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# Social Learning in European River-Basin Management: Barriers and Fostering Mechanisms from 10 River Basins

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ABSTRACT. We present and analyze 10 case studies of participatory river-basin management that were conducted as part of the European HarmoniCOP project. The main theme was social learning, which emphasizes the importance of collaboration, organization, and learning. The case studies show that social learning in river-basin management is not an unrealistic ideal. Resistance to social learning was encountered, but many instances of social learning were found, and several positive results were identified. Moreover, 71 factors fostering or hindering social learning were identified; these could be grouped into eight themes: the role of stakeholder involvement, politics and institutions, opportunities for interaction, motivation and skills of leaders and facilitators, openness and transparency, representativeness, framing and reframing, and adequate resources. Promising topics for further research include the facilitation of the social learning processes, the role of power, and interactions in political and institutional contexts.

Key Words: *collaboration; Europe; public participation; river-basin management; social learning*

## INTRODUCTION

Social learning is a promising approach for river-basin management and in general, natural resource management. The term social learning was first made popular by the psychologist Bandura (1977), who used it to refer to individual learning based on the imitation of role models. The term has since been used extensively in the field of public policy to refer to policy change and the role that ideas play in this (Hall 1993, Greener 2001). In a third tradition, social learning is linked to concepts such as public participation, polycentric governance, collaborative governance, comanagement of natural resources, and common-pool resource management (e.g., Webler et al. 1995, Wenger 1998, Pretty and Ward 2001, Pahl-Wostl 2002, Schusler et al. 2003, Ison et al. 2004, Olsson et al. 2004, SLIM Project 2004, Ridder et al. 2005). The work that we present here stands in this last tradition.

Social learning is based on three key ideas. First, all stakeholders should be involved in natural resource management. Typically, no single stakeholder has all the necessary information, legal competencies, funds, and other resources to manage a natural resource to his or her satisfaction; therefore, the

stakeholders need to collaborate. Second, natural resource management requires a form of organization. To facilitate collaboration and coordinate their actions in a sustained way, the stakeholders need to enter into a long-term working relationship. This can be done through users' organizations (e.g., Ostrom 1990, Meinzen-Dick 1997, Pretty and Ward 2001), multistakeholder platforms (e.g., Leach and Pelkey 2001, Warner 2006), or informal policy networks (e.g., Klijn and Koppenjan 2000, 2006). Third, natural resource management is a learning process (cf. Holling 1978). It requires the development of new knowledge, attitudes, skills, and behaviors to deal with differences constructively, adapt to change, and cope with uncertainty.

Social learning can be analyzed as a process that takes place within a context (Craps 2003, Ridder et al. 2005, Pahl-Wostl et al. 2007). The context includes the natural context, e.g., geography, hydrology, and ecology, as well as the social context, e.g., the governance system, economy, and culture. The social learning process can begin when the stakeholders realize their interdependence and think that participation in the process can yield better results than unilateral action. The initiative

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can come from one of the stakeholders or from an external party. The process involves the development of trust, joint problem definition, joint fact finding, the development and assessment of different alternatives, joint decision making, and joint planning for implementation (Gray 1989, Ridder et al. 2005). The outcomes of the process can include both improved management and social–relational outcomes such as better relations, increased trust, empowerment of stakeholders, and the establishment or strengthening of networks.

The theory of social learning is further elaborated in Pahl-Wostl et al. (2007). Here, we put the theory to the test. We look for evidence of social learning processes and outcomes and attempt to identify the factors that foster or hinder social learning. Our analysis is based on 10 case studies of participatory river-basin management in Europe that were prepared as part of the HarmoniCOP project (Rees et al. 2005, Tippett et al. 2005).

## METHODOLOGY

As part of the HarmoniCOP project (www.harmonicop.info), 10 case studies of participatory river-basin management were conducted to obtain detailed and contextualized information about social learning (cf. Yin 1994). The cases covered a wide range of geographical, cultural, historical, and institutional contexts and included both completed and ongoing processes (Table 1). The research methods used included document analysis, interviews, and in the case of ongoing processes, observation. In half of the cases the researchers participated actively in the process or helped to design the process. The cases and research methods were selected on the basis of their availability, the skills and experience of the different research teams, and the willingness of the stakeholders to involve the research teams as observers, participants, or co-designers. Most case studies began in October or November 2003 and were finalized in August or September 2004.

