

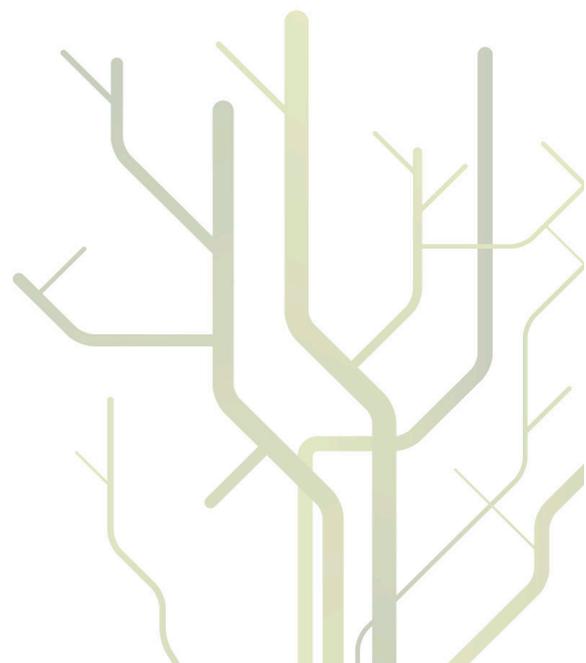
The Governance of Sami Reindeer Husbandry in Norway: Institutional Challenges of Co-Management



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Tromsø, February 16th, 2012

Birgitte Ulvevadet

Sammendrag

Denne avhandlingen er en kvalitativ studie av forvaltningen av norsk reindrift. Målet med forvaltningen av reindriften i Norge er å oppnå en økologisk, økonomisk, og kulturelt bærekraftig reindrift. Disse målene har blitt forsøkt oppnådd gjennom et governance system fordi myndighetene har erkjent at det å inkludere ressursbrukere i forvaltningsmessige beslutningsprosesser skaper en mer rettmessig forvaltningspolitikk. For å øke medvirkningen til ressursbrukere har norske myndigheter iverksatt to ulike forvaltningsmodeller i reindriften. På den ene siden er det innført et korporativt system hvor utvalgte reineiere representerer reindriften i de årlige forhandlingene med myndighetene. I disse forhandlingene blir det økonomiske grunnlaget for reindriften lagt gjennom ulike subsidieordninger. På den andre siden er det iverksatt et medforvaltningssystem hvor reineiere er representert i styrer på lokalt, regionalt og nasjonalt nivå. Staten har også delegert en rekke forvaltningsgjøremål til disse styrene. Medforvaltningssystemet utgjør fire nivåer; de to øverste nivåene består av styremedlemmer (både reineiere og andre) som er politisk valgt og dermed tar politiske beslutninger. De to lavere nivåene, på det lokale plan, har kun reineiere som styremedlemmer.

Det har vært vanskelig for myndighetene å få et så stort og komplekst forvaltningssystem til å fungere slik det var planlagt og det har vært utfordringer på flere hold. Det er mange grupper som skal være med i forvaltningen, både reindriftssamer og representanter fra andre næringer som har interesser i de samme områdene som reineierne bruker. I denne prosessen har noen grupper fått mer makt enn andre og dette har satt sitt preg på forvaltningssystemet. I styrer, for eksempel, så ser man at noen grupper ender opp i mindretall og på den måten alltid "taper" sine saker. Reindriftens næringsorganisasjon, Norges Reindriftssamers landsforbund (NRL), har fått en relativt sterk posisjon i forvaltningen av reindriftsnæringen. NRL har både monopol på forhandlingsrett med staten i det korporative systemet og en lovfestet rett til å foreslå kandidater til medforvaltningsstyrene, som på sin side blir formelt oppnevnt av Fylkestinget, Sametinget og Landbruks- og matdepartementet (LMD). I loven står det at NRLs forslag til kandidater bør følges så langt dette er mulig. Naturlig nok så foreslår NRL alltid egne medlemmer. På denne måten er NRL med på å utforme subsidiesystemet for reindriftsnæringen og NRL sine medlemmer er med på å forme og implementere politikk gjennom medforvaltningsstyrene. For NRL sine medlemmer er dette positivt, for en del

ikke-medlemmer blir denne ordningen naturlig nok ikke betraktet som hensiktsmessig for deres interesser.

