

# **Participative multi-level governance schemes for common landscape management in Austria: a transaction costs analysis**

Barbara Enengel, Marianne Penker<sup>1</sup>, Andreas Muhar

## ABSTRACT

European cultural landscapes are highly valued for their ecological, productive, recreational and cultural functions. Related streams of benefits, however, do stop neither at national boundaries nor at those of private properties. Therefore, multiple governance levels are involved in regulating landscape development (from the European convention on landscape development or the international Convention on Biological Diversity to local informal agreements on landscape management).

A recently completed PhD thesis analysed multi-level co-management schemes in Austria that shift some effort for decision-making from public to private actors. Based on transaction cost theory, we analyse the efforts, benefits and risks of participation as perceived by the individuals involved. Two Cultural Landscape Projects of Lower Austria, two local steering groups in Natura 2000-areas in Tyrol and a LIFE-Nature Project in Salzburg served as case studies. Besides explorative interviews, a survey of participants of the analysed project teams and steering groups respectively, problem centred interviews with drop-outs, interviews with process leaders, observation and document analysis were applied and their results triangulated regarding intra- and inter-case consistency and validity.

All case studies indicated a positive evaluation of the collaboration and the perceived benefit (e.g. contributing to nature protection, bringing in one's own knowledge and experiences), an adequate effort for process activities and relative low risks of participation (e.g., lacking agreements on procedures and scope for decision-making, missing implementation of decisions and dominating individuals). However, half of the active participants would not spend more time for this collaboration. The results showed a significant positive correlation between time effort and benefits and significant negative correlations between effort and risks as well as benefits and risks. A comparison of professionally involved participants and volunteers highlighted disproportional high opportunity costs of volunteers. Volunteers also tended to benefit less from their participation. Moreover the bigger part of interviewed drop-outs did not have the feeling to be able to benefit from the participation and estimated significant higher risks than the active participants. Finally, we present some recommendation for more successful multi-level landscape governance.

Keywords: landscapes, multi-level governance, Austria, co-management, transaction costs analysis

---

<sup>1</sup> Department of Economics and Social Sciences, BOKU - University of Natural Resources and Life Sciences Vienna; marianne.penker@boku.ac.at (corresponding author)

## 1. INTRODUCTION

A “well-managed” cultural landscape is perceived as special environmental asset and becomes more and more important to society (Van Huylenbroeck et al. 1999). This revalorisation has resulted in increased societal efforts to govern landscape development. International conventions, EU co-financed agri-environmental schemes, nature conservation laws and other restrictions on land use are growing in number and relevance. In the European context, landscape is understood as “[...] an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors” (Council of Europe 2000, 3). Olwig (2002) links the diversity and uniqueness of landscapes to the fact that they have been shaped by the local people, their costumes and institutions. Landscape, however, is often characterised by divided ownership, including private, common and public rights, as well as absence of rights to landscape valuables, i.e. open-access. Landscapes are shaped by a diversity of individual and common land use activities. For collective landscape governance, these activities have to be co-ordinated.

Landscape governance can be defined as the establishment, perpetuation or change of institutions to resolve conflicts over cultural landscape issues, whereas the term conflicts refers to actors’ conflicts of interests and not necessarily open, explicit conflicts (Paavola and Adger 2005). Görg (2007) refers to the importance of the spatial dimension and the relevance of spatial scales for landscape governance processes. Decision-makers controlling landscape development often neither live nor work in the relevant landscapes (Penker 2009). Distances are growing between those who formulate management strategies in landscape development, based on expert knowledge, and those who are requested to live and act in the physical landscape (Hägerstrand 1995). A uniform, centrally planned approach will not meet the requirements of a well-managed, unique and typical landscape (Hodge 2007). Context sensitive landscape development requires more and more a multi-level governance scheme involving the local population as well as stakeholders on regional and supra-regional level (Council of Europe 2000; Berkes 2002; Paavola 2004, 2007; Mitchell 2005; O’Rourke 2005; Plummer and Arai 2005; Gailing et al. 2006; Hodge 2007; Stenseke 2009; Tiemann and Siebert 2009). The potential and need to involve local people in landscape management and planning is explicitly expressed in the Convention on Biological Diversity (United Nations 1992), the European Landscape Convention (Council of Europe 2000), the Aarhus Convention (UNECE 1998) and the Strategic Plan 2009–2014 of the Economic Commission for Europe (UNECE 2008). However, actual means and ways of implementing this participatory approach are only vaguely described in these conventions (Pfefferkorn 2006; Stenseke 2009).

In multi-level governance or co-management processes (Birner et al. 2002; Mburu et al. 2003) decision-making is shared between the more central levels and the local level. Terms like public-private partnership, participatory management, joint management, shared co-management, multi-stakeholder management and round table are often used as synonyms for co-management (Borrini-Feyerabend 1996). However, all of them are “governance systems that combine state control with local, decentralized decision-making and accountability and which, ideally, combine the strengths and mitigate the weaknesses of each” (Singleton 1998, 7). Thus co-management arrangements shift some control, administration and enforcement of agreements from the government to the local communities (Birner et al. 2002; Mburu et al. 2003).

Berkes (2009, 1695) mentions the potentials of this approach by referring to “bridging organisations that provide an arena for knowledge coproduction, trust building, sense making,

learning, vertical and horizontal collaboration, and conflict resolution.” At the same time, planning effort and responsibility as well as decision-making are partially transferred from public authorities to locals. In these participatory processes, locals contribute time for a common goal. However, co-management can only be successful and satisfactory, if both sides – public as well as private actors – benefit from their participation. Besides the expected benefit, also perceived risks might influence the local actors’ willingness to participate. Based on the theoretical framework of transaction cost economics, this paper sheds light on the relations of private transaction costs, benefits and risks as perceived by those participating in landscape co-management.

This paper examines landscape co-management schemes with a focus on two research questions:

1. How can multi-level landscape co-management schemes be characterised and differentiated regarding private transaction costs, benefits, risks, actors involved, and level of stakeholder/citizen participation?
2. How do participants perceive individual cost-benefit-risk relations?

The research is based on the following assumptions:

- Different landscape co-management schemes vary in specific cost-benefit-risk relations of the actors involved.
- Participation intensity has influence on transaction costs and benefits gained.

## 2. RESEARCH DESIGN AND STRUCTURE OF THE PAPER

In order to answer the research questions raised, we need different sources of data and several steps of analysis (see Figure 1). Besides theoretical strands like Transaction Cost Economics as well as landscape governance, explorative expert interviews contributed to the specification of the research focus and to the operationalisation of the research design.

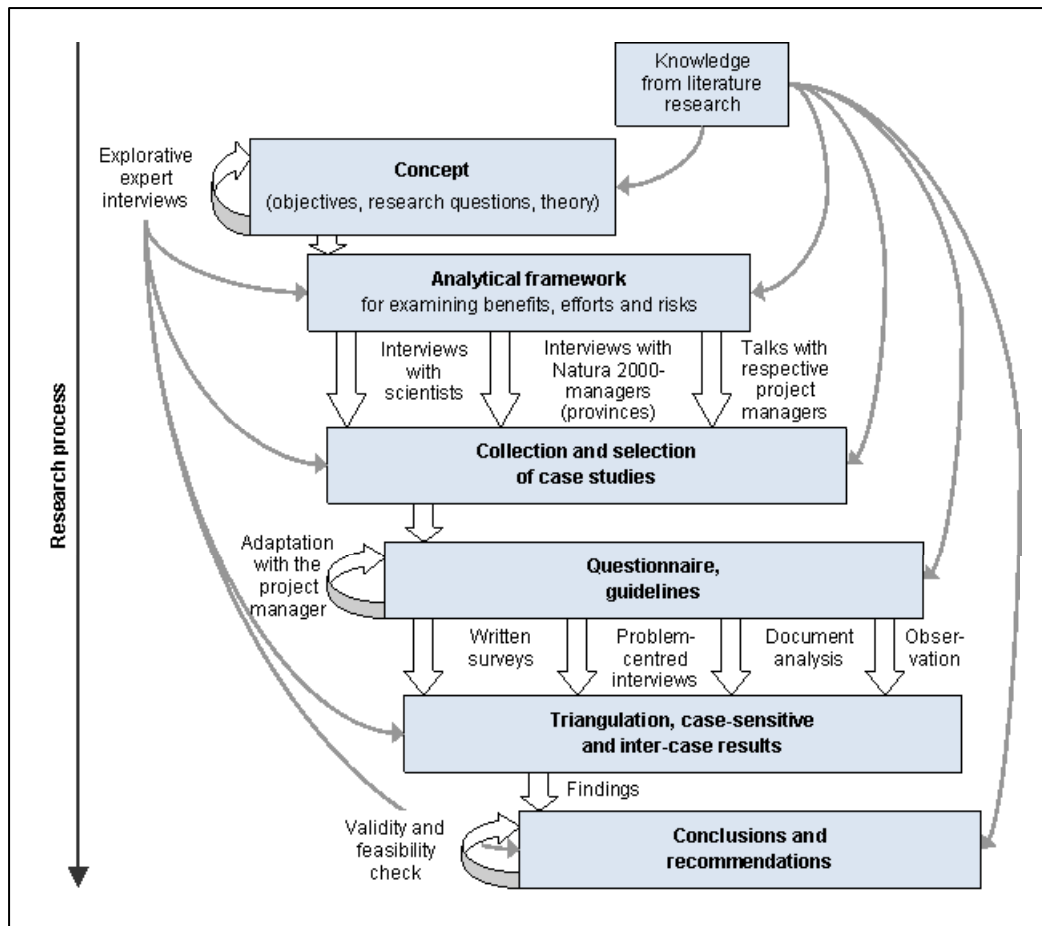


Figure 1: Research concept with recursive loops (backward arrows).

The empirical analytical framework – presented in the next section - is based on the three dimensions transaction costs, benefits and risks. In section 4, the results of a comparative analysis of five case studies are presented. The case studies comprise two Lower Austrian Cultural Landscape Projects, one LIFE-Nature Project and two Natura 2000-steering groups. In the case studies, surveys with participants based on case-sensitive adaptations of questionnaires, expert interviews with project managers, problem-centred interviews with drop-outs, document analyses and observations were used. The comparative analysis of the five case studies is based on statistical analyses of data gained from standardised surveys as well as on coded qualitative data from problem centred interviews. In section 5 we discuss the results and methods applied. Finally, we draw conclusions based on the case studies' results which seem to be not only valid for the analysed cases but also for similar participatory processes in landscape governance and nature conservation. A validity and feasibility check of the recommendations with two project managers was another recursive loops in the research process.