To support data collection and ensure that the case studies were comparable, a pool of social learning questions and a reporting template were developed. Following the reporting template, the case studies described the natural and social context of the process, the process itself, i.e., the activities and phases and information and communication tools used, the outcomes, and the feedback or effect on the context. The process was further analyzed in terms of: (1) framing and reframing processes (cf. Dewulf et al. 2005*b,c*); (2) the definition of the roles of the participants; (3) boundary management, dealing with issues such as what is discussed, which groups are involved, and the relation between the representatives in the process and their constituencies (cf. Prins et al. 2005); (4) the evolution of interests as perceived by the participants and the strategies of the participants; (5) critical moments or turning points in the process; and (6) factors that promote or hinder social learning. The pool of social learning questions (Craps and Maurel 2003) contained a large number of questions concerning these issues to support the analysis.

After the individual case studies were completed, we combined into one large list all the factors fostering or hindering social learning that were mentioned in the individual case studies. The authors of each case study were then asked to score the significance of each factor for their case from 0 to 3, where 0 was specifically not an issue, 1 was an issue but not necessarily significant, 2 was an important issue, and 3 was critical for social learning. The authors of the case studies could and did add qualitative and contextual information to their scores during this synthesis stage of analysis. The scores for the different cases were then summed to arrive at an overall impression of the significance of the different factors.

In all of the case studies except the one from Italy, the participation process studied and/or the draft conclusions of the case study were discussed in workshops with representatives from the main stakeholder groups. Nonetheless, the conclusions of the case studies remain the responsibility of the authors.

## EVIDENCE OF SOCIAL LEARNING

### Overview

We summarized the 10 case studies in terms of their country, basin, methods used, main issues, contextual factors, data about process characteristics, and outcomes (Table 1). In most cases, stakeholder fora or other platforms were established to allow interaction among the different stakeholders. In a few cases, this interaction was limited to a subset of stakeholders, e.g., the case study from Belgium, or

**Table 1.** Overview of the case studies. The types of studies included (1) literature review of a completed process, (2) interviews with stakeholds involved in completed process, (3) observation of an ongoing process, (4) participation in an ongoing process, and (5) design of and participation in an ongoing process.

| Country | Basin | Type of stu- dy | Topic | Context | Process | Major outcomes | Reference |
|---|---|---|---|---|---|---|---|
| Belgium | Flemish | 4 | Valley development initiative, with emphasis on nature development and flood protection; this was the initiative of one of the two main authorities, which at first did not want to involve the other authority | Ongoing discussions on transferring management respons- ibilities; limited experience with participatory approaches | Public involvement limited to information and consultation | Better relations between the two main authorities | Craps and Prins (2004), Prins et al. (2005) |
| England and Wales | Ribble | 4 | Pilot basin for the implementation of the European Water Framework Directive (WFD), focusing on water quality and ecology | WFD pilot basin; testing of guidance from the Common Implementation Strategy | Establishment of a stakeholder forum, although some stakeholders were difficult to reach; visioning workshops at local and regional levels | Stakeholder vision for the basin; inflexibility at the national level constrained social learning at the basin level | Davis and Rees (2004) |
| France | Dordogne | 1, 3 | A wide variety of problems related to the Dordogne river; the maintenance of two tributaries, the Cère and the Céou | Cooperation among the six major departments in the basin, supported by elected politicians; strengthening of position toward other stakeholders | Establishment of EPIDOR, a joint river board, and organization of the Dordogne Valley Summit with 150 participants; Cère basin: the project leader of the participatory process conducted research, making contacts and building trust; Céou basin: an external consultant was hired and a meeting was organized | Valley Charter, containing agreement on 370 targets; no agreement could be reached on 32 targets; some competency struggles remain between EPIDOR and other institutions; Cère basin: important agreements were reached; Céou basin: little progress was made | Barraqué et al. (2004) |
| Germany | Elbe | 5 | Implementation of the WFD at the international and national levels; public participation in the state of Thuringia | Tradition in which public participation is limited to information provision | Newsletters and fora at different levels; limited interaction among stakeholders | Limited results | Borowski (2005) |

