

Social Learning in River Basin Management



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Marc Craps, editor
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K.U.Leuven – Centre for Organizational and Personnel Psychology

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3a is the theoretical background of social learning and
3b is a practical guide for IC-tools and social learning (joint output of WP 2 and WP 3).

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PREFACE

Social learning is an ambitious conceptual approach to respond to the current challenges of sustainability and integration in the water and environmental domain. To reach this goal the social learning approach has to combine contributions from different social sciences and to bridge the gap between the social and natural sciences. This document reflects the start of such an interdisciplinary exploration. It brings together ideas and insights from different knowledge and practical fields that have not been confronted and integrated before, and/or that have not been applied to the water domain.

According to the description of work for HarmoniCOP WP2, a conceptual framework for Social Learning has to be developed, based on a review of the existing literature on public and stakeholder participation as social learning processes, including topics such as:

- Participation as a sequence of negotiations among multiple actors in analyzing situations, developing problem definitions, finding alternative solutions and implementing those solutions
- Development of a shared understanding of a problem domain through the exploration of the diversity of problem frames and perspectives
- Development of workable procedures and action strategies to handle RBM related problems
- Development of a governance, management and consultative function for RBM
- Agreement on ground rules for sustained interaction in order to build interpersonal and inter-institutional trust
- Connecting different types of knowledge (expert, experiential, general-abstract, local-contextual, different disciplines...)
- Developing frameworks and interventions for constructive conflict management
- Convening, leading and facilitating a participatory process
- Building and maintaining commitment among unequal stakeholders despite asymmetries in terms of competencies, gains and losses
- Establishing meaningful interactions among stakeholders at different scales.

This document complements the “Social Learning Pool of Questions” (joint WP2/WP3 HarmoniCOP deliverable 3b). While the Pool of Questions is a practical instrument for scholars and practitioners to assess social learning in ongoing RBM processes, this document provides the grounding for the assumptions underlying the questions raised in the diagnostic instrument based on the existing literature. It reflects the “state of the art” in HarmoniCOP after one year of WP2 team working. The list of collaborators, who have contributed to this document, can be found on the last page. It has taken a relatively long time and effort for the WP2-team to fine-tune ideas among its members, belonging to different national, disciplinary and practice backgrounds. This effort, however, has been a valuable social learning experience in itself.

The consequence of this slow start up, however, is that, while some parts of the proposed conceptual framework are systematically covered and well described, other parts are not yet so advanced. The document intends to function as a resource for further study on

social learning for water management, for instance through the HarmoniCOP case studies. We will deepen specific aspects and empirically ground them. These will be presented in separate publications.

The outline of this document strictly follows the outline of the corresponding “Social Learning Pool of Questions”. It also reflects the conceptual frame of HarmoniCOP for Social Learning. We define Social Learning as a contextualized process and outcome. Consequently, the document is divided in four main parts: 1. context; 2. processes; 3. outcomes; 4. feedback. Social learning is about the tuning between social and physical/natural system characteristics. So each part deals successively with social and (to a lesser degree) physical system characteristics relevant for the water domain, and with the interrelationship between both.

The largest part of the document is dedicated to the analysis of social interaction processes (like framing, negotiation, leadership and facilitation, boundary management, communication, etc.) that are at the core of our social learning approach. At the end of part 2, the concept of “relational practices” is presented to conceive of ways for managing knowledge communities that can foster social learning. In the last part of the document, we pay attention to the questions of scales and of general public/organized stakeholder participation, which have a special relevance for the water domain.

Social learning is inspired by an experiential learning approach. It is about learning together by doing together. Concepts and theories, however, orient our practices and can eventually generate new possibilities for joint learning practices. We hope that this conceptual document will inspire the readers to undertake activities favouring social learning which is so badly needed in the domain of water management.

0. INTRODUCTION

In this part we will first give some definitions and justifications of the main concepts we are dealing with in this document, like sustainability, integrated management of water and river catchments, participation and social learning. We present the conceptual framework and definition of Social Learning (SL) of HarmoniCOP, which is further explained in the rest of the document. Then we give an overview of the origins and contributions to the SL approach from different social and natural sciences.

0.1 Participation, Social Learning and Sustainability in River Basin Management.

The call for Social Learning in River Basin Management (RBM) can be justified in an ideological and an operational way. The first kind of justification is based on considerations concerning the fundamental aim of a democratic society “to enable all citizens to participate as fully as possible in social, political and economical life, ensuring that people can take the shaping of the future in their hands.” (Benn, 2000) And Webler (1995, p. 460) argues that “if public participation is to be successful, (...) it has to be responsible for contributing in a positive way to the democratic qualities of our societies. Social learning is a concept that can enlighten aspects of how public participation can meet these ends.”

An operational justification of SL in water management points to the complexity and uncertainty of current water and river realities, which urge for new forms of governance, replacing the traditional hierarchical systems, oriented to control, by participatory and flexible systems, based on experimenting and social learning between multiple actors. (Doppelt, 2000; Gregory, 2000; Tabara, 2002; Woodhill, 2002)

SL supposedly can contribute to a more integrated and sustainable way of managing water resources. Integrated Water Resources Management (IWRM) can be defined as: “a process which promotes the coordinated development and management of water, land and related resources in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.” (GWP-TAC, 2000). IWRM thus aims to simultaneously address two complicated and complex problems: sustainable development and cross sectoral planning.

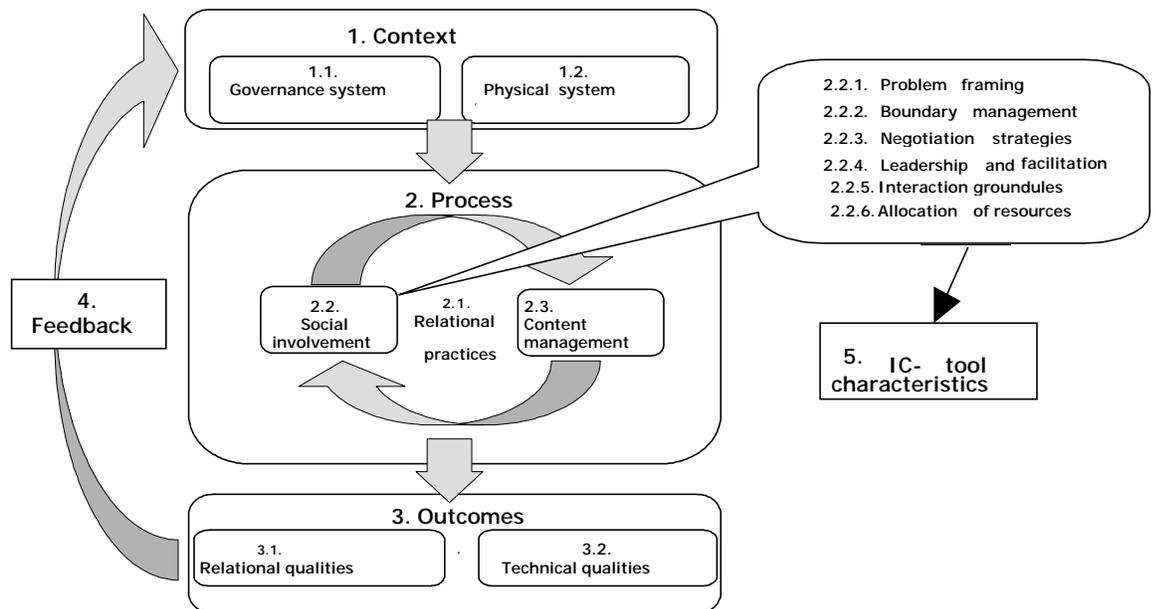
Integrated Catchment Management can be defined as: “the process of formulating and implementing a course of action involving natural and human resources in a catchment, taking into account social, economic, political and institutional factors operating within the catchment and the surrounding river basins to achieve specific social objectives” (UNESCO, 1993; Falkenmark, 2002). Such a kind of definition which offers a balanced frame to address environmental and socio-political aspects with the same emphasis, forms a good starting point to analyse SL possibilities in the water domain. (Schulze, 2002)

Public participation and SL is claimed in many societal domains, but especially when the sustainability of natural resources is at stake (Bainbridge, Foerster, Pasteur, Pimbert, Pratt & Yaschine; Borrini-Feyerabend, Farvar, Nguinguiri & Ndangang, 2000; Gregory, 2000), with specific areas like for instance: rural development (Bouwen, Craps & Santos, 1999; Chambers, 1997; Pretty & Chambers, 1994), irrigation (Abril & Zhingri, 2003), urban development (Kalk & De Rynck, 2002), environmental conflict (Delli Priscoli; Lederach, 1999; Lewicki, Gray & Elliot, 2003; transboundary negotiations (Milich, 1998; Woodhill, 2003), multifunctional land use (Aarts, van Woerkum & Vermont, 2003), coastal zone management (Foell, Harrison & Stirratt, 2000), water and river basin management (Mostert, 2003b; Pahl-Wostl, 2002a).

A classical approach on sustainability revolves around concepts of needs, natural ecosystems and systems integration. For instance, according to the most well known definition of the World Commission on Environment and Development (1987), sustainability is about meeting the needs of the current generations without compromising the needs of the future generations. However later approaches stress that the natural system can not be conceived and managed in itself, but only in interaction with other, human/social systems, and that therefore analysis, reflection and learning is necessary to guarantee sustainability.

Tabara (2002) relates the definition of sustainability to social learning as follows: "... a continuous reflexive learning process of questioning, rejecting and/or re-addressing some fundamental and socially-created assumptions such as notions of time, space, nature and happiness so that it is possible to yield high standards of living while reducing the negative impact on socio-environmental systems" Sustainability in the water sector implies social learning (Pahl-Wostl, 2002) based on a dialogue between policy makers, scientists, stakeholders and the public at large: "Social learning implies learning about the dynamics of change of the human system and the ecosystem, about the mental frames that shape decision making, and the biophysical and social consequences of change as triggered reciprocally in one system by the other through their interconnection." (Pahl-Wostl, 2002, p. 401) The same author argues that, instead of control strategies, there is a need for innovation and change, flexible and adaptive management for a domain that has to be conceived and designed as a human – technology – environment system.

According to the SL approach presented in this document, the potential added value of the social learning concept for RBM, in comparison to participation, lies in its focus on social process aspects. To reach the expected democratising and management effects on natural resources sustainability is not only a question of social actors structurally being involved in decision making, but of the quality of the relationships that they can establish. With this approach we start filling up the "black box" of a classical participation approach, lying between the initial (social structure and power distribution and its outcomes. Such an approach can generate new options for intervention and support: "The crystallization point of participation is when the group transforms from a collection of individuals pursuing their private interests to a collectivity which defines and is oriented toward shared interests." (Webler, 1995, p. 460)



Definition of Social Learning in HarmoniCOP:

“Social learning refers to the growing capacity of social entities to perform common tasks related with a river basin. It is both a process and an outcome. One has also to know the context in which it takes place and how the outcomes of social learning may affect this context. The mutual tuning by the actors between the social and the physical system, is the essence of the process. In this IC-tools may play a major role.”

To respond to the expectations and challenges formulated from different perspectives, social learning must be conceived as more than just cognitive learning. Learning together to manage together has also to do with changes in attitudes, beliefs, skills, capacities, and actions in and among the counterparts. We state here that social learning consists in a growth of:

- Cognitions: this is more than only technical competences, but includes also social process knowledge, e.g. how to deal with interdependence. Webler (1995, p. 446) mentions the following important cognitive aspects that have to be acquired for social learning to take place:
 - Learning about the state of a problems
 - Learning about possible solutions and eventual consequences (cause – effects)

- Learning about one's own and other people's and groups' interests
 - Learning about tools, methods and strategies to communicate and reach agreement
 - Holistic and integrative thinking
- Attitudes: willingness to accept differences and to collaborate. This aspect, called “moral development” by Webler et al. (1995, p. 446) may include the following aspects for these authors:
- Developing a sense of responsibility for oneself and others
 - Developing a sense of group solidarity
 - Etc.
- Skills: to assess and take into account different requirements. A learning process for RBM has to enhance the technical skills to manage a river basin, and the relational skills of the multiparty group to deal constructively with the different interests, views and knowledge types in a constructive way. This latter may include:
- Ability of taking the perspective of the others
 - Skills for moral reasoning
 - Process facilitation skills
- Such skills may be a necessary condition for social learning, and their increase a desirable outcome of social learning, becoming a self-reinforcing dynamic in this way.
- Joint actions: including action as a component of SL is in line with the experiential learning approach (Kolb, 1984) of this document and of the HarmoniCOP project. Like learning enables individuals to contribute in a meaningful way to a community of practice (Wenger, 1998), social learning enables different groups and organisations to realize more and better joint interventions in river basins.