### 3. ANALYTICAL FRAMEWORK

Our analytical framework builds on three dimensions: transactions costs, benefits and risks (see Figure 2). While the first is based on the still manageable but growing body of empirical transaction cost literature, the latter two are a condensation of a variety of sources from participation research, co-management and multi-level governance literature.

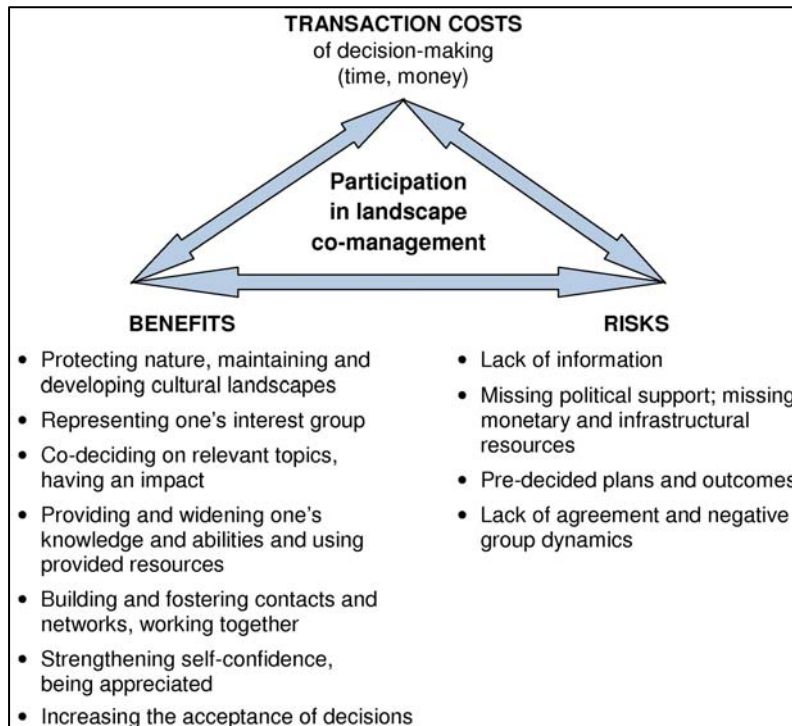


Figure 2: The analytical framework.

#### 3.1. The dimension of transaction costs

New Institutional Economics already has several decades of experience in analysing transaction costs (Coase 1937; North 1990; Williamson 1985). However no exact standard definition of the term transaction costs exists (Richter and Furubotn 2003; Wang 2003; McCann et al. 2005; Rørstad et al. 2007). The measurement of transaction costs requires a differentiation on which costs to be included respectively not included in the transaction costs (McCann et al. 2005). At first transaction costs have to be distinguished from production costs (Mburu et al. 2003). Production costs comprise costs for land, labour and capital for transforming the physical attributes of a good while transaction costs include costs for defining, protecting and enforcing property rights to goods (North 1990). According to Verhaegen and Van Huylenbroeck (2002) the most striking transaction costs are information, bargaining, monitoring and enforcement costs.

Paavola and Adger (2005) describe five reasons for the emergence of information costs:

- limited cognitive capacity leads to information collection costs;
- selfish actors have no incentive to reveal their preferences;
- ecological resources have characteristics which can only – if at all – be learnt over a longer period of time;
- adaptations require learning, time and resources;
- institutions cause information collection costs as information is spread across several actors.

Figure 3 illustrates the cost elements used in this paper. In the questionnaires, participants in the case studies were asked to estimate their time effort and monetary expenditures for participation in co-management activities (meetings, information procurement, excursions and communication).

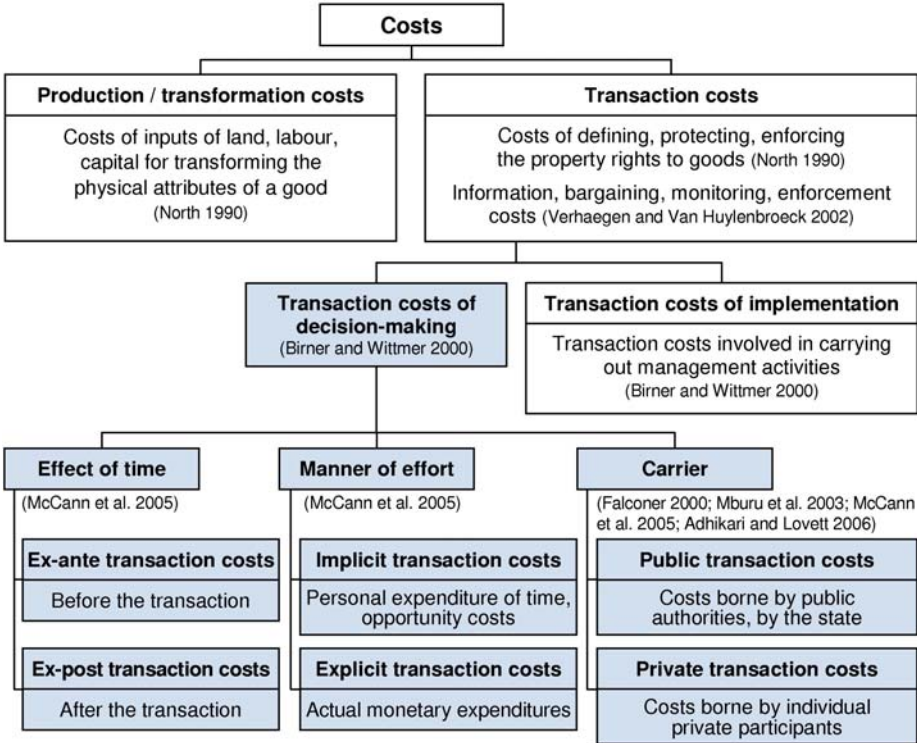


Figure 3: Transaction costs included within the analytical framework (shaded) (Enengel et al. 2011).

Focussing on private transaction costs in participatory landscape governance the question for adequate methodology, measurement approaches and instruments arises. As in some other studies (McCann and Easter 1999; Falconer and Saunders 2002; Mburu et al. 2003; Adhikari and Lovett 2006; Rørstad et al. 2007), we surveyed time efforts for specific activities. However, we did not multiply these hours with a monetary value (e.g. salary, hourly rates estimated by interviewees or common hourly rates for certain professions). The collection of information on transaction efforts requires a well-founded survey design. Difficulties regarding non-response may arise, however, adequate response to the questionnaires is necessary. Furthermore, analysis has to be carried out as soon as possible following the respective processes. It is essential to notice that transaction costs have to be quantified in a benefit related context. As benefit types and levels vary from setting to setting a comprehensive cost-benefit analysis should be aimed for (McCann et al. 2005). We fulfill this requirement by including benefit and risk factors, as perceived by the individual participants of co-management processes, however without monetarizing them.

### *3.2. The dimension of benefit factors and motivations*

As the focus of this paper is on private transaction costs in participatory decision-making, the corresponding individual transaction benefits – as perceived by participants – are to be considered. If people are convinced that e.g. cultural landscapes represent an asset worth to preserve or that there is need for action, they will rather participate. How this participation will work out, depends to various aspects of the local “action arena”, which is influenced by behavioural norms, by how participants get along with each another, homogeneity of population’s preferences and resource allocation (Ostrom 1998, 71). The importance of a clear perceived benefit in order to participate is captured in literature (Selle 1996; Birner et al. 2002; Mburu et al. 2003; Freese and Ruffer 2005; Mitchell 2005; Hodge 2007). Due to the comprehensive literature and existing qualitative studies on benefits of participants in multi-level decision-making processes, structured interviews and surveys could be carried out in the case studies.

### *3.3. The dimension of risk factors*

Uncertainties and risks are strongly related to the costs and benefits of participating in landscape co-management processes. These uncertainties and risk are often related to the process, to partaking in activities and collaboration with other people. A broad range of literature already deals with the problems, risks and the complexity of participatory processes (Selle 1996; Cooke and Kothari 2001; Hickey and Mohan 2004; Smith 2008). Also according to our explorative expert interviews, Austrian landscape co-management are confronted with certain risks, such as dominating persons in decision-making or a lack of actual decision-making power due to pre-decided plans. Regarding risks too, we could derive categories of analysis from literature.

## 4. CASE STUDIES AND THEIR RESULTS

In this paper we present five case studies to provide insights into actual landscape co-management and to answer our research questions. A case study can be defined as empirical survey which analyses an existing phenomenon in an everyday life context (Yin 2002). Our case studies are based on the triangulation of different sources of data to increase intra- and inter-case validity. We based the selection on our cases on thoroughly discussed criteria, as case study selection is a crucial step in the design and data collection process. Nevertheless, we assume that contextual conditions have significant influence on the investigated phenomenon and therefore limit the generalisability of our results.

### *4.1. Selection of case studies*

The selection of case studies was based on the following criteria:

- Desired and required participation: The supporting programmes require participation of different (local) stakeholders and/or citizens.
- Current projects: Already ongoing or only recently completed initiatives and projects are included.
- Multi-level stakeholder participation in Austria: Stakeholders comprise different levels, such as local or (supra-) regional levels.
- Nature protection or cultural landscape initiatives
- Location in rural areas
- Willingness to co-operate



At the end of the selection phase the following case studies were chosen: two ongoing Cultural Landscape Projects (Maria Anzbach und Böheimkirchen), one recently completed LIFE-Nature Project (Weidmoos) and two local steering groups in Natura 2000-areas (both still active in Tyrol).

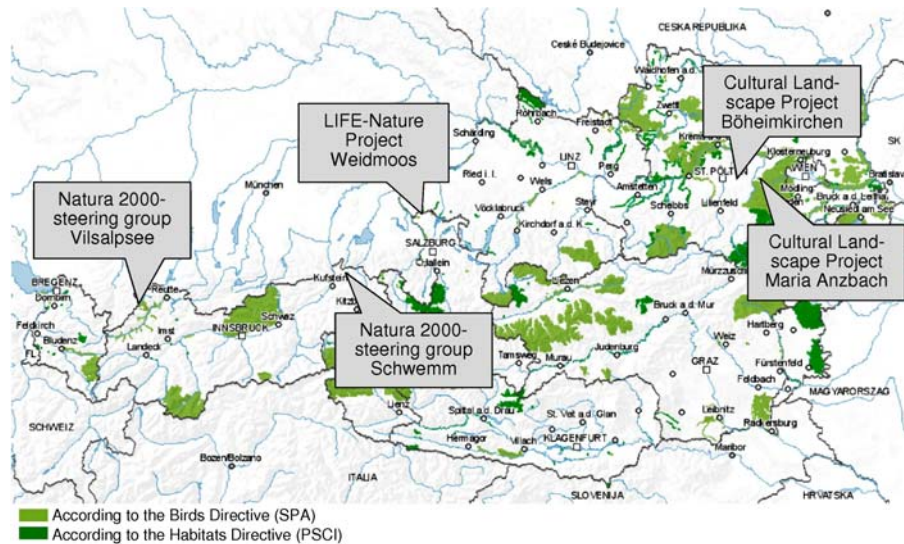


Figure 4: Selected case studies (background image: ÖROK atlas 2009).