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|---|---|---|---|---|---|---|---|
| Hungary | Danube | 1, 3 | National dialogue on water for food and the environment dealing with the implementation of the WFD in agricultural water management | Hungary recently joined the European Union; difficult economic situation in the agricultural sector; tension between agricultural and environmental organizations | Twenty-three meetings with agricultural water management organizations, experts, ministry representatives, and the Worldwide Fund for Nature (WWF), with presentations and discussions on topics selected by the participants | Changes in the official Hungarian reaction to the European Commission's document on the WFD and the Common Agricultural Policy; development of trust between the water management organizations and WWF; implementation of joint pilot projects | Ijjas and Botond (2004) |
| Italy | Bacchig-lione | 1, 4 | Development of sewage treatment infrastructure to protect drinking water sources | Local opposition to a proposal to relocate a wastewater discharge outlet | Creation of a technical working group with stakeholder representation | The problem was reframed in terms of basin-wide water quality improvement and social consensus was achieved; the water authority does not recognize the legitimacy of the working group and uses it instrumentally | Massarutto et al. (2004) |
| The Net-herlands | Meuse | 1, 2, 3 | Integrated exploration of the Meuse by a regional branch of the National Water Management Agency to study whether increasing peak discharge caused by climate change can be managed by widening the river bed | National flood protection policy to widen rivers | Working sessions with different authorities and organized stakeholder groups to obtain information and points of view | Trust and understanding grew at the interpersonal level; policy and decisions at the national level could not be discussed, which constrained social learning | Otter et al. (2004) |
| Scotland | Dee | 1, 5 | Development of a catchment management plan and pilot projects in three subcatchments | The lead organization recognized early in the process that it could not deliver environmental improvements without the knowledge and expertise of other stakeholders | Creation of a steering group and working groups with all major stakeholders | Increased capacity and confidence of stakeholders improved relations; new management options were developed and implemented | *Unpublished manuscript* |
| Spain | Muga | 1, 2, 3 | Integrated assessment of water uses and water quality | Historical: regime changes; Recent: movement for a new water culture with less infrastructure and more demand-based management | Limited formal participation; participatory integrated assessment organized by a university | Environment and economy are no longer seen as necessarily conflicting | Tàbara and Saurí (2004) |

| Spain | Guadiana | 1, 2 | Elaboration of the special plan for the Upper Guadiana basin to deal with water scarcity issues | Overexploitation of the aquifer | Creation of a general users' association in 1986; information and consultation activities in 2002–2003; less formal participation from 2004 to the present | The special plan is still under elaboration; important changes have taken place at the national political level since 2004 | Maestu and Costeja (2005) |

to consultation only, e.g., the case study from Germany. In both of these cases, the researchers were actively involved in the process, but there was too much reluctance from the side of the lead agencies to use a truly interactive approach. Nonetheless, even in these cases, some positive outcomes could be achieved. In most cases, the lead agencies were willing to try new and more interactive approaches despite their unfamiliarity with these approaches and the existence of tensions among the different stakeholders, e.g., the case study from Hungary.

Most processes resulted in positive outcomes for the stakeholders concerned. Most of these were of a social–relational nature such as better relations between organizations, e.g., case studies from Belgium, Hungary, and Scotland. However, some more substantive improvements were reached as well. In some cases, important progress was made, but important issues remained unresolved, e.g., the case study from France. In several cases, inflexible national policy and regulations made it difficult to act upon the insights gained and agreements reached, e.g., case studies from The Netherlands and England and Wales.

The general impression arising from the analysis of the cases was mixed. Achieving social learning was not easy, and often it was quite limited. However, the cases show that social learning can potentially contribute to better management and be used to mitigate or solve controversial issues.

## Processes

### Network activation

Social learning for issues involving several stakeholders requires the existence or development of an effective network. In the Dee basin, Scotland,

the lead organization recognized early in the process that it could not deliver the required environmental improvements without the knowledge and expertise of other stakeholders such as farmers. A steering group that included all key organizations and had funding and statutory responsibilities was established, along with working groups composed of representatives of all stakeholder groups likely to be affected. Moreover, a public awareness and involvement working group was established in each of the three subcatchments. The activities of these groups helped to increase the capacity and confidence of the stakeholders. In the Ribble basin, England, a stakeholder forum with approximately 30 different stakeholders was established. Visioning workshops at local and regional levels were used to give the stakeholders the opportunity to identify the issues that they considered most important.

### Active management of boundaries

The case studies highlighted complex boundary issues. Stakeholders in river-basin management have different geographical and issue-related areas of interest and they operate at different spatial scales. Moreover, the relevant competencies are usually spread over different authorities. Implementing a multistakeholder process involves the creation of at least one new boundary, the boundary around the process. An important question is: Who is and who is not involved in the process?

