Research papers

An approach to public involvement in forest landscape planning in Italy: a case study and its evaluation

Isabella De Meo [1], Fabrizio Ferretti [2*], Alessandro Paletto[2], Maria Giulia Cantiani [3]

Abstract - In Italy, in the last decade, there have been both new social requests and an ever-increasing sensitivity towards the multiplicity of values attributed to forests. This has led to a profound revision of the structure of forest planning. This paper illustrates the planning system, characterized by a hierarchical approach, focusing on the upper level, that is Forest Landscape Management Plan (FLMP). At this level of planning, attention to the different needs and targets expressed by the population is considered of strategic importance and thus requires a participative attitude. In the first part of the paper the authors show the approach currently used in forest landscape planning, through a case study carried out in a rural area of the Apennine mountains, focusing on the method established for the process of participation. In the second part, after describing the methodology followed to identify a set of criteria for success, the quality of participation in the case study is analyzed.

Introduction

While the social dimension has been developing as an integral part of sustainability, there has been a gradual increase in the involvement of local communities in the decision-making process regarding environmental matters (FAO-ECE-ILO 2000, Appelstrand 2002, European Commission 2003, Lee and Abbot 2003).

As for the forestry sector, the adoption of participatory planning has been seen from the outset as an instrument and an opportunity to take into consideration social sustainability in order to enhance sustainable forest management (FAO-ECE-ILO 2000, Kangas et al. 2006, Ananda 2007). This reflects a clear shift towards a post-productivist approach to natural resources management (Appelstrand 2002, Farcy and Devillez 2005, Cantiani et al. 2013) and shows an ever-increasing need for taking into account the multiple uses and multiple values of forests (Farrel et al. 2000, O'Brien 2003, Leskinen 2006, Schmithüsen 2007).

In Italy, such a need has led, in the last decade, to a profound revision of the very structure of forest planning (Cantiani et al. 2010, Ferretti et al. 2011, Paletto et al. 2011, Paletto et al. 2015a) which is now based on a hierarchical approach (Ferretti et al. 2011, Paletto et al. 2015a). It introduces the Forest Landscape Management Plan (FLMP), a higher level to the existing traditional Forest Unit Management Plan (FUMP), which pertains to single ownership. The FLMP includes all non-urban and non-agricultural land, mainly forests and pastures, referring to a homogeneous area from a geomorphological point of view, irrespective of ownership boundaries.

The theoretical framework has been provided thanks to the activities of workgroups made up of researchers and practitioners. Their work has been carried out within a long term national research project promoted by the Ministry for Agriculture and Forestry Policies, together with most Regional Agriculture and Forestry Administrations (Ferretti et al. 2011, Paletto et al. 2011).

The methodology of forest landscape planning involves a series of interdependent phases, according to a logical procedure summarized in Fig. 1.

The landscape scale was deemed the most suitable for considering long term general interests, such as soil protection, nature and landscape conservation, while taking into account local community needs (Bettelini et al. 2000, Cantiani 2012).

The FLMP was thought of as an instrument entrusted with two tasks: providing management guidelines for the subordinate FUMPs and integrating and coordinating with other types of plans or

[1] Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria Research Centre for Agriculture and Environment, Firenze (Italy)
[2] Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria Research Centre of Forestry and Wood, Arezzo (Italy)
[3] Università degli Studi di Trento, Department of Civil, Environmental, and Mechanical Engineering, Trento (Italy)
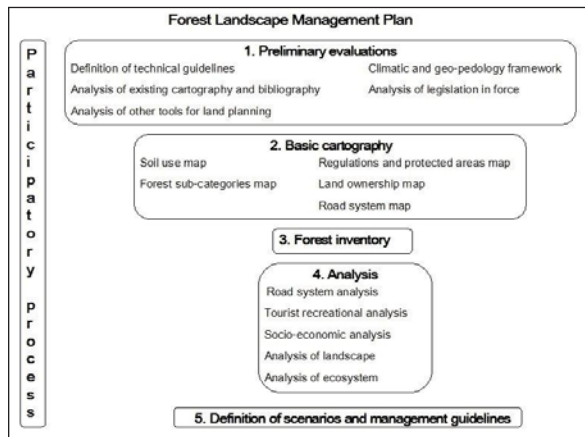*fabrizio.ferretti@crea.gov.it

Figure 1 - Structure of a Forest Landscape Management Plan.

projects existing in the same area.

At this level of planning, care about the different needs and targets expressed by the population was considered of strategic importance.

With regard to this, a workgroup on participation in forest planning, where the authors were directly involved, was set up within the above-mentioned research project. Based on foregoing experience from several case studies and on a careful analysis of the literature a methodological approach to participation in forest landscape planning was outlined.

The main questions and concerns of the workgroup revolved around the following issues:

a) feasibility of public involvement in the decision-making process to build up a planning process well-rooted in the socio-economic context (Cantiani 2012);

b) identification of the most advisable level of involvement (Bettelini et al. 2000);

c) understanding of suitable means to reach and involve the stakeholders in the highly rural contexts typical of the Italian mountains. Here, generally, the actors more directly in charge of the management of the land have only a marginal role in the local social network (Paletto et al. 2012, Cantiani et al. 2013);

d) provision of opportunities for enhancing people's awareness of the values of their own territory (De Meo et al. 2011);

e) design of a flexible procedure, easily adaptable and reproducible in other rural contexts (Cantiani 2012, Paletto et al. 2015a).

In this paper, among the case studies realised throughout the research project, we refer to the one carried out in a hilly and mountainous district of Southern Italy, the *Comunità Montana* Collina Materana; the Comunità Montana is the Italian administrative body that coordinates the municipalities located in the mountainous areas and is responsible for administration and economic development. This was actually the first Forest Landscape Management Plan carried out in Southern Italy and one of the first

ever realised, on this scale, in the entire country. According to the project philosophy, the main purpose of the plan was that of defining medium/long term natural resources management strategies, able to guide a sustainable and harmonious development of the area.

In the first part of the paper we describe the case study (the FLMP of the Comunità Montana Collina Materana), focusing on the methodological approach established for the process of participation. In the second part, we analyse the quality of participation in our case study, after describing the approach followed to identify a group of success criteria, deemed particularly relevant in relation to our concerns.