#### 4.1.1. Cultural Landscape Projects

Since 1998, local initiatives engaged in the conservation of ecological resources and of characteristic landscapes have been supported by the province of Lower Austria. A local project team develops, in collaboration with external experts, a so called cultural landscape project. The project team should comprise all relevant interest groups, like farmers, municipal councillors, municipal employees, hunters, nature conservationists and foresters (Provincial Government of Lower Austria, s.a.). The outcomes include for example the restoration of wetlands, implementation of habitat networks, information on ÖPUL measures (Austrian agri-environmental schemes), or the reintroduction of regional varieties of fruit trees (Arbeitsgemeinschaft Vegetationsökologie und Landschaftsplanung 2011).

At first the municipality or association applies for a cultural landscape project with the nature protection authorities. The provincial authority in charge proposes a selection of landscape planning bureaus. Following a call for tenders, the municipality engages one company. Subsequently, the landscape planning bureau provides guidance to the municipalities (one bureau per municipality). Cultural landscape projects are realised in two phases: in the pre-project phase (orientation phase), the ecological and bio-cultural focus of the project is specified:

- Which valuable landscape features do exist in the municipality?
- What could be jointly done for the maintenance of the natural heritage?

In the following phase, practical measures are jointly developed and implemented. From 1998 to 2004, about 70 cultural landscape projects have been implemented. Currently, there are two ongoing projects: one in the municipality Maria Anzbach and the other in Böheimkirchen.



#### *4.1.2. Natura 2000-management groups*

Local steering groups in the EU protected areas network Natura 2000 are another example of landscape co-management. In the Province of Upper Austria (nature conservation lies in the competences of the nine Austrian provinces) for example, such groups are already institutionalised by legal regulations and have a high level of autonomy. These groups comprise different stakeholders with often diverging interests. They decide on the measures to be implemented in the Natura-2000 area and develop a management plan. Despite relatively early contact with the Upper Austrian representative for Natura 2000, the province finally rejected a survey of Natura 2000 groups in Upper Austria. The province reasoned this with time constraints, difficult cooperation with and within existing groups and strongly emotionalising discussions regarding Natura 2000 in some regions.

So finally, two Tyrolean steering groups were selected as case studies. The selection was made in consultation with the Tyrolean Natura 2000 province representative and the respective protected area representatives. The selected case studies are the steering group of the Tyrolean Natura 2000-area Schwemm and the steering group of the Natura 2000-area Vilsalpsee. Tasks of these groups comprise e.g. to discuss the implementation of regulations, management plans and measures in the Natura 2000 areas concerned. The steering groups meet approximately every 2-3 months for 3 hours in the afternoon to discuss pressing issues (Plössnig 2008). Steering groups mostly comprise the mayors, representatives of the tourism industry, the farmers association, the forest inspection, the land owners and the protected area management (Plössnig 2008).

#### *4.1.3. LIFE-Nature projects*

LIFE-Nature projects within the framework of the European protected area network Natura 2000 – funded by the European Union – are partially administered and implemented by local and regional associations and work groups. A list of all LIFE projects which have been implemented since 1992 and will be implemented in the future in Austria, in many other European countries and in third countries can be found on the website of the European Commission ([http://ec.europa.eu/environment/life/project/Projects/index.cfm/?/](http://ec.europa.eu/environment/life/project/Projects/index.cfm?/)). In the case study selection process, we only considered ongoing LIFE projects with local associations in form of steering groups. In consultation with the project manager, the LIFE-Nature Project Weidmoos in Salzburg – completed in autumn 2007 – was included in the case study analysis. This project was implemented by the ‘Torferneuerungsverein’ (‘peat regeneration association’) in cooperation with the nature protection authorities of the Province of Salzburg.

#### 4.2. Data and short description of the case studies

Data and findings came from explorative expert interviews, surveys, problem centred interviews, observation and from case-related documents (see Table 1).

Table 1: Acronyms used.

Full term	Acronym
Cultural Landscape Project Maria Anzbach	CLP-MA
Cultural Landscape Project Böhheimkirchen	CLP-B
LIFE-Nature Project Weidmoos	LIFE-W
Natura 2000-steering group Vilsalpsee	Natura-V
Natura 2000-steering group Schwemm	Natura-S
Explorative expert interviews	EEI
Surveys	SRV
Problem centred interviews	PCI
Document analyses	DA
Non-participant observation	OBSERV

Data listed in Table 2 was included in the inter-case analysis. Overall, 63 participants in individual participatory processes could be consulted in form of surveys. Additionally, six drop-outs completed a comparable questionnaire.

Table 2: Data used.

	CLP-MA	CLP-B	LIFE-W	Natura-V	Natura-S
Number of questionnaires distributed	N=18	N=8	N=32	N=14	N=10
Returned questionnaires	<b>n=12 (67%)</b>	<b>n=8 (100%)</b>	<b>n=25 (78%)</b>	<b>n=10 (71%)</b>	<b>n=8 (80%)</b>
Number of drop-outs according to the contact list	N=6	N=0	N=0	N=3	N=4
Number of problem centred interviews with former participants	<b>n=4</b>	<b>n=0</b>	<b>n=0</b>	<b>n=3</b>	<b>n=0</b>
Number of questionnaires of former participants	<b>n=4</b>	<b>n=0</b>	<b>n=0</b>	<b>n=3</b>	<b>n=2</b>
Expert interviews with project managers	<b>n=1</b>	<b>n=1</b>	<b>n=1</b>	<b>n=1</b>	<b>n=1</b>
Number of case-specific documents included additionally	<b>n=2</b>	<b>n=3</b>	<b>n=5</b>	<b>n=5</b>	<b>n=4</b>
Observations	<b>n=1</b>	<b>n=0</b>	<b>n=0</b>	<b>n=0</b>	<b>n=0</b>

Table 3 characterises the case studies with regard to areas concerned and project managers. While the two Cultural Landscape Projects were initiated by committed municipal councils responsible for environmental issues, Natura 2000-steering groups were founded top-down by representatives of the provincial nature protection department in cooperation with the respective protected area managers. Project and steering groups act on the basis of different legal frameworks and funding criteria. The Natura 2000-steering groups and the LIFE-Nature Project group act in EU protected areas and therefore decisions have to be based on requirements for protected areas. All groups involve concerned interest groups with the aim to increase acceptance for landscape related measures. While the Cultural Landscape Projects were initiated bottom-up – partially even the LIFE-Nature Project –, the Natura 2000-steering groups were established top-town. Decision-making authority of the project groups diverge in so far as decisions in the Cultural Landscape Projects can not be implemented if there are oppositions from landowners (EEI 4; CLP-MA 2, 3, 4). However, in the Natura 2000-steering groups, nature conservation obligations have priority, which is reflected in the group management, where we find protected area managers or representatives of nature protection departments.

Table 3: Case studies overview and description of projects.

	CLP-MA	CLP-B	LIFE-W	Natura-V	Natura-S
Protected area	Bird sanctuary and Biosphere Reserve Wienerwald	n.a.	Bird sanctuary Weidmoos (Salzburg)	Natura 2000-area and nature reserve Vilsalpsee (Tyrol)	Natura 2000-area and nature reserve Schwemm (Tyrol)
Project duration (incl. preparation)	2006 - ongoing	2005 - ongoing	2000 - 2007	2006 - ongoing	2001 - ongoing
Initiators	Environment committee of the municipality	Environment municipal council	'Torferneuerungsverein' ('peat regeneration association') Weidmoos with employees of the nature protection department of the province Salzburg	Employees of the nature protection department of the province Tyrol with the protected area manager	Employees of the nature protection department of the province Tyrol with the protected area manager
Project managers	External advisor and one municipal councillor	External advisor and one municipal councillor	One employee of the nature protection department of the province Salzburg and the mayor	Protected area manager, one representative of the province and the mayor	Protected area manager, one representative of the province and the mayor

### 4.3. Group composition

In the case studies analysed, the composition of project or steering groups was manifold (see Figure6).

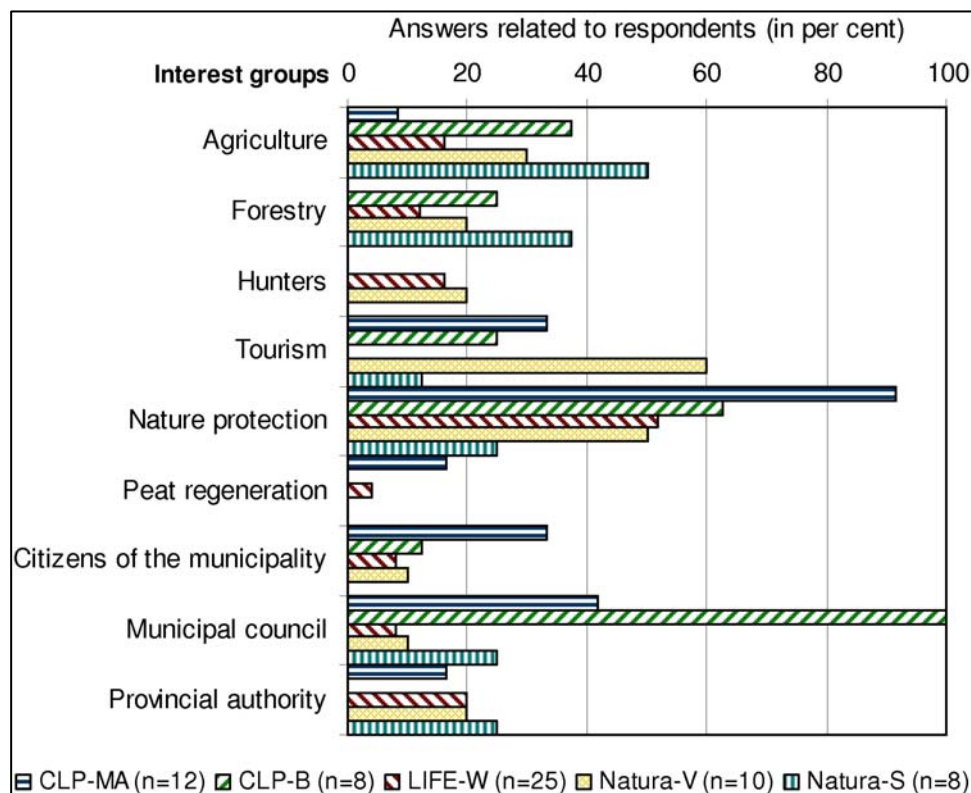


Figure 5: Interest groups as represented in case studies (multiple answers possible).