In the Ribble basin, comprehensive stakeholder mapping was used to identify a wide range of stakes and to make the participatory process more representative. A questionnaire was sent to a multitude of groups that were identified on the basis of: organizational type, e.g., public sector, private company, nongovernmental organization, community group; scale of operation; interest in the water environment, e.g., ecological, water quality,

recreational; and interest in involvement, e.g., active involvement, consultation, receiving information (Riley 2004). Some groups such as the business sector were difficult to reach. This may have been because of a lack of communication about the relevance of the process to their interests. The process was in its early stages, so concrete measures or benefits were not yet apparent.

Some case studies highlighted the involvement of all major stakeholders as an important aspect of the process. Most of the processes studied involved representatives who were responsible for bringing the views of their organizations to the process and feeding back the outcomes of the process to their respective organizations. As they developed a sense of belonging to the multistakeholder initiative, trust and understanding could develop. However, concerns were raised about the transfer of this trust and understanding to the organizations of the representatives. Moreover, over-reliance on individual representatives was thought to be risky because individuals may leave their organizations and therefore leave the process.

*Stakeholders' perceptions and resources*

In a number of cases, differences in stakeholders' perceptions of the scope of the process were evident. In the Ribble basin, the public authorities were concerned with wider strategic visions, whereas the local stakeholders were more concerned about concrete initiatives. In the Meuse basin, The Netherlands, the scale at which flood alleviation measures were being developed, i.e., the basin scale, was too far removed from the interests of some stakeholders.

In most cases, there were significant asymmetries in resources among the different stakeholders. For example, in the Flemish basin, Belgium, the public authorities leading the process had many more financial, technical, and legal resources and information than did the other stakeholders, who had to invest their own time in the process.

*Integration across scales and policy domains*

Integration across different scales and policy domains was highlighted as a major challenge in many of the case studies. In the Meuse and Ribble basins, inflexibility at the national level constrained learning at the local level. In the Danube basin, Hungary, national representatives participated in

meetings at the local level, resulting in better integration. In the Muga basin, Spain, it was recommended to integrate public participation in water management into the wider domain of spatial and land-use planning to increase the adaptive capacity to solve environmental problems.

## Outcomes

*Increased understanding of key issues*

In most case studies, the participatory processes resulted in increased understanding of river-basin management issues. In the Tarland subcatchment of the Dee basin, a local resident and member of the steering group who was respected by the local farmers had been collecting water quality data for 5 yr. This generated great interest, particularly among farmers, in becoming involved in the participatory process. The farmers learned that other pressures such as wastewater discharge were also affecting water quality and that they were not being singled out as culprits. This increased their willingness to cooperate.

*Reframing, building trust, and improving relations*

Social learning involves the integration of the different "frames" of stakeholders. Frames influence how people see reality. For example, engineers, ecologists, lawyers, environmentalists, and farmers will all have quite different views of a river basin. They each perceive different aspects of the basin, construct a different image of how it functions, observe different problems, view each other differently, and perceive different solutions.

The recognition of these different frames can enrich individual perspectives and open up possibilities for win-win solutions (Dewulf et al. 2005*b,c*). It can also result in improved mutual trust and better relations among stakeholders. In the Flemish basin, the two lead agencies, i.e., the Water and Nature Administration and the Navigable Waterways Administration, had previously been in conflict with each other because of their different frames. The Navigable Waterways Administration supported a vision relating to the control of the river through man-made structures, whereas the Water and Nature Administration saw the river as an important part of the ecosystem and placed high importance on retaining water in the landscape to preserve nature. Initially, the Water and Nature Administration

excluded the Navigable Waterways Administration from the participatory process that it was organizing, even though the latter had important competencies concerning the river. After involving the Navigable Waterways Administration, both groups accepted each other's roles more fully and found that they were able to go beyond historical tensions to produce a vision that satisfied both parties.

Another clear example of reframing occurred in the Dordogne basin, France. In this basin, a working group was established to tackle water quantity issues arising from the operations of a large hydroelectric company, Electricité de France (EDF). The working group was joined by a group of fishermen who had previously taken EDF to court. Cooperation in the working group resulted in more awareness among the fishermen of the requirements of hydroelectricity production and more awareness by EDF of the impact of their operations upon the fishermen.

## Development of new organizations

The establishment of new organizations can be a key outcome of a multiparty initiative. In the case studies, this occurred in the Dordogne and Muga basins. In the Dordogne basin, the Dordogne Valley Summit of 1991–1992 brought several stakeholders together, including politicians, commercial interests, and grass-roots organizations. The initiative provided an impetus for integrating environmental issues into public policies and resulted in the establishment of a new basin-wide public organization, EPIDOR, in 2001. In the Muga basin, a network of organizations was created in June 2002 with the aim of minimizing the negative impacts of economic development in the county of Alt Emporda. This network, called "Salvem l'Emporda" (Save the Emporda), comprises a number of local organizations and stakeholders and has already had some successes.