Materials and methods

The planning context

The Comunità Montana Collina Materana (40°29'30" N;16°09'0" E) is located in the Basilicata Region and occupies a surface of 60'784 ha (Fig. 2). This case is one of a typical rural area, with few industrial activities and generally poor infrastructure. The population density is low (19.8 inhabitants/km^2) in comparison to other regions of Italy and to the national density (201 inhabitants/km^2). The primary sector plays an essential role in the economic structure of the Comunità Montana, involving 24% of the active population (national average about 8%). Agricultural activities, which are mostly extensive, also include the cultivation of high quality products, such as durum wheat, used for the production of "pasta".

The area covered by forest is 22'221 ha, corresponding to 36.5% of the territory and the main forest types present are: forests of Turkey oak (*Quercus cerris* L.), downy oak (*Quercus pubescens* Willd.), Holm oak (*Quercus ilex* L.), Hungarian oak

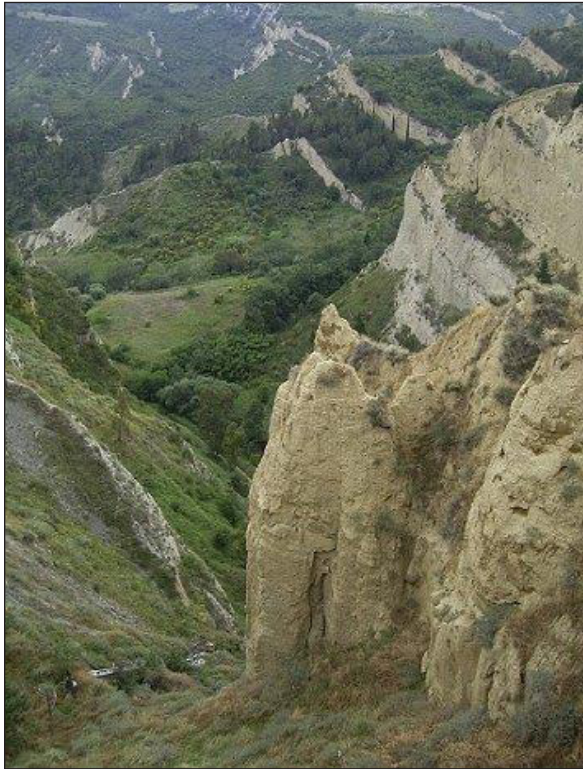**Figure 2** - Basilicata Region and Comunità Montana Collina Materana.

Figure 3 - The typical gully landscape of the Materana district.

(*Quercus farnetto* Ten.) and reforestation of Aleppo pine (*Pinus halepensis* Mill.). The large diversity of forest types is due to the great variability in morphology, altitude, and lithology of the area (Fig. 3).

About 5% of the territory falls within a protected area (Regional Natural Park of Gallipoli Cognato). 36% of forest land is public property (Municipalities, Regional Park) and 64% is privately owned, often forming part of a larger agro-forest enterprise.

The surface of pastureland is only 272 ha, despite the importance of husbandry, which relies on 1'500 heads of cattle (without considering smaller livestock) (Argenti et al. 2008).

Forest land is still very important today for the economy of the local community, mainly in relation to firewood production and the supply of pasture resources. Forest management, is strongly characterized and influenced by grazing in the forests (Fig. 4). This has been a common practice since the Middle Ages, as it was the case in large areas of Europe (Rotherham 2007), and has played a major role in the socio-economic organisation of Collina Materana. It has, in fact, always helped to ensure the survival of the population when the conditions were not favourable to forage production in pastures and meadows, due to the Mediterranean climate. At the same time, however, grazing in the forest has also posed serious constraints on forest management, interfering with other functions of the forests, in particular that of protection. Indeed, the continuous overgrazing, which causes unfavourable conditions for the vegetation, may result in the reduction of spe-

cies, a decline in wood production, soil compaction and damage caused by animal tracks. It goes without saying that it may be one of the main sources of conflict in this area.

The FLMP of the Comunità Montana Collina Materana was carried out between 2006 and 2007, coherent with the theoretical framework of reference (Argenti et al. 2008). The plan came into force in 2009 and was due to last 20 years. Since it was the first experimental plan, special attention was paid to the development and testing of the participatory approach, which should serve as a model for the following planning activity (Cantiani 2012).

The participatory process

From the beginning of planning, the participatory process took place along with the other planning activities. This process consisted of a series of steps: a preliminary evaluation, the establishment of a "participatory support group", the definition of the participation method, a stakeholder analysis and the first stage of consultation, the SWOT analysis and the second stage of consultation.

The participatory process was coordinated and followed in all its steps by the authors in person.

The participatory process: preliminary evaluation

In order to verify the real applicability of the participation process and to structure it properly, several meetings were organised between the responsible parties of the Plan (National Institute of Agricultural Economics – INEA - and the Basilicata Region) and the planning team. The objective was to assess the human and financial resources available, as well as the commitment required to activate and nurture the process. In this regard it was necessary to clearly evaluate the timing of the various phases, bearing in mind the specific socio-cultural context, too.
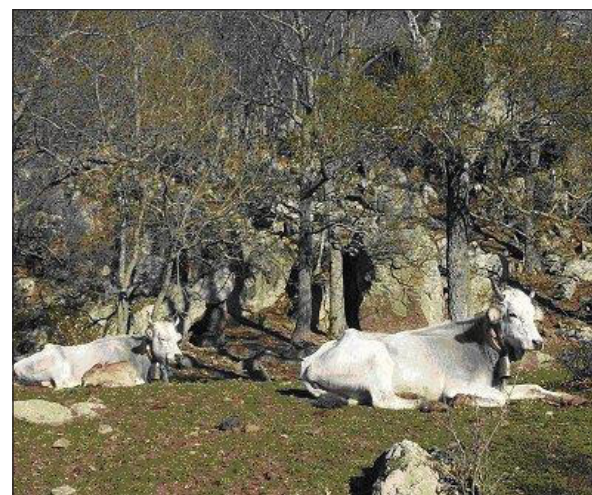

Figure 4 - Cattle-grazing in the Collina Materana forests.

The participatory process: establishment of the "participatory support group"

A crucial aspect of the participatory approach adopted was the setting up of a participatory support group. This was meant to guide and accompany the entire participation process, it being in charge of defining aims and strategic choices of participation (Cantiani 2012). In particular, it was in charge of deciding the most appropriate method of participation for the specific context and it identified and contacted all stakeholders, assessing their degree of influence in the process. It was also responsible for providing feedback to participants while assessing the effectiveness of the approach taken at the end of each step in the process.