Respondents' motivations to participate are also manifold. While some would like to represent their interest group, others act without organisational or occupational background. The members of project groups respectively steering groups are protected area managers, provincial and federal representatives, municipal representatives, stakeholders from agriculture, forestry, tourism, hunting, peat regeneration, nature protection and interested citizens. In the case study projects the variety of participants could be – more or less – maintained over time. As the analysis reveals, participants interested in nature protection are the most persistent ones. They participate due to their interest in nature protection and in the cultural landscape and do often not represent a particular organisation.

It is striking that the participants' average age of 47-48 years is almost identical across all the case studies and that there is a very low proportion of women. Apart from the Cultural Landscape Project Böhleimkirchen, we see a very high proportion of academics or persons with high school diploma. Interviews with project managers revealed that group composition was a result of the following procedure, which was quite similar in all cases: project managers – in cooperation with local representatives of the authorities – invited all relevant stakeholders, but also other locals were welcome to join in (CLP-MA; LIFE-W; Natura-V; Natura-S). Several respondents wish for greater participation from the rest of the population, especially from younger and elder locals.

The number of participants and in particular of local actors is relatively low in the case studies. Project managers emphasize that groups are principally open and that members would like to integrate additional stakeholders or even residents. Because “mostly group size is between six and ten [persons], often it is the case that five are left over, the core group mostly diminishes. [...] Those who really work are a handful” (EEI 4). Contrary to this, project managers and one former participant said that the group should not be too large to enable decisions (Natura-V; Natura-S; CLP-MA-PCI 2). The ideal group size was stated with 12 or 13 members (Natura-V).

#### *4.4. Effort*

As explained in section 3, time efforts result from participatory decision-making. Benefits have to be considered in relation to the effort as “... it is essential if this benefit can be reached with an appropriate effort” (Selle 1996, 177). In the case studies, too, the necessary effort and the consequences on participation have been repeatedly mentioned, as the following quotation shows: “People have little time, people experience an initial enthusiasm, euphoria, and if it comes to work it becomes more difficult. Regular meetings, everybody has got thousands of things to do, then you cannot [...] always come to these group meetings, even if they are nicely made, if they take place outside, if you can benefit. But, you hope [...] and try to keep the process alive” (EEI 4).

##### *4.4.1. Individual total effort*

Overall 53 of all 82 active participants estimated their time effort for being involved in landscape co-management in the surveys. In Table 4 the efforts per year are stated. On average, participants of LIFE-W and CLP-MA spent most time. Results of the variance analysis show that interviewees' assessments do not significantly vary between case studies.

Table 4: Comparison of efforts and variance analysis across case studies.

	CLP-MA	CLP-B	LIFE-W	Natura-V	Natura-S	Total
Mean <b>effort per year</b> (hours)	<b>49.50</b>	<b>17.21</b>	<b>62.86</b>	<b>17.93</b>	<b>20.61</b>	<b>40.29</b>
Minimum value (hours)	13.33	6.00	1.00	4.00	3.00	1.00
Maximum value (hours)	118.00	38.50	262.60	58.20	101.54	262.60
Median (hours)	46.17	10.42	29.33	13.40	9.67	18.40
Standard deviation	31.92	12.02	79.44	17.13	33.21	54.67
<b>ANOVA</b>	Sum of squares	df	Mean square	F	Significance	
Between groups	21889.446	4	5472.361	1.967	<b>0.115</b>	
Within groups	133551.225	48	2782.317			
Total	155440.670	52				

As in some other studies, we intended to measure opportunity costs by surveying time efforts for specific activities and to multiply this with a value (e.g. salary, hourly rates estimated by the interviewees or customary hourly rates). A monetary assessment, however, was not possible as most respondents of the LIFE-Nature project did not indicate their individual hourly rate. In the Cultural Landscape Projects, we did not ask for hourly rates because of the project managers' fear of provoking volunteers to reflect too much on their efforts. Thus we have not monetized the transaction costs in either of the case studies, but have quantified them as hours spent participating, which still provides a good impression of individual efforts taken. For monetarisation, average hourly rates (e.g. 15-30 €) or average hourly rates for particular groups of education and profession could be used. But this seems to be neither necessary nor suitable for further analysis. The big reluctance of respondents as well as project managers reflects the inadequacy of putting a monetary value on voluntary work. And regarding transaction costs analysis, the biggest difference in opportunity costs can be detected between volunteers and professionals (Enengel et al. 2011), and for this conclusion an elaborated monetary analysis is not necessary.

#### 4.4.2. Differentiation by activities

Differentiation of time effort by project phases shows that especially activities such as project planning and meetings demand a large share of the time effort. Time effort for meetings ranges from 19% (Natura-V-SRV) to 45% (CLP-MA-SRV) of total effort. Field trips to the respective landscapes, where problems can be addressed directly on site, also represent a large proportion of the overall time effort. As indicated in our study and in previous studies, at least in the initial phase of the establishment of co-management (Hanna 1995; Carlsson and Berkes 2005), transaction costs are likely to be relatively high (Hodge 2007).

#### 4.4.3. Willingness to spend additional time

Overall 17 of 63 respondents (27%) would be willing to spend even more time for concrete participatory processes. They reasoned their willingness for extra commitment with the following arguments: interest and pleasure in the participatory processes (CLP-MA-SRV); as project and survey results are very interesting, as it is a very nice task, as it seems to be necessary to conserve landscapes (CLP-B-SRV); as it was an exciting work and because of a great interest for nature protection, as it was a successful project with many measures actually implemented (LIFE-W-SRV) or the wish to protect environment and nature (Natura-V-SRV).

About 14% of the respondents indicated their potential willingness to spend more time but simultaneously stated time limitations due to manifold private and professional obligations.

Half of the respondents did not want to spend more time because of no additional time resources available (CLP-MA-SRV; Natura-V-SRV; Natura-S-SRV), as this was not necessary and therefore effort was adequate in relation to the result (CLP-MA-SRV; LIFE-W-SRV; Natura-S-SRV) and as - due to a too high time effort - “motivation would get lost” (CLP-MA-SRV; Natura-V-SRV). Other reasons include: there are too many discussions and too little implementation (CLP-B-SRV), it is voluntary work (LIFE-W-SRV), participation and decision-making were “partly very exhausting” (LIFE-W-SRV) and there was too little to talk about (Natura-V-SRV).

#### *4.5. Individual benefits*

##### *4.5.1. Comparing answers to open and closed benefit questions*

In the survey benefits were assessed first by open, then by closed questions (i.e. according to the analytic framework). When comparing the answers to the open question on the initial motivation for participation, to the answers to the closed questions (as derived from literature), we found a clear coherence of grounded results and our analytical framework. There seems to be only one benefit missing in the analytic framework: “curiosity on projects”. One respondent was “interested in the development process, the cultural development” (CLP-MA-SRV) and another one referred to “positive experience [...] of colleagues in similar projects and the chance that it’s going to be a special and interesting project” (LIFE-W-SRV). “General interest” (CLP-MA-SRV; LIFE-W-SRV) in the project or the project as „good idea“ (LIFE-W-SRV) were also stated. Respondents who indicated in the open question that they would like to gain new contacts with persons interested in nature, also allocated benefit to component 11 in the closed question (CLP-MA-SRV) (see Table 5).

##### *4.5.2. Valuation of the benefit components*

Table 5 compares the assessments on benefit components gained from surveys with active participants. Total benefit (see bottom of the table) was calculated in the following way: benefits of all individual components were summed up (fully applicable = 2; somewhat applicable = 1; rather inapplicable = -1; completely inapplicable = -2; neutral/no opinion = 0) and then the individual benefit in per cent of the maximum achievable value was calculated (i.e., the maximum achievable value results from all benefit components rated with +2: fully applicable). The calculation of percentages was essential as some components were omitted during the questionnaire adaptation in the survey of the Cultural Landscape Projects. Individual benefit components were uniformly weighted. Negative figures may arise if respondents valued benefit components mainly with “rather inapplicable” or “completely inapplicable”.

Considering total benefit values, respondents get most benefit from participating in the Cultural Landscape Projects. “Contribution to nature protection”, “the chance to bring in own knowledge and experiences” as well as “participation within occupational activity” were rated best. The highest standard deviations and therefore the largest divergences between case studies were revealed at the components “I could co-decide on decisions in my living environment” and “I could use provided resources.” Divergences of the first component can be explained as some group members (particularly those representing regional or supra-regional authorities or NGOs) do not live in one of the municipalities concerned. Regarding the latter component, assessments might diverge as some respondents could be strongly convinced from this benefit and others – especially unsatisfied full volunteers – rated this negatively. Similarly, assessments on the “interest group” component also diverged.

Table 5: Benefit valuation in the case studies.