In many other basins, no new organizations were established, but new contacts were made. In the Danube basin, for instance, the water management organizations and the Worldwide Fund for Nature (WWF) came to know each other better and are now undertaking pilot projects together on floodplain reactivation.

## Substantive outcomes

Participatory processes can lead to changes in river-basin management that benefit all stakeholders and the environment. In the Tarland subcatchment of the Dee basin, local authorities proposed a wastewater treatment plant to ensure compliance with the Urban Wastewater Treatment Directive. Because of the contentious nature of the proposal, the local community was invited to become involved in the process. Several solutions were suggested that the authorities had not previously considered, such as the inclusion of wetlands. As a result, the initial proposal was reframed, enabling an increase in amenity values, better water quality, more biodiversity within the area, and a greater sense of ownership of the solutions developed. In the Davan subcatchment of the Dee basin, stakeholders noted that some of the working group members, i.e., estate managers, had changed their land-management practices after having become more aware of the environmental problems facing the catchment.

In the Thuringia part of the Elbe basin, Germany, governmental and nongovernmental stakeholders prioritized a number of pilot measures to achieve the objectives of the European Water Framework Directive. These included measures to minimize the impact of sewage treatment discharge on water quality and to restore the hydromorphological characteristics of water bodies. In the Danube basin, four water management associations in partnership with the WWF initiated common pilot projects. The participatory process in the Bacchiglione basin, Italy, resulted in a proposal to relocate several untreated urban and industrial discharges to one point to facilitate wastewater treatment.

In the Dordogne basin, the participation process associated with the Cère tributary has resulted in the construction of 10 weirs that directly improve riverbank stability. A number of wastewater treatment plants have also been upgraded, but this has not yet resulted in tangible water quality improvement because of diffuse pollution from agriculture. In addition, an early warning system related to hydroelectric discharges for upstream reaches of the Dordogne basin has been implemented to help fishermen react to these discharges.

## FACTORS FOSTERING OR HINDERING SOCIAL LEARNING

In the 10 case studies, 71 factors fostering or hindering social learning were identified. We examined the top 25 fostering factors (Table 2) and the top 28 hindering factors (Table 3). The factors are presented as they were originally formulated by the authors of the case studies to remain as similar as possible to the empirical material. Consequently, some factors may overlap or appear twice, for example, both positively formulated as a fostering factor and negatively formulated as a hindering factor whereby the factor was sufficient in some cases and lacking in others, respectively.

Eight general themes emerged from the analysis of the factors fostering or hindering social learning: the role of stakeholder involvement, politics and institutions, opportunities for interaction, motivation and skills of leaders and facilitators, openness and transparency, representativeness, framing and reframing, and resources.

### The role of stakeholder involvement

The single most important issue for social learning, which was linked with four of the five highest scoring fostering factors, was the need for clarity about the role of stakeholder involvement. Quite often, the means, timing, and purpose of stakeholder involvement were not clarified, with negative impacts on social learning. In five cases, the status of the initiative in which the stakeholders could become involved was not made clear. Often, the organizers lacked decision-making powers. As a result, in more than half of the cases, the stakeholders doubted that their input would make any difference.

### Politics and institutions

The unclear role of stakeholder participation was only partly a matter of poor communication. At least as important were political and institutional factors. Quite often, the existing governance style was not participatory, and it took a lot of convincing to move toward multiparty collaboration. In many cases, the authorities lacked experience with multiparty approaches, relied heavily on technical expertise, feared to lose control, or feared that too broad participation could threaten the confidentiality of the proceedings. As a result, participation often remained limited. In the Elbe basin, for instance, interaction with the stakeholders was limited primarily to information provision to one stakeholder group at a time. In the Muga basin, negotiations tended to be bilateral and limited to key stakeholders and institutions, thus limiting the possibilities for social learning. In the Flemish basin, the lead organizations only consulted stakeholders on a bilateral basis to avoid opening up the discussion too widely.

Complicating factors included the relations among the different authorities, scale problems, and the pre-existing distribution of water rights. In three cases, there was controversy concerning the legal authority over the area under study. In the Elbe basin, stakeholders at the municipality level expressed concern that negotiations at the international level would result in measures affecting their local interests. Within the German part of the Elbe basin, there was some concern as to who would have to finance the measures. In the Ribble basin and to some extent the Meuse basin, inflexibility at the national level constrained social learning at the basin level. In the Muga and Dordogne basins, pre-existing hydropower production rights constituted important barriers to change.