In this case study the support group was formed by:

a) the person responsible for planning, a freelance technician in charge of the Plan with the responsibility for coordinating the data inventory, data processing and formulation of silvicultural guidelines;

b) the person responsible for participation (in this case one of the authors), with experience in forestry participatory processes;

c) two institutional participants (representatives from the Region of Basilicata and from INEA);

d) an actuator, responsible for logistic and secretarial aspects;

e) two local referees, well-known and respected persons from the local community with a profound knowledge of the territory and whose task was to collaborate in the analysis of the socio-economic context and to ease interactions with local actors.

The participatory process: definition of the participation method and start of the process

The choice of the level of participation is extremely important, since different levels correspond to different degrees of participants' involvement, which then lead to different possibilities in influencing the decision-making process (Chess 2000). Each case has to be evaluated individually, taking into careful consideration the specific objectives of the planning process and the socio-economic and cultural peculiarities of the local context (Paletto et al. 2015a).

In our case, the participatory support group opted for the activation of a consultative approach.

Consultation is a method by which the public is informed and then its needs, interests and opinions are heard. No guarantee is given that public demands will really affect final decisions. However, feedback is provided regarding the level of acknowledgement and inclusion of people's expectations in the deci-sion-making process (Linder et al. 1992, Bettelini et al. 2000, Buchy and Hoverman 2000, IAP2 2007, Cantiani 2012).

In our case, the consultation was carried out at two different levels and with different objectives.

The first stage of consultation was mainly aimed at: i) understanding the expectations and needs of people directly involved in land management; ii) gathering local knowledge; iii) identifying any conflict.

The second stage of consultation was carried out at a more technical level and was directed at stakeholders who had specific competence regarding the matter in hand.

Particular importance has been devoted to information, with the purpose of raising the public's interest in the forthcoming planning process and, at the same time, fostering awareness of the functions and values of forests. In this case study institutional actors were informed of the planning process through written communication and a public meeting. On this occasion, the participatory plan process was officially considered to have begun. Thereafter, information was extended to the public at large, through the use of leaflets posted at the Comunità Montana centre and the municipality headquarters. These leaflets provided a useful tool in reaching large number of people. The meaning of the plan and the role of participation were illustrated in eye-catching graphics and clear language.

The participatory process: stakeholder analysis and first-stage consultation

The stakeholder analysis is a complex but important step (Ananda and Herath 2003, Candrea and Bouriaud 2009), since it allows the identification, characterization and classification of the stakeholders, with the objective of involving them in future decision-making processes. It obviously requires a great deal of work (Paletto et al. 2015b).

In our study case the stakeholder identification was an iterative process based on the principles of snowball sampling (or referral sampling): starting from the institutional actors, other previously unknown representative parties were identified (Harrison and Qureshi 2000, Hislop 2004). This type of sampling is advantageous since the costs and the size of the sample can be controlled. The limit is represented by the fact that distortions can be generated if the group formed in the beginning is not representative of the different categories involved (Hair et al. 2000).

In the Comunità Montana Collina Materana, as it often happens in a small rural area, almost all the institutional actors showed widespread knowledge of the territory. They therefore were crucial for the

identification of other stakeholders in the area. In total, 63 stakeholders were identified who were then subdivided into several categories of interest, as shown in Table 1. Particular attention was given to the farmers, as the relationship between pasture and forest is one of the most critical elements in the system (De Meo et al. 2011).

Table 1 - Stakeholders involved in the consultation (* the institutional actors).

Categories of actor	Number
Municipalities*	7
Forest Bureau (Comunità Montana) *	1
State Forestry Corps*	4
No-profit associations	4
Tourist activities	5
Farmers	27
Forest enterprises	11
Forest owners	4

In the first stage of consultation, the participants were involved in the process through face-to-face interviews during which they responded to semi-structured questionnaires. The aim of these questionnaires was to elicit needs and expectations, to highlight problems and opportunities, and to gather suggestions on the basis of hypotheses concerning the future development of the territory under FLMP.

The questions were based on the following topics: the values and main functions attributed to the forest; the potentiality and critical aspects of the forestry sector; the relationship between livestock farming and forest management; the value attributed to the landscape and perception of landscape change; the bond between population and its home territory and the relationship between people and institutions.

The participants were firstly contacted by telephone, interviewees were met wherever they felt most comfortable. During the interview, people were given the opportunity to expand the conversation and to deepen issues considered particularly relevant or tricky. This often led to the collection of unexpected and interesting information.

The interview schedule was the result of several discussions and reviews between researchers, technicians and experts with a deep knowledge of the area, in order to obtain a tool that would serve to combine the clarity of language, the completeness of the information sought and the effectiveness of the questions raised.

The participatory process: SWOT analysis and the second phase of consultation

The data obtained by the interviews were analyzed and summarized by means of the Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis.

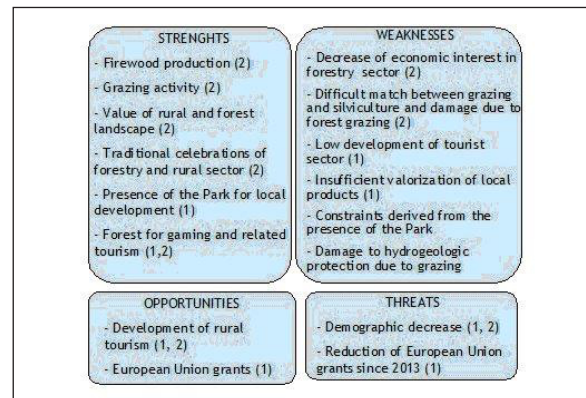In forest planning, the SWOT analysis, used in an

Figure 5 - Summary matrix of SWOT analysis. (1) Data from the literature, (2) Data from interviews.

ex-ante phase, is a method of analysis suitable for integrating a programme or a plan within the real context in which it is implemented. In doing so, factors, both the internal and external to the system, are considered in a systematic way (Kurttila et al., 2000).

