Revised May 7, 2014 (to appear in the Journal on Decision Processes)

Decision Structuring Dialogue

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Abstract The paper presents a dialogue method called Decision Structuring Dialogue to be used in group decision making. Through a focus on the facilitation of dialogue and on the conversational aspects of problem structuring we show how Decision Structuring Dialogue facilitates collective framing and structuring of complex problems under conflicting interests. Decision Structuring Dialogue is suitable for structuring problems that involve multiple actors, multiple perspectives and conflicting interests. Decision Structuring Dialogue is a process helping to create a shared vision of the problem and the possible decision alternatives. It complements other problem structuring methods and acts as the first step in MCDA. The method was successfully applied in the steering group of a Finnish lake regulation project with a high conflict factor.

Keywords Dialogue, Problem Structuring, Group Decision Making, Decision Analysis, Environmental Management

Introduction

It is widely acknowledged that in group decisions based on multiple criteria decision analysis (MCDA) the initial steps of the process are of vital importance in practice. The key steps include how the stakeholders are engaged and how the problem structuring is done (Belton and Stewart 2002; French et al. 2009; Salo and Hämäläinen 2010). Since the time of Raiffa's (2002) claim that he totally missed the boat when he overlooked the non-mathematical underpinnings of a human decision, problem structuring has also become an integral part of decision making. This has early on been noted as an important issue by many MCDM researchers e.g. Belton et al. (1997), French et al. (1998) and Bana e Costa et al. (1993). However, the main body of the MCDA literature has focused strongly on the different decision modeling procedures and the initial phase of facilitation has received much less attention. Only recently, increasing attention has been paid to this important link between problem structuring and MCDA see e.g. (Montibeller et al. 2008; French et al. 2009; Winterfeldt and Fasolo 2009; Franco and Lord 2011). There is a wide literature on Problem Structuring Methods (PMS) (for reviews see e.g. Shaw et al. 2006, 2007 and Franco 2009) but only a few of the PMS papers deal with the issue of how to connect PMS's with the decision making phase using multicriteria evaluation.

Environmental issues and problems are typically group decisions and they are increasingly important in contemporary society and most complex to deal with. Decision analysis methods have been of great help in environmental management (see e.g. Hämäläinen 1988; Gregory and Keeney 1994; Marttunen and Hämäläinen 1995, 2008; Hobbs and Meier 2000; Geldermann et al. 2009; Gregory et al. 2012). Yet there is a clear need to further develop the overall process where the problem structuring phase is often crucial for the achievement of joint solutions and for the avoidance of the escalation of conflicts. In this paper we suggest a way to create shared problem ownership and understanding in group decision making and to help bridge the gap between the stakeholder engagement phase in problem structuring and the MCDA phase.

The background of this work is the authors' involvement and experience in practical decision analysis projects related to important energy policy and environmental problems (Hämäläinen 1988, 1991, 2003: Marttunen and Hämäläinen 1995, 2008; Hämäläinen and Leikola 1996; Sinkko et al. 2004; Mustajoki et al. 2007; Geldermann et al. 2009) where the importance of the balanced and interactive decision analysis processes had been clearly identified. Another background of this work is in the methodology of dialogue (Slotte 2006) and Systems Intelligence (Hämäläinen and Saarinen 2004, 2008; Saarinen and Hämäläinen 2004). In the projects we have also learnt that the systems perspective is important as it helps the facilitator to better understand the systemic nature of group problem solving and decision making (for a related discussion see also Simon 2007). The systems perspective refers to the fact that peoples choices and behavioral in a group are not only based on their intrinsic preferences but also on the whole situation and context. The way the group interacts and even the way values of the participants and the data are presented and discussed can have an impact on the outcome. In a systems thinking perspective the facilitator also considers these factors in the design and during it of the process.