The presence of strong river-basin institutions was highlighted as an important fostering factor in two cases. In the Dordogne basin, the basin-wide public organization EPIDOR was perceived as an important advocate for stakeholder involvement. In the Dee basin, the steering group was identified as a strong river-basin institution representing all interests in the basin.

Resistance to social learning may be overcome by stimulating and building on positive experiences, e. g., by starting a participatory process with constructive interviews with stakeholders and by referring to the positive outcomes of other participatory processes. Moreover, crises such as flooding can help to overcome many barriers, as witnessed in the Flemish, Muga, Bacchiglione, Ribble, and Danube basins. In the Flemish basin, for instance, the 1998 flood provoked great interest in flooding issues and showed the limitations of the traditional method of dealing with floods.

**Table 2.** Key factors fostering social learning.

| Factor | Total score for significance† | Total number of case studies in which the factor was an issue |
|---|---|---|
| Continued high motivation and engagement with high technical competence; personal qualities establishing and maintaining the legitimacy of the organizer | 19 | 9 |
| Independent technical mediator or facilitator | 18 | 8 |
| High level of commitment of the leaders | 13 | 7 |
| Establishment and maintenance of the legitimacy and openness of the project; continuous feedback, dissemination of minutes, questionnaires, comprehensive language, presentations, and background documents | 11 | 7 |
| Flexibility from both sides to do common work and move from original position | 10 | 4 |
| Clear expectations | 9 | 5 |
| Organizers well trained in group interactions | 9 | 4 |
| Crisis moments or issues of high concern, e.g., flooding | 9 | 3 |
| Good exchange of information | 8 | 5 |
| Limited number of participants to enable in-depth discussions | 8 | 5 |
| Sufficient time and resources | 8 | 4 |
| Joint planning of approach | 8 | 3 |
| Delegated leadership | 7 | 4 |
| Clear ground-rules for interaction | 7 | 4 |
| Bilateral meetings to inform and to listen with a specific focus | 7 | 4 |
| Cumulative nature; development from past experience | 7 | 4 |
| Common or shared area in the frames of all participants | 6 | 4 |
| Degree of interdependence among participants | 6 | 3 |
| Start from a blank sheet; no preconceptions | 6 | 3 |
| Strong river-basin institution | 6 | 2 |
| Frequent and focused discussions | 5 | 5 |

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| Complementary multiparty interaction | 4 | 4 |
| Support from traditional political representatives | 4 | 3 |
| Informal work groups and field trips | 3 | 4 |
| Close interaction of key stakeholders and relevant policy makers | 3 | 1 |

†Maximum score of 30; see *Methodology* for scoring methods.

## Opportunities for interaction

Interaction among stakeholders is an essential ingredient of social learning. In some cases, the plenary stakeholder group did not meet often enough to make any real progress. In other cases, plenary meetings were effectively complemented with informal workgroups, bilateral contacts, and field trips. In the Flemish basin, the initiators invested a large amount of time in bilateral discussions to find out what the stakeholders' ideal plan would be. Although the purpose of these discussions was to obtain, rather than to provide, information, they proved to be an important opportunity for engagement, allowing stakeholders to become better informed about the possible effects of the initiative on their interests. In the Danube basin, bilateral discussions helped to resolve historical conflicts between nature protection and agricultural interests.

## Motivation and skills of leaders and facilitators

Independent facilitation of the participatory processes was mentioned as an important factor fostering social learning in nearly all cases. Many lead organizations struggled with their dual roles of defending their interests and acting as facilitator because the facilitator should ideally be a neutral party. A common solution was to separate both roles and attribute them to different people in the organization. Nonetheless, in two cases, difficulties arose because the lead organization was perceived as biased.

Moreover, the personal qualities of the facilitator, and his or her ability to build trust and establish alliances, were seen as important. The facilitator should be well trained in group interactions and have appropriate skills and expertise in participatory processes. This was the case in the Danube basin, and it allowed differences of opinion between stakeholders to be overcome with minimal disruption to the process. In the Flemish basin, the initiators were very focused on the substance of the collaboration and on procedural matters and less focused on the interaction process, to the perceived detriment of the quality of the process.