Benefit components		CLP-MA	CLP-B	LIFE-W	Natura-V	Natura-S	Total
1. "I could contribute to the preservation and development of the cultural landscape."	Mean	<b>1.50</b>	<b>1.63</b>	<b>0.63</b>	<b>1.20</b>	<b>1.37</b>	<b>1.11</b>
	SD	0.52	0.52	1.41	1.23	0.74	1.13
2. "With my participation I contributed to nature protection."	Mean	<b>1.50</b>	<b>1.75</b>	<b>1.42</b>	<b>1.30</b>	<b>0.88</b>	<b>1.39</b>
	SD	0.67	0.46	0.93	1.25	1.25	0.95
3. "I (partly) participated within my occupational activity. I was asked to participate."	Mean	.	.	<b>1.46</b>	<b>0.50</b>	<b>1.25</b>	<b>1.19</b>
	SD	.	.	1.14	1.58	1.39	1.33
4. "By participating I could represent the interests of my interest group."	Mean	<b>0.75</b>	<b>1.00</b>	<b>0.33</b>	<b>1.50</b>	<b>1.75</b>	<b>0.87</b>
	SD	1.29	1.07	1.66	0.53	0.46	1.35
5. "I could co-decide on decisions in my living environment, in my municipality."	Mean	<b>0.36</b>	<b>1.75</b>	<b>-0.58</b>	<b>0.50</b>	<b>0.00</b>	<b>0.15</b>
	SD	1.50	0.46	1.61	1.08	1.41	1.55
6. "I could bring in my knowledge, experiences and competences."	Mean	<b>1.75</b>	<b>1.25</b>	<b>1.04</b>	<b>1.60</b>	<b>1.00</b>	<b>1.29</b>
	SD	0.45	1.39	1.30	0.52	0.93	1.06
7. "I could use provided resources (financial, material, information)."	Mean	.	.	<b>0.25</b>	<b>-0.20</b>	<b>0.13</b>	<b>0.12</b>
	SD	.	.	1.51	1.75	1.36	1.52
8. "I could get new information. I could increase my level of knowledge by exchanging experiences with others."	Mean	<b>1.18</b>	<b>1.00</b>	<b>1.04</b>	<b>0.50</b>	<b>0.13</b>	<b>0.86</b>
	SD	1.17	0.93	1.24	1.35	1.55	1.27
9. "The participation of diverse interest groups raises the acceptance of results."	Mean	<b>1.30</b>	<b>1.25</b>	<b>1.45</b>	<b>0.80</b>	<b>0.75</b>	<b>1.20</b>
	SD	0.95	1.04	0.83	1.03	1.28	0.99
10. "Through collaborating with other people I could have an affect on something together with them."	Mean	<b>1.42</b>	<b>1.38</b>	<b>1.17</b>	<b>0.90</b>	<b>0.88</b>	<b>1.16</b>
	SD	0.51	0.52	0.96	1.10	0.83	0.85
11. "I could build new networks and foster contacts."	Mean	<b>1.09</b>	<b>0.38</b>	<b>0.79</b>	<b>0.70</b>	<b>0.63</b>	<b>0.75</b>
	SD	1.38	0.92	1.02	1.25	1.06	1.11
12. "Within the project I was appreciated for my contribution."	Mean	<b>0.55</b>	<b>0.13</b>	<b>0.79</b>	<b>0.20</b>	<b>0.13</b>	<b>0.48</b>
	SD	1.13	1.46	1.50	1.03	0.99	1.30
13. "Participation had a positive effect on strengthening my self-confidence."	Mean	.	.	<b>-0.08</b>	<b>-0.50</b>	<b>-0.63</b>	<b>-0.28</b>
	SD	.	.	1.44	1.35	1.19	1.37
<b>Total benefit</b> (Benefits summed up and given in % of the maximum achievable value assuming uniform weighing)	Mean	<b>54.58</b>	<b>57.50</b>	<b>36.00</b>	<b>34.62</b>	<b>31.73</b>	<b>41.51</b>
	SD	27.67	26.19	34.79	31.14	35.29	32.58
<b>ANOVA</b>		Sum of squares	df	Mean square	F	Significance	
(Total assessment in per cent of the maximum achievable value)	Between groups	6095.789	4	1523.947	1.480	<b>.220</b>	
	Within groups	59722.584	58	1029.700			
	Total	65818.374	62				

(fully applicable = 2; somewhat applicable = 1; rather inapplicable = -1; completely inapplicable = -2; neutral/no opinion = 0)

The individual benefit components were almost consistently valued very positively. Only the statements "I could co-decide on decisions in my living environment", "I could use provided resources" and "Participation had a positive effect on strengthening my self-confidence" did not find general acceptance. Finally, a variance analysis on total benefit valuations (see Table 5) showed that there is no significant difference between the five case studies. Thus, further inter-case analysis seems to be permissible.

#### 4.6. Individual risks

Table 6 compares assessments on risk components gained from the surveys. Total risk was computed analogously to the total benefits calculation. It must be stressed that individual statements in the questionnaire were formulated positively like e.g. "The co-operation is fair and respectful". Respondents rated these statements in the questionnaires (fully applicable = 2; somewhat applicable = 1; rather inapplicable = -1; completely inapplicable = -2; neutral/no opinion = 0). Only the statement "dominating persons" was phrased inversely. Valuations of



individual risk components were summed up and rates to the statement “dominating persons” were subtracted. Thus, the higher the value is the more positively the process was perceived by the respondents. Over all, the ratings of the components “political support”, “fair and respectful cooperation” and “group atmosphere” were particularly high.

Table 6: Risk valuation in the case studies.

Risk components		CLP-MA	CLP-B	LIFE-W	Natura-V	Natura-S	Total
1. “(Potentially) concerned persons have been informed about the Landscape project adequately and comprehensibly.”	Mean	<b>0.83</b>	<b>0.75</b>	<b>1.52</b>	<b>1.50</b>	<b>0.75</b>	<b>1.18</b>
	SD	0.83	1.16	0.79	0.71	1.16	0.94
2. “Political decision-makers support the project sufficiently.”	Mean	<b>1.25</b>	<b>1.87</b>	<b>1.69</b>	<b>0.50</b>	<b>1.00</b>	<b>1.34</b>
	SD	1.06	0.35	0.56	1.17	1.31	0.98
3. “The required monetary and infrastructural resources for the project have been provided.”	Mean	.	.	<b>1.61</b>	<b>0.60</b>	<b>0.38</b>	<b>1.12</b>
	SD	.	.	0.72	0.70	1.41	1.03
4. “The outcome of the project is open; project modifications are possible.”	Mean	<b>1.50</b>	<b>1.75</b>	<b>1.00</b>	<b>1.00</b>	<b>0.50</b>	<b>1.13</b>
	SD	0.67	0.46	1.04	0.67	1.60	1.01
5. “Decisions made are implemented.”	Mean	<b>1.25</b>	<b>0.88</b>	<b>1.57</b>	<b>0.80</b>	<b>0.38</b>	<b>1.13</b>
	SD	0.87	1.25	0.51	0.79	1.19	0.92
6. “There are clear arrangements for the project procedure and scope for design.”	Mean	<b>1.33</b>	<b>1.00</b>	<b>1.35</b>	<b>0.60</b>	<b>0.50</b>	<b>1.07</b>
	SD	0.65	0.58	0.98	0.97	1.31	0.97
7. “The cooperation is fair and respectful.”	Mean	<b>1.75</b>	<b>1.63</b>	<b>1.70</b>	<b>1.70</b>	<b>1.25</b>	<b>1.64</b>
	SD	0.45	0.52	0.47	0.48	0.46	0.48
8. “Particular persons dominate the discussions and results.” ( <i>inverse statement</i> )	Mean	<b>-0.50</b>	<b>-0.25</b>	<b>0.39</b>	<b>0.20</b>	<b>-0.13</b>	<b>0.03</b>
	SD	1.17	1.39	1.23	1.14	1.64	1.29
9. “I feel comfortable in the group.”	Mean	<b>1.25</b>	<b>1.50</b>	<b>1.27</b>	<b>1.30</b>	<b>1.00</b>	<b>1.27</b>
	SD	0.87	0.53	0.77	0.48	1.31	0.80
<b>Total risk</b> (Risks summed up and given in % of the maximum achievable value assuming uniform weighing)	Mean	<b>59.38</b>	<b>59.38</b>	<b>62.56</b>	<b>45.56</b>	<b>31.95</b>	<b>54.71</b>
	SD	25.77	22.16	24.52	18.66	43.52	28.05
<b>ANOVA</b>		Sum of squares	df	Mean square	F	Significance	
(Total assessment in per cent of the maximum achievable value)	Between groups	6835.999	4	1709.000	2.371	<b>.063</b>	
	Within groups	40357.982	56	720.678			
	Total	47193.981	60				

(fully applicable = 2; somewhat applicable = 1; rather inapplicable = -1; completely inapplicable = -2; neutral/no opinion = 0)

In the survey the component “dominating persons” shows the highest standard deviation – thus the greatest divergences – in all case studies. Most uniform were valuations of the component “fair and respectful cooperation”. On average, all statements – except “dominating persons” – were rated positively. But case-specific discrepancies arise especially at the components “political support”, “monetary and infrastructural resources”, “openness for project modifications” and the “implementation of decisions made”. Finally, a variance analysis on total risk valuations (see Table 6) showed that there is no significant difference between the five case studies.

Trust as well as mistrust plays a role for the involvement in participatory processes. The case studies revealed that those actively involved had much trust in the process and the group. A comparison showed that respondents trusted group management more than other participants.

#### 4.7. Effort-benefit-risk relations

Figure 6 contrasts individual benefits of participation with effort and risk assessments. Respondents who did not estimate their time effort are not included (CLP-MA: n=2; Natura-V: n=2). Four outliers (excessive time efforts) were not included in the diagram. In the interpretation of the diagram it has to be considered that some respondents had only joined the project group during the project and this had influence on the time effort indicated (CLP-MA).

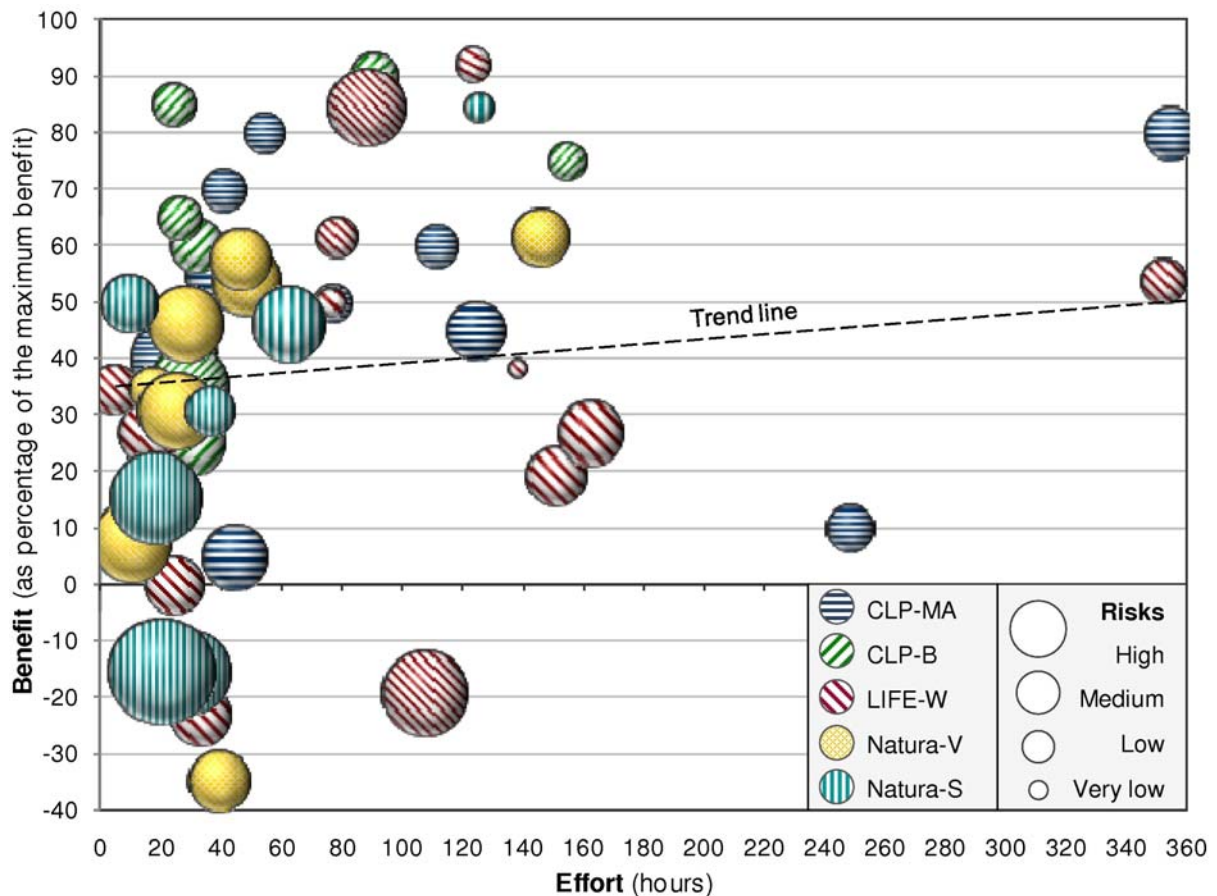


Figure 6: Individual effort-benefit-risk relations of participants in the case studies.

