Strengthening Regional Cohesion: Local Collaboration Networks and Sustainable Development in Swiss Rural Areas

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Abstract

This paper makes both a theoretical and empirical contribution to a better understanding of how actor network structures play a crucial role in enhancing sustainable development in rural areas. From a theoretical perspective, the paper discusses the relational aspects of the concepts of sustainability and sustainable development and focuses particularly on the question, how fragmentation and cohesion of local and regional policy networks may foster or hinder a sustainable development of such regions. Empirically, the paper introduces the new regional park policy in Switzerland in which the federal government aims at a better protection and promotion of rural areas that are of high natural, cultural and scenic value. The paper explores how local and regional collaborative network structures have evolved with two park projects in two Swiss cantons and analyzes these structural configurations using concepts and techniques from Social Network Analysis. Based on two standardized surveys carried out in the two regions, the results show that the projects in both cases mainly strengthened the vertical cooperation between governmental agencies across different administrative levels but horizontal coordination between different societal sectors still remains to be improved and consolidated to meet an important criterion of the concept of sustainable development as defined in the federal government's Sustainable Development Strategy.

Key words

Rural sustainable development, cohesion, social network analysis, regional nature parks, Switzerland

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1 Introduction[1]

This paper makes both a theoretical and empirical contribution to a better understanding of how actor network structures play a crucial role in enhancing sustainable development in rural areas. From a theoretical perspective, the paper discusses the relational aspects of the concepts of sustainability and sustainable development and focuses particularly on the question, how fragmentation and cohesion of local and regional policy networks may foster or hinder a sustainable development of such regions. Empirically, the paper introduces the new regional park policy in Switzerland in which the federal government aims at a better protection and promotion of rural areas that are of high natural, cultural and scenic value. On the same time, a park label certified by the federal government should strengthen a sustainable economy in the region and promote the selling of sustainable goods and services produced in the region.

Regional Nature Parks (RNP) represent a novelty in Swiss regional policy, even though many other countries have established similar instruments: by aiming at integrating economic development objectives and environmental protection goals, the policy is explicitly targeted at strengthening the coherence between development and environmental policies (Gerber and Knoepfel 2008). Since it is a critical requirement for a park project to demonstrate its contribution to this coherence between various interests in the particular region, the establishment of a RNP requires that local and regional actors jointly work together and strengthen regional cohesion beyond sectoral interests. RNPs therefore provide an incentive structure financially supported by the federal government. By granting financial assistance to RNP projects in the rural areas, the federal government aims at strengthening its influence on local and regional development by linking its financial assistance to the fulfillment of process and product related criteria based on the concept of sustainable development.

The paper explores how local and regional collaborative network structures have evolved with two park projects in two Swiss cantons and analyzes what effects these structural configurations might have on a sustainable development of the two regions. Based on two standardized surveys carried out in the two regions, the results show that the projects in both cases mainly strengthened the vertical cooperation between governmental agencies across different administrative levels. Horizontal coordination between different societal sectors still remains to be improved and consolidated to meet an important criterion of the concept of sustainable development as defined in the federal government's Sustainable Development Strategy (Swiss Federal Council 2002, 2008).

The paper proceeds as follows. I will first outline the particular challenges rural areas in Switzerland have been facing recently and how the new park policy tries to address these challenges based on an approach of regional sustainable development. Then, I will discuss the characteristics of the new Swiss park policy and the underlying concepts of sustainable development by taking a network approach. Accordingly, I will specifically focus on the relational aspects of the policy and the underlying sustainability concept. In the following section, I will introduce the two

[1] I thank Lukas Glanzmann and Yvonne Wäger who carried out the survey in the two case study regions, and Willi Zimmermann and Karin Ingold for their comments on an earlier version of this paper.

case studies of the park projects in the Binntal (Canton of Valais) and Thal (Canton of Solothurn) region, will discuss the data collection and apply different network analytical techniques to analyze the collaboration structure between the local, regional and federal actors involved in the two projects. The analysis of these actor networks will focus on different aspects of network cohesion as they have been theoretically discussed in the previous section. Finally, I will conclude with an assessment of the park projects contribution to regional cohesion in the two cases and will discuss some theoretical implications of this study from a perspective of sustainable development.

2 Sustainable Regional Development and the Swiss Park Policy

Rural areas in Switzerland today are confronted with several challenges. Most importantly, more and more jobs in such regions are at risk of being eliminated or have already been eliminated over the last decades due to socio-economic changes. Traditional sectors that have been well established in rural areas (agriculture, construction, timber and textile industries) are under economic pressure and have largely disappeared or migrated to regions with lower production costs. Goods production has mostly been detached by a largely growing service industry which is strongly concentrated in urban and metropolitan areas, where the largest part of the population lives and the necessary infrastructure is readily available. Simultaneously, the structure of the population is shifting. The share of older people in mountain or rural areas is significantly higher than in the rest of country, while highly productive segments of the population have increasingly moved to urban areas (Federal Statistical Office 2007; Basler + Partner 2006). However, according to the latest statistics, the population in Swiss mountain and rural areas has not been shrinking but actually grew between 2000 and 2005 by a yearly rate of 0.7 percent. But the number of full-time employees decreased over the same time period by 3.8 percent (Neue Zürcher Zeitung, 9 July 2008, p. 16).

Socio-economic developments have their ecological implications too. In many regions, landscapes are at risk due to intensified land use (mostly expansion of infrastructure and settlement areas, tourism and other human activities with negative impacts on the natural environment). Tourism often remains the only economic sector in those regions with a potential for growth (ARE 2005). However, according to the Swiss Federal Office for the Environment (FOEN), the preservation of natural and cultural landscapes of high ecological and scenic value—a vital product for the tourist industry in Switzerland—is currently not guaranteed. Agricultural activities, which play a crucial role in the preservation of biological and scenic diversity, are declining. And the protection function of forests—crucial in many mountainous areas to the protection of settlements from avalanches, rock falls and landslides—is reduced, too, due to intensive forestry use, pollution and insufficient forest management (FOEN and FSO 2009). To mitigate such negative ecological, economic and social consequences resulting from socio-economic changes in rural areas, the Swiss government recently launched a new policy that supports regional park projects logistically and financially. New regional nature parks (RNPs) should help to protect and revaluate exceptional living spaces and scenic landscapes. At the same time, the parks should stimulate the local economy and encourage it to produce more intensively following the concept of sustainable development (Art. 23g, Swiss Federal Law on the Protection of Nature and Landscape).