## Openness and transparency

From our analysis, it was clear that the legitimacy of the process needs to be established and maintained through a transparent approach, with continuous feedback, e.g., through the dissemination of minutes. Joint planning of the approach was considered an important fostering factor in three of the cases, but according to the Dee basin case study, it was better to approach stakeholders with a concrete plan, as opposed to taking a "blank sheet" approach. Legitimacy and transparency are further promoted through setting clear ground rules for interaction at the beginning of the process. In the Dee basin, the lead organization felt that clear and generally accepted ground rules ensured greater control if contentious issues were to arise.

## Representativeness

In several cases, no thorough stakeholder analysis was undertaken and no criteria were developed for selecting stakeholders. In over half of the cases, important stakeholders were missing from the process. This reduced the legitimacy of the process and opportunities for social learning. However, the inclusion of too many stakeholders can also create problems. In the Flemish basin, the high numbers

**Table 3.** Key factors hindering social learning.

| Factor | Total score for significance† | Total number of case studies in which the factor was an issue |
|---|---|---|
| Lack of clarity about role of stakeholder involvement, e.g., form, timing, and aims | 14 | 8 |
| Stakeholders' lack of resources | 13 | 6 |
| Lack of adequate time and resources for the process | 13 | 6 |
| Lack of stakeholders' belief that their inputs would make a difference | 13 | 6 |
| Lack of clarity of the status and aims of the initiative | 12 | 5 |
| Failure to include all stakeholders | 9 | 6 |
| Difficulties in moving to a multiparty approach because of a reluctance to change the governance structure | 9 | 4 |
| Differences in the scale of the project and scale of interest of the stakeholders | 9 | 3 |
| Omission of important aspects, e.g., costs | 7 | 4 |
| Overly technical language | 7 | 3 |
| Contradictory expectations of the way stakeholders want to be involved | 6 | 4 |
| Lack of rules of representation | 6 | 4 |
| Lack of clear and usable feedback on outcomes | 6 | 4 |
| Lack of continuity, e.g., no transfer of knowledge among different representatives of the same stakeholder organization | 6 | 3 |
| Controversy concerning the legal authority over the area under study | 5 | 3 |
| Overly lengthy procedures | 5 | 3 |
| Lack of opportunities for direct interaction and exchange among stakeholders, e.g., too few, too far apart | 5 | 3 |
| Fear of loss of confidentiality | 5 | 3 |
| Fear of stakeholder involvement | 5 | 2 |
| Inadequate governance structure | 4 | 3 |
| Administrative procedures restricting the process | 4 | 3 |
| No relationship between stakeholders and technical teams | 4 | 2 |
| Complex and inadequate information and communication tools | 4 | 2 |
| Lack of openness, e.g., minutes not made available | 4 | 2 |

| | | |
|---|---|---|
| Partial framing of the problems by the convener, i.e., ideas already preformed | 4 | 2 |
| Lack of process orientation of the stakeholders | 4 | 2 |
| Pre-existing distribution of water rights | 4 | 2 |
| Leading institute defends its own interests | 4 | 2 |

†Maximum score of 30; see *Methodology* for scoring methods.

of participants in formal meetings was seen as problematic because there was no appropriate meeting format to enable large-group discussions. This suggests a partial solution to the problem of large numbers: appropriate meeting formats. In the Elbe basin, the decision was made to work with stakeholder organizations and umbrella organizations instead of individual stakeholders. Such an approach requires that all stakeholder groups are organized and that the organizations adequately represent their members.

## Framing and reframing

Social learning does not occur if the organizers or technical experts impose their problem perception on the process. Instead, all relevant interests should be accommodated in the process, and stakeholders should be willing to move from their original positions. In the Tarland subcatchment of the Dee basin, the stakeholders' abilities to incorporate a diversity of different perspectives resulted in wider community ownership of the solutions developed to improve water quality. In the Muga basin, it was realized that public participation in river-basin management needs to be linked to spatial and land-use planning to prevent overly narrow problem definitions and the incomplete consideration of policy measures. Moreover, a common denominator among the problem perceptions of the different stakeholders was identified, which differed from the problem perception of the high-level policy makers. In the coordination group for the Flemish basin, significant effort was invested in building common ground between the seemingly opposing frames of nature conservation and flood prevention.

In three cases, overly technical language was used. Moreover, some processes took technical models as

their starting point instead of the issues as seen by the stakeholders. This limited the engagement of the stakeholders. In general, complex information and communication tools that focus exclusively on technical aspects and not on communication may act as barriers to social learning. Graphics such as clear and easy-to-read maps were observed to help stakeholders understand the issues and to improve the accessibility of the information. The Internet was identified as a very useful tool for the collection, organization, and provision of information to the public, but it was also recognized that not everybody has access to the Internet (for more on this topic, see Maurel et al. 2007).