The factors characterizing the forests of the Comunità Montana were summarized in a matrix. At first, they were marked differently, according to whether they were the result of the bibliographic survey or directly from the interviews (Fig. 5). In this respect, it is worth noticing that some of these factors, while being considered elements of strength or opportunities in the bibliography concerning the area, were actually regarded as critical by those interviewed. This is the case, for example, of the presence of a protected area such as the Regional Park. In the subsequent evaluation, the same weight was, however, assigned, regardless of the source. This phase of the SWOT analysis was of fundamental importance in providing an initial list of the main functions fulfilled by the forest ecosystems of the area.

The qualitative information obtained from the first consultation stage and synthetized by means of the SWOT analysis was then integrated with the data of the forest inventory and the technical information derived from other stages of the FLMP (Fig. 1, Phases 1 and 3).

In particular, the functions that were acknowledged as a priority during the inventory phase (Table 2) were closely related to the findings of the SWOT analysis so that different alternative land development scenarios could be suggested, each one characterised by different objectives and strategies and supported by a publicly participated GIS (PPGIS) (De Meo et al. 2013). The management proposals, corresponding to the different scenarios, were focused on the internal forces of the area and represented some possible alternatives in order to respond to the threats of external factors (Tab. 3).

These proposals, synthetized in a clear and simple working document, were submitted, in the

Table 2 - Percentage (%) forest type per function in hectares.

Function/Forest type	Turkey oak	Downy oak	Holm oak	Hungarian oak	Aleppo pine	Others	Total
Landscape and biodiversity	15.5	8.2	2.1	2.1	0.0	1.0	28.8
Leisure	1.0	1.0	0.0	0.0	0.0	0.0	2.1
Production	16.5	15.5	2.1	1.0	0.0	1.0	36.1
Protection	11.3	15.5	3.1	1.0	1.0	1.0	33.0
Total	44.3	40.2	7.2	4.1	1.0	3.1	100.0

Table 3 - Synthetic management proposals.

Regulation of the relationship between grazing and forest
Need to develop the tourist-recreational potentialities of the area
Valorisation of the production function, especially firewood
Valorisation of hydro-geological protection function, particularly in relation to geo-morphological characteristics of the territory

second round of consultation, to the institutional actors and some key stakeholders. The latter were identified by the support group taking into account their representativeness and their technical competence. The actors, involved in working groups, were invited to discuss the management proposals, in order to bring about the most widely shared version of the Plan, ready to be presented to the decision makers in charge of the final decision.

Methodology for the evaluation of the participatory process

A few years after the approval of the plan, we felt the need for an assessment of the participatory process which had been carried out. This effort was deemed a requisite in order to inform future participative planning at the landscape level in mountainous rural areas of the country. In particular, we wanted to reflect on the success and failures of the methodological approach chosen and decide on both the feasibility of reproducing it and any likely improvements.

This is an important issue, considering that interest towards FLMP in Italy is currently growing, also due to the fact that in many regions today any kind of project for local development must be set within the frame of higher level planning, such as the FLMP, in order to obtain either national or European funding, which is generally channelled through the regions to the local communities. For these reasons we decided, despite the plan being in an initial phase of implementation, to undertake an evaluation process, which may be considered, with regard to the timing, an ex-post summative evaluation (Blackstock et al. 2007), where our attention was mainly focused on the process, rather than on the outcome.

Success is a multi-dimensional, complex concept and the measure of it depends heavily on motivation and the perspective adopted in the participation approach. It also has to take into account the local governance context (Blackstock et al. 2007, Faehnle and Tyrväinen 2013).

In our case, the process being our main concern, we paid particular attention to both the normative and the substantive rationale. From a normative perspective, people's empowerment deriving from participation represents a measure of success, whereas substantive reasons call for the need to encompass a multiplicity of voices, concerns and values (Fiorino 1989, Blackstock et al. 2007, Menzel et al. 2012). In this particular phase of evaluation we were less interested in the instrumental rationale, which focuses on participation as a means to facilitate implementation and avoid conflicts.

Identification of success criteria

As a first step towards the development of an evaluation framework, the theoretical and empirical literature was scrutinised in order to select success criteria suitable for our case study.

Our analysis ranged over the specific literature on participative forest planning (Shindler and Neburka 1997, Tuler and Webler 1999, Buchy and Hoverman 2000, Webler et al. 2001, Saarikoski et al. 2010, Menzel et al. 2012, Robson and Rosenthal 2014), on participative natural resources management and environmental decision making (McCool and Guthrie 2001, Olsson et al. 2004, Blackstock et al. 2007, Lockwood 2010, Faehnle and Tyrväinen 2013), but also the more general literature on quality of participation (Innes and Booher 1999, Rowe and Frewer 2000, Asthana et al. 2002, Brinkerhoff 2002).

A few criteria, though often cited in the literature, have been considered unsuitable for our scale and timing and, for this reason, disregarded. This is the case, for example, of the criterion "Conflict resolution among competing interests" (Robson and Rosenthal 2014) which, in our context, has been deemed appraisable only over a longer lapse of time. All the same, other criteria were considered first, but then abandoned because too narrow or too specific for the context of the research in which they had been utilised. Besides, as we noticed many cases of blurring or superimposing, we merged some criteria. After this preparatory work, we finally set a preliminary list of success criteria. Since we looked for an evaluation framework well rooted in the local governance context and meaningful for the stakeholders, we decided to submit this list, for scrutiny and discussion, to the same group of

stakeholders who had been involved in the second stage of consultation.

The involvement of local actors in the evaluation can be undertaken in different ways. As time was held to be the main constraint, we invited people to be engaged, for one day only, in activities carried out within small focus groups, followed by a plenary discussion in the evening. The focus group technique is gaining more and more interest among researchers, planners and evaluators. A planned discussion carried out in small groups of participants, in a relaxed atmosphere, is considered a good method to analyse and obtain in-depth comprehension of complex issues (van Asselt and Rijkens-Klomp 2002).

The initial list was questioned and reshaped. Some criteria were rejected because considered too abstract, too vague or unsuitable for the local context. This is the case, for example, of "Legitimacy" and "Fairness", which have been regarded as concepts that are too blurred. Both issues, indeed, are seen in the literature as quite closely interconnected and, at the same time, particularly related to the outcomes of the process (Webler et al. 2001, Saarikoski et al. 2010).

As a result, we obtained a final shared list, shorter than the previous one, consisting of eight criteria that are reported in alphabetical order in Table 4.

Evaluation according to the success criteria identified

The evaluation was carried out following two main tracks: an "expert" perspective and a "participated" one.