The above Figure 6 shows the overall time effort, benefits and the risk components of each participant relative to other group members. The bigger the circle the higher the risks and problems perceived by the participants regarding the process of participation. Table 7 presents significant correlations between efforts and benefits, benefits and risks as well as between efforts and risks. The following – although not very strong – interrelations can be observed:

- The higher the time effort, the higher was the individual benefit and the lower was the perceived risk of participation. In other words: The more time a person spent for a participatory project, the more benefit he/she could gain from his/her participation and the higher the process per se was rated by him/her. Or the other way round: The higher the perceived benefit and the lower the risk assessment, the higher was the participants' time effort.
- The higher the perceived risks of participating, the lower were the time effort and the perceived benefit. Or reversed: The higher the time effort and the perceived benefit, the lower was the respondents' risk valuation.

Table 7: Correlations between efforts, benefits and risks.

	Pearson correlation	Significance (2-sided)	Sum of squares and cross products	Covariance
<b>Effort</b> (total effort over the years)	1		3469112.12	66713.69
<b>Benefits</b> (in percent of the maximum achievable benefit value)	<b>0.347(*)</b>	<b>0.011</b>	148908.71	2863.62
<b>Effort</b> (total effort over the years)	1		3469112.12	66713.69
<b>Risks</b> (calculated using: 100 minus percentage of the maximum achievable value of the statement)	<b>-0.303(*)</b>	<b>0.031</b>	-114933.75	-2298.67
<b>Benefits</b> (in percent of the maximum achievable benefit value)	1		65818.37	1061.58
<b>Risks</b> (calculated using: 100 minus percentage of the maximum achievable value of the statement)	<b>-0.542(**)</b>	<b>0.000</b>	-29581.30	-493.02

\* Correlation (two-way) significant at the 0.05 level.

\*\* Correlation (two-way) significant at the 0.01 level.

Selle (1996), too, argues: the higher the expected benefit, the higher is the potential intensity of participation. But it could also be vice versa: The higher the participation, the more benefit is perceived, like e.g. contribution to nature protection, gain in new contacts, appreciation for one's commitment, opportunities to use information. This view was confirmed in interviews with drop-outs who did not recognize individual benefit components and reasoned this with the fact that they had hardly been involved or had participated only for a short period of time. Thus, you have to distinguish between a reduction of transaction costs and an increase in efficiency. An activity should not be cut down due to high transaction costs (McCann et al. 2005). The case studies underline the following statement: "These costs are not 'money down a rathole' but are expended in exchange for transaction services" (Randall 1981). However, there might be efficient and inefficient ones (McCann et al. 2005), which can be depicted by effort-benefit relations for diverse activities in the processes.

#### 4.8. Differences between active participants and drop-outs

In this section we compare findings from surveys – i.e. the perception of current group members – with results from problem-centred interviews with drop-outs. The comparison showed differences regarding benefit components (see Figure 7). Drop-outs derive a comparatively lower over all benefit from their participation ( $p < 0.001$ ).

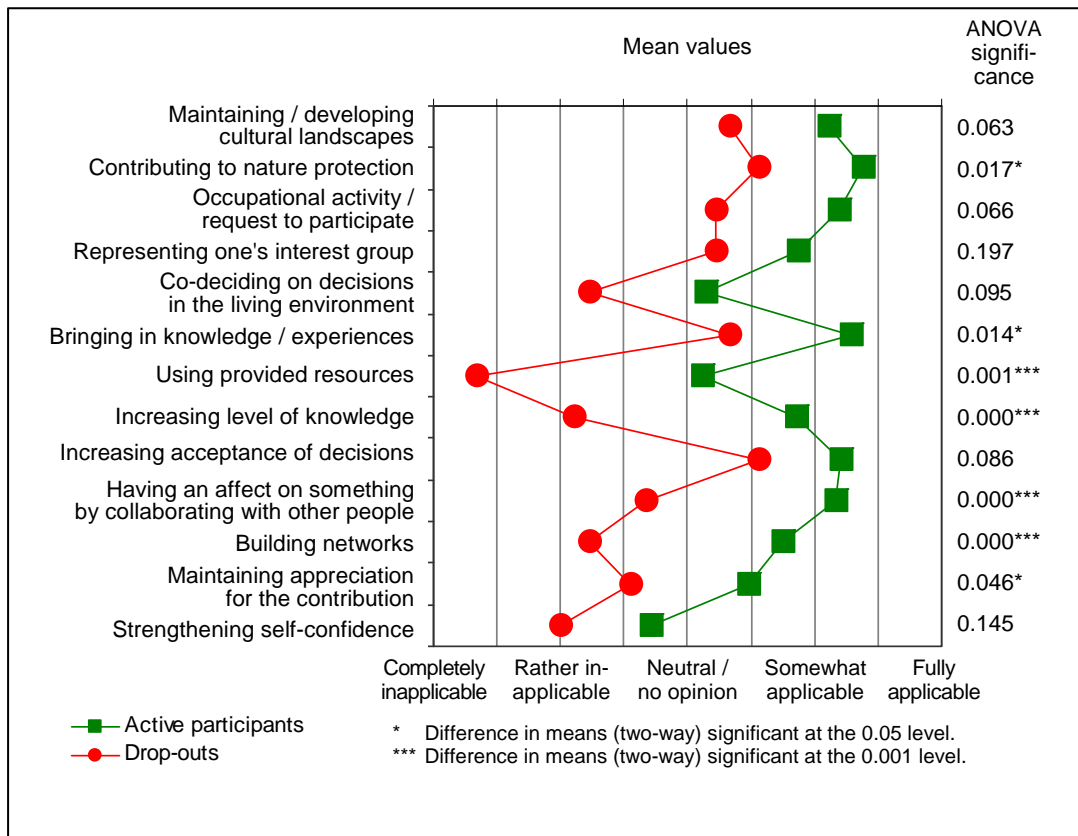


Figure 7: Differences in benefits as perceived by active participants and drop-outs.

The lack in benefit can be expressed by the following citation: “I have no benefit, I have zero benefit” (Natura-V-PCI 1). The perceived lack of benefits resulted also from individual targets which were not reached, like compensation payments for restrictions on agricultural land use, and decisions made which finally were not implemented. “Benefit in this sense, only if you can accomplish something” (Natura-V-PCI 1). Benefit for further participation may be missing as undesirable plans, like planned nature trails in the Cultural Landscape Project had already been prevented and the project had already been guided in a “safe” direction: “[...] so I actually was not interested in it anymore. [...] It did not affect me anymore. [...]” (CLP-MA-PCI, 4).

Figure 8 shows significant differences between assessments of active participants and drop-outs regarding some risk components. The overall risk of participating is valued higher by drop-outs ( $p < 0.005$ ). This assessment may also be related to the lower time effort. Especially drop-outs criticise missing implementation of decisions – thus a lack of effectiveness – and a lack of common agreements on measures. They miss actual results: “A lot of talk [...] I don’t see anything. This leads to nothing” (Natura-V-PCI 1). Drop-outs also felt less comfortable within the groups.

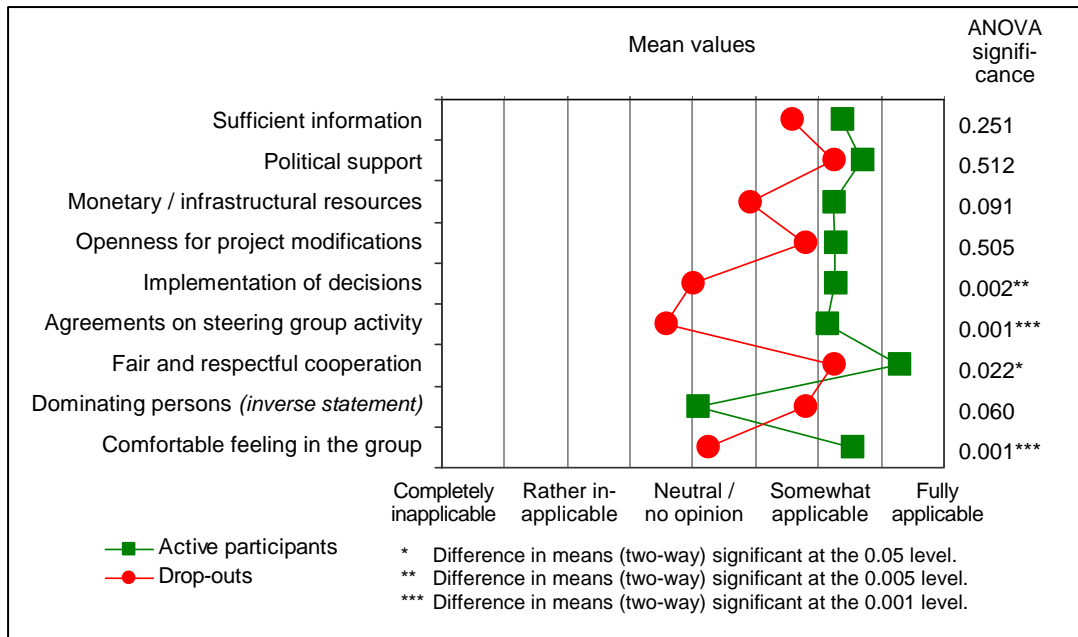


Figure 8: Differences in risks regarding active participants and drop-outs.