## Resources

Limited resources of both the organizers and other stakeholders were often mentioned as important hindering factors. Costs were not considered sufficiently in the planning process in four of the cases. Moreover, it was not always clear how stakeholders wanted to be involved and what level of commitment they were able to give to the process in terms of time. When stakeholders have unequal access to resources, some may be able to participate more than others, thus threatening the representativeness of the process (cf. Kaika and Page 2003). The solution is twofold: Participation processes should be designed to make limited demands on the stakeholders and financial and other support should be provided for some stakeholders.

## CONCLUSION AND FINAL DISCUSSION

The 10 case studies analyzed here illustrated many instances of social learning, but also many instances in which social learning was limited/ or absent.

Often, the role of stakeholder involvement was not clear or was very limited because of political and institutional constraints. Sometimes, there was unwillingness to move from a traditional governance style toward multiparty collaboration. When steps toward a truly participatory approach were taken, this resulted in benefits for the stakeholders involved and for the environment. Moreover, 71 factors fostering or hindering social learning were identified and grouped into eight themes: the role of stakeholder involvement, politics and institutions, opportunities for interaction, motivation and skills of leaders and facilitators, openness and transparency, representativeness, framing and reframing, and adequate resources.

The outcomes of the HarmoniCOP project correspond with most of the literature in the field of social learning and other collaborative approaches (e.g., Mitchell 1990, Ostrom 1990, Margerum and Born 1995, Hooper et al. 1999, Margerum 1999, Pretty and Ward 2001, Working Group on Public Participation of the Water Framework Directive 2002, Kallis et al. 2004, Ison et al. 2004, Margerum and Whitall 2004, Olsson et al. 2004, SLIM Project 2004, Mitchell 2005, Videira et al. 2006, Warner 2006). In this literature, many more successful examples of collaboration are described, but also many failures and problems. All themes outlined in the previous section are also discussed in this literature, sometimes using different formulations or groupings.

Most interesting among this literature in the present context is the work of Leach and Pelkey (2001). Leach and Pelkey (2001) analyzed 37 case studies of watershed partnerships, all from the USA, Canada, and Australia, and identified 210 "lessons learned," which they then grouped into 28 thematic categories. These lessons and categories are very similar to the factors and themes that we identified, even though we examined case studies from Europe. Information about developing countries can be found in the literature on water users' associations and common-pool resource management (Ostrom 1990, Meinzen-Dick 1997, Agrawal 2001). This literature focuses on uncontrollable contextual factors such as the size of the resource to be managed, and far less on the process, so that direct comparisons are difficult. However, there is nothing to suggest that the issues discussed in this paper would not be relevant for developing countries (see cases from Ecuador: Craps et al. 2004, Dewulf et al. 2005*a*).

An interesting question is whether and when social learning should be promoted. The answer is twofold. On the one hand, social learning is nothing special. It occurs whenever interdependent stakeholders with different interest and perceptions come together and manage to deal with their differences to the benefit of all involved. Social learning really becomes an issue in complex organizational settings and in controversial cases in which it does not occur naturally. In these situations, social learning processes can become time-consuming and costly and often require professional facilitation. They should only be embarked upon for really important issues and when there is at least a slight chance of success (Ridder et al. 2005).

Moreover, there is the issue of power. In the literature, a balance of power is often mentioned as a prerequisite for social learning. In practice, however, by emphasizing collaboration, social learning often takes the existing distribution of power as a given (Cooke and Kothari 2001). To gain access to the process and increase one's influence, strategies other than collaboration may be required such as legal action or lobbying (cf. Benford and Snow 2000).

We have mentioned many concepts in addition to social learning. These concepts share one or more of the key ideas behind the social learning concept: collaboration, organization, and learning. Because we wanted to emphasize the importance of learning processes, social learning seemed an appropriate label. Nonetheless, we should look beyond labels. To promote the accumulation of knowledge and prevent a succession of buzzwords, it is advisable to focus future research not on terminology, but on the three key ideas of collaboration, organization, and learning. Promising topics for further research include the facilitation of collaboration processes, the role of power, and interactions in institutional and political contexts. Examples of the latter include the impact of formal procedures on collaboration, possibilities to link local collaboration processes with institutional change, and factors explaining political support for collaboration.

*Responses to this article can be read online at:*
*http://www.ecologyandsociety.org/vol12/iss1/art19/responses/*

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