0.2. Social learning in the social and natural sciences

The social learning concept has its roots in different social science disciplines. The social learning concept is originally used by the Stanford psychologist Albert Bandura (1971) in the 70-ties, to refer to the learning of individuals in social contexts. Learning for this author must be more than just trial-and-error and reinforcement. It is in the first place based on modelling and imitation of the behaviour of people we observe around us. However, this kind of theory leaves the question open why an observer will regard certain behaviour and its outcomes as positive, and worth imitating, and others not (Stone, 1999). It is in the interaction between individuals and groups that meanings and values are developed and assigned, that can orient a learning process. The social learning concept that we use here, is based on these more interpretive strands in the social sciences.

In the educational sciences, the social learning concept has been adopted the last decade to focus on adult learning in relationship with societal issues. Citizenship can be learned as any other skill, not through a formal curriculum however, but through positive experiences of participation (Benn, 2000, p. 241; Connections, 2003; Wildemeersch et al. 1998). Still, social learning is conceived then as a form of individual learning with social consequences.

Bestselling authors belonging to the domains of human resources and knowledge management like Chris Argyris & Donald Schön (1978, 1996: “organisational learning”, Peter Senge (1990: “learning organizations”), and Etienne Wenger (1998, 2002: “communities-of practice) have looked after possibilities to apply a learning concept on organized social entities. Argyris & Schön (1978) introduced the organizational learning concept to refer to experience-based improvements in the organizational task performance. Senge promotes the learning organization as “an organization that is continually expanding its capacity to create its future” (Senge, 1990, p. 14).

An interest in change processes has led to the acknowledgement of learning as a basic process to be considered. This kind of approaches tends to stress the importance of creating adequate conditions to link experiences, reflection, theory and experimentation between individuals and groups (Kolb, 1984: “experiential learning”; Nonaka & Takeuchi, 1995; Storck, 2000). Although the starting point for analysis is the interaction between individuals and between groups in organizations, ultimately these basically group dynamic concepts and insights have been stretched to study their relevance and higher order organizational levels, including multiple actor systems (Brown, & Duguid, 2001).

In addition to the concept of social learning, there are many other concepts, with partly overlapping or related meanings and even more overlapping connotations. However there are few ties and overlaps in their respective literature (McCaffrey, David, Faerman, & Hart, 2001). The social learning approach presented in this document is highly inspired by the empirical findings and theoretical developments of the last decade in the

domain of multiparty collaboration, public-private partnerships and collaborative governance, although social learning might not be mentioned explicitly there (Gray, 1989, 1999, 2000; Huxham, 1992, 1996, 2000; Imperial, & Hennessey, 2000; Phillips, Hardy & Lawrence, 1998; Vansina & Thailieu, 1997). Ecological issues are considered typical for the “messiness” and interconnectedness of the “problematiques” which should be tackled by collaborative initiatives.

Research on behavioural and organizational decision making, which is starting to contribute significantly to the area of environmental management, has shown that individuals and groups have very limited capacities to reach well informed decisions in complex, ambiguous and uncertain contexts (Gregory, 2000; Kahneman, 1990). Systems thinking (Checkland, 1981; Flood & Romm, 1996; Hoebeker, 1994), considering problems as complex systems of which the different parts interact and produce system properties, has been very influential in dealing with this kind of challenges.

Some authors have criticized the organizational learning approach, as being in general too instrumentalist and too much oriented towards the development of a set of managerial techniques (Gherardi, 1999). From a social constructionist point of view they plead for a reflexive “learning-in-organizing” approach. Social constructionism in the social sciences, influenced by the new insights of biophysical scientists like Humberto Maturana & Francisco Varela (1987), assumes that knowledge and reality, as human experiences, are socially constructed. This has deep consequences for our thinking and handling as social learning, related to the interrelationship between science, society and environment. “Learning-in-organizing” locates learning not in the people’s heads, but in the social relations. This approach questions also the distinction between organization and environment, and problematizes organizational boundaries

A critical approach to the social learning concept is influenced by the so-called “critical theory” in the social sciences (Habermas, 1984), discourse analysis and literary critique, (post-)marxist and postmodern thinking (Flood & Romm, 1996; Hardy & Phillips, 1998; Swansberg O’Connor, 1995). Critical approaches to participation and social learning aim at unmasking so-called “pseudo-participatory” endeavours (Selener, 1996). Indeed, a lot of participatory initiatives tend to limit themselves exclusively to technical aspects, leaving without questioning power distribution issues. A social learning approach for RBM has to take into account these critical considerations.

The social learning concept can be connected to the desirable functioning of new macro-social network structures of the so-called “late-” or “postmodern” societies, described by sociologists and political scientists, like Manuel Castells (1997) and Anthony Giddens (1990). These authors, in one way or another, state that our societies are challenged by governance problems due to increasing complexity, interdependency and fragmentation of interests and identities, and to resolve it more democracy, and more direct ways of putting democracy in practice are needed.

Many of the main challenges of modern societies are related to the management of the natural resources. Scholars and practitioners from the field of the natural resources

management in general have embraced the social learning concept, hoping that this will lead to ways out of the environmental crisis. (Borrini-Feyerabend, G. et al., 2000; McCay & Rutgers, 1998; Lewicki, Gray & Elliot, 2003; Leeuwis & Pyburn, 2002; Vandenabeele, 1999) Natural resources are not infinite, so the main challenge can be formulated as follows: how can different groups learn to take joint decisions related to these resources, in which each has a specific stake and interest, in order to arrive at collective sustainable solutions? (Pahl-Wostl, 2002b, Webler et al., 1995) Besides the developments in different social sciences, which have been sketched before, there is already a long and interesting tradition in participatory research methods for agricultural and social development on which we can build further (Chambers, 1997; Pretty & Chambers, 1994; Selener, 1996, p. 149-198).

1. CONTEXT

An essential aspect of the SL concept of HarmoniCOP is the bridging of the duality between the social and the natural environment. It is about people learning how to deal with each other and their interdependence, while they are learning together to deal with the interconnected issues of their environment, in this case their shared RB system. This duality between the social and the natural system, and the interrelationships between both, is also structuring the context characterization with which case studies on SL start. The distinction between social system (“governance structure”) and natural system, corresponding with one of the most common and familiar distinctions in modern-Western science and thinking, facilitates the analytical description of reality. However, we have to put emphasis on the interrelationship between both realms, to come to an understanding of social learning. The social constellation of the domain influences the technical problem definitions. The other way around, natural phenomena may bring certain actors to come to the fore. Further, the analytical distinction between the social and the natural system may not be meaningful for understanding how actors conceptualize their environment. They may think in a much more integrated way according to their life-experiences.

Current evolutions in the context that urge for new RB governance systems (Doppelt, 2000, p. 8):

- Changing mix of population, development and user demands
- Increasing complexity of environmental issues
- Increasing complexity of legal management and governance structures
- Rapidly changing mix of technologies, products and services
- Problems at many stages of the cause-and-effect chain
- Decreasing public resources
- Increased public sophistication and demands

On the other hand we have to identify and acknowledge adequately the barriers to participative systems which are embedded in the social, political and economical context (McCaffrey et al., 1995; Huxham, 2000)

1.1. Governance

“A governance system is a complex package of policies, programs and institutions which, in concert, are intended to provide a specific outcome. The outcomes chosen involve fundamental decisions about how, why and by whom decisions are made, the direction, type and scope of information flows, the responsibilities of economic, community and public sectors, and how activities are encouraged, monitored and enforced.” (Doppelt, 2000) So with the concept “governance system” we refer here to the social-societal setting that allows the effective planning and management of activities affecting the RB. “Water governance refers to the range of political, social, economic and administrative systems that are in place to develop and manage water resources, and the delivery of water services at different levels of society.” (GWP, 2003, p. 2).

Good river basin governance is a sustainable way of guaranteeing a good water status in the RB (according to the WFD), in such a way that all the interests and perspectives of the relevant stakeholders in the RB are dealt with adequately, and without an excessive cost or burden for society as a whole.

Doppelt (2000, p. 9-14) distinguishes five different approaches in current catchment governance, each positioning government and addressing interest groups in different ways: 1. total government control; 2. government controlled “standards” with local implementation; 3. outcome-based within an enforced framework; 4. market or voluntary approaches with some government controls; 5. complete market or voluntary. This distinction is based on a bi-polar continuum between total government control and total freedom of social actors (whatever their position towards the water issue).

However, other distinctions stress the difference between market actors driven by economical forces, public authorities and social actors driven by user values, the “third” sector. Collaboration between these two sectors is then considered as an alternative.

Public authorities have adopted in the first place a legal and technical perspective, relying on supposedly “objective” expert studies. To counteract the shortcomings of public regulation, a “free market” approach counts on the economic exchange among the stakeholders to get the problems solved. The last decade there has been a growing awareness to deal with these challenges in a more interactive and collaborative way, including different actors (authorities, experts, stakeholders) and knowledge types. “Collaboration” among sectors and crossing different types of boundaries is called for in almost all recent publications or policy papers on integrated water resources management. We suppose that broad social participation is a condition, and social learning a process and outcome characteristic of good governance and sustainable RB management.

This kind of governance does not depend only on the legal prescriptions of public organizations, but also on the – historically and culturally informed – attitudes of all the

relevant stakeholders. The cultural context, e.g. in terms of national cultural differences, like expressed by Geert Hofstede's (1991) dimensions (power distance, individualism, masculinity, uncertainty avoidance, time frame) and the consequences for PP in RBM is explored by Erik Mostert (2003).

The governance system determines also the role and type of information used during developing and implementing a river basin management plan (Nilsson, 2003).

Such a new type of governance implies also an increased structural complexity of multiparty governing bodies (Huxham, 2000), due to:

- working relationships: cross-organizational interactions involve a number of individuals from the participating organizations in a variety of different ways, e.g. board members in an extremely infrequent and official way, while some operational members may interact on a very informal and day-to-day basis
- Organizational membership: different degrees of formalization of the organizations can characterize the stakeholders in a joined planning and management effort; some actors can even participate on an individual basis, or not be organized at all (a certain category from the public in general).
- Task structures: commonly collaborations create their own staff to support the initiative, but the people functioning at that staff are formally employed by one member organization (giving rise to problems of unclarity of belonging, interests, accountability, etc.)
- Pluralism: due to growing number of interorganizational partnerships, some individuals participate in different collaborative activities, where it becomes unclear whether they participate as a representative of their own organization and/or other collaborative initiatives
- Ambiguity: refers to the usual unclarity about who is a member of an interorganizational collaborative initiative (e.g. different members name different other organizations as members in the collaboration).
- Dynamics: such collaborative initiatives may quickly rise and disappear, they are often extremely changing, in response to changing context opportunities.

According to Pretty & Chambers (1995) characteristics of new institutional settings that favour social learning, have to do with:

- modes of decision making: decentralized and adapted to the context;
- modes of planning: evolving design, wide choice, demand-pull;
- ways of reacting on external changes and of monitoring consequences;
- etc.

In summary all these characteristics have to do with the process, which we will analyze in more detail in the next section (processes)

1.1.1. Stakeholders in RBM

Stakeholders include all individuals, groups or organizations that are directly concerned by actions that others take to solve the problem/deal with the issue (Gray, 1989).

Webler et al. (1995, p. 448) distinguish 5 actor types in relation to natural resource management issues, according to their kind of interests, roles and ambitions:

- Sponsors
- Research teams: they are supposed (ideally?...) not to be interested in a specific decision outcome
- Experts: having special knowledge with relation to scientific, technical or social dimensions of the problem and of different solution options
- Stakeholders: are here defined as “political actors who have a specific interest in the problem”, including organized and ad-hoc groups that feel impacted by a problem; their role being to represent value positions.
- Citizens: “representative of the affected population at large – preferably through random selection”

In this view sponsors and researchers organize and facilitate a dialogue between experts, contributing specific knowledge elements on the one hand, and stakeholders and the public on the other hand, representing specific or a more general interest. In contrast to this view, which is representative for most of the RBM literature, in which the stakeholder concept is restricted to the user’s communities, we propose to leave this distinction between neutrally knowing researchers and interested but biased stakeholders behind. We prefer to open up the stakeholder concept to the ways in which all actors related to RBM interact, including government officials, politicians, scientists, business leaders, social movements and local groups. Taking part in a RBM process implicates motivation and interest to participate, although this interest may be very different between different types of actors. Often scientists hold as well an implicit normative view on what goal should be achieved for the environment. Such a view may influence their judgement, in particular if the uncertainties in the knowledge are high (Funtowicz & Ravetz, 1993; Van Asselt & Rotmans, 1996).

Moreover we prefer not to restrict the expertise concept to the scientific community. After all, different kinds of (scientific, user, administrative) communities dispose of different types of expertise, that may be all necessary to reach an integrated and sustainable management.

That means that there are no “experts” or “professionals” outside the SL picture, we are all on it. As a consequence, SL cannot be taught from outside, it can only result of a co-reflexive practice between all actors involved in one way or another in RBM.