Nature parks or nature preserves as an instrument for environmental protection have a long traditional all around the globe. The Swiss National Park in the Engadin region, for example, was the first national park in the Alps and central Europe, established in 1914. Regional parks aiming both at the promotion of regional development and environmental preservation, as initiated with the new Swiss park policy, have been established in several European countries over the last decade. But for Switzerland, the recently introduced new park policy is innovative in several respects. It includes a new attempt to implement a comprehensive and integrative approach of policymaking following the concept of sustainability in a specific local and regional setting. The Swiss authorities base their understanding of sustainability mainly on the Brundtland Commission's definition of sustainability and the three pillars of the concepts as defined in the Rio Declaration (Swiss Federal Council 2008, 2002). On the federal administrative level, the Federal Office for Spatial Development (ARE) takes an important coordination function on the federal level, together with the Interdepartmental Sustainable Development Committee (ISDC). A Forum for Sustainable Development serves as a coordination platform for governmental agencies on the federal, cantonal (state) and local level. As such, the concept has expanded as a normative guiding principle for policymaking into several policy domains at the national, cantonal and local level (ISDC 2007). However, and despite its success as a concept, sustainable development is still hardly integrated in actual policies (FSO 2008; FSO et al. 2006; ISDC 2007). The park policy tries to overcome this shortcoming by following a combination of bottom-up and top-down approaches to enhance sustainable development in rural areas. The policy has a strong bottom-up element since the regions have to develop their own project and submit it to the federal government. The federal government, represented by the national environmental agency (FOEN), examines the project according to a set of predefined criteria. In addition to formal criteria such as a management plan and the establishment of a so-called 'park charter,' the federal law defines (top-down) a series of criteria for the assessment of the quality of a park project (park ordinance, SR 451.36):

– The park area has to be of natural and scenic value and is characterized by a low degree of human interference into the habitats of indigenous fauna and flora due to utilization, construction and infrastructures.
– Professionalized park management is another mandatory condition for federal support. The project also has to prove its economic credibility and must be embedded in a network with similar projects in other areas, nationally and internationally.
– To assure the local and regional anchoring of the park projects, the federal government approves only park projects that are based on local initiatives and are supported by the local population and the different regionally relevant societal sectors, interest groups and organizations. The cantons (the Swiss states) are expected to support and coordinate local park initiatives.
– Furthermore, the park activities have to meet the predefined goals as defined in the management plan with appropriate actions and control instruments (evaluation).

If successful, the FOEN provides financial assistance for establishing the park and may later award the project with the Federal park label "park of national importance." The region is then entitled to use this park label to promote local and regional products and activities. The cantons take an important intermediary role in

this process. They have to formally submit the park proposal to the federal government. If the application is successful, the federal government and the canton sign a formal agreement on the ecological, economic and social services that the park will provide and the amount of the financial contribution from the Swiss government to the project (park ordinance, SR 451).

When it comes to the translation of sustainable development into concrete actions, municipalities and local communities can play a crucial role, given their functions in relevant areas (e.g., waste management, zoning, location marketing, social welfare) and their proximity to actual environmental, economic and societal problems. Municipalities and local communities also represent the state at the lowest institutional level and therefore enjoy a high level of sympathy and identification from the public (see the literature body on 'decentralication', for an overview Breton et al. 2007b). Local Agenda 21, as the community level implementation project of the United Nations' Agenda 21, recognizes this crucial role played by local authorities, and various projects aim to ensure that the principle of sustainability is integrated particularly into local political processes (for Switzerland, see ARE 2003). In its report 'Sustainable Development in Switzerland,' the Swiss federal administration's Interdepartmental Sustainable Development Committee (ISDC) pinpoints that both rural and urban areas face "the challenge […] to maintain or improve quality of life in the long term, without compromising development opportunities for future generations." Local authorities are therefore obligated "to identify their strengths and weakness and develop a strategy that supports sustainable development processes" (ARE 2003: 33).

3 A Network Approach to Sustainable Rural Development

With its multi-level, multi-sectoral and multi-objective approach, the new Swiss park policy faces challenges very similar to the ones that emerge from the overall concept of sustainable development. It is obvious that the comprehensive and integrative approach of sustainable development creates coordination problems and trade-offs between particular interests and different policy objectives. On a local level, however, communities are often immediately affected by the negative impacts of environmental pollution and degradation. It is therefore more likely that it is in their self-interest to agree on regulative measures to mitigate negative impacts of human behavior on the environment. In addition, social control is usually higher and non-compliance more difficult. Therefore, both decentralization and participation have become central elements of new approaches to environmental policy and governance for sustainable development (Breton et al. 2007a; Durant 2004; Lafferty 2004). First generation studies understood decentralization as a simple zero-sum transfer of authority from the center to subnational governments, drawing upon the assumptions of welfare economics and public choice theory. Today, scholars differentiate between different forms of decentralization such as fiscal, policy and political decentralization (e.g., Rodden 2004). Participation, on the other hand, includes mechanisms for enhancing public participation in public decision-making and implementation, usually understood as going above and beyond well-established modes of electoral representation, public debate, political organization, pluralist bargaining or corporatist interaction. It

is therefore both a democratic imperative and a government steering strategy deployed to identify and affect necessary reforms (Meadowcroft 2004: 164-6).[2]