Firstly, we made a keen analysis of a large amount of documentation:
a) planning documentation;
b) documents related to the participation process, such as reports, minutes of meetings, field notes, feedback of the support group etc.;
c) other documentation somehow related to the FLMP, such as conference presentations, media reports etc.

Then we examined the projects and plans (such as the forest unit management plan) realised within the Comunità Montana, following the FLMP's guidelines. We also considered material related to a larger area of interest than forestry if considered relevant.

As only a few years had elapsed since the approval of the plan, we could not rely on much documentation. However, we found this exercise very useful and we think that, generally speaking, good lessons can be learnt thanks to such an approach.

By the end of this phase, we had gained a good insight into participation performance, but we still needed to collect the participants' perceptions and experiences regarding this.

A whole day was committed to involving local actors in evaluation. The same institutional actors and key stakeholders, already involved in building the evaluation framework, were invited to discuss issues in focus groups (differently composed than in the previous case) and then in a final plenary session.

An external observer was invited to attend this

Table 4 - List of success criteria.

EVALUATION CRITERIA	CRITERIA DESCRIPTION		
ACCESSIBILITY	Timely information is available to all participants and any kind of resources and facilities necessary to support participation are provided throughout the entire process (Asthana et al. 2002, Menzel et al. 2012, Saarikoski et al. 2010, Tuler and Webler 1999).		
CHALLENGING STATUS QUO AND FOSTERING CREATIVE THINKING	Participation encourages questioning the status quo and stimulates the imagination of alternative future scenarios (Innes and Booher 1999, Menzel et al.2012, Olsson et al. 2004).		
COST-BENEFIT	From the organisational perspective: COST EFFICIENCY	The accrued costs for organising participation must be balanced throughout the process (Blackstock et al. 2007, Faehnle and Tyrväinen 2013, Rowe and Frewer 2000).	
	From the participants perspective: PARTICIPATION "WORTH THE EFFORT"	Perceived costs must not outweigh perceived benefits, especially when time is the main cost variable (Cheng and Mattor 2006, Faehnle and Tyrväinen 2013).	
INCLUSIVENESS	All the stakeholders and interest groups willing to participate are involved in planning; a broad range of the population of the affected public is present (Blackstock et al. 2007, Buchy and Hoverman 2000, Cantiani 2012, Lockwood 2010, McCool and Guthrie 2001, Rowe and Frewer 2000, Saarikoski at al. 2010).		
INTERACTIVENESS	Participation is dialogical, based on a constructive long lasting face-to-face interaction (Saarikoski at al. 2010, Shindler and Neburka 1997, Tuler and Webler 1999)		
KNOWLEDGE INTEGRATION	Participation improves the knowledge and value base of planning because of the utilisation of experiential information (Cantiani 2012, Faehnle and Tyrväinen 2013, Saarikoski at al. 2010, Blackstock et al. 2007).		
SOCIAL LEARNING	Participation changes individual values and behaviour, thus influencing collective culture and norms (Blackstock et al. 2007, McCool and Guthrie 2001, Faehnle and Tyrväinen 2013).		
TRANSPARENCY	The participants can understand what is going on and how decisions are made and, at the same time, external observers can audit the process (Blackstock et al. 2007, Brinkerhoff 2002, Lockwood 2010, Menzel et al. 2012, Rowe and Frewer 2000).		

last meeting. His remarks were useful when we finally compared the expert evaluation to the participated one, in order to integrate and merge the results to arrive at a concluding assessment.

Discussions

Accessibility

When dealing with the notion of accessibility to the process of participation, the various authors often refer, in turn, to different issues. These issues may correspond to different criteria, such as availability of early and timely information (Saarikosky et al. 2010b, Faehnle and Tyrväinen 2013), adequacy, quality and quantity of information (Menzel et al. 2012, Blackstock et al. 2007), provision of adequate resources (Rowe and Frewer 2000, Asthana et al. 2002), access to policy makers and leaders (Blackstock et al. 2007), the circumstance of physically getting people to be present and involved (Tuler and Webler 1999, Menzel et al. 2012).

In our case, it was deemed that all these elements could be profitably summarized in one single criterion, accessibility. This is indeed closely related to another important criterion, that of inclusiveness, and also, following Tuler and Webler (1999), to the concept of fairness.

In the perspective of accessibility, the process has been evaluated as satisfactory, thanks also to the procedure expressly thought for and tailor made for rural areas.

Challenging status quo and fostering creative thinking

With regard to this criterion, a unanimous positive opinion of the results of participation in our case study was expressed.

Actually, the process promoted reflection and constructive discussions, often questioning the traditional forms of management and envisioning alternatives of development capable of overcoming the weaknesses intrinsic to the local socio-ecological system. Thanks to knowledge building and social learning, which were enhanced by the participation process, possible scenarios for future management have been designed and interesting solutions have been found. These were later acknowledged in the drafts of the plan, contributing in a substantial way to the realisation of the management guidelines.

Two challenging issues, in particular, have profitably stimulated creative thinking:

a) The age-old conflict between pasture and forest, i.e. between farmers and foresters. In this regard, possible areas of overlapping and new management strategies have been identified, in order to make grazing activity in wooded lands

reconcilable with the existence of vital, viable forests. As a matter of fact, the consequences of climate change are already manifest in the Mediterranean region and are expected to become more and more severe in the near future, with longer periods of drought. In such periods the forest's contribution to the production of palatable, nutritious forage is particularly valuable and must be carefully considered (De Meo et al. 2011);

b) The development of eco-friendly tourism. In Italy, the Apennines are much less exploited for tourism than the Alps and their potential in this respect is mostly unknown or little recognised even by the residents themselves. Thanks to the participation process, the multifunctional landscape that characterises the area has finally been regarded with new interest in relation to the development of activities connected to rural tourism. In particular, the supply of natural and healthy food, typical of the area, appears to be bound to gain more and more importance in a time when special attention is being paid to the production of high quality food as an element of sustainability. Talking about creative thinking, we can definitely say that in general, beyond our case study, in periods characterised by great changes such as we are experiencing right now, one of the main results of participation is indeed that of showing the way forward to different approaches and innovative solutions when looking at problems.

Cost-benefit

Measuring the cost-effectiveness of participation is a difficult but necessary task, which must be accomplished especially when dealing with an experimental phase of planning. Evaluation in this respect, in fact, may help to avoid wasting public and stakeholder resources in future planning processes.