This paper presents a method for complex problem and decision structuring called Decision Structuring Dialogue. The method was developed in the above mentioned case projects in the early 2000's. Dialogue, of course, is not a new concept within the context of problem structuring. For example, Habermas' theory of communicative action and his idea of an ideal speech situation (Habermas 1981) is widely acknowledged and discussed in the Soft-OR and problem structuring literature (Midgley 2001; Mingers 2001; Mackenizie et al. 2004) as a model of dialogue. Dialogue is a form of conversation in problem structuring and group facilitation. Franco (2006) has suggested a theoretical model to assess conversations in PSM processes. Dialogue techniques have also received attention as an approach to solve and avoid intergroup conflicts (see e.g. Conklin 2006 and Desseal and Rogge 2008). The facilitator is usually in a key role in group dialogues but attempts have been made to develop computer supported dialogue as in Sheffield (2004) and Mackenzie et al. (2006). As dialogue can be understood in a number of ways and it is therefore necessary to explain our specific use of the concept. Here, dialogue refers to a specific form of verbal interaction that can be distinguished from, for example, negotiation and

debate. This notion of dialogue has its etymological and practical roots in ancient philosophy and public problem solving (Zanakis et al. 2003). In the early 20th century dialogue was revitalized when philosophers Leonard Nelson, Martin Buber and Mikhail Bakhtin brought attention to dialogue as a means of improving joint investigation, ethical and democratic interaction, and communication. Subsequently, theoreticians and practitioners have refined the practical aspects of these dialogue theories and developed methods that support groups who engage in verbal interaction to reach dialogue (Roberts 2002; Slotte 2006). A shared aim of these methods is their focus on overcoming individual and social barriers for sharing meaning, values and understanding and to facilitate dialogue i.e. to help people to bridge the gap between their desire for dialogue and their capacity to produce it. Thus, dialogue does not here refer to verbal interaction between two or more participants in general. Rather, for a conversation to be called dialogue it must fulfill a set of qualitative criteria summarized in Table 1.

Yet in practice the introduction of dialogue can be challenging for the facilitator. For example, in environmental problem solving situations the stakeholders can represent people with very different backgrounds and with very different levels of communicative skills. The facilitator must take this fact into account in the group facilitation. Here it is also worth noting that facilitation is different from moderation. A facilitator takes an active role in the group and tries to enable the creation of a constructive process. For a related discussion see e.g. Geldermann and Rentz (2003).

Table 1

Two examples of methods that are used to help a group to reach dialogue are Socratic dialogue and Bohmian dialogue. Socratic type of dialogic questioning has been around for long. This was also the basis of the so called Socratic dialogue originally developed for educational purposes by the philosopher and educationalist Leonard Nelson (1965). Subsequently, Nelson's ideas have been systematized into methods for enhancing joint investigation of conceptual problems (Bolten 2001; van Hooft 2001; Griessler and Littig 2003). Bohmian dialogue refers to the ideas of David Bohm (1996) and its further developments by, amongst others Isaacs (1999), Yankelovich (2001) and Senge (1990). In this

sense dialogue has also been introduced to help decision making by Taket and White (2000). They present David Bohm's conception of dialogue as a device in their pluralistic facilitation approach. Decision Structuring Dialogue, on the other hand, is not an application of an existing dialogue method but created with the specific needs of complex problem and decision structuring in mind. The work discussed here starts from the systems perspective where one acknowledges that facilitation and problem structuring cannot be isolated from the problem context. The facilitator has to see herself as a part of the system and be able to act productively from the point of view of the system. This is what we call the systems intelligence perspective (Saarinen and Hämäläinen 2004; Hämäläinen and Saarinen 2008). Slotte (2006) has further developed the concept of systems sensitive dialogue intervention and he proposes that a dialogue intervention should be created with the particular aspects of the relevant situation in mind. To use a dialogue method without consideration of the particular context is to put the carriage before the horse.

Decision Structuring Dialogue was created with the explicit aim of facilitating dialogue in challenging decision structuring tasks where the risk of conflict escalation is a true one. Decision Structuring Dialogue was developed during our work to find an appropriate method in practical cases of complex problem structuring. When developing the Decision Structuring Dialogue we also considered the criteria of a Problem Structuring Method listed by Mingers and Rosenhead 2004 to be relevant:

- enables several alternative perspectives to be brought into conjunction with each other
- is cognitively accessible to actors with a range of backgrounds and without specialist training, so that the developing representation can inform a participative process of problem structuring
- operates iteratively, so that the problem representation adjusts to reflect the state and stage of discussion among the actors, as well as vice versa
- permits partial or local improvements, rather than requiring a global solution.