Network governance, as it has rapidly risen over the last decades as the network form of governance, incorporates both elements. Originating mostly from organizational studies (Alter and Halter 1993) and state theories (Rhodes 1997), the concept focuses in its most general form in a non-hierarchical way on patterns of interactions between different entities and the resulting relationships. However, to date no comprehensive theory has emerged and the network term has often been used only in a metaphorical way (Dowding 1995). Recently, scholars have tried to renew the theoretical debate on the use of the network concept in the study of policymaking by raising a series of questions about the dynamics of governance structures, the conditions of successful network governance and the function of network forms of political steering (Kickert 1997; Koppenjan and Klijn 2004; Sorensen and Torfing 2006). Particularly the policy literatures found crucial network mechanisms in modern governance structures ranging from the level of global governance, European integration and sectoral policy networks to regional arrangements (e.g., Kahler 2009; Reinicke and Deng 2000; Coleman and Perl 1999; Marsh 1998; Van Waarden 1992; Kenis and Schneider 1991). Policy networks are thereby seen as structures that integrate different types of actors and actor systems to adjust to problem structures that cannot be appropriately addressed by existing formal institutions. But still, although many studies have done a good job in describing and explaining the evolution of these network structures, a comprehensive theory on the role of networks in policymaking is widely missing (Raab and Kenis 2007).

As it emanates from the main features of the park policy as described above, RNP projects includes several relational aspects that can be described in terms of network governance. First of all, from an institutional point of view, the projects include joint responsibility between local, cantonal and federal authorities in setting up and operating nature parks. On a policy level, parks are designed to address multiple environmental and economic (and related: social) objectives that are integrated through the concept of sustainable development. On the actor level, both the multi-level design of the park policy and its multi-faceted objectives necessitate coordination between actors and their different interests at different levels and across sectors of society. From a temporal perspective, the long-term orientation of the park policy demands formal and informal structures that ensure the institutionalization of a park project beyond an ad-hoc organization. And, not least, acceptance of and public support for a park project is both crucial for the financial survival of a park and a crucial factor in attaining the overall goals as defined by the park policy, which eventually aims to enhance more sustainable development in the park region. It is therefore mandatory that local communities be integrated from the beginning in the planning and setting-up of a park project.

In all these relational aspects of the policy, the inclusion of representatives from various governmental and non-governmental groups of actors seems to be crucial. In fact, many network scholars have discussed actor inclusion across different

[2] Also the U.N.'s Agenda 21 holds that "one of the fundamental prerequisites for the achievement of sustainable developments is broad public participation in decision-making" (United Nations 1993, Agenda 21, Section II, Chapter 23, Preamble). The OECD's 2001 report 'Policies to Enhance Sustainable Development', too, points out that well-designed consultation and participation processes are especially important for sustainable development because of the cross-cutting nature of the issue (PAC/COM/NEWS 2001: 48).

institutional and societal scales in networks and its effects on social processes (for an overview, Wasserman and Faust 1994: Chapter 7). In social network analysis, the concept of interconnectivity within and between parts of a network has been formalized as *cohesion* (Wasserman and Faust 1994: 251). Studies on structural cohesion have found, for instance, that often a relatively frequent direct contact between the different actors is necessary if greater homogeneity among those actors should be achieved (Friedkin 1984). Thus, to be able to develop and pursue a common strategy, followed by a joint implementation of the project in the region, a RNP project needs to achieve a certain level of cohesion among the relevant actors from different administrative levels and societal sectors. Or, in network terms, the more tightly actors from the different levels and sectors are tied into the RNP policy network, the more likely the project will be successful in making a contribution a sustainable regional development as described above.

Subgroups in a network with a high interconnectivity among their members are of particular interest from the perspective of sustainable development. It can be assumed that a network with a high degree of *closure*—that is, a network in which most of the actors are connected to each other so that no one can escape without the notice of the others—builds up trust and social control between the network members. Based on a main argument of Coleman (1988; 1990), such a high level of interconnectedness within a network facilitates change within the network (e.g., in the form of better cooperation between the actors in the network) because of enhanced communication, the creation of common norms, and the possibility to restrain opportunistic behavior. Better communication as well as shared values and visions on the future development of a region should have a positive effect on cooperative and integrative approaches to address critical socio-economic and ecological challenges in the region. Another function of network closure could be the facilitation of sanctions (in the case of non-compliance to agreed norms) that make it less risky for actors in a network to trust one another.

But there are also significant risks associated with increasing homogeneity in networks due to network closure, as works of network theorists Granovetter (1973) and Burt (1992; 2000; 2001) have shown. A heterogeneous network that consists of a diversified set of actors involved in many cross-boundary interactions could in fact provide the better network structure to deal with complex and long-term developments than a system of similar minded, closely interconnected actors. Moreover, network heterogeneity may secure “the source of added value” (Burt 2000: 398) that is necessary to adapt to new developments within and outside a particular region. It is therefore a key characteristic of adaptive governance to be embedded in a collaborative, flexible and learning-based actor structure that includes different vertical and horizontal levels of society (Brunner et al. 2005).

4 Strengthening Regional Cohesion: Two Case Studies

The two following case studies include the RNP projects of the Thal region (canton of Solothurn) and Binntal (canton of Valais). The idea is to test the theoretical considerations outlined above using two separate research sites to provide replication. I will first outline critical context conditions for each of the two park projects. Then, I will describe the survey we have carried out in the two regions to analyze the actor structures in the two regions and will describe the gathered network data in more detail. The following network analysis focuses on the collaborative relations between the

actors from different governmental levels and societal sectors and discusses the effect of the park project on the cohesion between these different actors in the region.

4.1 Context Conditions

The RNP projects in the two regions of Binntal and Thal share some similarities but also significant differences that have to be taken into account when the network structure of the two projects will be analyzed. The two projects share the following characteristics:

Rural and peripheral characteristics: Both the Binntal and Thal regions are part of a larger region defined by the federal law as the IHG-region (regions that fall under the Federal Law on Investment Aid for Mountain Areas of 21 March 1997, SR 901.1). Until 2008, IHG-regions received federal subsidies to support structural adaptation to socio-economic changes. Since January 2008, the IHG-law has been superseded by a new federal regional policy (Federal Law on Regional Policy of 6 October 2006, SR 901.0).