To have an idea of the current and possible contributions of an actor to the RBM, and how he can be involved in the SL process, information on the actor’s organisational type

(public, private, non-governmental, voluntary, etc.), on his general mission and on his kind of stake in the RB is needed. (Huxham, 2000, p. 342-343)

- Organizational type: it is definitely very different to participate as a public authority or as a member of a local pressure group (Huxham, 2000, p. 349).
- General mission: it matters a lot if RBM is considered the core business of your institute, or just a marginal activity on which your constituency does not depend for its survival.
- Kind of stake: participation and social learning possibilities will be different e.g. for those considered responsible for certain problem situations, for the victims of these situations, and for those invited as experts, to hand over solutions.

The two most generally recommended criteria for stakeholder categorisation are: function, and policy networks. Moreover, criteria as working relationships, groups who influence, and roles in specific goal implementation have been discovered to be important for stakeholders in mapping their domain (Hare & Pahl-Wostl, 2002). Type and degree of formal organization are other important aspects, in particular with respect to the design of a participatory process.

As researchers we have to be aware that the demarcation of the stakeholder group is less evident than it may seem at first sight. Different stakeholders may hold very different views about which other actors have to be considered as stakeholders. This is directly related to the way different stakeholders conceive of the RB (see 1.3.: Social construction of river basins), its problems and opportunities, and their contribution to it. Of course, the demarcation will affect directly the possibilities and scope for SL.

The difference between the auto-image of a stakeholder (the capacities, power, contributions and roles attributed by a stakeholder to himself) and the image that the other stakeholders hold about him is another additional aspect of stakeholder involvement that has to be inquired. Sometimes there can exist a serious discrepancy between both, and the parties will have to deal with this in the course of the process. In a similar way a serious discrepancy has been observed between stakeholder-derived categorisations of the stakeholder domain, and analytical categorisations, used by experts designing agent-based models (Hare & Pahl-Wostl, 2002)

The public at large are stakeholders and are, in principle, represented by their elected representatives and by interest groups, although the public may not trust their organisations. Organisations and their representatives may express views that diverge from those of their members, and may eventually not be representative for the groups they claim to represent. (Green, 2003) So the relationship between public at large – organizations – catchment is not unproblematic. We come back to the question of how to involve the public at large in RBM under 4.2.

Ignoring this kind of social complexity for the moment, one can distinguish three sets of households (Green, 2003, p. 7):

- Those who benefit directly from the proposed intervention
- Those who pay the direct costs of the intervention

- Those who indirectly benefit or lose as a result of that intervention

Who is to be considered a stakeholder in RBM? Green (2003, p. 6) distinguishes the following criteria for identifying stakeholders in RBM:

- Those whose actions can significantly promote or inhibit the achievement of RBM in the case of a particular catchment
- Those who have knowledge or experience that can contribute to that achievement
- Those who will be affected in one way or another by the outcome of the particular choice (including those who will bear the costs)
- Those who have an interest in the catchment in question (a problematic category, for this author, because it is not clear by what right such an actor can claim involvement in the decision making: If an actor is just interested in the management of a catchment, does that give him the right to involvement in decisions?)

There are two generalized assumptions concerning collaboration. First, collaboration is more likely when the power of the various parties is approximately balanced, and second, collaboration is more likely when a group is relatively small, so that personal relationships can establish and develop (McCaffrey et al., 1995, p. 614). However these assumptions can eventually contradict the assumption from social learning that all relevant stakeholders have to be involved in a participatory process which is conceived as a joined learning process. (Pretty et al., 1995; Selener, 1996). In river basin domains, as in most natural resources issues, stakeholder are generally very numerous and diverse, and as a consequence, power difference are generally considerable.

For Green (2003, p. 7) the involvement of stakeholders and the public in decisions concerning RBM raises questions like the following:

- Who has an entitlement to participate?
- How representative are those involved of any wider community of interest?
- What is the relationship between unelected stakeholder groups and democratically elected bodies?

Ackerman & Eden (2003) argue for a more utilitarian and restrictive stance towards stakeholder involvement, instead of the generally advocated normative stance. “for strategic management it is important ... to manage primarily those stakeholders that are most powerful with respect to the delivery of strategy. Understanding which stakeholders are likely to take notice of the intended strategy, and what their particular support or sabotage processes may be, can yield valuable insights into the options for their management.” It should be noted that not taking a normative stand is in fact normative as well. The utilitarian stance promoted by Ackerman and Eden implies acceptance of the current social relations and resignation from attempts to change these.

1.1.2. Legal setting.

The power of the different actors is influenced by the legal, formal-institutional setting of RBM. This setting defines what different actors must do, may do or may not do, who may decide on these rules (competencies), how they should be developed and applied (procedures) and what may happen when these rules are not complied with (control, enforcement and legal protection). Moreover, the legal setting specifies the functional and geographical boundaries to which these rules apply. From a social learning perspective, we consider this legal setting as the result of conclusions of past experiences, and as a framework defining opportunities for current practices. These experiences are not necessarily locally based. Legal concepts and regulations can be inspired and brought in from outside, that means from other domains than water management, or from a different geographical, eventually international context. (The influence of the European WFD on national water legislations is a good example in this respect).

Legal regulations may as well favour as constrain innovation. RBM has a strong scientific and technological tradition which is also reflected in the legal framework. Formal role and fragmented responsibilities of different authorities (e.g. regional planning, water supply, flood protection proceed in isolation) often prevent an integrated approach. Collaborative governance may also be required to meet the challenges of integrated water management within the structural constraints of the current regulatory frameworks.

The experiences and practices have to do with ways different actors relate with each other and with the RB. In this section, we focus on the “reified” official/legal aspects of RBM, in the next section we turn our attention to the informal aspects, the practices in which actors have engaged. In both cases the questions want to invite to a reflection on the opportunities for social learning.

1.1.3. Informal interorganisational relations

Although the legal setting defines the functional and geographical boundaries for the actors operations (see 1.1.2.), it is in the current practices in which actors participate and interact with each other, that they can give or change meanings of the governance and natural context. Interactions are more than strictly following procedures, they always imply human relations aspects, like trust and distrust, mutual liking and disliking, (lack of) empathy and sympathy with the other, informal coalitions, etc.

Legal rights are just one resource on which actors can rely to influence a management domain. Other resources may be, for instance:

- Financial resources: (e.g. under certain circumstances business or non-governmental organizations might dispose of fundings the public authority is lacking to influence policies)
- Expertise, academic, professional or practical knows how concerning determinate aspects: generally expertise applies to the technical aspects of RBM, but can of course equally apply to social-relational aspects. The inclusion of an expert implies the acceptance of his discourse to frame the issue and the solution alternatives under study.
- Social and/or political pressure: this can be exercised as a result of the mobilization of broad social groups, constituencies or the public in general.
- Experience, referring here to direct (physical) experience with determinate aspects of the RB
- Prestige, in this case referring to the status an actor borrows from his societal position, network and/or former performances in general. Prestige becomes power when the relevance of the (historical) performances or characteristics of an actor for the current issues under deliberation cannot be questioned or relativized in the negotiation.
- Implementation dependence, has to do with the support most natural resources interventions need (at least as not opposing, often even as active contribution), in the first place from local stakeholders.

1.2. River basins as physical systems

According to the WFD attention should be given to water quantity, water quality and biodiversity characteristics. The WFD requires that a “good ecological” status should be achieved for all aquatic ecosystems. The current implementation process represents mainly an attempt to implement the directive in the spirit of previous regulations by operationalizing and quantifying all target states. However, what is a good ecological status may be controversial. Predictions about the effects of measures to restore the ecological integrity of river basins are more uncertain than predictions of previous measures such as the reduction of the input of nutrients. Further, additional uncertainties arise from potential effects of climate change that invalidate much of the knowledge accumulated from the past on e.g. extreme events. Such uncertainties provide arguments in favour of a paradigm shift in management towards more adaptive management and thus also to an increased importance of processes of social learning.

The dynamics of the environmental system in a river basin are complex. Efforts need to be devoted to developing appropriate information systems for citizens and lay people. Information should be timely, comprehensive, meaningful, and uncertainties must be clearly expressed. Given the current economic situation and the lack of additional financial support it is questionable if such efforts will really take place.

The WFD is introducing the basin as spatial scale for developing integrated management plans. Such a bio-physical unit does not correspond to administrative boundaries. Some countries like France or the UK have organized their water management at basin scale already. For others it is now a major task to improve the fit between boundaries of institutions and the bio-physical scale of the basin (Moss, 2003).

1.3. The social construction of river basins

The ways in which people belonging to various social groups interpret their surroundings may be very different. Such differences may consequently influence the way they perceive the world and action possibilities to tackle the world. These views are the result of values, norms and insights that constitute collectively shared frames in different practice and knowledge communities. Through communication people can generate and share meanings to perform coordinated actions. Karl Weick (1995) views such a creation of shared meanings as the very act of organizing. By developing a language around an issue, people create a community of meaning, with privileges of access and common understanding (Wenger, 1998). At the same time communication and organizing between different communities of meaning becomes more complicated.

Water resources management, for example, has been largely shaped by an approach where individual problems were dealt with in isolation. Technological end-of-pipe solutions proved to be very efficient in solving a number of urgent environmental problems. Wastewater treatment and the increasing sophistication of wastewater treatment plants solved many hygienic and pollution problems. Risks from flooding were managed by controlling river flow and building ever higher dams. Such approaches were based on the system metaphor of a machine that can be predicted and controlled. The characterization of a problem and the corresponding management strategies can be described as the social construction of a problem domain (Shackley et al, 1996).

In this part of the document we will pay attention to the specific challenges of the differences in knowledge and community between three kinds of actors that we have identified as especially relevant for RBM: (scientific disciplinary) experts, authorities and interest groups. In section 2.2.1. we will analyse in more detail the process of framing and reframing through which a joint social construction of a river basin takes place.

1.3.1. Interdisciplinarity and integrated assessment

In his handbook on RBM Newson (1997) shows how different disciplinary views on river basins highlight different aspects of the natural and social domains and their interaction. E.g. an engineering view depicts the river basin a set of hydraulic problems. Through careful planning, design and operation of waterworks, problems as irrigation, navigation and flood management may be resolved by controlling water flows. The hydrologists' view emphasizes transformations and controls in the river basin, paying particular attention to the relationship between surface and groundwater and natural processes such as sediment transport and deposition. This view tends to look for solutions by controlling the human activities threatening the natural functioning of the river basin. Water managers focus on land and catchment use, calling the attention on the multiple and eventually contradictory water availability and quality demands.

More integration is required to overcome the fragmented approaches in problem analysis and solving of the past. According to Pahl-Wostl, Schlumpf, Büssenschütt & Schönborn (2001, p. 267) "Integrated Assessment has the stated goal to integrate knowledge from different disciplines about an environmental problem along the whole chain of causes and effects to provide useful information for decision-makers." IA methods include: computer simulation models, development of future scenarios and risk analysis.

Water problems are especially well suited for such an integrated approach. (Rotmans, 1998). Integrated Catchment Management by definition refers to the integration of different disciplinary perspectives:

- biophysical sciences: hydrologists (to which there is often given a special role of "convening" the other disciplines, see Schulze, 2002: 16) soil scientists, geologists, agronomists,
- engineering sciences: civil, mechanical
- computational sciences: e.g. GIS experts, numeric modellers
- social, political and economical sciences
- managerial sciences

1.3.2. Experts and laypersons in RBM

A specific kind of difference in perspectives on RBM concerns the distinction between experts and non expert actors (see also 1.1.3.: informal actor relations, based on expertise). This refers to different types of knowledge and knowledge communities (Castells, 1996; Gherardi, 2000; Nonaka & Takeuchi, 1995; Wenger, 1998).

Experts belong to specialized knowledge communities operating and interconnected on a global scale, without a direct link with a localised geographical reality. Expert knowledge exchanges deal with explicitly codified knowledge (although in practice implicit knowledge may be important for their functioning in their communities). Since experts tend to be seen as detached from a concrete reality, they are commonly believed to be capable of producing value-free, “neutral” knowledge.

Non experts’ communities belong to a shared, geographically based context, on which they base their knowledge. Tacit knowledge is generally an important aspect of their competence, which is often exchanged implicitly in the interactions within their community. Tensions tend to be stated in terms of generalizability and reliability (of the expert’s knowledge) versus applicability and relevance (of the non experts). Status differences may complicate the exchange and integration of both types of knowledge. (Pahl-Wostl, Jaeger, Rayner, Schär, van Asselt, Imboden, & Vckoski, 1998)

C. Leeuwis (2000) puts in perspective the difference between experts and laypersons, especially in natural resources issues. “Being an expert” is not a generalizable quality belonging to certain actors. It is about having expertise, and this is always related to a certain content question - having expertise concerning one specific question does not imply expertise concerning other questions.¹ (Anders Ericson & Smith, ****: 301-335) Laypersons can be just as "expert" as the "experts", only concerning different types of questions (of a more localised nature and involving tacit knowledge).

