We have the tools – How to attract the people? Creating a culture of Web-based participation in environmental decision making

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Abstract: The proliferation of the World Wide Web has opened new opportunities to support participatory decision making. We now also have a number of Web-based tools to support participation and decision analytical methods. This opportunity is of special interest in environmental applications where we always have multiple objectives and multiple stakeholders who are often geographically in different locations. In spite of the attractiveness of the tools, we still have very limited number of users. In this paper, we discuss the ways and requirements to apply decision analytical tools in Web-based public participation. We demonstrate a framework to support participatory processes, which includes Web-based tools for decision analysis and participatory feedback. The applicability of the framework is discussed in terms of experiences obtained from three lake regulation applications in Finland. Our main message is that there has to be a strong commitment to create a culture of Web-based participation by case projects before the public stakeholders and the authorities can accept this new approach.

Keywords: Multicriteria decision analysis, Decision support systems, Public participation, Environmental decision making, World Wide Web

1. Introduction

The importance of public participation in environmental assessment has increased during the last decade. At the same time, theory, practices and methods for participation have been developed. The role of public participation is changing from one-way communication between authorities, experts, stakeholders and citizens towards more intensive two-way interaction. The quality of the planning process and active involvement of stakeholders have proved to be key issues in controversial consensus seeking processes (see e.g. Renn et al., 1995; Morgan, 1998; Beierle, 2002). Figure 1 shows a flowchart of a typical participatory process.

Multicriteria decision analysis (MCDA) is a structured approach to systematically analyze complex decision making problems. In group decision making, this makes it possible to analyze the different views in a unified setting with an aim to increase the transparency of the process and achieve a common understanding of the other stakeholders' objectives. Especially in environmental decision making the MCDA approach has become an increasingly important tool, as the views of the stakeholders are typically diverse and even conflicting. MCDA has been successfully applied in many environmental applications including ones in water resources planning (Hämäläinen, 1992; Marttunen and Hämäläinen, 1995; McDaniels et al., 1999; Gregory and Wellman, 2001; Kiker et al., 2005). Our use of the approach goes back for more than fifteen years. It has become an increasingly important tool in environmental decision making.

The World Wide Web provides various opportunities to support participatory processes. In this paper, we deal with three types of support: (i) the use of the Web as an information distribution channel, (ii) the use of the Web to support the collection of the feedback and (iii) the Web-based support for modeling and analyzing the problem.

2. Framework for the use of MCDA in Web-based Participation

In practice, MCDA modeling is a laborious process and requires understanding the methods. Within the steering group, the MCDA methods can be easily applied as a decision analyst typically facilitates the process. For example, in decision analysis interviews (see e.g. Marttunen and Hämäläinen, 1995), the preferences of the steering group members, or some other stakeholders, are modeled one by one with the assistance of the decision analyst. The preference models are then collectively analyzed within the steering group to get a view of the other stakeholders' preferences. The value trade-offs and the results can also be analyzed in public meetings to illustrate the differences between the interest groups to the public.

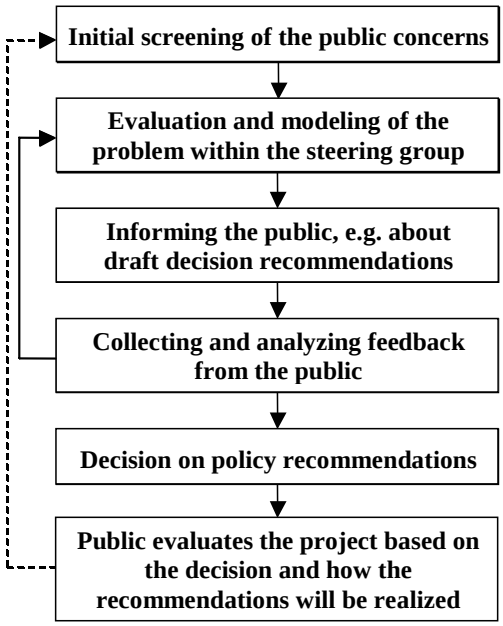

Figure 1. A Flowchart of the public participation process.