Park type: Both park projects are regional nature parks according to the Federal Law on the Protection of Nature and Landscape.

Project status: Both park projects submitted their proposal in January 2008 in reaction to the first call for such projects. On 2 September 2008, the FOEN approved both park projects and awarded the two regions the 'candidate' label. Just very recently (end of August 2009), the FOEN awarded the Thal project with the label 'Park of national importance,' which will become effective on 1 January 2010 and will be valid for ten years.

Formal organizational structures: Both park projects are formally governed by a private committee (non-profit regulation organization, so-called "Trägerverein") which is mainly supported by the municipalities in the respective region.

On the other hand, the park projects show some significant differences in these dimensions:

Region and topography: The Binntal park is located in the Alpine region in the periphery of Switzerland at the Swiss-Italian border. The Nature Park Thal, on the other hand, is embedded in the Jura Mountains of the Solothurn region in the Northwest of Switzerland, between the metropolitan areas of Basel, Bern and Zurich.

Institutional and economic context: The Binntal is a peripheral valley of the Canton of Valais and lives mainly on tourism, agriculture and small trade. In the Thal region in the Canton of Solothurn, agriculture is still of importance, but manufacturing and the service industry are now more significant.

Antecedent projects: The Binntal project lies in a so-called BLN-area (BLN = federal inventory of landscapes and cultural heritage of national relevance). The BLN project is a federal subsidy instrument that tries to harness synergies between tourism, agriculture and local manufacturers on the one side and the protection and conservation of nature and landscapes on the other side. The Binntal municipalities also received financial aid from the project 'Regio Plus,' a federal impulse program to support structural change in rural areas. The Thal region was a pilot region in the Action Program on Environment and Health (2001-2007) as it was initiated by the Federal Office of Public Health. This pilot project included also preparatory work for setting up the park project.

According to the differences in the socio-economic environment of the two park projects, but also because of the different objectives and outlooks of the different forerunner projects, one would expect a different thematic orientation of the two park projects and significant variances in the actor network structures. The park project in the Thal region has a stronger background in protecting and fostering cultivated landscape and its utilization as recreation and living area. The Binntal project, on the other hand, is more strongly embedded in projects that are geared toward the strengthening of the local economy and conservation of the cultural heritage of the peripheral mountain valley. It is assumed that these different backgrounds and orientations of the two park projects are also reflected in different actor structures. The Thal project is expected to be shaped largely by the local communities and environmental and cultural organizations, whereas the Binntal project is assumed to be based on a network with a stronger focus on the local economy, including the cantonal federal government (due to different economic aid programs) as well as local tourism, agriculture and manufacturer organizations. Moreover, it will be interesting to see how these presumably dominant actor circles were able to include other actors in the set-up of the park project to widen the spectrum of involved actors and, thus, to enlarge the thematic orientation of the park project. As outlined above, such a participatory approach of integrating ecological, economic and social aspects into the park project is a requisite both in terms of the new Swiss park policy (to obtain federal subsidies and the park label) and in accordance with the underlying concept of sustainable development.

4.2 Data Collection

To investigate the actor structures of the two park projects, we conducted a standardized survey among all the actors that have been involved in the RNP project in the region in one way or the other. The survey took place in December 2007/January 2008 (Thal) and June 2008 (Binntal) after the two projects had submitted their project proposal to the Federal Office for the Environment. Before conducting the survey, we elaborated the network boundaries taking a positional approach (Scott 2000: 55). We did that, in a first step, with an extensive search for written documentation on the park project (including project dossiers, management plans, other official documents and newspaper articles). Then, we interviewed for each case study two representatives of central actors to check the validity of our document analysis, to supplement our information obtained from written sources and to finally delimit the boundaries of the involved circle of actors. The delimitation of the network boundaries resulted in a list of 36 (Thal) and 38 (Binntal) actors, respectively. Except for one actor (a representative of the national parliament who lives in one of the two region and has personally committed herself very strongly to the park project in her home region), the actors in this study are corporate actors (Coleman 1974). Thus, the actors represent associations, interest groups, organizations and administrative units of the public administrations (see actor lists in the Appendix).

Each actor received a questionnaire per regular mail and was asked to fill it out within three weeks and then send it back to us using a prepaid envelope. The mail survey had the advantage of interviewing the whole population of the network (and not just a sample) with a limited expenditure of time for both researchers (1 student per region) and interviewees (10 to 15 minutes to fill out the questionnaire). Certainly, written surveys have some significant drawbacks. The biggest disadvantage is that the researcher has hardly any control over the data generating process. Although we

asked the actors to indicate who filled out the questionnaire, we cannot be absolutely certain that the person who was in charge of interacting with other actors in the network also answered our questionnaire. We also have to base our interpretation of the data on the (suboptimal) assumption that every interviewee interpreted our questions in a similar way, thus, having a similar understanding of crucial concepts such as influence, role, collaboration, cooperation, conflict, and information exchange.

In the questionnaire, we first asked the actors about the reputation of the other actors in the network in terms of their influence on the setup of the park project. We also asked them to indicate actors that played no role in the process at all to later exclude them from the analysis if they proved to be irrelevant. Then, the actors were asked to point out their cooperative and conflictive relations with other actors in the network based on their interactions with these actors during the initiation of the project. We also asked them if the close collaboration ties they indicated are new (that is, have been established during setup of the park project for the first time) or had already existed before. Furthermore, actors were asked to name their main providers of information and also the targets of their own information activities. Finally, actors where asked about their opinion on how well they think their interests are represented in the current outline of the park project and how they asses the contribution of the park project to an improvement of ecological, economic and social conditions in the region.