However, being an expert is also related to a social group in which an actor is accepted and acknowledged for his expertise. It generates argumentative power, and as such actors can put emphasis or hide their specialist expertise, –according to the circumstances and the negotiation strategy they adopt (see 2.1.3.) In this sense laypersons fare less well. RBM tends to reflect technical-scientific biases (Pahl-Wostl, 2002; see also section xx). The questions of the laypersons are often not addressed, and “around the world technocrats have implemented engineering solutions that failed to give due weight to the sociocultural, economic and public health consequences.” (Milich, 1998)

¹ In the Spanish language one can more easily express this difference between the verbs “ser” and “estar”, both meaning “being” in English: “soy experto” means: I’m an expert, in the sense that this is an essential and lasting quality of me; while “estoy de experto” also means that I’m an expert, but only at this moment and in this particular context.

Both laypersons and experts become expert by participating in their (localised or global) "communities of practices" (Wenger, 1998; Brown, & Duguid, 2001) Participating in a practice is to learn the logic of that practice, what Pierre Bourdieu (1990) calls "le sense pratique", as opposed to the logic of discourse. This logic of practice is pre-reflexive, unlike the logic of discourse which functions by making the work of thought explicit. The logic of practice is necessary for the order and continuity of an organization, in a more reliable way than can be achieved by explicit rules. The reflexive logic of discourse inserts distance (between subject and object), comprising three elements: 1. self-monitoring; 2. accountability and 3. institutionalization.

When river basin issues are conceived in such a sophisticated and complex way that they can only be dealt with by experts, participation by the laypersons public becomes problematic. The challenges to involve non-experts under these circumstances are generally stated in communication terms: how to translate and simplify this knowledge so that laypersons can understand its essence? It is important to analyze the underlying "participatory" logic of such an approach. Is it:

- Just to inform the public about what will be done and what the consequences for their daily lives will be?
- To get the consent of the public, when it comes to transform the expert knowledge into practical solutions?
- Or to allow laypersons and/or local communities to express their opinion, and eventually to co-decide, regarding the values underlying the technological choices and the assessment of risks?

Social learning requires that the experts and the laypersons recognise the potentials and limitations of both their own expertise and the expertise of the others. While local expertise is grounded in the local experiences, it is also limited by these experiences. E.g. farmers may know intimately how the present water system functions, but they do not have all the necessary skills to design or assess the effects of major new developments. The experts may have what the farmers are lacking, but they do not have this intimate knowledge of the current situation and they can only guess the importance for the farmers. Moreover, outside experts do not have the capacity to implement on their own what they come up with. Neither can the farmers, but they have more knowledge of and participate in the local community that can develop and implement ideas.

Pretty & Chambers (1995) argue that outsider professionals will have to learn new roles in social learning contexts, additional to their traditional roles: e.g. sometimes being conveners for groups; catalysts and consultants to stimulate, support and advise; facilitators for analysis by the stakeholders themselves of their own reality; searchers and suppliers for materials and practices for local stakeholders to try out; and sometimes even tour operators organizing exchanges between stakeholders in different places to learn from each other.

Laypersons will have to be open to outside expertise, but they do not have to accept this without questioning because of the inherent choices, biases and uncertainties in any expertise. Openness is especially important for government bodies. Government usually is the main source of funding for research. Consequently, much research only addresses

the concerns of government and takes the official government policy for granted. Moreover, the officials in charge may be tempted to influence the research process and tone down or postpone the publication of results that do not fit in the official policy. Social learning, however, requires that more parties than only the funding agency are involved in determining what exactly is studied and how it is studied. Secondly, government should be more interested in learning new things than in supporting its positions.

1.3.3. Authorities and stakeholders

Not only between experts and laypersons, but also among laypersons perspectives on the river basin and its management there are huge differences. A crucial distinction in the context of PP is that between politicians or authorities more broadly on the one hand, and different types of stakeholders on the other.

In a representative democracy politicians are elected to represent the interests of the people for a determinate period. Politicians are responsible for the government of the public well being, and are held accountable normally only at the moment of the next elections. Social learning however, implies a more direct form of participation that goes beyond the act of voting. In our society different kinds of stakeholders claim a direct say in the issues of their concern. The adoption of PP as a basic mechanism in the WFD means a “de facto” acceptance of direct participation in public policy making. In RBM practices this means that persons and organizations are confronted with each other recurring to very different logics concerning accountability, responsibility, involvement, etc.

Kalk & De Rynck (2002) distinguish the four following alternatives for involving stakeholders and the public, with respect to local government. This analytical frame can be adopted to represent different alternatives for the interaction between policy makers and stakeholders in the RBM domain. Each alternative corresponds with a step on the participation ladder (Arnstein, 1969), implying different role expectations for politicians and civilians:

1. representative democracy: based on informing and voting
2. participative democracy: based on consulting, e.g. through advisory commissions
3. interactive democracy: co-decision in mixed network between government and civil organizations
4. direct democracy: autonomous management of determinate issues by civil organizations, supported and nurtured by government

De Groot, Van Lieshout, Bouwen, Taillieu & Dewulf. (2001) distinguish three basic models for interactive decision making between political authorities and stakeholders in RBM: top-down – which is still most common -, shared initiative, and bottom-up.

In the last decade there has been a strong tendency to advocate more direct forms of participation. However these discursive pleas might be refrained in practice by a much more traditional “autocratic-clientelist” governance culture and/or structural-institutional frames.

In RBM negotiations and agreements tend to be dominated still very much by politicians and technical experts: rarely public and stakeholder participation comes into play (see HarmoniCOP WP4 report). As a result, this kind of decision making reflects more the antagonisms between the political actors than the interest of the stakeholders. Or they reflect in the first place political imbalances between the negotiating parties, rather than

the importance of their stake in the concerned river reality. This kind of “politization” tends to be stronger while higher-level, international river basins are concerned (Milich, 1998)

Challenges and problems faced by society basically can be dealt with in three different ways. First, challenges and problems can be "privatised". E.g. individual rights to water can be established and then the market can do its work. Secondly, one actor with the capacity to influence the actions of all the other actors involved can impose regulations (e.g. a decree from a legally recognized instance). Thirdly, social learning can take place among actors who come to understand and accept their stake in a complex and interdependent problem and its solution. When public goods such as clean water or nature protection are at stake, the first option is only feasible to a limited extent (e.g. contracting out). The second option is problematic as governments generally lack sufficient authority to do so. It should also be questioned whether their regulatory decisions are technically sound and take into account the perspectives of all relevant stakeholders. From this point of view, social learning can be seen as a means to arrive at decisions that can be implemented better and are more technically sound and socially just.

For these reasons social learning, like participation, seems a very attractive concept for democratic politicians. However, it is hard for them to accept the consequences. Social learning is a slow and complex process. It works best when all parties involved can jointly develop and set the direction of the common domain in question, but then there is no central governing instance anymore. For governmental representatives it might be hard to accept that they have to negotiate and share the development and enforcement of regulations – their “prerogative” – with other actors in order to assure more adequate decisions and a higher level of acceptance and implementation.

Governments wanting to promote participation and social learning may end up in a contradictory position: issuing top-down regulations, such as the WFD, to support emerging, bottom-up practices. Empirical evidence confirms that civic involvement and participation emerges and develops much easier bottom up, than when the initiative is taken top down (Kalk & De Rynck, 2002). There is an important tension here that has to be addressed by HarmoniCOP and other study: how can governmental regulations support social learning practices without endangering these practices by bureaucratic enforcement of the regulations? The role of government in such an endeavour seems to be very novel, compared with before, as one of nurturing and stimulating local civic initiatives (Kalk & De Rynck, 2002).

In general there is a tendency in public policy studies to redirect the attention from “government” to “governance” (Kalk & De Rynck, 2002) . That means that it is not the structure or the (inter-)organisational regulation in itself that determines democratic qualities and guarantees involvement, but the way in which different social actors (local government, public officers, interest groups, civilians, etc.) come to agreements while preparing and making decisions. Current literature stresses that in the end it is not the structure, but the process that accounts for social involvement and makes social learning possible. The new concept of “polycentric governance” gives more emphasis to processes

for achieving certain goals rather than focussing only on getting consensus on the goals themselves (Minsch et al, 1998).

2. PROCESS

Social learning can be viewed as a contextualized process characteristic. However, while collaboration in a networked society is more and more advocated for, the process of it is still very poorly understood. There is, for instance, not one readily accepted framework for understanding how public value is added as a result of collaborative activities. The same can be stated more specifically for in a relation to watershed governance (Imperial, & Hennessey, 2000, p. 2). “The significance of a catchment plan is not the document but the process of interaction through which it is created. A plan should be a widely shared vision of the future; to create such a widely shared vision requires that the stakeholders debate, argue and negotiate this vision. Plans should never be regarded as technical documents that can be constructed independently by consultants.” (Green, 2003, p. 16-17).

Natural and social life flow in a time stream without a clear beginning, interruptions or ending. Processes take place in this uninterrupted course of time. As a phenomenon, however, they have to be identified by social actors, stating a beginning, a series of events that express a change or evolution in some respect, and eventually an end (Weick, 1995, p. 43-49).

We propose here a reconstruction of the social learning process based on the sequence of different “critical” events. The description of concrete events allows for a contextualization of the general change process in its historical-spatial setting. A critical event can be a meeting, or any activity in which a consulted party has been involved together with other stakeholders. We propose to accept an event as critical when – in the opinion of the interviewee – it significantly affected the social-relational and/or natural-technical qualities of the RB domain.

Like problems (see 1.1.3.) processes are social constructions. This implies that agreement on a process among different actors is all but evident. According to their perspective on the process, actors are connected in an important or in a marginal way. By the way they narrate a history they express their degree of involvement and/or acceptance of the others.

In our conception of SL it can only be the result of a long-time process and sufficient opportunities for relevant direct contacts among representatives of different stakeholders and social groups. The opposite also seems valid. When actors have learned to appreciate each others' contributions and feel at ease sharing information, resources and even decision making, the threshold for contact is lowered, and so they tend to meet more frequently. So a certain frequency or intensity of contacts can be considered both as a condition and a consequence of SL.

Empirical evidence abounds for the importance of procedural justice (Joss & Brownlea, 1999; Pahl-Wostl, 2002b), in particular in situations where uncertainties and decision stakes are high. Procedural justice implies that the preferences regarding an outcome of a

decision are highly dependent on how the decision was derived. This experience is an argument against developing decision support systems and integrated modelling tools in isolation from stakeholder participation based on the assumption that “optimal” decisions can be derived from factual knowledge only.

Social learning processes tend to be conceived as straightforward advancing problem solving strategies for groups. However in the conception adopted by this document learning processes are conceived as continuing and iterative processes. During each step some additional interest has to be put in relational perspective: motivating, identifying and focusing interest, seeking and communicating information, establishing desirable scenarios and actions to put them in practice, etc. As these models focus on technical content of problem solving, we will briefly present them under 2.2. (content process management), while under 2.1. we will analyze some of the interaction issues that have been considered crucial to understand social involvement in multi-actor systems related to natural systems. In contrast to the content aspect of problem solving, social involvement is not a question that can get a final solution. It has to be nurtured continuously.

2.1. Social involvement

In this part we focus the attention on various complementary processes which may account for the necessary involvement of social actors in RBM, to generate social learning: framing and reframing of the issues (2.1.1.); managing boundaries between in-group and multiparty-group (2.1.2.); negotiating strategies (2.1.3.); leadering and facilitating the domain (2.1.4.), allocating resources, informing and communicating (2.1.5.).

2.1.1. Framing and reframing of a problem domain.

A problem domain, like for example the integrated management of a specific river basin, is not just out there in the natural world. It is a meaning category used by social actors, like water companies, ecological activists or governmental bodies, calling for an intervention in a situation that they perceive as a threat or an opportunity. Social actors define or frame a domain as problematic and requiring intervention through selectively identifying the main issues and delimiting its boundaries. It is this gradual “cutting out” of a part of the ongoing reality, in interaction with other social actors, and attributing it a problematic character that we call here: the interactive framing of a problem domain (Dewulf, 2003).

Different social actors tend to acknowledge and highlight different aspects of reality as problematic, because of their specific experiences, and their frames to make sense of these experiences. Each actor looks to a problem from a different point of view, resulting in a situation where different perspectives are at play or at stake (Salipante & Bouwen, 1985; Bouwen, Craps & Santos, 1999). The concept of frame can be used for understanding the “rules” which govern our appreciation of what goes on around us and enables us to differentiate between different sorts of reality (Aarts, van Woerkum & Vermunt, 2003; Goffman, E. 1974). Framing involves “a representational process in which we present or express how we make sense of things” (Gray, 2003, p. 12). By frames we will mean here the conceptual entities and their interrelationships that are used by actors to describe an aspect of reality in such a way that it gets some sense for them, and becomes an issue to be dealt with. A frame can thus be considered a sense making device, adding specific meaning to a previously less meaningful situation or domain.