The Cultural Landscape Project groups and the members of the Natura 2000-steering groups were informed regularly via minutes on contents of discussions in group meetings. Contrary to active participants, some drop-outs mistrusted information from the management group and did not trust in the transparency of the process: “of course that’s only half of what is recorded in the minutes, that’s quite clear. What was said between the lines, you don’t know” (Natura-V-PCI 1). Also missing information on a Natura 2000 site designation was criticized: “if I do not even get informed precisely, there is no sense in it. That I always go there and donate my free time, and do not even get informed adequately” (Natura-V-PCI 3). This is also confirmed by literature that emphasizes the importance of transparency and information flow (Linder and Vatter 1996; Selle 1996; Diduck and Sinclair 2002; Newig 2005; Albrecht 2007; Hodge 2007; Austrian Federal Chancellery 2008; Prager and Freese 2009; Stenseke 2009).

## 5. DISCUSSION

### 5.1. Implications for transaction cost economics and efficient landscape co-management

The amount of transaction costs depends on various factors, like asset specificity, frequency of transactions and insecurity. It can be supposed that frequent transactions reduce behavioural uncertainty as transaction partners become familiar with each other and the transactions. The underlying study confirms this assumption: there is a positive interrelation between total effort and trust in the management group ( $p < 0.05$ ). Furthermore complexity influences the amount of transaction costs and can inter alia be ascribed to differing interests of involved stakeholders (Mburu et al. 2003). Interest groups involved in the projects are very diverse especially in the Natura 2000-steering groups and in the LIFE-Nature Projects. Group members with divergent objectives tend to be more discontent and are most likely to drop out of the group. We conclude that they would require special incentives.

Besides remuneration or intangible recognition, contracts are needed that set clear rules for cooperation, regarding the scope for decision-making, the goals and information flow and regarding how decisions are implemented. Verhaegen and Van Huylenbroeck (2002, 18) refer

to „relational contracts”, which participants agree on for an indefinite time. Relational contracts are extremely incomplete but norms of behaviour or shared codes of conduct guarantee the partners that the relationship will develop in a way that is beneficial to both and disputes are settled internally. French Natura 2000-management groups developed e.g. Natura 2000-contracts which have become an integral mechanism for cooperation (McCauley 2008). Such contracts are agreements between the Environment Minister and the members of the steering groups. The members declare to reach the objectives for the Natura 2000-area, to implement the agreed measures and in return receive financial support from the ministry for a predetermined period of time. These additional financial resources are considered as vital (McCauley 2008).

## *5.2. Discussion on methodology*

The underlying research design comprises mixed methods, including literature research, explorative interviews, case-specific surveys, problem-centred interviews, non-participant observations and a document analyses. Explorative interviews were used in a first investigation of different co-management schemes and provided information on the need for research and on concrete implementation examples. Questionnaires for surveys were tailored to case studies' characteristics with help of the project managers before surveys and interviews were carried out (e.g. for listing the single activities, such as meetings or field trips). Problem-centred interviews, in turn, aimed at a deeper understanding for drop-out reasons. Additional information on the case studies could be gained from informal discussions with project managers, through observation and document analyses. Finally, recommendations derived from the results were discussed and reflected with two project managers. Recursive loops in the work flow – explorative interviews, case-specific adaptation of questionnaires and validity and feasibility checks of the recommendations – gave rise to valuable reflections in the research process. As every method comes along with advantages and disadvantages as well as data collection deficiencies, a mixed methods approach allows for a deeper insight in the case studies and leads to more valid results. This could have never been provided by a single method.

In our analysis, we assumed uniform weights of benefit components. However, for some participants individual benefit components may be more and others less important. Future analyses might take this into account, e.g. by asking respondents to rank individual benefit components according to their importance (e.g. by Q method sorting). In this study, respondents had the opportunity to add further benefit components but could not influence the weighting.

Our analytical framework stresses ones more that an integrative transaction costs analysis needs to include risks of participation, because otherwise effort-benefit relations could be misinterpreted. In fact, participants are more reluctant to invest personal time if they perceive major risks regarding the process and its outcomes. Just as for the benefit components, respondents were not asked to weight or rank different risk components. Future surveys based on individual rankings or weighing could provide a more differentiated insight into individual risk perceptions. A critical reflection and external views could be gained from problem-centred interviews with former participants. The project managers were also particularly interested in this part of the analysis to find out more about drop-out reasons.

A survey of transaction costs (not only time efforts, like in this study) apparently decreases the willingness to cooperate. This was the reason for officials implementing Natura 2000 in Upper Austria to opt out from becoming another case study. Also project managers of the

Cultural Landscape Projects in Lower Austria were sceptical on this kind of survey and asked for adaptations of the questionnaire. In particular, they rejected questions on effort-benefit relations of single activities and on individual hourly rates as members of the project groups might start reflecting on the cost-benefit ratio, which could negatively effect their future commitment. Furthermore, it can be assumed that only well running processes can be analysed within this research setting. This approach probably will not provide access to information on processes which do not work that well or failed at all.

Our results must be seen and interpreted within the individual settings of the processes studied, as findings in transaction cost economics are first and foremost valid for the analysed context and may vary according to the types of projects and the project context (e.g. less trust, different interests or role perception) (Verhaegen and Van Huylenbroeck 2002). Transaction costs, benefits or risks of state organisations at higher levels and not involved in the participatory process were not integrated. Thus, our study is far from a comprehensive cost-benefit analysis as required by McCann et al. (2005), focus of this study was on cost-benefit-risk relations as perceived by individual participants.

## 6. CONCLUSIONS AND OUTLOOK

The five case studies on multi-level co-management processes represent special – and still rare – forms of cooperation between supra-regional and local actors in landscape governance. The project teams (respectively steering groups) involve different actors from various public authorities of different governance levels, stakeholders from nature protection, agriculture, forestry, tourism and locals. Diverse motivations drive the willingness to participate in landscape governance. All cases indicate a positive evaluation of the collaboration and the perceived benefit. Benefit components are generally valued very positively; and “contribution to nature protection”, “chance to bring in own knowledge and experiences” and “participation within the occupational activity” are rated best. Active participants generally assess the effort for process activities as adequate and perceive relative low risks of participation. They trust in “political support”, “fair and respectful cooperation” and the “group atmosphere”. Risks – if at all – are rather seen in “particular persons dominating the process”. Case-specific discrepancies arise at the risk components “political support”, “monetary and infrastructural resources”, “openness for project modifications” and the “implementation of decisions made”.

The results showed a significant positive correlation between time effort and benefits and significant negative correlations between effort and risks as well as benefits and risks. A comparison of professionally involved members and volunteers highlighted disproportionately high opportunity costs for volunteers. Volunteers also tended to benefit less from their participation. Moreover the bigger part of interviewed drop-outs did not have the feeling to be able to benefit from the participation and estimated significant higher risks than the active participants.

From the case studies, several case-specific but also some general recommendations were derived. First we list several of those recommendations, the project managers did agree on in the recursive feasibility check of our recommendations: e.g. create an adequate time frame for volunteers; provide early success (low hanging fruits); explicitly offer and actually provide monetary and other resources for the implementation of measures collectively decided on; make resources transparent right from the start; define and communicate the scope for decisions and the desired step of participation right from the beginning (e.g. in a common partnership agreement), create a common awareness of problems and a joint starting basis and organize field trips to the landscapes concerned. In general, time resources of participants, the



overall financial resources available for landscape interventions, the legal framework and funding criteria have to be considered. Participants' personal motivations may be in conflict with the goals of the group. Contrary to the survey results, project managers – confronted with a list of recommendations - would not enlarge the groups. They assessed also a balanced distribution of interests as less important. Recommendations based on literature and the interviews on effort compensation are not accepted. According to the project managers, monetary compensation of volunteers is not consistent with the character of cooperation. However, intangible recognition is important for landscape co-management in the Lower Austrian Cultural Landscape Projects. Whereas in the Natura 2000-steering groups, the motivations of participants seem to focus on financial compensation for landscape stewardship and on the opportunity to represent one's own interests.

The analytical framework developed in this study can be also applied to other participatory processes in landscape governance and nature conservation. Interviews with drop-outs are particularly helpful to identify hot spots of participation practices. Further applications of the analytic framework might also shed more light on the interrelation between individual perceptions of costs, benefits, risks as well as trust in the management group and its individual members. It would be of particular interest if the positive interrelation between effort and benefits and the negative interrelations between effort and risks as well as between benefits and risks which were revealed in this study can be confirmed in additional case studies, like e.g. in processes which run not that well. There is no clear answer regarding the ideal group size or group composition for landscape co-management, neither from our ambivalent case study results, nor from numerous other case studies on collective decision making on common resources (Poteete et al. 2010, 52).

There is urgent need for further research on control and property rights to landscape. Co-management arrangements as analysed in this paper have an effect on the perception of the legitimacy of property rights and may result in shifts of rights to landscape and of duties regarding landscape stewardship. Thus, land owners – primarily drop-outs – are particularly sceptical about the influence of other interest groups such as tourism or nature conservationists.

## ACKNOWLEDGEMENT

This paper has been prepared in the framework of the Doctoral School Sustainable Development (DOKNE) at BOKU University of Natural Resources and Life Sciences, Vienna, funded by the Austrian Sustainability Research Program proVISION of the Federal Ministry of Science and Research, by the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) and by the Provinces of Lower Austria, Styria, and Vienna. We would like to thank all scientific and transdisciplinary partners for their commitment and collaboration in the research project. We are also very grateful for Christina Roder's great support with the translation.

## LITERATURE CITED

- Adhikari, B. and J. C. Lovett. 2006. Transaction costs and community-based natural resource management in Nepal. *Journal of Environmental Management* 78(1):5–15.
- Albrecht, M. 2007. *Hat sich Mediation als Instrument des Akzeptanzmanagements in der öffentlichen Verwaltung bewährt oder ist Mediation nur "mehr vom Selben"?* Europäische Mediationskonferenz, Vienna, Austria.