For a postal survey, the response rate was very good (compare Fowler 2008). For the Thal project, 32 out of the 36 contacted actors responded (89 percent). In the survey on the Binntal project, 25 of the 38 questionnaires were answered (66 percent). Table 1 below shows that some systematic patterns in the non-responses can be observed. In the case of Binntal only 60 percent from the actors at the national and local level decided to take part in the survey, whereas as all of the contacted regional and cantonal actors responded. In the second case study of Thal, the only non-responses occurred at the local level. The 100 percent response rate at the regional and cantonal level in both cases clearly indicates the strong interest of the two cantons of the two park projects in such a project. The lower (but still rather high) response rate at the local level could have several reasons. Firstly, the local actors in the two networks have a more diverse background in terms of their type of activity. Some of these actors are private business owners or representatives of local trade organizations, which are usually less willing to devote their costly time to participating in such a survey than representatives of public administrations and non-profit organizations. Secondly, non-response could also be an indication for an overall negative position or lack of interest toward the project. It can be assumed that conflictive positions toward the project are more frequent at the local level than at upper governmental levels because the project affects the actors more specifically and more immediately. Thirdly, and specifically in the Binntal case study, the response-rate of the different working groups associated with the park project was relatively low. This low turnout could be due to the fact that several actors organized in these working groups represent also individual actors in the network and, thus, responded to the survey individually but not on behalf of the working group.

Table 1: Response Rate per Level and Sector

Response Rate		Binntal	Thal
Level	National	3/5 (60%)	5/5 (100%)
	Regional	6/6 (100%)	10/10 (100%)
	Local	16/27 (60%)	17/21 (81%)
Sector	Use	10/17 (59%)	12/14 (86%)
	Mixed	13/17 (76%)	16/18 (89%)
	Protection	2/4 (50%)	4/4 (100%)
Total	Absolute	25/38	32/36
	Percentage	(66%)	(89%)

When the non-responses are broken down to different types of interests (mainly economic interests in terms of using natural resources vs. interests mainly targeted at the protection of these resources), the picture is less clear. In both surveys, actors with mixed interests (both use and protection) had the biggest turnout. Surprisingly, representatives of user interests (mostly private business representatives) show a relatively good response rate whereas ecological interests are rather underrepresented in the Binntal case study.

4.3 Network Analysis

Figure 1 and 2 below display a graphical representation of the two collaboration networks of the RNP projects in the regions of Binntal (Valais) and Thal (Solothurn). The red colored actors are the actors from the core network that consists of close collaboration ties between the respective actors. A close collaboration between two actors exists when both actors confirmed that they have closely coordinated their activities with each other during setting up the park project in the region. The blue colored actors around the network core include the wider range of the network with actors that have unconfirmed close collaborations with other actors in the overall network. Unconfirmed collaboration ties in the networks result from actors that have indicated close collaborations with other actors in the network but the respective others have not reciprocated these collaborative ties. The shapes of the nodes in the two networks indicate the governmental levels of the different actors: circles are local actors, squares indicate regional or cantonal actors, up triangles represent federal/national actors.

Figure 1: Collaboration Network RNP Project Binntal (VS)

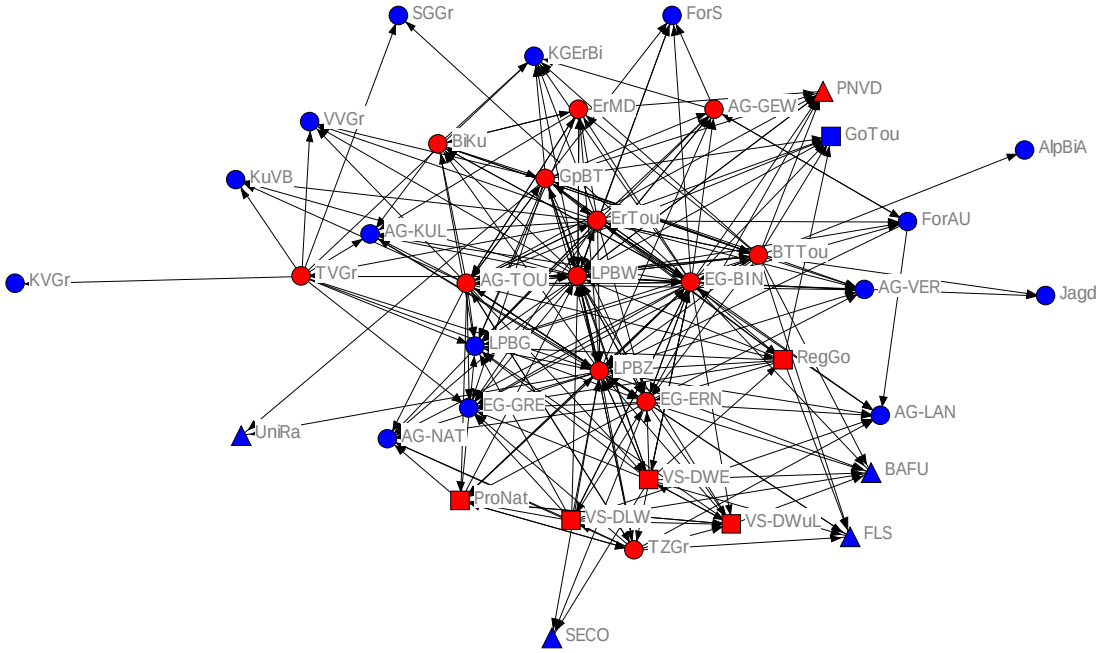
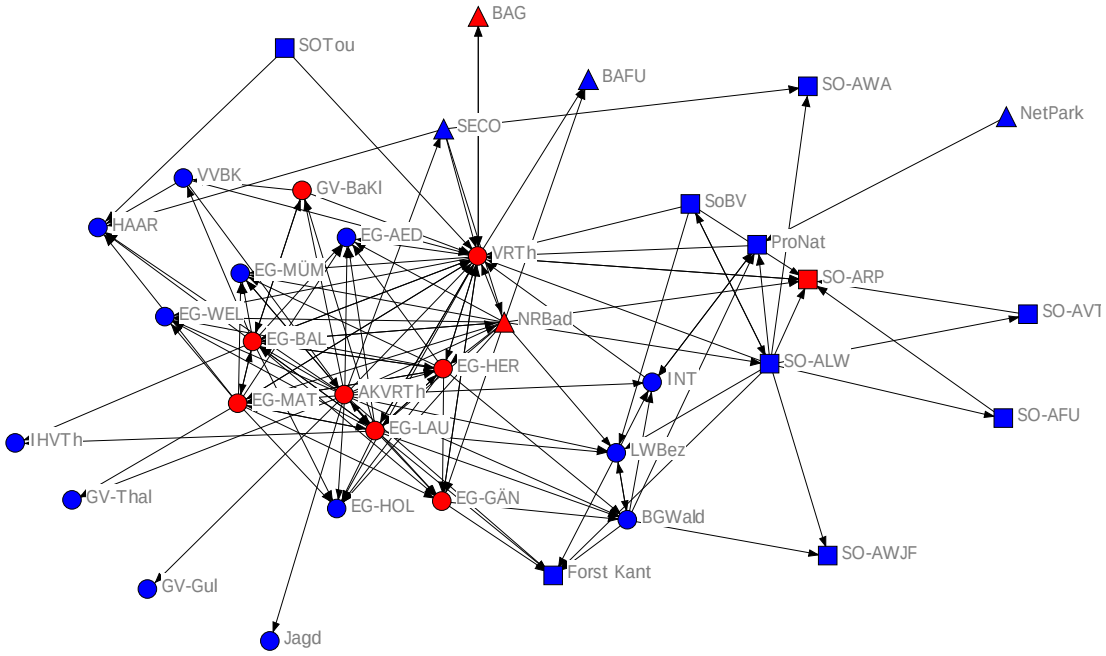