Several frame typologies have been developed to characterize the different kinds of frames that actors tend to use in certain contexts. Lewicki et al. (2002) propose a comprehensive description of not less than eight kinds of frame typologies that environmental disputants use:

- Identity frames give an answer to the question “Who am I?”. These identity frames provide a sense of belonging and are closely aligned with values.

- Characterization frames are pointed descriptions of others. They can be positive, negative or neutral, and negative identity frames are closely related to stereotypes.
- Conflict management frames: describe different perspectives on how the conflict should be dealt with (like: avoidance, fact-finding, joint problem solving, authority decision, adjudication, political action, market economy, violence).
- Whole story frames: narratives that “encapsulate” or summarize the meaning of an entire conflict or situation.
- Social control frames describe views on how decisions on social issues should be made. These frames differ in the amount of interdependence and the amount of ownership they propose.
- Power frames are views on the basis of power in environmental issues, and can range from voice, resources, expertise to coalition or force.
- Risk frames refer to differences in how the different parties view the type and level of risk associated with an environmental hazard.
- Gain versus loss frames describe whether actors see actions taken by others as producing loss or gain for themselves or for the others

On each of these aspects, actors involved in environmentally problematic issues have been seen to use different kinds of frames. The nature and size of differences in frames between different actors had implications for the possibilities for conflict resolution. Different discourses, related with different frames, are struggling to dominate water policies in an international and global context currently (see e.g. Jägerskog, 2002; Petrella, 1998; Woodhill, 2000). Two traditionally dominant frames in the water management domain are (1) government and experts should make decisions for society and “solve our problems” (see 1.3.2. and 1.3.3.), and (2) social change should be left largely to the market forces, with minimal guidance from government. Doppelt (2000: 48-49) describes four different frameworks for organizational diagnostics related to RBM: a structural, human resources, political and symbolic one. Different actors may have different frames in mind when they are supposedly dealing with the same “organizational” aspects of RBM. However, the author states that all of these must be integrated in a comprehensive diagnosis.

Aarts, van Woerkum and Vermunt (2003) refer to an interesting paradox related to planning in complex contexts (as is the case in RBM) in terms of framing. Although there is a need for a frame of planning as searching for direction by experimentation (and so allowing social learning), people tend to stick to the frame of planning as controlling the future, in order to avoid uncertainty and complexity. In this sense, the concept of social learning based on collaborative partnerships between government, experts, end users and other interest parties is also an alternative frame for managing the water domain. As can be concluded from the above discussion, the possibilities for frame differences are plenty and can occur on different levels, from general frames about society or planning processes, to specific frames about particular issues or aspects of river basin management.

In addition to identifying the different frames used by the involved actors to make sense of the problem domain, it is also important to look at how those frames develop, evolve

and influence each other when stakeholders interact in the course of a planning or management process. The way issues are framed is co-constructed or determined collectively through the way stakeholders make sense of their situation in interaction with other stakeholders (Putnam & Holmer, 1992). Framing has an important communicational function when interacting with other stakeholders (Drake & Donohue, 1996). In different interactions the same stakeholder may use different ways of framing depending on who is addressed and what issues are at stake at a particular moment. Although each side typically starts with a specific framing of the problem, this definition shifts through the interactive process of shaping issues. The nature, importance, scope, interrelatedness, breadth and stability of problems are shaped through the arguments and counterarguments of the stakeholders (Bacharach & Lawler, 1981). In this sense, the framing of the social and natural domain is not a static and individual phenomenon, but a dynamic process embedded in social interactions between stakeholders.

Although studies have shown that certain frames can remain remarkably stable over long historic periods in intractable conflict situations (Lewicki et al., 2002), possibilities for frame change, frame connection or reframing have to be considered as important consequences of stakeholder interactions, enabling and expressing social learning. We consider the way of dealing with these frame differences as an inevitable and crucial aspect of river basin management processes. When differences can be dealt with constructively by addressing them and trying to integrate them instead of avoiding or ignoring them, new possibilities can be discovered and social learning becomes possible.

Framing an issue implies putting boundaries around it, which means indicating that certain phenomena have to be dealt with, so information about them becomes relevant, while other data become irrelevant. At the same time social actors acquire the status of legitimacy or illegitimacy to participate in it, i.e. they are included in it, or excluded from it. The included actors are also put in a determinate relationship with each other: as an interested party, as a victim, as responsible for the cause, as an expert, etc. It is this apparently “natural” logic (because it is attributed to the functioning of the natural world) that will influence deeply the functioning of the social and psychological functioning of the stakeholder domain. According to the framing of the RBM domain, stakeholders may identify goals as common, as complementary or as conflicting with others, and as a consequence enter in bilateral or multilateral coalitions to defend them.

Special attention has to be given to the initial encounters between actors because they have an important impact on mutual image formation (“the first impression...”). They can vary widely in content, according to the expectations and contributions from the different participants. The emphasis of some can be on voluntary information sharing, to create trust, while for others it can be on soliciting information, without revealing oneself.

2.1.2. Boundary management between in-group and multiparty group.

Although RBM takes place among organizations and social groups, the interactions among the individual representatives are critical for the way information exchange, sense making, decision making, negotiation and learning takes place. However the ways in which individuals represent their organizations can vary widely, hence also how they act and react in the multiparty setting in which these negotiations take place.

One of the major tasks of representatives is to manage the boundaries between their own organization and the others involved in a shared domain. They are the persons in contact with other organizations, and so through them different types of – eventually even – confidential information will be shared or restrained. The way in which they represent their organizations will influence the exchange between the multiparty and the particular parties, and thus also the possibilities for the latter to learn from the former, and the other way around.

In a loosely coupled system as RBM boundary management is very relevant as the traditional boundaries of hierarchy, function, location, structure, role, task and time are often not available. Therefore the stakeholders have to manage and negotiate so-called 'psychological' boundaries (Hirschhorn & Gilmore, 1992). These include the boundary of identity or membership, task, and of authority. These boundaries are subject to changes and negotiation during the collaborative process. Managing the boundaries can help the stakeholders to make sense of their experience and to reduce complexity.

If the boundary around the multiparty group is firm enough, this enables the representatives to develop a collective identity based on common interests. Vansina (1999a: 52) stresses that one of the key issues in taking a leading role is to invest energy “(...) in raising the importance of the collaborative task-system to counterbalance the pull towards the respective parties.” Important issues have to be discussed around the table, within the boundaries of the multiparty group, instead of discussing them in bilateral meetings. If identification with the multiparty group is too strong, however, this might lead to conflicts of loyalty with ones' constituent organization.

Persons interacting in the same multiparty group may belong to different hierarchical positions in their organizations (operational or strategic levels). This will determine the kind of information they dispose, and the degree of freedom to take decisions without consulting their constituency. Some may represent a so-called “under-organized” stakeholder, this means one or another social category with a specific interest in some aspects of the RB, but without being organized around it in a formal way. Or they may belong to an interested social movement that is not (yet) organized to the point that they can delegate officially individuals representing their interests or points of view. Constituencies may also vary concerning their degree of homogeneity/heterogeneity. For representatives, it is easier to speak in the name of a homogenous constituency.

The so-called “dilemma of the negotiator” refers to the growing tension that representatives may experience between the expectations of their constituencies, and of the multiparty group. Representatives are supposed to identify with their constituency and express the perspective and interests of their constituency. In the course of a collaborative process, however, they may gradually learn to appreciate a situation from the other actors’ perspectives, and to accept an alternative problem definition and solutions. Shared experiences, negotiations, conversations and other activities, may lead to identification and a sense of belonging to this multiparty group. Direct interactions among representatives play an important role in transforming competitive (win/lose) in collaborative (win/win) relationships among the institutional parties (see next section 2.2.3. Negotiation strategies). We assume indeed that these kind of micro-social interactions are a necessary – although not sufficient – condition for social learning to take place. This implies that representatives are capable of justifying and feeding back their personal learning to their constituencies. Research evidence suggests that representatives of diverse societal actors can converge on a multiparty basis around the construction of a common vision. However it seems harder for them to cope with the differences when it comes to planning concrete actions, and so this part tends to be left to bilateral negotiations. (Vansina & Taillieu, 1997)

Representatives may face other problems. The 'dilemma of trust' refers to the fact that the more trust the representative gets from his constituency, the more added value he can bring to the multiparty group. But the bigger his contribution, the more difficult it gets to convince his constituency that these activities benefit their interests. A second dilemma is the 'dilemma of transformation'. The more the representative tries to transform the interests of his constituency, the greater the chance to come to an agreement that is open to external realities. However, the same efforts to transform these interests, may be a risk for the representative. His constituency may question his legitimacy and the external parties may expect even more flexibility from him. The 'dilemma of flexibility' points at the necessity to have sufficient internal agreement on the interests that have to be defended against power games. Constituencies may vary concerning their degree of homogeneity/heterogeneity. For representatives, it is easier to speak in the name of a homogenous constituency. Representatives of a heterogeneous constituency tend to act insecurely or inconsistently. The more specific and focused the internal agreement, however, the more difficult it will be for the representative to be flexible during negotiations.

2.1.3. Negotiation strategies

Participatory and multiparty processes are generally conceived as joined decision-making and/or learning processes. Methodologies are – implicitly or explicitly – highly influenced by Jürgen Habermas’ theory of “communicative action” (1984): process facilitation can better the communication between social actors in such a way that they become aware of each others interests and perspectives, and capable of elaborating solutions that serve the interests of all the participants instead of just some of them to the detriment of the others. Various authors have argued that this approach tend to underestimate the conflictivity between the interests of the involved parties (Leeuwis, 2000). Communicative action can be contrasted with so-called strategic action, which is a way of acting by stakeholders thinking in the first place in their own strategic interests. Co-management of natural resources is then conceived as continuous negotiations between actors, each trying to get as much as possible out of it, from his point of view.

We draw here on the literature and experiences that is also known under the label “alternative dispute resolution” (ADR), referring to methods for resolving conflicts, which involve face-to-face relationships, informal discussions between the parties, etc. (Thomas, 1976). The last decade efforts have been made to translate lessons from this domain to resolve conflicts on natural resources in a constructive way (Bush, & Folger, 1994; Delli Priscoli; Lederach, 1999).

In negotiation literature, a distinction is made between distributive and integrative negotiation strategies (Fisher & Ury, 1981; Bazerman, 2000). This distinction is often explained by referring to the “pie metaphor”: distribution is about cutting an existing pie in (smaller and bigger) pieces, integration is trying to prepare together a bigger pie, to serve better the interests of all the parties. Choosing for one or the other of both alternatives is supposed to be influenced by the attitudes of the participating parties in the negotiation situation: do they want to defend their position, that means their concrete achievements, or are they looking to safeguard their deeper, underlying interests, that can eventually be accomplished by alternative means.

These distinctions are useful to characterize the ongoing deliberations between the different actors in a RBM and planning effort, where one has to deal with different positions and interests. Social learning can then be considered as a move from distributive to integrative negotiations, and from defending positions towards safeguarding interests.

In an integrative negotiation process technical context knowledge and expertise has to be complemented by knowledge on the social networks and processes (Leeuwis, 2000, p. 358). In a joint learning and negotiation process the perspectives of the interested stakeholders are at the focus, and external experts can only contribute collaterally. Or

stated in other terms, the external expertise has to be complemented with the local context expertise of the directly interested stakeholders.

2.1.4. Interaction ground rules

With “ground rules” we refer to the norms and criteria of the different actors and of the multiparty group as a whole, to deal with each other and with the RB issues. These rules concern procedural questions, as well as process and outcome characteristics. Dealing among various actors with an issue always produces a certain degree of uncertainty as to the way to follow and to the possible outcomes. At the onset, a set of rules, jointly developed, can help to overcome these feelings, as they give participants a sensation of grip, control, at least on the evolving process (Vansina & Taillieu, 1997).

Here we focus our attention on procedural rules, as the tuning of process and outcome criteria among the stakeholders is dealt with in other parts of this document. By procedures, we understand the legal and the informal regulations and work forms that organize a concrete interaction between the actors, indicating how:

- Invitations are made
- Agendas are set up
- Issues are assigned to resp. single actors, bilateral contacts, sub-groups or the complete multiparty setting
- Information is qualified as confidential (for internal, within-party use), for multiparty use, or as apt for the public in general.
- Conflicting views are dealt with
- Respect for the different points of view and interests is guaranteed
- Uncertainties are addressed
- Decisions are taken (majority, unanimity, unclear)
- Memories are kept
- Follow up is given
- Etc.

We suppose that more agreement on the ground rules of the multiparty domain leads to more active involvement of the total group. Early agreements can facilitate the start up of the activities, but they can also evolve in the course of time as a result of a learning process. Actors, sharing the same cultural background, social class or organisational type, may have a lot of ground rules in common. They tend to be implicitly adopted by the multiparty group, without any problem. However, this can affect the involvement of actors that do not share the same (cultural, social, organisational) background. It may be important then that ground rules can be explicitly stated, proposed, negotiated and accepted, to avoid that some parties impose their rules on the rest of the multiparty domain.