Neither Bohmian nor Socratic Dialogue is in itself sufficient for this purpose. Bohmian Dialogue focuses on the process and may fail to address relevant issues. Socratic Dialogue focuses on conceptual understanding but might fail to address relevant empirical issues of a problem. Decision Structuring Dialogue tries to avoid the problem by using elements from both methods. Decision Structuring Dialogue is intended to facilitate the understanding of different perspectives of a problem situation, strengthen the confidence in the decision process and ultimately structures the problem in a way that makes co-operation possible. An assumption in problem structuring techniques is that participants share and build their knowledge about the problem (Shaw et al. 2003). Decision Structuring Dialogue tries to make this implicit assumption explicit to the participants. Decision Structuring Dialogue was first tested in an environmental conflict situation at Lake Kemijärvi (Väntänen and Marttunen 2005).

Facilitation, Problem Structuring and MCDA

Problem Structuring Methods and Decision Analysis are not similar. Decision analysis in particular aims at identifying a preferred choice of action in addition to learning about the problem and improving communication. However, the problem structuring phase of MCDA should be seen as a PSM. Belton and Stewart (2002) emphasize that problem structuring and Soft OR have an essential role in the problem structuring phase of MCDA. Both involve multiple actors, multiple perspectives, incommensurable and conflicting interests, important tangibles and key uncertainties (Rosenhead and Mingers 2001; Belton and Stewart 2002). Mingers and Rosenhead (2001a) contend that workshop-based Decision Analysis such as Decision Conferencing (Phillips and Phillips 1993) is in most aspects similar to that of a PSM workshop. We suggest that Decision Structuring Dialogue can be successfully used in both processes.

The facilitation of discussion is an integral part of decision analysis as well as of problem structuring processes. The importance of the facilitation of discussion and the whole participation process has been discussed widely (see e.g. Thomas and Samson 1986; Priscolli 1997; Gregory and Romm 2001; Dash 2002; Siitonen and Hämäläinen 2004; Renn 2006; Franco and Montibeller 2010). Good facilitation is important in avoiding conflicts and creating trust but it can also help

in recognizing framing biases (Kahneman and Tversky 2000) and avoiding group think (Janis, 1982). A typical process begins with a stage of free thinking around the issue by surfacing values, beliefs, priorities, facts, points of view, constraints and consequences. One can easily get an overview of the most popular PSM approaches in the special issues of the Journal of the Operational Research Society (Shaw, Franco, Westcombe 2006, 2007). Walsh and Hostick (2005) have produced an approach based on Werner Ulrich's (1987) critical heuristics and used it in several Community OR projects. French et al. (1998) compared problem structuring approaches and facilitation practices in MCDA. The expression problem structuring is not always used, but still facilitation in decision workshops also includes a related stage see Papamichail et al. (2007). So far, only very few comparative analyses of different approaches have been published.

Language and dialogue

The value added from developing a dialogue method for problem structuring is the strong focus on language and conceptual inquiry that dialogue brings with it, these are also the most important mechanisms by which meaning is socially constructed and created (March, 1994).

It is an almost trivial fact in contemporary philosophy of language that the social use of language and the concepts we use have an effect on our perception of the world. This view is shared by social constructivists in sociology and social psychology (Berger and Luckman 1996), linguists (Sinha 1999), psychotherapists (Anderson and Goolishian 1988) and by theoreticians of autopoiesis (Maturana and Varela 1987; Sice and French 2004). According to constructivism, meaning is produced in social situations through the use of language. Thus, it is largely through our use of language that we promote creativity and innovation (Sice and French 2004). Our language reveals our values, beliefs and interest in particular situations. Naturally the use of language is dependent on social context, on the language itself and culture.

A characteristic of dialogue is that participants open themselves up to other participants' points of views and accept them as being worthy of consideration (Buber 1947; Gadamer, 1975; Anderson and Goolishian 1988) and

that meaning, knowledge and values can be developed interpersonally. Dialogue can be contrasted to monologism (Sampson 1993; Ulrich 2003). Monologism holds that knowledge and values are created in the individual so that persons in discussion are independent actors ideally reasoning their way toward identifiable goals and single existing realities (Sampson 1993).

Table 2

Dialogue methods help participants to frame a situation and to understand the conceptual and emotional setting in relation to which a situation is experienced (Watzlawick et al. 1974). It enables participants to see how different world-views, values and preferences (Meredith 2001; Rauschmayer 2001) have an impact on how a situation is perceived. Group problem solving is always creates a social system. This is a key idea in the seminal work on Systems Thinking by Churchman (1968). Every facilitation process creates a system in which the facilitor also becomes an active part of the system. This is why the Systems Intelligence perspective (Hämäläinen and Saarinen 2004; Hämäläinen and Saarinen 2009) is helpful and necessary in facilitating group processes.