Figure 2: Collaboration Network RNP Project Thal (SO)



The involvement of the different actor categories in the two park networks shows both similarities and differences between the two case studies (Table 2). Regarding the different involved governmental levels, the local level represents—unsurprisingly—the level with the highest number of actors. In both cases, around three quarters of all the actors in the network are local actors. Regional, cantonal and national actors account for the remaining actors in the overall network of the two park projects. Also concerning the different societal sectors involved in the two projects, the two park projects are quite similar. In the following, the sectors will be distinguished whether actors mainly represent economic development interests, environ-

mental protection interests, or whether they are indifferent toward these two main type of policy interests. The biggest share in both networks have actors that can be categorized as having both user and protection objectives (or are indifferent, as it is the case, e.g., for many of the cultural organizations). Around half of the actors in the two overall actors are from this category. User interests (mostly from the tourist and agricultural sectors as well as local businesses) are also well represented in both networks. Predominantly ecologically oriented actors (environmental agencies and organizations) are clearly outnumbered in both networks.

Table 2: Vertical and Horizontal Actor Involvement

Actor Involvement		**Binntal**		**Thal**	
		Overall	Core	Overall	Core
Level	National	5 (13%)	1 (5%)	5 (14%)	2 (18%)
	Regional/Cantonal	6 (16%)	4 (21%)	10 (28%)	1 (9%)
	Local	27 (71%)	14 (74%)	21 (58%)	8 (72%)
Sector	Mainly Use (Econ.)	17 (45%)	7 (37%)	14 (39%)	1 (9%)
	Use and Protection	17 (45%)	11 (58%)	18 (50%)	10 (91%)
	Mainly Protection (Ecolog.)	4 (10%)	1 (5%)	4 (11%)	0 (0%)
Total	Absolute	38	19	36	11
	Percentage	(100%)	(100%)	(100%)	(100%)

The relationship between the different actor categories changes when only the core of the network with close collaborations between the actors is considered. In the Binntal park project, the proportion between the different actor categories remains almost the same in the network of close collaborations as in the overall network. Close collaborations in the Thal park project almost exclusively included public actors with both economic and ecological (or indifferent) objectives from the different governmental levels. The only purely private actor involved is the local business association.

The analysis of the different degrees of actor involvement across different governmental levels and societal sectors reveals that the two park networks are actually rather homogenous. In particular the project in the Thal region is strongly dominated by the administrations of the local municipalities and coordinated by a private but mainly publicly financed committee ("Verein Region Thal," VRTh). The Binntal project has a broader base and managed better to incorporate the local tourism and cultural organizations. At the cantonal level, the Thal project was mainly coordinated by one public agency, the cantonal office for spatial planning (SO-ARP). In the case of the Binntal project, the cantonal offices for the economic development (VS-DWE), agriculture (VS-DLW) and forest and lanscape (VS-DWuL) were rather closely involved.

To assess the effect of the park project on the cohesion between the different levels and sectors, we have to take into account the tie strengths between the different levels and sectors, respectively, before and after the initiation of the park project. Although the survey in each region was carried out at only one point in time, we

asked the actors in the questionnaire whether their collaborative ties had been established already before the park project was initiated or not. The answers to this specification of the collaborative ties in the network will now be taken as a proxy for a time point before and after the initiation of the park project in the region. For the Binntal RNP project, the analysis shows that the park project has increased significantly the cohesion among local actors. The number of ties between these actors increased from 20 to 62 collaborative connections (Table 3). Only two new collaborative ties from the local to the national level could be newly established with the project (with the federal offices for the environment and economic affairs). With regard to collaborative ties across different sectors, the park project mostly strengthened the ties between the park organization, the municipalities, and local tourism and cultural organizations (Table 4).

Table 3: Tie Strengths between Administrative Levels, Binntal (close cooperation)

	Ties established before project				Ties established with project		
	Local	Regional	National		Local	Regional	National
Local	20	3	1	Local	62	3	3
Regional	3	0	1	Regional	3	2	1
National	1	1	0	National	3	1	0

Table 4: Tie Strengths between Sectors, Binntal (close cooperation)

	Ties established with Project				Ties established with project		
	Use	Mixed	Protect.		Use	Mixed	Protect.
Use	0	7	0	Use	6	19	0
Mixed	7	12	2	Mixed	19	28	3
Protect.	0	2	0	Protect.	0	3	0

In the RNP project of Thal, all the actors with close collaborative ties with each other indicated that these ties had already been established before the start of the park project in the region. As a consequence, no effect of the park project on the cohesion between the different administrative levels and sectors, respectively, can be observed in this particular case. Instead, Table 5 pinpoints again the strong local anchoring of the RNP project in this region and the dominance of the local municipalities pursuing both economic and ecological objectives with the regional park project.