Participation necessarily entails participants' commitment, accrued costs and more time for planning and should not be taken lightly either from the organisational or the participants' perspective. From the organisational perspective, only if the quality of the decisions is concretely improved, the participation efforts prove to be reasonable in terms of cost efficiency. Though sometimes neglected in favour of the organisational perspective, the participants' standpoint must be taken into careful consideration, too. The perceived costs, especially in terms of time required for the involvement, should not outweigh the perceived benefits, otherwise people might no longer be willing to participate. In other words, participation must be "worth the effort" (Faehnle and Tyrväinen 2013, p. 336).

In our case study, the participative approach has been acknowledged as very advantageous from both perspectives, despite consuming time (115 man-days) and money. In the planners' opinion, participation provided very useful information and made it possible to shape more appropriate planning strategies. Forest technicians of the Comunità Montana deemed particularly convenient the spatialization of information, by means of the PPGIS, in order to reflect on real or presumed conflicts. Many stakeholders appreciated the fact that a wide range of possible solutions could be considered because of participation. In the words of a farmer: "It is only thanks to the fact that we (the category) have been listened, that the plan can now take into consideration the possibility of sending our animals into the woods to graze and we can discuss the way to do it and also its limits."

A general empowerment of participants has finally been acknowledged as a positive effect of participation, and this is thought to favour future implementation of the plan.

Inclusiveness

Inclusiveness is largely acknowledged as a critical requisite for an effective participatory planning process. Especially when planning in rural areas, it is not easy to involve those stakeholders from the primary sector who have generally a marginal role in the social system, despite being directly in charge of the management of local natural resources and landscape. In this case, two main consequences may become apparent:

a) a loss of valuable experiential information during the elaboration of the plan;

b) possible conflicts arising during the implementation stage.

Strictly connected to the issue of inclusiveness is the need for a broad representation of the various views and interests in the planning process (McCool and Guthrie 2001). Actually, a fair and balanced representation is hard to attain and requires a great effort in the phase of designing the participation process.

Being aware of this problem, in our case study we tried our very best to give different voices the chance to be heard and to represent different interests appropriately, focusing in particular on both the key and primary stakeholders (Paletto et al. 2015a). Even if the public at large was not our main target, we tried to open the process up as much as possible and to also reach citizens who are not directly affected but potentially interested, by trying to distribute timely, clear information.

As for the stakeholders' involvement, the process has been evaluated as successful, mainly due to the approach taken in the stakeholders' analysis and the work carried out by the support group. Within the latter, the role of the two local referees was regarded as very helpful in interacting with the stakeholders and in assessing and balancing their power. The first stage of consultation, carried out by means of face-to-face interviews, was particularly appreciated for the reason that it accomplished the outreach task well.

In contrast, a greater effort to include the general public has been deemed necessary. For this purpose, appropriate tools should be studied when designing future participation processes in FLMPs. Particular attention should be paid to addressing women and young people. In fact, in communities of mountainous areas especially in the south of the country, women are inclined to exclude themselves from a public and visible social debate, whereas young adults are less and less interested in forest or agriculture related professions, and are increasingly willing to out-migrate.

Interactiveness

In the present case study, participation was implemented through consultation. Actually, there was a disregard for the use of participatory methods that directly involve citizens in identifying objectives and strategies of the plan in deliberative spaces. These methods, in fact, are generally more expensive in terms of time and energy and, above all, require from the population a keen interest in participation and a willingness to work in groups (Linder et al. 1992), which is uncommon in the geographical context investigated.

In the literature, beginning with the classic paper by Arnstein (1969), the consultation process is generally imputed with strong limitations, considered ineffective and sometimes even counterproductive.

In our opinion, these negative aspects are in reality more attributable to the way in which the consultation is implemented rather than to the method itself (Bettelini et al. 2000, Cantiani 2012, Paletto et al. 2015a). As a matter of facts, in the past, the consultation process has been associated with the decision-making of public bodies, which is characterized by very formal protocols with the sole purpose of either complying with a law or legitimizing decisions already taken by the administration. This fact has often resulted in belated involvement of the population, a procedure with partial clarity and a highly technical content, with the use of language poorly understood by most people and a complete absence of constructive integration.

In our case study, in the first stage of consultation the stakeholders were involved through a dialogical attitude, stimulating a constructive discussion

between interviewer and interviewee. In the second consultation stage the interactiveness within the working group was continually encouraged and kept alive.

Finally, with regard to the criterion of interactiveness, the opinion that emerged during the evaluation was generally positive. Consultation is considered a method suitable for the local socio-cultural context and thanks to the way it has been structured, capable of enhancing not only official moments of exchange, but also informal social interaction, in a relaxed climate of trust and reciprocal understanding.

The institutional actors, in particular, said they were glad for the opportunity to coordinate better across different sectors, due to sustained interaction.

Knowledge integration

If the main aim of participation is that of improving the content of planning, as in our case, knowledge building is to be considered a critical ingredient in a successful process. Especially when planning in geographical contexts such as ours, experiential information is as valuable as the technical and scientific kind, and complementary to it. Local people are source of knowledge deriving from cultural heritage or from their personal experience and capacity to interpret the relationship between human beings and the environment in complex socio-ecological systems (Raymond et al. 2010).

Actually, knowledge integration may be an important surplus value, strictly connected to other criteria, such as the cost-benefit of participation and social learning. From a planning perspective, knowledge integration means improving not only knowledge, but also the value base, which cannot be considered separately (Faehnle and Tyrväinen 2013).

In our case, from the beginning, we understood that we could not manage without the experiential information of foresters and farmers and, for this reason, we based the first stage of consultation on a systematic action of reaching out. Both analysing the documents and listening to the opinions deriving from the focus-group activities, clearly emerged the enormous contribution to the solution of problems obtained from the first stage of consultation.

Finally, evaluation showed that, in both stages of consultation, knowledge integration was greatly enhanced. In particular, by some institutional actors it was remarked that the use of PPGIS proved to be a very helpful tool while working on the drafts of the plan in order to detect the areas of existing or latent conflicts, thus facilitating the identification of possible solutions.

Social learning

Learning is a typical "two-way or interactive concept" (McCool and Guthrie 2001, p. 317). Social learning can be enhanced, in strict connection with knowledge integration if participation is carried out with an approach that stimulates back and forth discussion and a reflective attitude.

