well as immediate problems and their causes.

We only found limited evidence that relationships intensified as a result of the respondent's involvement in the panels. Few respondents claim to have deepened existing relationships through the collaborative process. On the contrary, there are individual accounts of a perceived irreconcilability of views, in both case studies. The main effects of a collective learning process can be found amongst the recorded changes in the cognitive dimension. Participants indicated a strong increase in their general knowledge about water and RBM as well as about the interests and concerns of other stakeholders. The UK respondents stressed that the activity helped them to reflect on their own interests, an effect which was somewhat weaker in the German panel. Although involvement in the panel enriched stakeholders' views, there was little evidence suggesting that stakeholders developed a common understanding of the environmental situation.

The analysis of the audio and textual data identified two interrelated themes which seemed to have limited opportunities for learning among stakeholders: a lack of dialogue and deliberation and the regulatory and institutional context.

Respondents from both panels highlighted that opportunities for in-depth discussions of views and opinions was limited. It was widely noted that too much time was spent on gathering and exchanging information, rather than cross-examining and discussing information (G1, G2, G3, G5, G7 and UK1, UK2, UK3, UK6). Surprisingly though, this deficit was not attributed to the participation techniques but the regulatory framework and its translation into procedures and priorities by the competent authorities. Especially UK stakeholders noted that the authority's approach to implementing the WFD dictated the focus of stakeholder activities, thereby limiting their interaction to certain topics, preventing them from exploring each others' views, motivations and concerns (UK1, UK2, UK3, UK6, UK7). According to one respondent, the WFD was 'set in stone' only allowing people to work their way around it (UK6), meaning that there was limited opportunity to steer away from the objectives, procedures and methods defined by the competent authorities' implementation strategies.

Yet, interaction was not only limited by the practical implementation of the WFD by the competent authorities. Some respondents' perception of the regulatory framework also affected their willingness to collaborate. Respondents from both case studies considered the WFD to be an 'environmental directive' implying that there was a bias towards the environmental sector (G2, G3, G6 and UK2, UK3, UK5, UK6). A number of German respondents noted that it was evident from the directive's orientation towards environmental interests who would be benefiting from its implementation and who would be negatively affected, or, as they expressed it, who would win or lose (G2, G3, G6). Two respondents gave an indication of how this perceived bias affected their behaviour in their communication with other stakeholders by expressing a feeling of being the 'bad guys' (UK2 and G5). One respondent noted that there seemed to be a division in the group between the people who wanted to protect the river and those who prevented the river from reaching its good potential. As a representative of a sector who was likely to be affected by the provisions of the WFD and expected to deliver some of the measures, this stakeholder grew increasingly unwilling to discuss his sectors' interests openly (G5). A similar view was expressed by one stakeholder in the UK who represented the farming sector which was linked to most of the significant water management issues in the RBD during the discussions of the SP-UK. The respondent admitted that he did sometimes 'hold back in order not to stir things up' (UK2).

5 Discussion

The analysis of social learning processes in two stakeholder panels reported above only provided limited accounts of social learning. Relationship building was moderate and coincided with individual accounts of a manifestation of stereotypes, a fear, many proponents of deliberative democracy have voiced. Rather than learning to accept the legitimacy of alternative viewpoints and the recognition of similarities or shared interests, dialogue might actually assert identities and differences (Dryzek & Braithwaite 2000). Whilst there was a moderate increase in trust among German respondents, UK respondents tended to adapt previously high levels of trust to more moderate levels. However, these changes are not necessarily an indication of negative perceptions of other participants. Considering that trust was remarkably high among UK respondents, it is more likely that they adjusted their enthusiastic expectations to a more realistic, experience-based level of trust (McKnight *et al* 1998). Whilst the involvement activities greatly contributed to stakeholders' knowledge of RBM and a better understanding of the issues and concerns which were relevant to other interest groups, the collaboration had little effect on their own perceptions or even the development of a shared understanding of the environmental context.

