

Interactive comment on “Stakeholder discourse and water management in a catchment in northern Italy” by P. S. Lupo Stanghellini and D. Collentine

P. S. Lupo Stanghellini and D. Collentine

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We want to thank the editor and the referees for their thoughtful comments and suggestions. The comments are addressed below and where noted revised in the paper.

1) Title: *new including a subtitle:*

“Stakeholder discourse and water management. Implementation of the participatory model CATCH in a Northern Italian alpine sub-catchment”

2) Introduction: *At the end of section 1(introduction) the text should be extended with:*

The paper begins with an overview of different forms of public participation and describes a system of classification based on different participatory levels; this section

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also includes a discussion of those features that characterize good participatory processes. The following section presents the model evaluated in the study, the CATCH model, including the theoretical basis of the model and a brief explanation of how the model may be used. The next section, Section 4, describes the application of the CATCH model in an alpine sub-catchment in the Trentino region of Northern Italy. A brief description of the sub-catchment is followed by the presentation of a stakeholder analysis methodology specifically developed for the project as a preliminary step for implementation of the CATCH model. This section ends with a description of the two rounds of meetings with stakeholders using the CATCH model and includes a comparison between the results of the two rounds. The last section presents the conclusions of the study.

3) Sect. 2 , 1732, 13-23: *The text should be modified in the following way:*

ticipation. Following the provisions of Article 14, which prescribes three main forms of public participation, the European Commission developed a classification similar to the one identified by the OECD (2001a; 2001b):

- *Active involvement.* Interested parties participate actively in the planning process by discussing issues and contributing to their solution.
- *Consultation.* Administrative bodies consult people to learn from their knowledge, perceptions, experiences and ideas. Consultation is used to gather information.
- *Information supply (Access to background information).* Access to background information only is required and no active dissemination of information. The latter is, however, essential to make the prescribed consultation and active involvement work.

4) Sect. 3, 1734: *This section should begin with the following text.*

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CATCH is a decision support tool aimed at facilitating stakeholder participation in water resource management on a catchment area level. The model was developed within the Swedish Water Management Program (VASTRA) by a multidisciplinary group of researchers (see Collentine et al., 2002 for a more in depth description of the CATCH model and comparison with other types of participatory models). The model represents a methodology for structuring dialogue to facilitate stakeholder participation in the management process.

5) Sect. 3, 1734, 18-26 and 1735, 1-3: *Starting at line 18 the text should read as follows.*

CATCH is a qualitative tool; it uses interaction among people in order to generate data; it has been designed for use with small groups (six-twelve people) and it can be used as a complement for large group settings in a way similar to the use of focus groups as a complement to valuation studies. The result of the small group setting using CATCH can serve as information that may then in turn be used for revealing and shaping preferences in another small or larger group setting. The primary goal of the CATCH model is to develop a common set of definitions, a common language, which may serve over a period of time for planning, as well as approval of specific measures. In order to achieve this, socio-economic parameters and the relationships between these parameters are defined by stakeholders. In the CATCH model the role of values is central. The process builds on stakeholder values (or interests), which are constructed by the stakeholders themselves. A key role in this process is the role of the facilitator. The task of the facilitator is to both describe the use of the model and perhaps most importantly help the stakeholders to achieve consensus on the definition of the values produced when the model is used.

6) Sect. 3, 1738: *Comments to the reviewer.*

While it may appear that the choice of representatives is naïve it is based on previous experience (and studies) and represents an improvement in stakeholder selection

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using other techniques that are even more naïve (random selection, snowballing). By involving the institution in the selection process there is a formal recognition that the person participating in the process represents the organization.