2.1.5. Leadership and facilitation

For effective natural resources management, the multiparty domain needs some form of direction setting to facilitate joint responsibility for sustainable solutions. The contribution of different actors should be integrated and articulated around concrete interventions. Huxham and Vangen (2000a) point out that the notion of 'leadership' did not emerge from their research data. Existing leadership models are not suitable for multiparty settings for two reasons. First, the existing leadership literature presumes that there is a formal leader with managerial responsibility functioning in a hierarchical relationship with followers. Secondly, these models presume clearly specified and accepted goals, where literature demonstrates that agreeing upon collaborative goals is a critical task (Huxham & Vangen, 2000b). Therefore, new approaches to leadership in horizontal, participative systems are required.

A number of characteristics of the multiparty context may produce tension among the actors. These include the ambiguity of the domain, asymmetries among the actors, the openness and complexity of the situation, being dependent upon other actors to achieve success, being confronted with diversity and different social identities, a history of conflict and rivalry, ambiguity of membership, roles, representativeness, a high degree of complexity regarding information, social processes, procedures and strategy (Huxham & Vangen, 1996; Vansina, Taillieu & Schruijer, 1998; Kramer, 1991; Chisholm & Elden, 1993; Huxham & Vangen, 2000b). Actors may be insecure about what is exactly at stake, how it can affect them, and how they can influence the process and outcome. This is especially the case in new multiparty initiatives when different social actors and organisations start interacting. Therefore, besides task leadership (gathering information, managing budget, etc.), process leadership is critical for multiparty collaboration (Chrislip & Larson, 1994). Process leadership is about creating conditions to get the most out of the diversity of the perceptions, competencies and resources, while ensuring that each stakeholder can realise his own objectives (Vansina, 1999). Managing the inherent tensions in the relationships among actors in inter-dependent work is an important aspect of process leadership.

However, leadership in participatory systems is a paradoxical and ambiguous notion. A similar paradox of leadership in participatory initiatives (Chisholm & Vansina: 16; Huis in 't Veld, Soekijad & Enserink, 2003) is observed in the management of so-called 'communities of practice'. How can a party from the top contribute to the transformation of a traditional and hierarchical organisation into bottom-up, organic and participatory organisational practices? On the one hand, to initiate a transformation process it seems necessary to push and lead sufficiently. On the other hand, too much influence from formal leadership may create a new form of a non-participatory system.

The paradoxical nature and features of leadership in multiparty systems may lead to a number of dynamics. In participative, self-designing systems the roles, responsibilities and authority relations are usually not clearly defined (Huxham, 1996; Krantz, 1998).

Authority and power are often hard to identify. One or more representatives may be in the formal position of 'coordinator' or 'project leader'. However, this party does not have hierarchical authority over the other actors. Often the actors in the leading role also have a stake in the problem domain and can therefore not always be perceived as 'neutral'. An additional difficulty is that the parties often have no mental models that can help them to take up leadership (Hirschhorn, 1990; Kahn & Kram, 1994). They often rely on traditional models of leader-follower or stereotypes, and project traditional leadership expectations on the formal leader. Parties may try to question the legitimacy of the formal leaders by colluding and making them responsible for the failure of the collaboration or by questioning their neutrality. The stakeholders may also compete for influence or (informal) leadership in more covert ways. Rotating leadership can lead to a diffusion of power and authority preventing the group from making and implementing decisions.

Taking up strong leadership, in the sense of authoritarian leadership, runs counter to the ideology of collaborative work systems. In multiparty collaboration the discussion is supposed to be kept around the table and an ideology of joint ownership, empowerment, building a collective vision and shared responsibility is fostered. This ideology may inhibit the emergence of explicit or overt leadership (Razzaque & Stewart, 1998, p. 2). Taking up strong leadership (e.g. by a public authority) may be welcomed by actors because it reduces uncertainty and advances the collaborative initiative towards quick results. "Case studies of successful collaborations portray leaders intervening actively to manage the process leading to collaboration, particularly at points of pivotal breakdowns." (McCaffrey et al. 1995, p. 618) From a technical point of view, however, such results risk to be sub-optimal because they do not take into account all relevant information. From a social-relational point, a strong leader provokes a high dependence and/or resistance or counter-dependence from those actors who feel excluded or put at a disadvantage.

The literature stresses the importance of shared or distributed leadership in participative systems as an ideal (Chrislip & Larson, 1994; Yukl, 1999; Bryson & Crosby, 1992; Bass, 1990; Bryman, 1996; Gray, 1989; Feyerherm, 1994; Krantz, 1990; Brown & Hosking, 1986; Barry, 1991; Miller, 1998; Gronn, 2002). Taillieu and his colleagues (Taillieu et al., 2000; Schruijer et al., 1998) stress that inducing shared responsibility is a critical function of leadership. It is not desirable, nor likely that one individual takes up different leading roles. The leadership function should focus on fostering shared leadership and creating the conditions for stakeholders to take up their responsibility. Although the rhetoric of 'equal partners' and participation may be dominant, there are asymmetries in power, resources, know-how, experience, social network, competencies, status and involvement. For instance, Phillips, Hardy & Lawrence (1998) argue that the role of 'sponsoring organisations', those attempting to institutionalise changes in their respective fields, have a very strong influence. It is very likely that the rules, resources and practices emerging out of a collaborative relationship become institutionalised when these sponsors control resources that are considered scarce and critical in the field. Also when they are regarded as leading in the field, and when they are involved in collective arrangements in the field, their influence increases.

In some cases, especially when there is conflict, a third party, facilitator or mediator is invited in to take up process leadership (Schuman, 1996). Facilitators (explicitly designated or implicitly functioning as such) can fulfil an important role in dealing with this tension. (Vansina, 2002) They make sure that relevant ideas and actors stay involved, and that the anxiety levels do not become destructive. However we may not overestimate the potential and role of process expertise brought in by external facilitators. They cannot design and steer a process from the outside if this system has to function as a joint learning process for the stakeholders. Therefore process leadership has to be dealt with in a very cautious and flexible way. It can not be a matter of mechanically putting in practice some participatory recipes. (Leeuwis, 2000, p. 358). Those who take up leadership roles need to be serious “reflective practitioners” (Argyris & Schön, 1974; Huxham, 2000, p. 353). However, Woodhill (2000) observes that in the RBM there is a lack of actors who dispose of these facilitation skills. At the most they bring a toolbox of participatory methods (Jones, 2001) that are applied without a real process insight.

All these considerations concerning leadership and facilitation are an enormous challenge for RBM where responsibilities and policies still reflect greatly the key role of a central regulatory authority.

2.1.6. Allocation of resources

Although there is currently a high interest and a growing number of interorganisational and intersectorial initiatives in many societal domains, including water and river basin management, Huxham (2000) warns to be cautious as this kind of governance is very demanding and needs a lot of attention to be successful. So, collaboration and social learning as a governance tool should take high priority for resources and care, or they better should not be initiated.

Moreover it is not only a question of important resources (like: skills, training, information, ICT, time, money,..), but of the distribution of these resources among the involved actors. Some actors may be so disadvantaged by their low resources that in fact they are excluded from the most relevant interactions. Therefore, a certain or minimal degree of equality between the parties concerning their basic resources is considered necessary for a credible PP process. Attention has to be focused on the degree to which and the ways in which the necessary resources for joint RBM are shared. A gradual emergence of formal or informal agreements between stakeholders concerning the sharing of resources to participate, can be considered as an indicator of social learning.

2.2. Content management

To assess SL we cannot pass over the – sometimes technically complex – content of the issues which are dealt with in RBM, because of the conception of SL here, that is NOT “the learning of social groups to deal with each other”, but as “the learning of social groups to deal together with the challenges from the outside world”, in this case a shared river basin.

The conception of RBM and planning as a problem solving/decision making (PS/DM) cycle may help to structure the content tasks as a straightforward process going from problems to solutions. There is a certain tradition in participatory approaches to start from such planning and decision-making models. In a similar way, social learning processes have been conceived following a problem solving cycle (Woodhill, 2000) Each phase in this process will give rise to specific challenges in the social realm. We want to stress here however that we do not suppose that there is straightforward social learning process corresponding to a PS/DM process. Although there may be some maturing of a multiparty group expressing SL (see section 4. social-relational outcomes), SL itself is characterized by challenges that cannot have definitive solutions, but that have to be taken up permanently (like e.g. boundary management, leadership and facilitation, inclusion and exclusion, framing and reframing, etc.). The nature of the processes of social learning will determine the types of options and decisions to be taken into consideration.

A structured decision approach to public involvement generally addresses the following fundamental tasks: framing the decision, defining key objectives, establishing alternatives, identifying consequences, clarifying trade-offs (Gregory, 2000)

- Problem awareness: identifying which are the main problems, that urge for action and interventions
- Problem analysis: identification of the main factors influencing these problems, which are (root and collateral) causes and consequences
- Information analysis: gathering or generating information (review existing databases and carry out eventually new diagnostic studies, to answer the questions raised by the problem as it was identified.
- Solution alternatives: reviewing different action possibilities
- Decisions: choosing of one action alternative
- Implementation: putting into practice of the chosen action alternatives.

This approach in itself looks excessively sequential and static. That is why it has to be complemented by and integrated in a SL approach which emphasizes the dynamic and interactive nature of this decision making process.

2.3. Relational practices

'Relational practices' are task-centred actions with relational qualities of reciprocity and reflexivity, enabling all relevant stakeholders to connect with a shared domain, in a meaningful way for themselves and for the rest of the group (Bouwen, 2001).

We suppose that multiple actors have to engage in relational practices to arrive at social learning. It is in a concrete practice that actors meet each other. A practice is embedded in a specific (RB) context and confronts the participants with the complexity, the integrated quality and the (lack of) relevance of their knowledge. A practice is goal-oriented (exploration, problem-solving, creation) and interest-based. Although every human or group action "strictu sensu" constitutes a practice and a relation, we restrict the concept of "relational practice" to those practices that enable all relevant stakeholders to connect with a shared domain, in a meaningful way for themselves and for the rest of the group. Relational practices are essentially task-centred actions with relational qualities of reciprocity and reflexivity. They allow to bring in knowledge from the different stakeholders, in an explicit and implicit way. The common issue of integrated river basin planning or specific water problems are the meeting ground for the development of new context based knowledge, enacted in a common practice. A case evaluation study by Webler et al. (1995, p. 460) seems to give empirical support for this. These authors mention the identification of the following characteristics being instrumental in social learning: site visits, face-to-face small groups, egalitarian atmosphere, unrestricted opportunities to influence the process, etc.

With the term 'relational practice' we want to stress that it is not just a question of bringing different stakeholders together in a certain context. It is the quality of their interrelationship that will determine the possibility of social learning. There is some starting empirical evidence for this also in the RBM domain (Craps, Van Rossen, Prins, Taillieu, Bouwen, & Dewulf, 2003a). Precisely this relational quality may be an aspect difficult to grasp in assessment efforts. We suppose that they result from the interplay between the functions taken up by different actors, the rules to structure and regulate their interactions, and the tools used by them. These are the three major issues screened on the social side of the framework (see: 2.2. Social involvement).

3. OUTCOMES

Outcomes of collaborative initiatives can be conceptualized in different ways. Bardach (1998, in Imperial & Hennessey, 2000: 13) argues that collaboration should result in better organizational performance and lower costs. Huxham (1996) uses the concept of “collaborative advantage”, to focus on the outputs of collaboration that could not have been achieved without collaborating. Dyer & Singh (1998, in Imperial & Hennessey, 2000: 13) use the concept of relational rents, grounded in transaction cost theory, and in line with the competitive advantage concept.

From the SL perspective of this document outcomes are the desired conditions that the multiparty initiative related to a river basin seeks to achieve. In contrast to the activities on which we have focused in the previous section dedicated to the process analysis, outcomes are the verifiable results of those activities. (Taylor-Powell, 1998, p. 105-117). In line with the conceptual framework on SL presented in this document we distinguish here between relational and technical qualities of the outcomes:

- Relational qualities refer to indicators that express increased knowledge, enhanced skills and more adequate attitudes of the multiparty group to take into account the divergent interests and perspectives of all the relevant social actors.
- Technical qualities refer to indicators that express the technical soundness of the interventions and solutions given to the RB problems.

Technical and relational qualities are not independent. The SL approach of HarmoniCOP assumes that relational qualities influence technical qualities.