In this paper, we present a framework for the use of the Web in participatory processes in which a steering group has been set up to represent the different interest groups (Figure 2). In this framework, the steering group works under the guidance of decision analysis experts with technical assistants driving the software and maintaining the Web pages. The public participation is carried out through the Web. The independent use of the Web resources is based on the above classification of three different types of support. That is, (i) information is distributed to the public through a static Web page, (ii) feedback is collected with a Web-based survey software and (iii) the problem is modeled and evaluated with a help of Web-based decision analytical software. The first two of these can be carried out fully independently, but as mentioned above, it is questionable whether the public can use Web-based decision analytical software independently to create their own preference models or to study the preference models of the other stakeholders. Thus, these have been marked as optional in the framework (the dotted lines).

We study the applicability of the framework to support public participation in the development of the existing lake regulation policies. The experiences are collected from three large lake regulation projects on Lake Päijänne, Lake Kallavesi-Unnukka and Pirkanmaa Lakes. We do not describe the projects in detail, but focus on studying different ways of participating the public and the stakeholders.

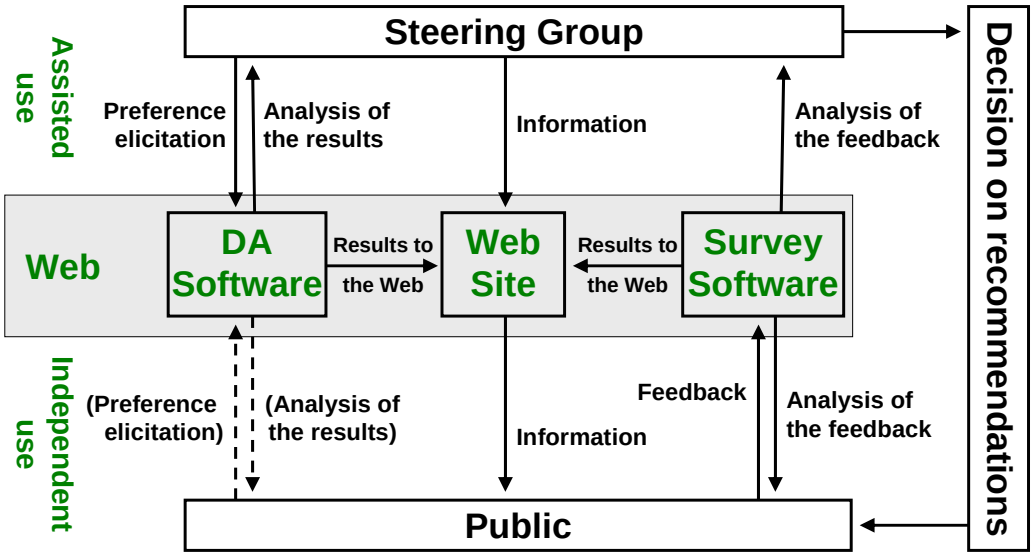

Figure 2. A Framework for the Use of the Web in Participatory Processes.

Besides static Web pages, two Web-based software were used in these projects: Opinions-Online (Hämäläinen and Kalenius, 1999) as a survey software and Web-HIPRE (Hämäläinen and Mustajoki, 1998, Mustajoki and Hämäläinen, 2000) as an MCDA software. Both tools are available in the Decisionarium Web site for global decision support (Hämäläinen, 2000, 2003). Opinions-Online is a platform for global participation, voting, surveys and group decisions. One can quickly create and edit questionnaires providing different ways of collecting data, such as multiple choice questions, approval voting, ranking of the alternatives and multiattribute rating of the alternatives. Written comments can also be collected. The results of the questionnaires can be made available immediately or after closing the survey. Web-HIPRE is a multicriteria decision analysis software, which supports several MCDA approaches.

3. Conclusions

Our experiences on the lake regulation cases strongly support the applicability of the proposed steering group approach with multicriteria decision analysis interviews. It provides a convenient way to clarify the facts and values of different stakeholder groups, and consequently, to improve the substantive quality of decisions.

One should note that much of the success depends on how the process is carried out in practice. We believe that the approach should be taken into use with small steps. That is, we should first apply plain Web-pages for delivering information and simple Web-based tools for carrying out surveys, and when the public has received enough positive experiences on these, we can start using advanced tools. However, if we immediately start applying advanced tools, this may frighten the stakeholders away from participating at all, which may consequently decrease the public commitment to the process. We consider it especially important that decision analysis researchers collaborate with the policy support administrators so that the methods will be used in a correct way.

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