Subsidiesystemet har vært forhandlet frem mellom LMD og NRL i over 30 år. Målet med subsidiesystemet har vært å oppnå en økologisk, økonomisk og kulturell bærekraftig reindrift. For Finnmarks vedkommende, som sliter med et for høyt reintall, er formålet med subsidiesystemet å kompensere økonomisk for en reduksjon i reintallet. Mye av reindriftspolitikken dreier seg om Finnmark, men 75% av reindriften i Norge drives også i Finnmark. I store deler av Finnmark har subsidiesystemet ikke fungert etter intensjonen. Intensjonen med subsidiesystemet er at reieneierne blir belønnet for å slakte mange rein. På denne måten kan reintallet reduseres samtidig som at reieneierne kompenseres for dette tapet gjennom å motta subsidier. Det motsatte har skjedd. Reieneierne øker reintallet, fordi flere rein betyr høyere inntekt fra både salg av kjøtt og subsidieordningen. Grunnen til at dette skjer er at subsidiene er knyttet til inntekt fra kjøttproduksjon. Høyere inntekt fra kjøttproduksjon gir mer subsidier. Målet om høyere økonomisk inntjening (økonomisk bærekraft) søkes oppnådd gjennom subsidieordningen. Målet om en økologisk bærekraftig reindrift søkes oppnådd gjennom både subsidieordningen og lovverket. Lovverket ble revidert i 1996 og erstattet med ny lov i 2007. I dag, 5 år etter at loven trådte i kraft, er situasjonen like vanskelig.

Avhandlingen tar utgangspunkt i disse prosessene, og diskuterer dem i lys av teorier om medforvaltning, governance, og forvaltning av naturressurser generelt. Avhandlingen konkluderer med at det er vanskelig å løse til dels store økologiske og økonomiske problemer i næringen dersom en ikke gjennomfører endringer i forvaltningen av næringen.

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1. Abstract

The goals for the management of reindeer husbandry in Norway are multifaceted and include ecological, economic and cultural sustainability. To achieve sustainability, a corporative system and a co-management system have been developed to establish a power-sharing agreement between the state at the central level and resource users at the local level. Together, these two systems are referred to as the governance system.

This governance system is a rather comprehensive and complex multi-level system in which many different institutions participate at various administrative levels. Power is difficult to share in ways that please everyone involved. For various reasons, some institutions are granted more power than others; thus, some interests are more strongly represented in the governance system. Represented by the Ministry of Agriculture and Food (MAF), the state has, for example, shared more power with the Sami Reindeer Herders' Association of Norway (NRL) than other institutions by giving the NRL the sole right to negotiate on behalf of Sami pastoralists. The state/MAF has also shared power with the NRL in the co-management system. Specifically, the NRL has been granted a statutory right to nominate members to the co-management boards. In practice, this power has enabled these two agents to play a central role in most efforts to achieve ecological and economic sustainability.

With the recent law revision in 2007, more authority has been devolved to local boards. These boards are now responsible for creating their own rules for using pastures, allocating pasture areas, achieving a sustainable number of reindeer in each district and settling numerous other issues that are important for reindeer husbandry. However, the creation of these rules is more challenging for the two largest reindeer husbandry areas in Finnmark, as many Sami pastoralists in Finnmark struggle with an excessive number of reindeer, low weights and degraded pastures (Bråthen 1997; Tverraa, 1997; Hausner *et al.*, 2012). The pastoralists are thus tasked with resolving these difficult issues amongst themselves.

Because natural resources are affected by various shifting social and ecological conditions, adaptive management systems that address change and uncertainty are important. In practice, rapid adaptation to shifting conditions is usually difficult to achieve because the management of natural resources is firmly regulated by laws and

formal rules. Although the governance system of reindeer husbandry has experienced some changes over the years, these changes have been relatively incremental. Only slight modifications have occurred in the last 20 years, perhaps because important stakeholders from the industry itself, notably the NRL, have shown little interest in making changes. The NRL has yet to propose any major changes to the reindeer husbandry incentive system, which, in practice, is the primary policy instrument for achieving the important goals of ecological and economic sustainability. In addition, the efforts of the co-management boards at the regional level – the Area Board – have been characterized by internal power struggles rather than attempts to determine optimal solutions for critical problems. The state/MAF has been well aware of these difficulties in the governance system, especially in the co-management system, and has recently proposed the abolishment of the Area Board system. I conclude that the lack of capacity in the governance system to help achieving the sustainability goals is due to the asymmetric relationship between the corporative system and the co-management system. In practice, this has resulted in weak regulations and the use of incentive-based mechanisms as the dominant policy instruments. I therefore argue that a revision of the governance system is necessary if devolution is to work as intended