Decision Structuring Dialogue

Method

Decision Structuring Dialogue is based on elements from two other dialogue methods. Like Bohmian dialogue its focus is on collective intelligence, joint investigation and different viewpoints (Bohm 1996). However, Bohmian dialogue is time consuming as it is designed for 40 or more participants and does not allow for an explicit topic as a starting point (Bohm 1996; Isaacs 1999). In problem solving and decision structuring situations there are often fewer participants and the intervention time is restricted. Moreover, some form of task-orientation is also generally required. The power of Bohmian dialogue (Bohm 1996; Isaac 1999; Dixon 1999; Roberts 2002) lies in its emphasis on thinking and communication skills. The skills allow for individuals to see the systemic complexity of the problem and how attitude and position taken in a discussion affect the whole group. Like Socratic Dialogue (Bolten 2001; Van Hooft 2001) Decision Structuring Dialogue allows for the dialogue to have a previously agreed structure

and it starts from the participants personal experiences and a topic. However, Socratic Dialogue aims at inquiry into one concept. Limiting dialogue in the context of decision making to the inquiry of one single concept only would be too narrow. Decision Structuring Dialogue encourages taking multiple perspectives and concepts to be introduced already at an early stage of the dialogue.

Decision Structuring Dialogue is a six step procedure.

Stage 1. Introduction of the dialogical skills and the rules
Stage 2. Dialogue about the problem and a formulation of an initial question
Stage 3. Reformulation of the initial question.
Stage 4. Answers to the reformulated question.
Stage 5. Visioning of the ideal big picture
Stage 6. Dialogue on future measures

Stage 1. Decision Structuring Dialogue starts with the introduction of the skills and rules of dialogue. The Dialogical skills and rules aid participants to move from conflicting and competitive stances to collaboration (Roberts 2002; Bradley 2002).

At stages 2, 3 and 4 stakeholders start the dialogue. It is important to realise that it is the stakeholders, not the facilitator or planner, who jointly, at stages 2, 3 and 4 are trying to make initial sense of the problem. The facilitator contributes by aiding the dialogical process and refrains from any involvement in matters of content. In our approach we emphasize that during the dialogue the facilitator encourages and aids participants to follow the rules and skills of dialogue. In accordance with Phillips and Phillips (1993) and Gregory and Romm (2001) we see the facilitator's role as one contributing to the process and the structure of the dialogue.

Structuring a decision problem in light of an ideal picture at stage 5 frames the problem in light of a jointly imagined desirable future. At stage 6, this enables participants to inquire which measures and future decisions are important.

Skills

The dialogical skills emphasized in Decision Structuring dialogue are listening, inquiry, thinking together, suspension of judgment and appropriate voicing (Bohm 1996; Isaacs 1999). The challenge is to make the process genuinely dialogical and the introduction of the dialogical skills is crucial. The participants' willingness to learn the skills and their commitment to the rules during the whole process is what distinguishes dialogue from other language games such as negotiation, conversation, debate or bargaining. The facilitator refrains from taking any stance concerning the content of the dialogue and supervises the dialogue by fostering the participants' attention to the rules of the dialogue. Likewise, the facilitator makes sure that everyone has a say in each of the different stages. The facilitator or an external secretary takes down statements, concepts and problems on a board. These can be utilized in further evaluations, structuring, workshops and reports.

The skills can be introduced by the facilitator by means of illustrative examples from other problem solving cases and possibly first asking the participants to try dialogical communication with another situation as a case. During the dialogue the facilitator encourages and appreciatively guides the participants to keep in mind the skills.

Rules

For the dialogue to be effective in just one problem structuring session, the facilitator should not merely encourage participants to pay attention to the skills but aid the group in its efforts to follow the rules. The rules of dialogue are developed in order to increase focus on the issue and avoid focus on other participants' character or position.

- Arguments directed against another participants' personality are forbidden. This rule forbids accusations, insults and directs the dialogue to focus on issues. This is especially important in heated conflict situations.
- Speak from experience.