A particular effect of social learning is the empowerment that originates within the local community, thanks to sensitization efforts and the deriving awareness of the functions and values of the ecosystems present in the area. In the participants' eyes in our case study, this issue has been especially stressed. As one institutional actor pointed out: "Participation helped me to reflect on the values of my area. For example: before, I had never considered the landscape of the Comunità Montana as beautiful, nor had I thought that somebody from outside could wish to come here on holidays".

Following the evaluation, this criterion can actually be considered largely fulfilled in our case study.

Transparency

Transparency is generally acknowledged as an important requisite for a genuine, fair participation process.

It is nevertheless true that it is not easy to evaluate it, due to the complex structure of a participation process in forest planning on the one hand, and to the subjective nature of the criterion itself on the other.

If transparency means that throughout the entire process "established channels for continuous dialogue and information sharing" exist and "timely response to information requests" (Brinkerhof 2002, p. 222) is provided, the criterion has to be considered fully satisfied in our case study.

When shifting attention onto why and how the decisions have been made, however, things are more complicated. A greater effort has been deemed necessary in the future designing of participation, in transmitting information in this regard in a more direct form, accessible also to non institutional or expert actors.

Conclusions

One of the main outcomes of landscape planning is that it definitely contributes to a sustainable development of the area. What, however, often happens is that the implementation of a plan is disregarded or even sometimes boycotted by some local actors.

For this reason, participation is more and more frequently called upon, in order to set up a planning process which is well grounded in the local context

and thus more effective. Quite often, though, disappointment about participation results and a kind of frustration may show up during or at the end of the process. This is mainly due to the fact that initial expectations are too high, both in the planning organisation and on the part of participants.

These considerations prompted us to reflect on targets and the effects of participation in our case study, involving local actors in the evaluation stage.

Considering the timing of evaluation, it is too early to argue over tangible outcomes. Only in the long term will it be apparent if stakeholders' sensitization and empowerment, activated by participation, are kept alive, contributing to the implementation phase and if the institutional actors are able to mobilise resources, bring networks into play and adapt to changing conditions, in order to shape a sustainable development in tune with people's expectations.

On the basis of the evaluation carried out so far, the participation process illustrated for the FLMP of Collina Materana can be considered satisfactory, although future improvements are deemed necessary. It goes without saying that when the implementation phase is advanced, it may be necessary to take into consideration other criteria and develop suitable qualitative and quantitative indicators to measure performances.

We hope that the case study itself and the framework set up for its evaluation might be useful for anyone who decides to undertake planning processes through a participative approach.

Our experience actually showed the importance of concretely integrating participation into the planning process. The procedure adopted for this aim, flexible and divided into phases, allowed to incorporate the findings of participation into the goals and strategies of the plan, with a reasonable commitment of financial resources and time.

The framework tested for the evaluation proved to be effective and not too costly in terms of either time or money. Since it is quite flexible, it could easily be adapted to other contexts, identifying specific criteria and indicators, tailor made for local needs.

Acknowledgments

Funding

References

Ananda J. 2007 - *Implementing Participatory Decision Making in Forest Planning*. Environmental Management 39: 534-544.

Ananda J., Herath G. 2003 - *Incorporating stakeholder values into regional forest planning: a value function approach*. Ecological Economics 45: 75-90.

Appelstrand M. 2002 - *Participation and societal values: the challenge for lawmakers and policy practitioners*. Forest Policy and Economics 4: 281-290.

Argenti G., Bellotti G., Bernetti J., Bianchetto E., Cantiani MG., Cantiani P., Costantini G., De Meo I., Ferretti F., Frattegiani M. 2008 - *Piano Forestale Territoriale di Indirizzo della Comunità Montana Collina Materana*. Vol.1, Vol. 2. INEA, Basilicata, Italy.

Arnstein SR. 1969 - *A Ladder of Citizen Participation*. Journal of the American Planning Association 35 (4): 216-224.

Asthana S., Richardson S., Halliday J. 2002 - *Partnership working in public policy provision: a framework for evaluation*. Society and Policy Administration 36 (7): 780-795.

Bettelini D., Cantiani MG., Mariotta S. 2000 - *Experiences in participatory planning in designated areas: the Bavona Valley in Switzerland*. Forestry 73 (2): 187-198.

Blackstock KL., Kelly GJ., Horsey BL. 2007 - *Developing and applying a framework to evaluate participatory research for sustainability*. Ecological Economics 60: 726-742.

Brinkerhoff JM. 2002 - *Assessing and improving partnership relationships and outcomes: a proposed framework*. Evaluation and Program Planning 25: 215-231.

Buchy M, Hoverman S. 2000 - *Understanding public participation in forest planning: a review*. Forest Policy and Economics 1:15-25.

Candrea AN., Bouriaud L. 2009 - *A stakeholders' analysis of potential sustainable tourism development strategies in Piatra Craiului National Park*. Annals of Forest Research, 52 (1): 191-198.

Cantiani MG. 2012 - *Forest planning and public participation: a possible methodological approach*. iForest 5:72-82. doi: 10.3832/ifor0602-009

Cantiani MG., De Meo I., Paletto A. 2013 - *What do Human Values Suggest about Forest Planning? An International Review Focusing on the Alpine Region*. International Journal of Humanities and Social Science 1: 228-243.

Cantiani P., De Meo I., Ferretti F., Paletto A. 2010 - *Forest functions evaluation to support forest landscape management planning*. Forest Ideas 16 (1): 44–51.

Chess C. 2000 - *Evaluating Environmental Public Participation: Methodological Questions*. Journal of Environmental Planning and Management 43 (6): 769-784.

De Meo I., Cantiani MG., Ferretti F., Paletto A. 2011 - *Stakeholders' Perception as Support for Forest Landscape Planning.* International Journal of Ecology. doi:10.1155/2011/685708

De Meo I., Ferretti F., Frattegiani M., Lora C., Paletto A. 2013 - *Public participation GIS to support a bottom-up approach in forest landscape planning.* iForest 6: 347-352.

European Commission. 2003 - *Natura 2000 and forests "Challenges and opportunities" interpretation guide.* Office for Official Publications of the European Communities. Available from: http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000/n2kforest_en.pdf .

Faehnle M., Tyrväinen L. 2013 - *A framework for evaluating and designing collaborative planning.* Land Use Policy 34: 332-341.