2. List of papers

Paper #1:

Ulvevadet, B. 2008. Management of reindeer husbandry in Norway – power-sharing and participation. *Rangifer*, 28(1), 53-78

Paper #2:

Ulvevadet, B. 2011. Problems and challenges for user participation: The system of user participation in reindeer husbandry in Norway. *Rangifer*, 31(1), 161-182

Paper #3:

Ulvevadet, B., and Hausner, V. H. 2011. Incentives and regulations to reconcile conservation and development: Thirty years of governance of the Sami pastoral ecosystem in Finnmark, Norway. *Journal of Environmental Management* 92 (2011), 2794-2802.

Paper #4

Hausner, V. H., Fauchald, P., Tveraa, T., Pedersen, E., Jernsletten, J. L., Ulvevadet, B., Ims, R. A., Yoccoz, N. G., and Bråthen, K. A. 2011. The ghost of development past: The impact of economic security policies on Saami pastoral ecosystems. *Ecology and Society* 16(3):4.

3. Introduction

The effects of institutional arrangements, state management systems, and the sustainability of natural resources are central themes in current environmental research (Sandstöm and Rova, 2010). Research in these areas also reflects the global political agenda of the United Nations (UN). “Sustainable development” is a global and political concept that has appeared within the UN framework. The most powerful manifestation of sustainable development thus far is the Rio Declaration, which is better known as Agenda 21. Agenda 21 emphasizes the local level and calls upon local communities to formulate and implement action plans for sustainable development in collaboration with local stakeholders (United Nations, 1992; Dresner, 2004; 2005; Häikiö, 2007:2148; Elbakidze *et al.*, 2010). This bottom-up approach identifies and emphasizes the roles of citizens, communities and non-governmental organizations as key actors in global processes that aim to encourage sustainable development (Dresner, 2004:41; Borgerhoff Mulder and Coppolillo, 2005). This “grassroots” approach is consistent with other developments; a growing number of social scientists share the perception that political systems are being transformed from hierarchically organized, unitary systems into more horizontally organized and more fragmented systems of governance (Pierre and Peters, 2000; Agrawal and Lemos, 2007:38-39; Kooiman *et al.*, 2005; Armitage *et al.*, 2007:7; Häikiö, 2007; Brondizio *et al.*, 2007; Chuenpagdee and Jentoft, 2009).

The major goal of this thesis is to contribute to the literature with respect to natural resources governance systems and to the challenges inherent in implementing adaptive co-management systems. This project focuses on the governance system of reindeer husbandry in Norway, which has expanded on negotiated agreements and co-management boards over the course of more than 30 years. Reindeer husbandry is an exclusive right for the Sami indigenous people and is practiced on approximately 45 percent of the Norwegian land surface (Reindrifftsforvaltningen, 2010: 28, 59; Kalstad, 1999; Riseth, 2000). Currently, approximately 3,100 Sami pastoralists own approximately 240,000 reindeer¹. The management of reindeer husbandry has evolved over the course of several decades. An extensive governance reform was introduced

¹ In paper #1, the term *reindeer owners* is used, whereas the term *Sami pastoralists* is used in papers #2, #3, and #4. As the project developed, I made this adjustment because I found that the term *Sami pastoralists* was more suitable for the explanations in these papers than *reindeer owners*.

in the mid-1970s. This reform had two core elements: (1) a main agreement regarding the industry in 1976 and (2) the implementation of a co-management system in the new reindeer husbandry law of 1978 (Paper #1) (Kalstad, 1999; Riseth, 2000: 4). The aims of the governance reform included the following: (1) sustainable resource use, (2) secure income and living conditions for the Sami pastoralists, (3) ensure property rights for the Sami pastoralists and (4) the maintenance of reindeer husbandry as a part of the Sami culture (Landbruksdepartementet, 1992:68; Kalstad, 1999; Riseth, 2000).