Table 5: Tie Strengths between Levels and Sectors, Thal

	Ties established with Project				Ties established with project		
	Local	Regional	National		Use	Mixed	Protect.
Local	26	1	2	Use	0	1	0
Regional	1	0	0	Mixed	1	30	0
National	2	0	0	Protect.	0	0	0

In addition to tie strengths, other network indicators are useful to further assess the quality of network cohesion in the two RNP projects. Table 6 below provides for the two park projects different indicators for particular forms of network cohesion as introduced above. The level of closure in a network describes the degree to which everyone is connected to everyone else in the network. One first measurement to look at is the density of collaborative ties between the actors in the two park projects and how it has changed with the RNP project. The data shows that both regional networks become slightly denser with the introduction of the project. In the case of the Binntal

project, the network density increased while the number of actors included in the overall network remained stable. In the Thal project, the network density remained nearly the same with a slight increase in the number of actors involved in the overall network. However, the network densities can hardly be compared between the two park projects because they highly depend on the size of the networks (Scott 2000: 74). Because higher densities in larger networks are generally more difficult to achieve, smaller networks usually show higher densities than bigger networks. But, as Table 6 shows, the opposite is actually the case for the two RNP projects under investigation. The Binntal project shows a higher density than the Thal project even though more actors have been involved in Binntal. This is a clear indication that collaborative ties between the actors have intensified more in the Binntal project than in the Thal project.

Reciprocity and transitivity are often seen as indicators for stability and institutionalization of actor positions in a network. The level of reciprocity describes the degree of which an actor has reciprocated connections to other actors (Wasserman and Faust 1994: Chapter 13). Transitivity is another essential feature of most social networks (Wasserman and Faust 1994: Chapter 6). It describes the tendency in networks that a triad with two paths tends to be closed ('friends of friends become friends' or, in a collaboration network, 'partners of partners become partners'). When these two indicators are compared between the two RNP projects, two different processes of network closure can be observed. In the Binntal region, both reciprocity and transitivity between the different actors in the network increased with the establishment of the park projects. The park project thus not only intensified the collaborative connections between the actors but also stabilized these relations.

Table 6: Network Closure

	Actors		Density		Reciprocity		Transitivity		3-Cliques	
	Est.	Proj.	Est.	Proj	Est.	Proj	Est.	Proj.	Est.	Proj.
Binntal	38	38	0.11	0.17	0.10	0.18	0.11	0.18	4	7
Thal	34	37	0.10	0.11	0.17	0.15	0.17	0.26	1	1

In the Thal project, on the other hand, the share of reciprocated ties remained quite stable while the degree of transitivity increased. A closer investigation of the data reveals that this increase in transitive ties occurred in the wider collaboration network of the project but not in the network core of closely collaborating actors. This observation demonstrates again how the Thal project was widely shaped by a core group of closely collaborating actors consisting of the park project organization and the municipalities of the region. This core group of actors showed a high degree of cohesion and closure already before the initiation of the RNP project and remained very stable throughout the elaboration of the project. The Binntal project, on the other hand, included a wider circle of actors in the core of the network with closely collaborative ties among them, resulting in a higher degree of cohesion and patterns of network closure within the whole park project. A clique analysis confirms these findings. Whereas the Thal project consists of only one clique in the center of the network where everybody is connected to everybody else, the Binntal project increased the number of these cohesive subgroups significantly with the initiation of the park project in the region.

5 Conclusion

The network analysis of the two RNP projects in the regions of Binntal and Thal reveals that the projects showed different effects on the collaboration structure between the different actors in the region. In the Binntal region, the park project led to a higher cohesion of a formerly quite heterogeneous and rather loosely connected actor network at the local level. The density of closely collaborative ties among local actors increased significantly. And the collaboration between these actors also became more stable as the reciprocity and transitivity of these ties increased. With regard to collaboration across different sectors, the park project mostly strengthened the ties between the park organization, the municipalities, and local tourism and cultural organizations. In the Thal region, the picture is quite different. All the actors that have collaborated closely with each other during the setting up of the park project had close ties already before the project was initiated. As a consequence, the RNP project in the Thal region contributed little to the cohesion of the local actor network; it had already been highly cohesive. The Thal project was initiated and carried out by a core of closely collaborating actors consisting of the park project organization and the municipalities of the region. In both regions, however, the RNP strengthened the connections between the local, cantonal and federal governmental levels. But horizontal coordination between different societal sectors still remains challenging. Mostly the local municipalities (expecting additional financial support for the region from the federal government) and local tourist organizations (hoping for positive effects of the project on the local and regional tourism sector) have shaped the projects in the two regions. In both regions, local business organizations and environmental organizations were comparatively rather weakly involved.

These results indicate that the Swiss park policy shows first positive effects on the cohesion within a region and contributed to closer collaborative structures between the different governmental levels. Social Network Analysis proved to provide useful concepts and techniques to analyze these processes. However, to what extent the RNP projects will contribute to an enhanced sustainable development in the two regions remains to be seen. The park policy is only one element of regional and environmental policies that have to objective to work toward sustainable regional development, in addition to simultaneously existing policies such as regional policies, financial compensations and subsidies for different sectors, environment protection regulations, etc. Furthermore, there are many factors such policies can hardly influence due to overall ecological, economic and socio-cultural developments. But in addition to establishing an welcomed additional channel for federal aid money for these regions, RNP projects have the potential to strengthen the cohesion of rural areas as this study has shown. From a perspective of network theory, processes of network closure may contribute to an enhanced sustainable development in the region by fostering a normative environment that facilitates cooperation across different societal sectors with diverging interests and objectives (Coleman 1988).