  Speaking from experience has many advantages. When a participant speaks from her own experience she is not making a general judgement but speaks about her personal observations. It is often easier for participants to accept that somebody experiences a situation in a certain

way vis a vis accepting a particular person's viewpoint as a general truth (Boele 1997; Roberts 2002).

- Do not appeal to external authorities such as reports or experts.

  This rule is closely connected to the previous rule. Dialogue emphasizes investigation of personal experiences and points of view. The idea of the rule is to let the participants think and investigate for themselves and not to introduce experts as authorities. If appeals to expert evidence are unavoidable the evidence should be clearly explained and open to critique. If the participants have completely different views about the credibility of experts such appeals are not productive.

- Refrain from advocating.

  The idea of a dialogue is not to weight opinions but to investigate into ones own and each others' opinions and thus gain new depth and perspective on the issues at hand.
- Ask questions and inquire into viewpoints of others.

  It is worth emphasizing that questions should be appreciative and show genuine interest.
- Express your doubts.

  Expressing ones genuine doubts prevents groupthink (Janis 1982) and preserves integrity. However, nitpicking and cynicism should be avoided.
- Inquire together.

  Participants focus on building on each others' ideas and on succeeding as a group not only as individuals.
- No debating.

  Debate, in the sense of advocation, is the opposite of dialogue. In dialogue the starting point is not to defend or attack ideas but to inquire into ideas.
- No decisions.

  No actual decisions are made during the dialogue.

  DSD is a means for collecting and sharing viewpoints as well as framing the situation in a way that is acceptable to all the participants. New perspectives and knowledge about the problem will be used only in the subsequent stages of the decision analysis and problem structuring.

Initial agenda

DSD starts with a topic, a problem or a concept that all participants consider to be important in light of the problem at hand. The facilitator presents the initial topic or a list of initial topics. Here are some examples which are generally applicable and easy to relate to in typical environmental conflict situations:

- What are the good aspects of the problem or the situation?
- What would co-operation be like?
- What can we achieve together?
- In which aspects of the problem is consensus possible?
- How can we make better decisions in this situation?
- What should the situation look like after some months?

After agreeing on the initial topic, each participant tells a story based on personal experience about the problem or decision. This will help to engage everybody into the group process by giving each one a voice. The most important task is arguably to facilitate the participants' speaking from experience. Psychologically, in a conflict situation a personal story and experience tends to generate acceptance more easily than a proposed abstract truth (Gergen et al. 2002). Thus, the facilitator must be able to encourage participants to recall, preferably positive, personal experiences of the situation and to avoid generalizations. Especially in a conflict situation, it is important to formulate the initial question of the dialogue in positive terms. This allows the participants to shift attention from negatives in the past to possibilities in the future. Here we lean on, for example, the experiences of the research field of Appreciative Inquiry. This research focuses on finding the best in people and on what can be achieved by taking a positive perspective (Cooperrider and Whitney 1999).

Stages 4-6

The facilitator ensures that all the participants get a say during the remaining stages. The facilitator encourages participants to follow the rules and pay attention to the skills. After the initial question has been reformulated it is

time to suggest answers. During this stage participants are also encouraged to ask for clarification and give comments to the presented answers.

The idea of stage 5, the visioning part of the dialogue is to let each participant express his or her view of an ideal situation or solution to the problem. An overall picture of the situation will encourage the participants and decision makers to ask: what shall we do in order to reach the ideal situation. Experience has shown that visioning is of fundamental importance in the task of structuring which measures and which decisions should be considered in the future. (Dash 2002; Deutsch and Coleman 1999)

The final stage is both procedural and decision related. In cases where Decision Structuring Dialogue is followed in workshops and decision conferences, participants can discuss if and how the dialogue should affect these. Also, the participants can generate ideas of how the decision process and the problem structuring should continue. Decision Structuring Dialogue generates insights and ideas and their relevance to the situation at large should be discussed.

Decision Structuring Dialogue in an Environmental Conflict

Lake Kemijärvi case

We introduced the method in the Lake Kemijärvi water course regulation case (Väntänen and Marttunen 2005). Lake Kemijärvi is Finland most heavily regulated lake with a water level change of seven meters. A steering group consisting of 14 people was founded to guide the development of the regulation. The steering group consisted of shoreline-land owners, recreational users of the watercourse, environmental activists, fishermen, a representative of the hydro power company Kemijoki Ltd, and local authorities. The task of the steering group was to discuss and evaluate recommendations for developing the regulation of Lake Kemijärvi. The major conflict in the steering group was between the power company and the shoreline-land owners, fishermen and the environmental activists.