7) Sect. 4, 1739

1739, 10: Starting at line 10, *the text should be extended with:*

In the Alta Valsugana, as in the rest of Italy, water management is not based on hydrological units (river basins) but on political administrative boundaries or on the use to which water is put. This makes water management inefficient and causes a lot of problems with respect to the implementation of management measures, the improvement of water quality, the regulation of water abstractions, etc. . . The situation is made worse due to the lack of cooperation among the various administrative entities responsible for water management: regions, provinces, municipalities. With respect to the Alta Valsugana, it is important to emphasize that the Autonomous Province of Trento is responsible for the management of all the waters of the Trentino region, while a lot of important water services, such as drinking water distribution services and sewer water treatment services, are managed by municipalities. The result is not satisfactory and this system has been unable to solve problems with the lack of balance between the demand and supply of water, the need for improvement in water quality, the protection of ecosystems, etc. . . In the Alta Valsugana it is possible to see many of the limits of this water management system because in this area water is very important. In the Alta Valsugana water is fundamental for activities associated with agriculture,

8) Sect. 4, 1743, 11-15:

1743, 9-17: *the text should be modified in the following way.*

At the first meeting the facilitator went through four presentations concerning the WFD, the provisions for public participation, the CATCH model, and a description of the implementation process. The stakeholders were then shown three maps: first the map

of the sub-basin, specifically developed for the research project in February 2006 by the Division of Information and Environmental Quality of the Environmental Protection Agency of the Autonomous Province of Trento and based on data of the Autonomous Province of Trento; then a map describing the concentration of the different economic activities in the sub-basin area (farming, fruit growing, industry, handicraft, tourism and commerce) and a third map which described eco-systemic sensitiveness, both specifically developed for the research project in February 2006 by the Department of Civil and Environmental Engineering of the University of Trento and based on data of the University of Trento. This third map showed the areas with very low, low, medium high, very high eco-systemic sensitiveness. All these maps and data were shown in order to give stakeholders an overview of the socio-economic-environmental situation of the sub-basin.

9) Sect. 4, 1747, 9-20 and Table 4: *The use of the term positive with respect to changes in the parameters can also be regarded as an increase in the value of this parameter. Changes have been made in the following texts to emphasize this.*

1744, 23-25 and 1745, 1-17: *The text should be modified in the following way.*

After this discussion and redefinition of parameters the first matrix was completed, which describes what effect a positive change in each parameter has on all the other parameters (see Table 2). In this matrix, an increase in the use of water for domestic and sanitary purposes (domestic use) is expected to have an insignificant effect on water used in agriculture, for tourism and recreation or for the processing of fruits as indicated by the zeroes in the respective box in Table 2. However, stakeholders pointed out that household water and the water used in agriculture fruit production comes from different springs. An increase in the use of household water is therefore expected to have an insignificant effect on the vulnerability of springs, while it is expected to have a negative effect on (decrease the amount of) biodiversity and on the availability of water (as indicated by the minus signs in these two boxes in Table 2).

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After finishing the first matrix, a second one was built, which describes what effect a negative change (a decrease in this value) in each parameters has on all the other parameters (see Table 3). As can be seen in this matrix, a decrease in the amount of water suitable for recreational and sports activities is expected to have an insignificant effect on the overall availability of water, while it is expected to have a positive effect on biodiversity and on the vulnerability of springs (pluses in Table 3). Stakeholders indicated that a decrease in tourist pressure is expected to produce positive effects on biodiversity and springs. However, the stakeholders could not establish what effect a decrease in the use of water for recreational and sports activities would have on the water used for agricultural activities.

1747, 9-20: *The text should be modified in the following way:*

As can be seen in Table 4, measures aimed at making citizens aware of the importance of water issues and of water problems are expected to have a positive effect (an increase in the value of this parameter) on the water used for domestic use and agriculture, i.e. a greater quantity used for this purpose. This measure is also expected to have positive effects on biodiversity (an increase in the amount of diversity) and the overall availability of water but an insignificant effect on the maintenance of the current quality of springs (vulnerability of springs). The extension or prolongation of the tourist season is expected to have a positive effect on the quantities of water used for domestic purpose and for tourism and recreation as well as increase biodiversity and the overall availability of water. However, it is expected to have an insignificant effect on the maintenance of the current quality of springs (vulnerability of springs) and on the water used for irrigation (agricultural use). After the building of this last matrix there was a discussion about the results and an evaluation of the whole CATCH implementation round (see conclusions below).

10) Sect. 4, 1751, 7-20: *Comments to the reviewer.*

These conclusions were drawn from the discussion which took place during the work-

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shops. The stakeholders clearly said that they were responsible for water management because they represented the citizens of the area and they believed that for this reason it was a duty for them to participate in the meetings.