On the same time, rural areas with their often very localized and cohesive social structures should be extremely cautious that these structures do not get antiquated and inflexible to adjust to new developments originating from the outside of the region. As the studies of Burt (1982; 1992) have shown, cohesive network ties can be a source of rigidity that hinders coordination of complex organizational tasks. Thus, the theories of Coleman (1988; Coleman 1990) and Burt (1982; 1992) actually

lead to opposite perditions on how network structures may affect a network's ability to adapt to significant changes in its environment. In setting up the RNP projects in the two regions, Coleman's argument of the positive effect of cohesive actor structures seems to have improved the prospects for regional sustainable development in the two regions. However, in a later stage of the project when the regional park has been established, its seems crucial that the responsible actors enlarge again their network ties to a wider set of actors from different sectors and governmental levels to ensure the project's (and eventually the whole region's) adaptiveness to new socio-economic and ecological developments within and outside the region.

6 Appendix

Actor list RNP Binntal (Response rate 25/38 = 66%)

Acronym	Actor	Level	Sector
AG-GEW	Arbeitsgruppe (Holz-)Gewerbe	1	1
AG-KUL	Arbeitsgruppe Kultur	1	2
AG-LAN	Arbeitsgruppe Landwirtschaft	1	1
AG-NAT	Arbeitsgruppe Natur	1	3
AG-TOU	Arbeitsgruppe Tourismus	1	1
AG-VER	Arbeitsgruppe Verkehr	1	1
AlpBiA	Alpgenossenschaft Binner Alpen	1	1
BAFU	Bundesamt für Umwelt BAFU	3	3
BiKu	Binn Kultur	1	2
BTTou	Binntal Tourismus	1	1
EG-BIN	Einwohnergemeinde Binn	1	2
EG-ERN	Einwohnergemeinde Ernen	1	2
EG-GRE	Einwohnergemeinde Grengiols	1	2
ErMD	Ernen Musikdorf	1	1
ErTou	Ernen Tourismus	1	1
FLS	Fond Landschaft Schweiz	3	3
ForAU	Forstrevier Aletsch Untergoms	1	2
ForS	Forstrevier Schattenseite	1	2
GoTou	Goms Tourismus	2	1
GpBT	Genossenschaft pro Binntal	1	2
Jagd	Jagdverein Mässersee	1	1
KGErBi	Konsumgenossenschaft Ernen – Binn	1	1
KuVB	Kulturverein Bergland	1	2
KVGr	Konsumverein Grengiols	1	1
LPBW	Landschaftspark Binntal Geschäftsführer Stv.	1	2
LPBZ	Landschaftspark Binntal Geschäftsführer	1	2
PNVD	Parco Naturale Veglia - Devero	3	2
ProNat	Pro Natura Wallis	2	3
RegGo	Region Goms	2	2
SECO	Staatssekretariat für Wirtschaft SECO	3	1
SGGr	Sennereigenossenschaft Grengiols	1	1
TVGr	Theaterverein Grengiola	1	2
TZGr	Tulpenzunft Grengiols	1	2
UniRa	Universität Rapperswil: Landschaftsarchitektur	3	2
VS-DLW	Dienststelle für Landwirtschaft (Kt. VS)	2	1
VS-DWE	Dienststelle der Wirtschaftsentwicklung (Kt. VS)	2	1
VS-DWuL	Dienststelle für Wald und Landschaft (Kt. VS)	2	2
VVGr	Verkehrsverein Grengiols	1	1

= non-response

Actor list RNP Thal (Response rate 32/36 = 89%)

Acronym	Actor	Level	Sector
AKVRTh	Arbeitsgruppe Kultur Verein Region Thal	1	2
BAFU	Bundesamt für Umwelt	3	3
BAG	Bundesamt für Gesundheit	3	2
BGWald	Bürgergemeinden- und Waldeigentümerverband Thal	1	1
EG-AED	Einwohnergemeinde Aedermannsdorf	1	2
EG-BAL	Einwohnergemeinde Balsthal	1	2
EG-GÄN	Einwohnergemeinde Gänsbrunnen	1	2
EG-HER	Einwohnergemeinde Herbetswil	1	2
EG-HOL	Einwohnergemeinde Holderbank	1	2
EG-LAU	Einwohnergemeinde Laupersdorf	1	2
EG-MAT	Einwohnergemeinde Matzendorf	1	2
EG-MÜM	Einwohnergemeinde Mümliswil-Ramiswil	1	2
EG-WEL	Einwohnergemeinde Welschenrohr	1	2
Forst Kant	Kreisforstamt Thal	2	2
GV-BaKl	Gewerbeverein Balsthal-Klus	1	1
GV-Gul	Gewerbeverein Guldental	1	1
GV-Thal	Gewerbeverein Thal	1	1
HAAR	Museum HAARUNDKAMM	1	2
IHVTh	Industrie- und Handelsverein Thal-Gäu-Bipperamt	1	1
INT	Interessengemeinschaft Naturschutz Thal	1	3
Jagd	Vereinigung Thaler Jagdgesellschaften	1	1
LWBez	Landwirtschaftlicher Bezirksverein	1	1
NetPark	Netzwerk der Schweizer Pärke	3	2
NRBad	Nationalrätin Elvira Bader	3	2
ProNat	Pro Natura Solothurn	2	3
SECO	Staatssekretariat für Wirtschaft	3	1
SO-AFU	Amt für Umwelt Kanton SO	2	3
SO-ALW	Amt für Landwirtschaft Kanton SO	2	1
SO-ARP	Amt für Raumplanung Kanton SO	2	2
SO-AVT	Amt für Verkehr und Tiefbau Kanton SO	2	1
SO-AWA	Amt für Wirtschaft und Arbeit Kanton SO	2	1
SO-AWJF	Amt für Wald, Jagd und Fischerei Kanton SO	2	2
SoBV	Solothurner Bauernverband	2	1
SOTou	Kanton Solothurn Tourismus	2	1
VRTh	Verein Region Thal	1	1
VVBK	Verkehrs- und Verschönerungsverein Balsthal-Klus	1	2

= non-response

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