The Decision Structuring Dialogue at Lake Kemijärvi took place in the year 2002 and was part of a larger Public Involvement project organized by the Finnish Environment Institute. We had a long history of research collaboration with the Environmental Institute which made it possible to introduce and test the

DSD. The groundwork for the dialogue process started with the researchers' observatory participation in the steering groups meetings, personal discussions with different parties of the steering group, two workshops with the researchers in charge of the planning process from the *Finnish Environment Institute* and the *Lapland Regional Environment Centre*, as well as the studying of the project reports on the impacts of regulation.

Our observations of the steering group work revealed both task and people related conflicts. An important role of the researchers specialised in regulation issues from the *Finnish Environment Institute* turned out to be to mediate between the stakeholders.

The discussions with the different stakeholders and the workshop revealed strong disagreements.

Previous reports and interviews concerning the regulation pointed towards problems with reaching consensus on questions directly related to the regulation. The stakeholders supporting the current regulation emphasized:

- Increased hydro-power production.
- Ability to control and decrease flood damages along the shoreline.
- The stakeholders with a critical attitude towards the current regulation emphasized:
- Damage on fishing gear.
- Harm caused by driftwood.
- Erosion of shores, the impacts on fish population.
- Melting ice on the lake in the winter causing problems for snowmobile traffic.
- Changes in water level causing inconvenience for the users of piers and boathouses.

The list focuses on direct consequences of the regulation. These consequences can further be divided into economical, environmental and social factors. We call this the physical frame. A survey made in the Lake Kemijärvi region emphasizing the physical frame, provided information about what people perceived to be important future measures regarding the improvement of the regulation. Landowners, recreational users and fishermen emphasized the compensations

from the power company for damage on fishing gear, damaged shores and other negative physical impacts. The same group also insisted that changes in water level are necessary.

However, the observations in the meetings and discussions with the different stakeholders suggested that the problems were broader than what the physical frame indicated. Moreover, the survey included one statement about an overall viewpoint of the regulation, namely: "The different and partly conflicting goal of the parties involved with the regulation of Lake Kemijärvi has successfully been reconciled". Out of all of the respondents, 42% disagreed, 14 % strongly disagreed, whereas 23 % agreed with the statement while 21% did not express opinion. Likewise, discussions with the different stakeholders pointed towards issues that were not directly related to regulation itself: communication, trust and interaction problems seemed to be part of the situation at Lake Kemijärvi.

Dialogue

At stage 1, the facilitator, who was the first author of this paper, introduced the dialogue skills and rules for the dialogue. Attention was drawn to the possibilities of a co-operative attitude and to dialogue as a general way to engage in co-operative discussions. The skills i.e. listening, inquiry, thinking together, suspension of judgment and appropriate voicing were introduced.

At stage 2 the participants set the goal for the dialogue in relation to the initial question "What is good mutual understanding?" The participants were encouraged to see the possibilities of a more co-operative attitude and Decision Structuring Dialogue as a way to engage in co-operative discussion. None of the goals expressed explicitly concerned the problems relating to the concrete impacts of regulating the water level. Instead the emphasis was on the discussion and communication deadlocks. The participants individually formulated the following goals:

- Secure possibilities to co-operate in a democratic spirit.
- Discussion about improving the regulation.
- Bringing forth energy-economic viewpoints.
- More fruitful discussions.

- Opening up the deadlock.
- Learning to work together and listen to other viewpoints.
- The different goals were discussed and accepted.

At stage 3, the participants reformulated the initial question: "What is mutual understanding?" to “What could good mutual understanding in the regulation of Lake Kemijärvi be?" The reformulation allowed participants to mutually dialogue on whether the chosen initial question is really important from their viewpoint, or in what ways should it possibly be modified in order to be so. By doing this, the participants take responsibility for the topic of the dialogue themselves instead of merely relying on the facilitators’ perspective.

At stage 4, questions and problems related to the physical realm emerged when participants addressed the water level and the mitigation of negative impacts caused by the regulation. However, there were also calls for better interaction, statements that power interests were destroying the possibilities of mutual understanding and claims that there were few possibilities for decision making at grass-root level. Also, some of the historical processes in the development of the regulation policy were criticized and claims were made that this had a strong impact on how the regulation is perceived today.