Previous research highlights the need for dialogue and in-depth discussions for processes of social learning (Mostert *et al* 2007). Information exchange plays an important role for social learning but needs to include the exchange of information about perceptions and opinions (Tippett *et al* 2005). Mostert *et al* (2007) explain that social learning requires the integration of different 'frames of perception' of stakeholders. These frames are defined by an actors' assumptions, interests, values and beliefs, and determine what he sees as being in his interests, subsequently guiding the interpretation of information, and thereby shaping viewpoints and opinions (Schoen & Rein 1994). Findings suggest that processes of framing and re-framing were cut short in the investigated cases by the competent authorities' narrowly structured involvement activities. The role of regulatory and institutional contexts as potential barriers to social learning has been highlighted by other researchers, if only recently (Mostert *et al* 2007; Steyaert & Jiggins, 2007). Mostert *et al* (2007) explain that regulatory and institutional frameworks can inhibit learning in cases where institutions are unwilling to change or involve stakeholders. Yet, our findings suggest a somewhat different influence of the regulatory and institutional context, similar to an observation which Quaghebeur *et al* (2004) termed the 'paradox of participation': on the one hand, they explain, agencies and authorities invite the public to participate in planning and decision-making whilst on the other hand dictating the problems that need to be addressed and the ways by which the public can become involved.

Secondly, a perceived bias in the regulatory framework, be it due to an individual's own interpretation or to how it is interpreted and communicated by the competent authority, might affect a stakeholders willingness to collaborate. Whilst this specific relationship has not been researched yet, previous studies suggest a connection between clarity of the role of stakeholders and social learning. More specifically, Mostert *et al* (2007) suggest that doubts about an individual's or a group's impact on the planning process limits their motivation to participate which can have a detrimental effect on learning.

Although results suggest social learning was hindered by a lack of interaction, we need to acknowledge the possibility of 'an irreducible plurality of standpoints' (van den Hove 2006) as an alternative explanation for the limited approximation of views among participants. Van den Hove (*ibid.*) states that it might not always be easy to identify what common interests are; nothing guarantees that a generalisable interest can be found or that differing values and beliefs can be brought together. Based on our findings, we cannot claim that viewpoints were irreconcilable in the investigated case studies or indeed, that they prevented the emergence of a common understanding among panel members. However, it should be noted that the feeling of an irreconcilability of views was shared by stakeholders on both panels and is likely to affect their beliefs and behaviours unless these assumptions are challenged.

Finally, it should be noted that we studied a very limited period in the 'life' of two stakeholder groups. Whether this study period was adequate is impossible to judge but results should be seen in this context. However, it should be noted that relational phenomena, as they arise out of interaction, are inherently dynamic and time-dependent (Cooper & Skaggs Sheldon 2002). Rist *et al* (2006) conclude that different features of social learning processes tend to occur simultaneously, their prominence varies depending on the phase of the stakeholder activity. Whilst trust building and the reshaping of communication patterns are especially noticeable in the early stages of involvement initiatives, the emergence of common values and activities is more likely to follow during the more advanced phases, given the opportunity for dialogue and collective introspection.

6 Conclusions

This paper has presented the findings of an analysis of social learning processes in two participatory RBM processes. Although findings sustain some of the arguments put forward in the debate on social learning in NRM, they clearly illustrate the complexity of learning processes and the interdependencies between learning and learning environment. Our findings highlight a number topics for future research: this study utilised repeated evaluations of collaborative initiatives to understand the multi-dimensionality and complexity of social

learning among stakeholders. Results only provided a snapshot of social dynamics which are expected to change and evolve over time in the investigated cases. Researchers are encouraged to further develop this research design and utilise frequent measurements to develop a better understanding of the temporal structure of learning processes. In this context, it will also be important to include various forms and contexts of stakeholder involvement, to explore the links between contexts, process designs and cognitive and socio-relational changes. This would certainly help to specify situations and collaborative approaches which are likely to foster learning but also give an indication of the resources and efforts needed by competent authorities aiming to initiate social learning among stakeholders.

Finally, despite acknowledging the need for further research, some practical lessons can be drawn from the study. Although findings highlight the need for interactive methods and good process facilitation to encourage dialogue and collective introspection, a social learning approach should not be reduced to a set of structural process features. Beyond participation techniques, allowing stakeholders more control over the process might be key to fostering social learning among participants. Narrowly defined problems, issues and even procedures, might not only prevent stakeholders from exploring and identifying issues of common concern, competent authorities can equally diminish cooperative attitudes by prioritising problems and defining ways of dealing with them without consulting participating stakeholders. We acknowledge that these suggested shifts in power are limited by non-negotiable factors, such as the legal provisions of the WFD as well as practical resource constraints experienced by competent authorities. Yet, we believe that social learning approaches to NRM will require competent authorities to reassess the role of stakeholders and stakeholder engagement in NRM.

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