- Arbeitsgemeinschaft Vegetationsökologie und Landschaftsplanung. 2011. *Projektpanorama*. <http://www.a-v-l.at/projekte-partner/projektpanorama/> (accessed June 30, 2011).
- Berkes, F. 2002. Cross-scale institutional linkages: perspectives from the bottom up. In *The Drama of the Commons*, eds. E. Ostrom, T. Dietz, N. Dolsak, P. C. Stern, S. Stonich, and E.U. Weber, 293–322. Washington D.C.: National Academy Press.
- Berkes, F. 2009. Evolution of co-management: Role of knowledge generation, bridging organizations and social learning. *Journal of Environmental Management* 90(5):1692–1702.
- Birner, R., B. Jell, and H. Wittmer. 2002. Coping with Co-management: a Framework for Analysing the Co-operation between State and Farmers' Organisations in Protected Area Management. In *Environmental co-operation and institutional change: Theories and policies for European agriculture*, ed. K. Hagedorn, 46–65. Cheltenham, Gloucestershire: Elgar.
- Birner, R. and H. Wittmer. 2000. *Co-management of Natural Resources: A Transaction Cost Economics Approach to Determine the "Efficient Boundaries of the State"*. Paper presented at the Annual International Conference of the International Society of the New Institutional Economics (ISNIE) in Tübingen, Germany, September 2000.
- Borrini-Feyerabend, G. 1996. *Collaborative Management of Protected Areas: Tailoring the Approach to the Context*. Gland, Switzerland: IUCN.
- Austrian Federal Chancellery. 2008. *Standards der Öffentlichkeitsbeteiligung: Empfehlungen für die gute Praxis*. Vienna, Austria.
- Carlsson, L. and F. Berkes. 2005. Co-management: Concepts and methodological implications. *Journal of Environmental Management* 75(1):65–76.
- Coase, R. H. 1937. The Nature of the Firm. *Economia* 4(16):386–405.
- Cooke, B. and U. Kothari. 2001. *Participation: the new tyranny?* London: Zed Books.
- Council of Europe. 2000. *European landscape convention*. Florence, 20.X.2000, Strasbourg: Council of Europe Publications.
- Diduck, A. and J. A. Sinclair. 2002. Public involvement in environmental assessment: The case of the nonparticipant. *Environmental Management* 29(4):578–588.
- Enengel, B., M. Penker, A. Muhar, and R. Williams. 2011. Benefits, efforts and risks of participants in landscape co-management: An analytical framework and results from two case studies in Austria. *Journal of Environmental Management* 92(4):1256–1267.
- Falconer, K. 2000. Farm-level constraints on agri-environmental scheme participation: A transactional perspective. *Journal of Rural Studies* 16(3):379–394.
- Falconer, K. and C. Saunders. 2002. Transaction costs for SSSIs and policy design. *Land Use Policy* 19(2):157–166.
- Folke, C., T. Hahn, P. Olsson, and J. Norberg. 2005. Adaptive governance of social-ecological systems. *Annual Review of Environment and Resources* 30:441–473.
- Freese, J. and C. Ruffer. 2005. Kooperativer Naturschutz in der Kulturlandschaft. In *Partizipation, Öffentlichkeitsbeteiligung, Nachhaltigkeit. Perspektiven der politischen Ökonomie*, eds. P. H. Feindt and J. Newig, 257–279. Marburg: Metropolis-Verlag.
- Gailing, L., K.-D. Keim, and A. Röhring. 2006. *Analyse von informellen und dezentralen Institutionen und Public Governance mit kulturlandschaftlichem Hintergrund in der Beispielregion Barnim*. Berlin: Berlin-Brandenburgische Akademie der Wissenschaften.
- Garbe, C., U. Pröbstl, M. Meyer, and B. Räth. 2005. *Natura 2000 und nachhaltiger Tourismus in sensiblen Gebieten: Empfehlungen zum Management des Tourismus in Natura 2000-Gebieten im Sinne einer nachhaltigen Tourismusentwicklung*. BfN-Skripten 134. Bonn-Bad Godesberg, Germany: Bundesamt für Naturschutz.
- Görg, C. 2007. Landscape governance. The "politics of scale" and the "natural" conditions of places. *Geoforum* 38(5):954–966.

- Hägerstrand, T. 1995. *A look at the political geography of environmental management*. LLASS Working Paper No. 17. Dublin, Ireland: Department of Geography, University College.
- Hanna, S. 1995. Efficiencies of User Participation in Natural Resource Management. In *Property rights in a Social and Ecological Context. Case Study and Design Applications*, eds. S. Hanna and M. Munasinghe, 59–67. Washington, D.C.: Beijer International Institute of Ecological Economics.
- Hickey, S. and G. Mohan, eds. 2004. *Participation: from tyranny to transformation? Exploring new approaches to participation in development*. London: Zed Books.
- Hodge, I. 2007. The governance of rural land in a liberalised world. *Journal of Agricultural Economics* 58(3):409–432.
- Höppner, C., J. Frick, and M. Buchecker. 2007. Assessing psycho-social effects of participatory landscape planning. *Landscape and Urban Planning* 83(2–3):196–207.
- Linder, W. and A. Vatter. 1996. Kriterien zur Evaluation von Partizipationsverfahren. In *Planung und Kommunikation: Gestaltung von Planungsprozessen in Quartier, Stadt und Landschaft: Grundlagen, Methoden, Praxiserfahrungen*, ed. K. Selle, 181–188. Wiesbaden: Bauverlag.
- Mburu, J., R. Birner, and M. Zeller. 2003. Relative importance and determinants of landowners' transaction costs in collaborative wildlife management in Kenya: An empirical analysis. *Ecological Economics* 45(1):59–73.
- McCann, L. and B. Colby, K. W. Easter, A. Kasterine, and K. V. Kuperan. 2005. Transaction cost measurement for evaluating environmental policies. *Ecological Economics* 52(4):527–542.
- McCann, L. and K. W. Easter. 1999. Transaction costs of policies to reduce agricultural phosphorous pollution in the Minnesota River. *Land Economics* 75(3):402–414.
- McCauley, D. 2008. Sustainable development and the 'governance challenge': The French experience with Natura 2000. *European Environment* 18(3):152–167.
- Mitchell, B. 2005. Participatory partnerships: Engaging and empowering to enhance environmental management and quality of life? *Social Indicators Research* 71:123–144.
- Newig, J. 2005. Erleichtert Öffentlichkeitsbeteiligung die Umsetzung (umwelt-)politischer Maßnahmen? Ein Modellansatz zur Erklärung der Implementationseffektivität. In *Partizipation, Öffentlichkeitsbeteiligung, Nachhaltigkeit. Perspektiven der politischen Ökonomie*, eds. P. H. Feindt and J. Newig, 89–115. Marburg: Metropolis-Verlag.
- North, D. C. 1990. *Institutions, Institutional Change, and Economic Performance*. Cambridge: Cambridge University Press.
- Olwig, K.R., 2002. *Landscape, Nature, and the Body Politic. From Britain's Renaissance to America's New World*. The University of Wisconsin Press, Madison.
- O'Rourke, E. 2005. Landscape planning and community participation: Local lessons from Mullaghmore, the Burren National Park, Ireland. *Landscape Research* 30(4):483–500.
- Ostrom, E. 1998. The Institutional Analysis and Development Approach. In *Designing institutions for environmental and resource management: New horizons in environmental economics*, eds. E. T. Loehman and D. M. Kilgour, 68–89. Cheltenham, Gloucestershire: Elgar.
- Ostrom, E. 2005. *Understanding institutional diversity*. Princeton, New Jersey: Princeton University Press.
- Paavola, J. 2004. Protected Areas Governance and Justice: Theory and the European Union's Habitats Directive. *Journal of Integrative Environmental Sciences* 1(1):59–77.
- Paavola, J. 2007. Institutions and environmental governance: A reconceptualization. *Ecological Economics* 63(1):93–103.
- Paavola, J. and W. N. Adger. 2005. Institutional ecological economics. *Ecological Economics* 53(1):353–368.

- Penker, M. 2009. Landscape governance for or by the local population? A property rights analysis in Austria. *Land Use Policy* 26(4):947–953.
- Plummer, R. and S. M. Arai. 2005. Co-management of natural resources: Opportunities for and barriers to working with citizen volunteers. *Environmental Practice* 7(4):221–234.
- Poteete, A., R., Janssen, M.A., Ostrom, E. 2010. Working Together: Collective Action, the Commons, and Multiple Methods in Practice. Princeton and Oxford: Princeton University Press.
- Prager, K. and J. Freese. 2009. Stakeholder involvement in agri-environmental policy making - Learning from a local- and a state-level approach in Germany. *Journal of Environmental Management* 90(2):1154–1167.
- Provincial Government of Lower Austria. s.a. *Unser Kulturlandschaftsprojekt*. Vienna, Austria.
- Randall, A. 1981. *Resource Economics: An Economic Approach to Natural Resource and Environmental Policy*. Columbus, Ohio: Grid Publishing.
- Richter, R. and E. G. Furubotn. 2003. *Neue Institutionenökonomik*. Tübingen: J.C.B. Mohr.
- Rørstad, P. K., A. Vatn, and V. Kvakkestad. 2007. Why do transaction costs of agricultural policies vary? *Agricultural Economics* 36(1):1–11.
- Selle, K. 1996. Klärungsbedarf. In *Planung und Kommunikation. Gestaltung von Planungsprozessen in Quartier, Stadt und Landschaft. Grundlagen, Methoden, Praxiserfahrungen*, ed. K. Selle, 161-180. Wiesbaden: Bauverlag.
- Singleton, S. 1998. *Constructing Cooperation: the Evolution of Institutions of Comanagement*. Ann Arbor: University of Michigan Press.
- Smith, J. L. 2008. A critical appreciation of the "bottom-up" approach to sustainable water management: Embracing complexity rather than desirability. *Local Environment* 13(4):353–366.
- Stenseke, M. 2009. Local participation in cultural landscape maintenance: Lessons from Sweden. *Land Use Policy* 26(2):214–223.
- Tiemann, S. and R. Siebert. 2009. Ecological networks implemented by participatory approaches as a response to landscape fragmentation: A review of German literature. *Outlook on Agriculture* 38(2):205–212.
- UNECE. 1998. *United Nations Economic Commission for Europe. Aarhus convention*. <http://www.unece.org/env/pp/treatytext.htm> (accessed June 30, 2011).
- UNECE. 2008. *Strategic Plan 2009-2014, Draft Decision III/8*. Unedited advance copy. Meeting of the parties to the convention on access to information, public participation in decision-making and access to justice in environmental matters, Riga, June 11–13, 2008.
- United Nations. 1992. *Convention on Biological Diversity*. <http://www.cbd.int/convention/text/> (accessed June 30, 2011).
- Van Huylenbroeck, G., A. Coppens, and M. Whitby. 1999. Introduction to research on Countryside Stewardship Policies. In *Countryside Stewardship: Farmers, Policies and Markets*, eds. G. Van Huylenbroeck and M. Whitby, 1–19. Amsterdam: Pergamon.
- Verhaegen, I. and G. Van Huylenbroeck. 2002. *Hybrid governance structures for quality farm products: A transaction cost perspective*. Aachen: Shaker Verlag.
- Wang, N. 2003. *Measuring Transaction Costs: An Incomplete Survey*. Working Paper Series, 2. Chicago: Ronald Coase Institute, The University of Chicago.
- Williamson, O. E. 1985. *The Economic Institutions of Capitalism*. New York: The Free Press.
- Yin, R. K. 2002. *Case study research. Design and methods*. Thousand Oaks, California: Sage Publications.