At stage five the visioning brought forward ideas and opinions that consensus in the regulation of Lake Kemijärvi is not to be reached only by changes pertaining directly to the regulation. The participants agreed that the improvement of communication, public participation and collaboration was crucial. The visioning generated the following statements:

- A more open attitude to people's hopes would aid collaboration.
- There should be an open and ongoing discussion.
- Improvement of participatory and interactive activities.
- Value discussions and openness would open up the deadlock.
- Different measures besides the economical one should be considered.
- The use of the lake should not be restricted by visions of the good old days.
- More information is needed to minimize misunderstandings.

- The differences in the preferences of the power company and the other interest groups can be better managed by increased participation and shared decision processes.
- Co-operation between the power company and the other interest groups should be improved.
- The improvement of communication should not be founded on legal obligations but on voluntary participation.

This formed a new frame that can be called the communicative frame. At stage 6, recreational users and activist claimed that the most important problems with the regulation are those discussed at stage 5. Some of the stakeholders who had previously wanted fundamental changes in the water level expressed that there are strong power production, flood protection, and employment reasons that support the current regulation practice. A new alternative, that was based on co-operation, participation and improved communication emerged as one vital course of action in the process of improving the regulation of Lake Kemijärvi.

- The collaboration between the power company and other stakeholders should be improved.
- Improving the discussion climate should be voluntary.
- The development of interaction and reflection on personal actions and viewpoints can be done without high expenses.
- The information and notification about the regulation, such as changes in the water level, should be improved.
- Building trust between the stakeholders should be emphasized.

Results

The six step procedure of the Decision Structuring Dialogue helps the participants to share their understanding about a common problem. Decision Structuring Dialogue does not only present dialogue as an ideal but actually helps participants to engage in a dialogue.

In our case study the observations of the meetings and the discussions with stakeholders before the dialogue suggested that the disagreements in the steering group reflected real problems in communication and trust. However, these

problems had not before been explicitly dealt with. The dialogue opened up an opportunity for the participants to bring up the undiscussables in a constructive way by focusing on how communication and trust could be improved.

The dialogue brought a new problem frame to the participants' attention. The new frame emphasizing communication and trust had an effect on how questions directly related to the regulation were perceived. For example, some of the stakeholders expressed that their negative attitudes towards the regulation practice was due to historical and current dissatisfaction with the power company and its handling of information and communication.

The feedback from the participants was very positive in a follow-up enquiry with a web survey using the Opinions Online- program (Hämäläinen 2003) all participants fully or partially agreed that it is possible to utilize Decision Structuring Dialogue and dialogical skills in forthcoming discussions and negotiations concerning the regulation of Lake Kemijärvi. The majority of the participants agreed that Decision Structuring Dialogue enhances respect of and listening to different points of view. The participants said that the dialogue method creates a common ground for good decisions. The use of Decision Structuring Dialogue was also independently evaluated and found to be a useful tool for public involvement in another multi-objective water level regulation project (Väntänen and Marttunen 2004).

Conclusion

In the Lake Kemijärvi case the communication frame was taken into further consideration in the form of a public workshop focusing on communication and information issues. Also, the Finnish Environment Institute has subsequently emphasized dialogue as an important tool in public water resources management projects.

The application of Decision Structuring Dialogue in the Lake Kemijärvi case gave participants a possibility to focus on joint investigation of a desirable future. The Decision Structuring Dialogue opened up the possibility of re-formulation of the problem or "mess" even in a situation where stakeholders initially were defensive and strongly held to their view of the problem. The positive experience of Decision Structuring Dialogue in the Lake Kemijärvi case

suggests that it is a useful method in complex decision and problem structuring. Ordinary discussions and opinions expressed might not always reflect the fundamental values of the stakeholders but the points of view which reflect on the discussion climate itself and biases in communication, in contrast to points of view of the decision itself (Flood 1999).