We do not want to restrict the concept “outcomes” to the end of the process (final outcomes). In the course of the process continuously outcomes are generated and produce their own evolving context (in interaction with an external evolving context, see also 4. Feedback). Immediate outcomes are usually not ends in themselves, but they are meaningful as links to higher, “final” outcomes. (Taylor-Powell et al. 1998, p. 114). The Bennet model (1979, in Taylor-Powell et al. 1998, p. 115-117) distinguishes a chain of events and levels of evidence, which can be considered as levels of outcomes: 1. inputs (resources, like staff, finances, and technology), 2. outputs (participation, activities, reactions), and 3. outcomes (learning, action and impact on the socio-economic and natural environment). There is a certain coincidence between these levels and the levels of the SL frame presented in this document: 1. context = inputs; 2. process = outputs; 3. outcomes = impact on social and natural environment.

Characteristics of the most effective “watershed stewardship systems” (Doppelt, 2000: iii), that can be used as criteria to assess SL are:

- Having a clear vision and goals for the watershed on a macro-level
- Having developed a credible scientific analysis of baseline conditions
- All priority issues identified

- Measurable objectives and interim benchmarks for these issues established
- Responsibilities clarified (following principle of subsidiarity)
- Organized around “nested” hydrological units (catchments) with integrated management plans
- Clear principles to guide all management levels
- Management goals within and between territorial boundaries aligned

Imperial & Hennessey (2000, p.15) state that, as collective action occurs at different levels, so the results and added value of these actions also have to be considered at different levels and in different ways. The authors distinguish different types of results at the individual, (intra-)organizational, (inter-)organizational or network, and society level.

Hardy & Phillips (1998) warn that researchers must take care not to adopt the perspective of the most powerful stakeholder in judging the “success” of the collaboration. It is likely that different types of the public will select other outcomes as most important. That means that they handle also different notions of what indicates success or failure. Therefore, Taylor-Powell et al. (1998) recommend engaging the stakeholders in a discussion on what to measure to evaluate a shared initiative.

The social learning concept seems to generate high expectations because of its positive connotations. In fact, this is the result of the combined connotations associated with the basic concepts “social” and “learning”. There is a hope that social learning can solve problems of sustainability, governance, lack of social justice and conflicts on a global scale. Yet, when we take the concept in its most restricted sense as “what is learned by social entities”, a lot of learning by social groups does not contribute to sustainability, justice and peace. Terrorist networks, for instance, can be examples of communities where social learning is very successful. However, most people would condemn this type of learning. In order to avoid such a suspicious and ambivalent interpretation of the concept, it seems convenient to restrict the social learning concept, not only by its process characteristics, but also by its outcome characteristics. We propose not to include all learning between social groups in the social learning concept, but to restrict it to learning that aims at socially more encompassing forms of action. By doing this, SL gets an “ideological” sense, which can deter some scholars. But then again it is argued here that there are no “neutral” concepts. Precisely the progressive inclusiveness of RBM practices, integrating more interests, perspectives and insights, and leading to more sustainability, can differentiate social learning from other management approaches. (Craps, Bouwen, Dewulf, Prins & Taillieu.2003b)

While collaborative governance may produce a lot of outcomes appreciated by the participating stakeholders and the public at large, we must warn that there is also a high risk of failure, resulting in sub-optimal or even negative results, such as enhanced distrust between the participants, or a result that, to avoid harming one of the participating partners interests, does not benefit society as a whole. According to Taylor-Powell et al. (1998) collaborative initiatives tend to operate under one or a combination of the following broad goal areas: service or program creation, resource maximization, policy development, system development, social or community development. These can be

translated in tangible outcomes that will be analysed and described in more detail in the following sections.

3.1. Relational qualities

One strand of research on participatory environmental management states that consensus has to be achieved as a final result: “consensus should be pursued as a matter of principle” (Webler, 1995). A second strand however states that disagreements and differences in interpretations can be the maximum result to be reached. Even then the fact that participation has demonstrated and clarified this diversity is a valuable result as it can inform decision makers to design better informed alternatives and warn them of the stakeholders support or possible opposition to different intervention alternatives (Gregory, 2000). Participation does not only have to produce learning on the parallels between apparently different stakeholder views, but also on the differences between apparently parallel views. Recognizing differences is a prerequisite for dealing with them constructively.

Imperial & Hennessey (2000, p. 16-19) identify the following types of outcomes that are related to the social-relational realm:

On an individual level:

- Increased job satisfaction and motivation
- Learning, adaptation and change: skills, better decision making, job performance
- Social capital: networks among individuals result in trust, reciprocity and reputation

On an organizational level:

- Learning, adaptation and change: innovation adaptation, organizational development, collaborative know how, policy oriented learning
- Social capital: networks among organizations resulting in increased trust and reciprocity

On a network level:

- Learning: innovation generation and diffusion, policy oriented learning
- Social capital: interorganizational networks generating trust and reciprocity

Societal level:

- Policy oriented learning
- Social capital
- Increased civil society: active citizenship, enhanced level of involvement in governance, volunteerism, new civil society organization building, improved representation, citizen satisfaction

The importance of the ultimate, societal, level for SL is highlighted by Jägerskog (2002). While the major focus of the SL concept, presented in this document, is on the interactions between individuals, groups and organizations, resulting in what can be denominated “social capital”, Jägerskog insists that this concept and approach has to be complemented by a political capital concept and approach. The latter one deals with political power relations in society and has changes in the societal power structure as an outcome.

3.2. IC-tools, outcomes and social learning

The ambition of PP for RBM based on SL raises the crucial issue of information design, storage, retrieval and communication between stakeholders in ways that are relevant for them and that favour collective learning (Rool et al. 2003, Woodhill, 2003). From a SL perspective, information is not limited exclusively to scientific bio-physical and economic data on the river basin system, but it includes different points of views, including local expertise and tacit knowledge which has to be made explicit. Moreover, communication from such a perspective is much more than just an exchange of information, it constitutes a social interaction through the exchange of messages (Fisker, 1990). It becomes a means to reflect and reinforce social relations or "communities". New communication patterns can help to build up new communities. Within these communities, new representations of reality and new "meanings" can develop.

This is the reason why a clear distinction has to be made with the classical "Information and Communication Technologies" (ICT), especially those related to the internet (e.g. Kelly 1999, Beierle et al. 2000, O'Connor 2000, Lopez et al., 2000, Faucheux et al., 2001), widely used for PP in the field of environment. In most cases, these computer-based technologies are used, indeed, for one way communication purposes, from the authority in charge of the PP process to the public, either to communicate information or to get some feed-back on proposed action plans. Within HarmoniCOP (Maurel, 2003), we prefer to use the term "IC-tools" which includes both computer based tools such as GIS or DSS but also non electronic tools that can foster bi-directional communication and encourage SL. Indeed, physical tools such as maps, 3D scale models, board games, can be very powerful to help people organize their knowledge and communicate with others.

IC-tools fulfil not only substantive functions, which are commonly considered, but also relational ones. In this last case, an IC-tool should have all or part of the properties of what (Star & Greisemer, 1989) call *boundary objects* or (Vinck & Jeantet 1995) call *intermediary objects*:

- be a common point of reference for conversations;
- support and reveal different representations of the reality, meanings, points of views;
- be a means of translation between individuals or groups belonging to different communities of knowledge. Even if a full translation seems utopic, the structure of a boundary object can be shared enough to work together;
- be a means of coordination and alignment;
- corresponds to working arrangements, adjusted as needed and not imposed by one community or by outside standards;
- be enough flexible to be transformed possibly (an "open" object and not a "closed" object) during the interaction process;

- traces the collaborative process (successive proposals of transformation, successive states of the final output, comments, etc);
- helps to manage uncertainties (through development of trust, increase of knowledge, larger number of solutions found and evaluated, etc).

Up to now IC-tools have rarely been used explicitly to perform relational tasks. It is as an innovative but very promising approach to consider IC-tools as facilitating mechanisms to support and foster SL. However, these relational functions depend not only on the intrinsic properties of the tool but also on the way it is designed, used and combined with group work methods (e.g. focus groups, citizen jury, search conference, field trips, ...). Participation in the co-design of an informational tool facilitates the acknowledgment of both expert and local knowledge and offers a positive context for bi-directional communication and mutual understanding (Abril & Zhingri, 2003; Kensing and Blomberg, 1998; Mahmood et al. 2000). Numerous examples of co-design activities related to electronic or non-electronic IC-tools are available: participative mapping (Carton, 2002), 3D scale co-modelling (Rambaldi & Callosa-Tarr, 2002), co-defining a data-base dictionary or the legend of a map, co-designing a multi-actors GIS (Maurel et al. 2003), discussing the criteria in a multi-criteria analysis process, co-designing the roles of different actors in a role playing game (Barreteau et al. 2001, Etienne et al. 2003), co-designing qualitative models (Boutet et al. 2003), etc.

Several IC-tools (those used for the acquisition, management, visualization and dissemination of information and knowledge, those used for the elicitation of different perspectives and those used to support interaction) can help improve the communication between the participants at different organizational scales (within a working group, between working groups, between a representative and his constituencies, between the project team and the general public, between institutions). They make the information accessible (e.g. through a web site connected to a repository, through a public information centre, ...), they may facilitate the expression of local knowledge (e.g. an interactive Web GIS for the management of comments, a 3D scale-model or a map posed on a table to allow the participants to express more easily their points of view and their knowledge), they support distant and/or asynchronous exchanges (e.g. electronic forum, ...), they may make uncertainties of expert knowledge explicit and thus encourage discussions, etc.

Another relational function of IC-tools concerns the development of a shared language between participants. Indeed, significant misunderstandings can happen between organizations or professional groups in terms of their embedded professional languages, even concerning very basic terminology. Citizens or representatives of communities, who may not be water specialists in their normal jobs, may be very frustrated or even excluded from discussions by the professional jargon (Huxham, 2000). Some IC-tools or some specific tasks related to a tool may help to share the same language. If this is an ambitious objective, they may help to understand each other better, or at least, to make explicit the differences of representation among the participants. Here are some examples :

- the design of a GIS or a DSS which requires making explicit the type and definition of features stored in its database (data dictionary);
- a tool (e.g. a web site) which allows to access and eventually to update a glossary;
- specific functions on a web site for optimal information search, retrieval and display according to a user profile (e.g. a given professional category);
- comparison of similar IC-tools produced by different communities of practice to describe the same phenomena.

This last example is well illustrated by an experience of land-use mapping in the US where the different participants – as a result of the mutual comparison of their respective maps - realized that they did not understand each other correctly and agreed to disagree (Chrisman, 1999). Maps play here the role of “boundary objects”.

IC-tools may also help the involved actor network to resolve better classical substantive RB issues through different mechanisms:

- improving the amount and quality of knowledge on the RB thanks to a better access to information, to a mutual enrichment between expert and local knowledges;
- allowing to test more alternatives during the “search of solutions” phase;
- allowing a better ranking of alternatives (e.g. through multicriteria analysis process, ...);
- integrating better the different components of a complex RB system (e.g. models able to link surface and subsurface water issues, ...).

Based on these theoretical considerations, the potential and the limits of IC-tools in RBM need to be evaluated in order to be able to answer practical questions such as : What are the relational and substantive functions of a tool ? How should it be used, especially in combination with group animation techniques, ... ? What is its applicability in the different phases of the PP process ? How is it perceived by the actors ?

These issues will be addressed by HarmoniCOP project through the analysis of several historical or real time case studies in Europe, based on a specific framework of analysis (Craps & Maurel, 2003).

4. REIFICATION AND FEEDBACK MECHANISMS

In this part we analyse the possible impact of social learning on the governance system and on the environmental qualities of the river basin under consideration. It is this impact that may enhance the ecological and social sustainability of river basin systems.

Generally we only have the opportunity to study processes during a relatively short time period (some months, maximum some years). As to natural phenomena they go over cycles that sometimes may take hundreds and even thousands of years. As to the social-relational domain learning has to do not only with enhanced cognitions and skills, - changes which may occur on a relatively short term in ideal circumstances -, but also with changes in implicit meanings, conditioned attitudes and underlying values. The latter kind of changes belongs to the deeper “cultural” layer of society, which is much more resistant and time-consuming to change. In this sense studying the sustainable impact of SL is not evident.

The reified impact of SL on the governance of environmental systems has been denominated as institutionalization (Bainbridge et al.) . Institutions can be described as “rules of the game or codes of conduct that define social practices, assign roles to the participants in those practices, and guide interactions between the occupants of these roles. (Young, 1995, p. 33). The concept “institutionalization” seems to have different meanings in different studies in relation to multiparty initiatives (Phillips, Hardy & Lawrence, 1998; Taylor-Powell, 1998, p. 112). Concerning natural resources governance Ostrom (1993) distinguishes between operational rules (use and provision of common resources) and decision making rules (how the former are decided upon). In this part of the document we analyse how the outcomes of a SL process can become part of the broader governance context through reifications of the newly learnt intra- and interorganizational regulations and structures related to RBM.