1751, 10-11: The text should be modified in the following way:

process were *local government* stakeholders. During the workshops it emerged that these stakeholders have had the formal power and the duty to decide about water management until now. The stakeholders said that as a consequence

11) Sect. 4, 1752, 7-11: Comments to the reviewer

The characterization of the atmosphere was to give the reader an impression of what this was like at the meetings. What is of importance here is not the friendly atmosphere but the trust between the participants which was built up during these workshops. One of the values of using the CATCH model and its use of consensus is that it discourages strategic behaviour on the part of participants, which is often the source of conflicts. The CATCH model has not been developed for conflict resolution but rather to enable conflict resolution based on the use of a common language (see Collentine et al 2002 for a more in depth description of this aspect of the CATCH model).

With respect to a comparison with other methods of stakeholder participation, this aspect is planned to be developed in a forthcoming paper which will compare the results of this application with the results from the use of another type of model in a recent application in Sweden.

12) Sect. 5, Conclusions, 1752: Comments to the reviewer

We think the only conclusions that can be drawn from the use of the model in this set of workshops are included in this section.

The purpose of this paper was to test the utility of the CATCH model for involving stakeholders in water management. The time perspective associated with the model is long run and intended to support future allocation priorities in the catchment. The

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model may also be used with the same group in repeated sessions over time. While it is possible to evaluate the use of the model by asking stakeholders that have used it what value it had for them (this was done after the workshops and included as comments in the conclusions) it is more difficult to determine what impact the use of the model may have on future developments in the area. Perhaps this should be followed up on in a couple of years.

Technical comments. Language:

1) Sect. 3, 1737, 15-28: *Starting at line 15 the text should be modified in the following way:*

In the original CATCH model it was assumed that stakeholders will always identify with groups of interests and as a result less importance was assigned to the method used for identification of stakeholders. However, the European Commission (2003) points out that the way by which stakeholders are identified is very important and recommends performing a stakeholder analysis as this “reduces the risk of forgetting an important actor and will give an idea about the different angles from which the subject can be viewed” (European Commission, 2003, p 63). The identification of stakeholders is very important and has a great deal of influence on the outcome of the implementation process. For this reason it is important to incorporate into the model an appropriate stakeholder analysis methodology to identify stakeholders. The stakeholder analysis and recruitment method developed and used for the study described in this paper is based on the following set of principles.

Sect. 3, 1748, 7-20: *Starting at line 7 the text should be modified in the following way:*

The first workshop of the second round was organised in the same way as the first workshop of the first round. Stakeholders worked out the list of the most important parameters and their definitions:

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- *Purification*: processes aimed at restoring the quality of water;
- *Water quality (chemical, physical and biological)*: with respect to the limits and parameters established by the regulation in force;
- *Tourist pressure*;
- *Resident pressure*;
- *Water use or consumption*: water used for domestic purposes or economic activities;
- *Landscape and recreational use of water*: use of water and the environment for recreation;
- *Flow of rivers and streams*;
- *Impermeability of the soil*.

2) 1732, 27; 1734, 7; 1744, 10; etc. Use of the past participle.

I believe this has been used right but leave this up to the editor.

3) 1734;17 *The text should be modified in the following way:*

making decisions through the local knowledge provided by participants.

4) 1737;13-14 *The text should be modified in the following way:*

to be re-analysed and reviewed: stakeholder identification, stakeholder recruitment, definition of socio-economic parameters and workshop organisation.

5) 1738, 23 *population from what year?* 2004

1738, 23: *The text should be modified in the following way:*

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of 394.45 Km² and a population of 45 653 (year 2004) inhabitants, spread out over twenty different

6) 1745, 3: *the text should be modified in the following way:*

indicated by the zeros in the respective box in Table 2. However, stakeholders pointed

7) 1751, 3: *The text should be modified in the following way:*

very high: ten municipalities out of twelve (88%) participated in at least one

8) 1751, 5: *The text should be modified in the following way:*

lower: only five stakeholders out of the sixteen (31%) participated in at least one

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 4, 1729, 2007.

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