In the Lake Kemijärvi case, Decision Structuring Dialogue helped the participant to find new approaches to the problem, enhanced transparency, incorporated social judgments into the analysis of data, conceptualized people as active subjects, facilitated planning from bottom-up and kept options open. Thus, it is in line with the paradigm of Problem Structuring Methods in general (Rosenhead and Mingers 2001). According to Rosenhead and Mingers (2001), Problem Structuring Methods use language as their primary means of representation because it is only language that has the degree of richness and transparency suitable for participative modeling of complex reality. Decision Structuring Dialogue does not only use language as its principal way of structuring but helps participants to see how language has an impact on how a problem is perceived.

General ideas in the facilitation literature can be used in a Decision Structuring Dialogue. Mingers and Rosenhead's (2001b) general guidelines for group facilitation in PSM apply well to dialogue. The training and facilitation of dialogue skills are discussed by Senge (1990) and Gerard and Ellinor (1998). In addition, facilitators gain from familiarity with philosophical analysis and sensitivity to conceptual subtleties. The ideas and approaches emphasized in Systems Intelligence (Hämäläinen and Saarinen 2004) are useful in complex and systemic group facilitation situations in general. Practitioner will benefit from forming a preliminary understanding of the decision context by, for instance, discussing with the participants, observing work practices of the group such as meetings, and by studying reports, surveys etc. A preliminary agenda for the dialogue should be formulated together with the participants before the actual implementation session.

Perception of facts and expressed values are not only personal but they reflect the person's socio-economic and cultural background. This can be called the world-view in a loose sense. World-views are determined by social status, education, wealth and geographical location etc. Democratic collaboration should

take into account different world-views, values and preferred alternatives of the different stakeholders, independently of whether they are true or false in an absolute sense. (Meredith 2001, Rauschmayer 2001).

In the Lake Kemijärvi case the Decision Structuring Dialogue illuminated that dissatisfaction with the regulation is due to not only to the actual water regulation and its impact on the environment, but the interaction and communication climate. This insight was important in itself when considering the future decision and actions related to the regulation. The dialogue was the first stage in a series of collaborative planning methods in developing the regulation of Lake Kemijärvi and was followed up by a mapping approach that utilized information gathered during the dialogue.

Based on our experiences of using Decision Structuring Dialogue, we propose that it is an efficient tool in group decision making. It can be used as such to structure problems, in decision conferences, in the problem structuring stages of multi criteria decision analysis, and in community OR. Moreover, elements of it can be incorporated in other problem structuring methods. For example, the new views that were put forth at stage 5 and 6 of the Decision Structuring Dialogue in the Lake Kemijärvi case, could be written on post-its and used as elements in Soft Systems Methodology, or in the forming of cognitive maps in Strategic Options Development and Analysis. For practitioners who subscribe to multimethodology it is certainly an asset in their problem structuring toolbox. Here a natural question for further studies is the culture dependency of these conclusions. Communication styles as well as social traditions and the practices in public decision making are very different in different cultures and it can very well be that the process of Decision Structuring Dialogue would not be seen or introduced in the same way in all cultures.

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Form of conversation	**Intention**	**Method**	**Goal**
Debate	-Proving ones argument to be right - Getting ones own view to be accepted - Showing weaknesses in the opponents argumentation	- Advocacy -Arguments against person - Rhetorical asking and questioning - Evidence in favor of ones own point of view and	- Winning - Being right - Getting ones own view to be accepted

	and points of views	against opponents points of view	
Negotiation	- Resolution - Decision for action - Deal - Contract	- Weigh up -Bargaining -Showing strengths pointing to weaknesses - Counting	- Getting to yes - Avoiding loosing - Consensus or compromise
Dialogue	- Thinking and understanding together - Cognitive, emotional and practical wisdom - Shared understanding	- Inquiry - Genuine asking and voicing - Suspension of assumptions - Listening - Building on others ideas - Co-creation of meaning	Consensus as finding common ground for action, determining where and if collaboration is possible, understanding and respecting differences

Table 1

Dialogic and constructivist paradigm	**Monologic and realist paradigm**
Multitude of world-views view-points solutions to problems	One correct world view view-point solution to a problem
Language is used for interpretation and creation of reality sharing meaning inquiry	Language is used for describing reality mediating information advocation of ones own point of view persuasion
Dialogue emphasizes thinking together creating mutual vision learning together balancing listening and voicing searching for common values	Monologue emphasizes thinking in solitude working for ones own vision teaching or learning

Table 2

CAPTIONS OF TABLES

Table 1. Dialogue, negotiation and debate

Table 2. The Dialogical versus the Monological Paradigm