How domains, as socially negotiated orders between different groups and stakeholders, become institutionalized over time, can be informed by Anthony Giddens’ theory of structuration. This author identifies three components of institutionalization: legitimation, signification and domination (Giddens, 1984, p. 83):

- structures of legitimation have to do with rules and norms that express the rights and obligations of the parties, as well as the sanctions to enforce. These have to be negotiated among the parties
- structures of signification have to do with meanings and joint interpretations that can guide behaviour. They are expressed in shared routines or protocols about how to coordinate efforts, how to share information, how to control resource flows, etc.
- structures of domination have to do with the power relations among the parties, and are maintained through regularized social interaction: “Power within social systems can thus be treated as involving reproduced relations of autonomy and dependence”.

Institutionalisation has to be considered as an input to a new learning cycle. Even in a transboundary setting, characterized by a high level of conflicting interests, more solidary regimes among the stakeholders can be supported by the institutionalisation of e.g. an international river basin organisation, which has the possibility to slowly transform a hostile discourse towards one in which cooperation becomes sanctioned (Jägerskog, 2002).

4.1. Geographical scope and organizational levels.

The Social Learning approach of HarmoniCOP is clearly focused on direct interactions (learning-in-community), taking benefit of concepts that were originally developed on small group level (group dynamics). Organizational theorists have stretched these insights to make them useful on an organizational level (organizational learning). A SL approach stretches the interaction process focus even further. The question is then how the meanings generated on a small group level (e.g. a planning commission) can be transmitted to higher order organizational levels; and the other way around, how elements from above/outside get interpreted and put in practice locally. Scale and scope issues are considered among the most challenging for SL to become relevant in the RBM domain (Mc Cay, & Rutgers 1998; Schulze, 2002, p. 11-12; Doppelt, 2000, p. 59-65). International river basins pose a series of specific challenges of scale and scope, that must be addressed adequately (see e.g. Mostert, 2003, p. 192-194; Milich, 1998). We will not enter on these specific challenges in this document.

We must take care not to conceive of a river basin as a closed natural and social system. This is clearly erroneous for the natural system, water constantly coming in from outside the river basin and flowing out of it. Also in the social realm a closed system is remote from a river basin's reality. Social actors do not invent, out of scratch, their own governance system. They are all part of numerous other, eventually larger or higher-order systems (on a national/international scale), bringing in from there concepts, structures and regulations. This external system is in constant evolution. SL implies then the learning of a local multiparty group to deal with this changing social and natural environment. That means building a local governance system as apt as possible for the local (natural and socio-cultural) circumstances taking into account these external constraints. That means also communicating local conditions and lessons to higher order organizational levels, so that they can inform and influence more general policy regulations.

River basins as governance systems pose a special challenge, as – in general – they do not coincide with existing socio-spatial units (e.g. municipalities, provinces, countries, etc). Different institutions have different geographical boundaries as there is no reason why the optimum boundaries for delivering one form of service should be the same for all others. As a consequence RBM has to be delivered by a pool of organisations, whose boundaries do not coincide and bear no relation to the catchment. (Green, 2003, p. 13)

Most government bodies, as they have developed historically, are culturally meaningful, and – at least some – social actors identify with it. For the moment however few people in most European countries identify with the river basin in which they live: “In human and administrative terms, catchments are generally both meaningless and arbitrary in size...” (Green, 2003, p. 12) We suppose that this situation slows down SL possibilities, and that an increased awareness of and identification with river basins will contribute to SL

At different geographical scales different forms of organisation may exist. These may have their own "organisational scales". When hierarchical top-down relations exist, organisations and organisational units may be ordered in terms of "higher" and "lower": the higher level gives orders and the lower level obeys. There are often legal and practical limits to the kind of orders that can be given and the degree of compliance may differ too. It may be useful to distinguish between formal organisations and units within organisations, on the one hand, and more informal groups. Moreover, it may be useful to distinguish between formal hierarchy, which can only exist when there are also formal organisations, and informal hierarchy, which can also exist in and between informal groups. In the case of formal organisations the informal hierarchy may differ quite a lot from the formal hierarchy.

Secondly, there might be a kind of bottom-up organisation. E.g. starting from the bottom, members of the public may join a local environmental NGO, which may be a member of a national association of NGOs, which may be a member of an international NGO. Bottom-up organisations can also be found at a single geographical scale, e.g. when different national NGOs and national water managers together form a national water council (a "multiple stakeholders' platform"). Moreover, a mix of the two is possible. E.g. the international environmental and industry associations have observer status in the International Rhine Commission. The defining characteristic of bottom-up organisation is that the "higher-level organisation" is formed by and based on the "lower-level organisations". The key operational mechanism is representation: individual representatives of the constituting "lower-level organisation" meeting each other in the "higher level organisation."

Bottom-up organisation and hierarchy do not exclude each other. Decisions can be made bottom-up, then become legally binding and be implemented top-down. Examples include the Dutch water boards (their byelaws), the French Agences de l'Eau (their plans, to some extent), the European Council of Ministers (directives), etc. Organisations are of the same organisational level when there are no hierarchical top-down or bottom-up relations - even when for instance one organisation has a national scope and the other a local scope. They meet as equals - even though their information and resources may differ widely -, or they do not meet at all. This is the situation in many countries with respect to for instance water management organisations and the land use planning authorities.

There seems to be a contradiction between the requirements of involvement and integration both being necessary to generate SL in RBM. Involvement on the one hand is easier to reach at small scale, where people can develop direct contacts. Integration on the other hand calls for ever more encompassing and larger management units, to take into account the whole system complexity. According to Colin Green (2003, p. 12-15) integration has to do with geographical qualities, pulling to ever wider geographical boundaries. Social involvement has to do with the human quality of meaningfulness, where meaning is given by some sense of community, and this pulls to small, local

institutions. Following Green (2003) at some point diseconomies of scale and scope may occur: as scale and scope increase, task complexity also increases to a point where chance of success starts to fall.

- As to the geographical scale, RBM must be put in practice on a scale small enough for easy monitoring by community members, but large enough to enable comprehensive management of interacting fish populations, migratory stocks, etc.
- As to the social scale of RBM, as cooperation and consensus-building are easier to do with fewer people who already know each other, a reduced social scale is recommendable. At the same time it is important to guarantee full representation and, for some purposes, to cover a large geographical area.
- As to the scope of RBM the question is about the number and variety of issues that can best be managed and combined at the same time. Simple, focused management processes and bodies have advantages like lower transaction costs, including costs of becoming knowledgeable; and clearer goals. On the other hand systems work better when they have multiple reasons to work, and there are advantages of issue-linkage for negotiation (“I’ll give a little on this but then you have to give a little on that”). However multiple issue management systems can get bogged down, especially when they need to get an agreement for every issue.

We wish to draw the attention to a research result reported by Hare & Pahl-Wostl (2002) that scale appears to be a criterion that is not used by stakeholders in their own mental models of the problem domain (although their experiments with stakeholder cards included pairs of stakeholders belonging to clearly different scales, like national and sub-city). Scale and organizational level are considered important for analysts, but they are probably not noticed by stakeholder representatives in their interactions with others

Groups of people functioning as “communities of practice” (Wenger, 1998) can be seen everywhere in river basin management:

- within formal structures (e.g. organisational units) and independent from them
- at all geographical scales
- at different "organisational scales" (e.g. in individual stakeholder groups or organisations, in associations of such groups and organisations, and in multi-stakeholder platforms)
- linked to each other in different ways: through representatives, other types of multi-membership, occasional encounters, and through "boundary objects" such as common policies and procedures.

Yet, not all groups in river basin management can be seen as communities of practice, and sometimes the term "community" may be inappropriate at all. Examples include people who use a lake to recreate, the inhabitants of flood prone areas, and all the citizens of a country. These are usually referred to as the "general" or “unorganized” public: individual citizens or companies. They may be members of different groups - family, neighbourhood, at work, etc. - but these groups feel not directly related to river basin

management. In the course of time and as a result of certain interventions, part of the RBM, they may sometimes become aware of a certain stake, they can become interested and organized to defend their interest.

Etienne Wenger's (1998) learning theory and "community of practice" concept may help to clarify and advance the scale and scope challenges of SL (Huis in't Veld et al. 2002). Learning by experience is possible by being engaged in a common enterprise, in small groups at all organisational levels. It is also possible between levels because of "linking pins": people active at different levels, e.g. board members of local NGOs that represent the NGO in an association of NGOs or in a sub basin committee. Multimembership may play an important role to cross organisational levels (through people participating at different organisational levels), and organizational boundaries (e.g. people belonging to and identifying with different types of stakeholders).

Learning by experience requires that all relevant actors are all somehow included in the organisational set-up, that there are no problems of representation and trust (the "linking pins" function well), and that there is plenty of time. For larger geographical, organizational and social scales learning by experience needs to be complemented with learning by imagination - "creating images of the world and seeing connections through time and space [...]" (Wenger, 1998, p. 173). This is possible at all scales and between all scales and may for instance involve the use of the mass media. The mass media might be a way to reach the "general public".

Finally, Wenger (1998, p. 174) speaks of social learning as alignment: coordinating energy and activities to fit within broader structures and contribute to broader enterprises.) This can result from learning by experience and/or learning by imagination, often in combination with agreed upon procedures, policies and laws. Alignment seems especially important for learning across scales and organisations. Alignment requires a sense of belonging, to the group that agreed to a policy, to the broader structure or in our case: a "river basin community". However learning as alignment might also be "blind and disempowering", e.g. when it involves nothing more than learning procedures, complying with the rules, or succumbing to power. This often will not be effective, and we do not consider it as social learning.

4.2. Organized stakeholders and the public at large

Is Social Learning restricted to organised stakeholders, or the public at large can and must play a role in it? The distinction between stakeholder involvement and public involvement refers to formal and informal organisations on the one hand, and households and individuals, who have their personal interests and concerns on the other hand (Green, 2003, p. 6). As SL implies the appropriation of meaning through efforts like negotiation, engagement and identification, there is certainly a special challenge to involve the broader public.

The difference between organized stakeholders and the public at large can be understood and dealt with in terms of Etienne Wengers (1998) learning theory. For this author both kinds of social actors have different characteristics of belonging, identification and negotiability of meaning. (Wenger, 1998, p. 188- 213). Stakeholder groups, are more or less formally organized around a recognized “stake”, using a common frame to define and work on their stake. They participate in multiparty processes through official representatives that can speak for their groups. Belonging can be realized partly through alignment. As to the so-called general public, individuals can eventually participate in multiparty-processes, as long as they belong at least to some “imagined” communities that have a link with the issue at stake. As these communities are not formally organized, they “represent” their group in a different way. They do not act as legal or elected representatives that supposedly can enforce alignment with the negotiated agreement. But they can give voice to considerations that have not (yet) an organised platform. And in the end all habitants will have to engage in some changes in their daily water-related practices, to reach some of the RBM objectives. So, both types of participation and social actorship have their importance in RBM.

Public participation implies public communication. That means that government (e.g. the Water Authority) at least has to inform the public at large about issues concerning water and river basin management. Every higher level of participation (like consultation, co-decision making) implies higher demands on the quantity and quality of the information to be given. It implies also that this communication becomes more bi-directional and interactive. Nevertheless it is all but evident to decide in which way and to what extent the public has to be informed.

Public authorities ultimately tend to hire special “communicators” for this purpose. As a link in-between the politicians and the public, they are confronted with a dilemma: do they have to transmit what their principals, the politicians, want them to communicate, that means generally stressing achievements, successes, in short “a good news show”? Or do they have to take into account the concerns of the public that means also warning of risks, dangers, disadvantages, etc.? This tension seems to be growing in recent years. On the one hand, as politicians become more dependant on an unstable electorate, every issue – including water management, gives occasion to promote themselves personally.

So-called spin-doctors are hired to transmit very simplified and populist messages in general terms like “what is good for all people”.

On the other hand, to allow active public participation to get mobilized and organized, individuals and social groups have to receive the information, on which they can decide if they have a stake in it. That means that the possible risks for certain groups may not be obscured. Such “bad news” can alarm the public in such a way, especially at the start of a process, that they start questioning a proposal that is not yet enough advanced to give satisfying answers. The consequences may be that potentially promising proposals never get enough developed, because of an early alarming of the public. This is a reason often put forward by public authorities to justify their keeping silent towards the public until the latest stages of a project.

SL is then to be considered as an evolution on societal level, concerning the relationship between political decision-makers and the general public, towards more transparency, sharing of information and open debate. It is still an open question if (local) societies are capable of learning in this sense, but anyway it is a necessary condition and an essential aspect of social learning for natural resources management, as this is conceived here.

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LIST OF CONTRIBUTORS

- USF-Osnabrück : Claudia Pahl-Wostl
- T.U.Delft : Erik Mostert, Bert Enserink
- K.U.Leuven COPP : René Bouwen, Marc Craps, Art Dewulf, Silvia Prins, Tharsi Taillieu, Edward Van Rossen
- Cemagref-Montpellier : Pierre Maurel, Patrice Garin, Flavie Cernesson, Nils Ferrand, Patrice Garin
- ICIS-Maastricht : Joerg Krywkow