FAO-ECE-ILO 2000 - *Public participation in forestry in Europe and North America. Report of the FAO/ECE/ILO Joint Committee Team of Specialists on Participation in Forestry.* Working paper 163. Sectorial activities department. International labour office. Ginevra.

Farcy C., Devillez F. 2005 - *New orientations of forest management planning from an historical perspective of the relations between Man and Nature.* Forest Policy and Economics 7: 85-95.

Farrell EP., Führer E., Ryan D., Anderson F., Hüttl R., Piussi P. 2000 - *European forest ecosystems: building the future on the legacy of the past.* Forest Ecology and Management 132: 5-20.

Ferretti F., Di Bari C., De Meo I., Cantiani P., Bianchi M. 2011 - *ProgettoBosco: a Data-Driven Decision Support System for forest planning.* International Journal of Mathematical and Computational Forestry & Natural-Resource Sciences (MCFNS) 3 (1): 27–35.

Fiorino DJ. 1989 - *Environmental risk and democratic process: a critical review.* Columbia Journal of Environmental Law 14: 501-547.

Hair JF., Bush RP., Ortinau DJ. 2000 - *Marketing Research: A Practical Approach for the Millennium.* McGraw-Hill. Boston.

Harrison SR., Qureshi ME. 2000 - *Choice of stakeholder groups in multicriteria decision models.* Natural Resources Forum 24:1-19.

Hislop M. 2004 - *Involving people in forestry: a toolbox for public involvement in forest and woodland planning.* Forestry Commission. London

IAP2 2007 - *IAP2 Spectrum of Public Participation.* Available from: http://www.iap2.org/associations/4748/files/spectrum.pdf .

Innes JE., Booher DE. 1999 - *Consensus building and complex adaptive systems – A framework for evaluating collaborative planning.* Journal of the American Planning Association 65: 412-423.

Kangas A., Laukkanen S., Kangas J. 2006 - *Social choice theory and its applications in sustainable forest management – a review.* Forest Policy and Economics 9: 77-92.

Kurttila M., Pesonen M., Kangas J., Kajanus M. 2000 - *Utilizing the analytic hierarchy process (AHP) in SWOT analysis - a hybrid method and its application to a forest-certification case.* Forest Policy and Economics 1: 41-52.

Lee M., Abbot C. 2003 - *The Usual Suspects? Public Participation under the Aarhus Convention.* Modern Law Review 1: 80-108.

Leskinen LA. 2006 - *Adaptation of the regional forestry administration to national forest, climate change and rural development policies in Finland.* Small-scale Forest Economics, Management and Policy 2: 231-247.

Linder W., Lanfranchi P., Schnyder D., Vatter A. 1992 - *Procédures et modèles de participation: propositions pour une politique de participation de la Confédération selon l'art. 4 LAT. (Models of participation: suggestions for a participation policy in Switzerland, following the article four LAT.)* Office fédéral de l'aménagement du territoire (Swiss Federal Bureau for Land Planning). Berne (Switzerland).

Lockwood M. 2010 - *Good governance for terrestrial protected areas: a framework, principles and performance outcomes.* Journal of Environmental Management 91 (3): 754-766.

McCool SF., Guthrie K. 2001 - *Mapping the dimensions of successful public participation in messy natural resources management situations.* Society and Natural Resources 14 (4): 309-323.

Menzel S., Nordstrom EM., Buchecker M., Marques A., Saarikoski H., Kangas A. 2012 - *Decision support systems in forest management: requirements from a participatory planning perspective.* European Journal of Forest Research 131: 1367-1379. doi:10.1007/s10342-012-0604-y

O'Brien EA. 2003 - *Human values and their importance to the development of forestry policy in Britain: a literature review.* Forestry 76 (1): 3-17.

Olsson P., Folke C., Berkes F. 2004 - *Adaptive Co-management for Building Resilience in Social-Ecological Systems.* Environmental Management 34 (1): 75-90.

Paletto A., Ferretti F., Cantiani P., De Meo I. 2011 - *Multifunctional approach in forest management land plan: an application in Southern Italy.* Forest System 2: 66-80.

Paletto A., Ferretti F., De Meo I. 2012 - *The Role of Social Networks in Forest Landscape Planning.* Forest Policy and Economics 15: 132–139.

Paletto A., Cantiani MG., De Meo I. 2015a - *Public Participation in Forest Landscape Management Planning (FLMP) in Italy.* Journal of Sustainable Forestry 34 (5): 465-483.

Paletto A, Hamunen K, De Meo I. 2015b - *Social Network Analysis to Support Stakeholder Analysis in Participatory Forest Planning.* Society and Natural Resources 28 (10): 1108-1125.

Raymond CM., Fazey I, Reed MS., Stringer LC., Robinson GM., Evely AC. 2010 - *Integrating local and scientific knowledge for environmental management.* Journal of Environmental Management 91: 1766-1777.

Robson M., Rosenthal J. 2014 - *Evaluating the effectiveness of stakeholder advisory committee participation in forest management planning in Ontario.* Canada. Forestry Chronicle 90 (3): 361-370.

Rotherham ID. 2007 - *The implications of perceptions and cultural knowledge loss for the management of wooded landscapes: a UK case-study.* Forest Ecology and Management 249: 100-115.

Rowe G., Frewr LJ. 2000 - *Public participation methods: A framework for evaluation.* Science, Technology & Human Values: 25 (1): 3-29.

Saarikoski H., Tikkanen J., Leskinen LA. 2010 - *Public participation in practice – Assessing public participation in the preparation of regional forest programs in Northern Finland.* Forest Policy and Economics 12: 349-356.

Schmithüsen F. 2007 - *Multifunctional forestry practices as a land use strategy to meet increasing private and public demands in modern societies.* Journal of Forest Science 53 (6): 290-298.

Shindler B., Neburka J. 1997 - *Public participation in Forest Planning: 8 Attributes of Success.* Journal of Forestry 95 (1): 17-19.

Tuler S., Webler T. 1999 - *Voices from the Forest: What Participants Expect of a Public Participation Process.* Society and Natural Resources 12 (5): 437-453.

Van Asselt MBA., Rijkens-Klomp N. 2002 - *A look in the mirror: reflection on participation in Integrated Assessment from a methodological perspective.* Global Environmental Change 12: 167-184.

Webler T., Tuler S., Krueger R. 2001 - *What is a good public participation process? Five perspectives from the public.* Environmental Management 27 (3): 435-450.