The main goal is to achieve “sustainable reindeer husbandry”. The general goal of sustainability is divided into ecological, economic and cultural sustainability. These forms of sustainability are strongly connected. Ecological sustainability is often considered the foundation of economic sustainability, and the achievement of these two goals can ensure the sustainability of Sami culture. However, internal antagonism among these three sub-goals may exist. The sustainability of the culture demands a sufficient number of pastoralists in the industry. Economic sustainability presupposes sufficient income to ensure that the pastoralists have secure livelihoods. However, income is largely connected to the number of reindeer. If an increase in the number of reindeer exceeds the carrying capacity of the available pastures, then ecological sustainability may not be feasible. Moreover, if the total income must be distributed among an excessive number of pastoralists, then living conditions, which depend on the economic sustainability of the industry, will decline. In addition, because the availability of pastures is limited, the future development of reindeer husbandry is also limited. Because economic and cultural sustainability depends on ecological sustainability, ecological sustainability becomes the most central and prioritized goal (Meld. St. 9 (2011-2012)).

The legal rights to resource use and the rules under which these rights are exercised are used to control the manner in which people use the environment and the interactions among these people. Therefore, the design of institutions will influence the relationship and cooperation between people and the natural environment (Berkes, 1996; Hanna *et al.*, 1996). Co-management has been considered a means of ensuring the cooperation and involvement of resource users in solutions to resource management problems (see paper #1 pp. 58 for a more specific definition of co-

management). Cooperation among resource users and partnership arrangements involving resource users and the state are essential elements of co-management. It is nearly impossible for local users alone to manage most of the natural resources in the modern world. However, a large amount of evidence suggests that the centralized management of local resources is problematic (Borgerhoff Mulder and Coppolillo, 2005; Calsson and Berkes, 2005; Armitage *et al.*, 2007) because a central government is located far away (often in both physical and administrative respects) from the areas in which problems occur. Additionally, centralized management institutions lack the local-level knowledge that is needed to obtain a better fit between management institutions and social and natural systems (Young, 2002).

The two most important natural resources for Sami pastoralists are reindeer and pastures. Reindeer are private property, and pastures are common properties. Thus, internal rules and external laws that coordinate the use of pastures in a sustainable manner are necessary (Reindrifftsforvaltningen, 2010; Riseth, 2000). The reindeer husbandry industry has been managed with a three-level co-management arrangement from 1978 to 2007 and a four-level system since 2007 (Paper #1). The two subsystems, the co-management and corporative systems, are referred to as the governance system in this thesis. The corporative system was implemented in 1976 when the Norwegian state initiated negotiations with the interest organization of the reindeer husbandry industry; Sami Reindeer Herders' Association of Norway (NRL). The two parties negotiated a General Agreement for Reindeer Husbandry² and subsequently negotiated economic policies for the industry based on this agreement (Papers #1 and #3) (Landbruksdepartementet, 1992; Kalstad, 1998; Riseth, 2003) (see paper #3 pp. 2795 for a more specific definition of governance) (For a figure depicting the governance system, see, fig. 3 pp. 2797 in paper #3).

The co-management boards are responsible for sustainability policies that, for example, allocate pasture areas, determine the number of reindeer, and recruit people to the industry (Papers #1 and #2). Because these boards are given a large amount of

² This concept is referred to as the reindeer husbandry agreement in paper #1 and as an agreement in paper #2. Both of these terms refer to the General Agreement for Reindeer Husbandry.

political autonomy³, they play a central role in policy formulation and implementation (paper #3). The legitimacy of the decisions of these co-management boards is a frequent topic of discussion (Papers #1 and #2). The General Agreement for Reindeer Husbandry and the Reindeer Husbandry Law are the two most important instruments for implementing the goals and guidelines for reindeer husbandry policies. The MAF and the NRL negotiate economic policies, including direct subsidies that have played a central role in attaining the dual goal of economic and ecological sustainability (Papers #3 and #4). These guidelines are designed in accordance with the text and intentions of the Reindeer Husbandry Law and the needs and challenges that the industry encounters in its daily activities (Paper #4). The corporative system and the co-management system are integrated via the provisions of the Reindeer Husbandry Law and must therefore be analyzed in tandem. Finally, because both natural systems and social systems undergo constant change, adaptive management is an important issue. In other words, the co-management system must be sufficiently flexible to adapt to new circumstances (Paper #3).

Following this introductory section, this thesis discusses and summarizes four appended papers. The introduction presents the relevant background information and the objectives of the study. The commonalities among these papers are also discussed in this section. The fourth section presents the research questions that have guided the study, and the fifth section introduces the analytical and methodological approach that is used in this study. The sixth section elaborates on the theoretical background of the study by discussing perspectives regarding the co-management, governance and management of common resources. The seventh section introduces the empirical field (*i.e.*, reindeer husbandry) of the analysis. The eighth section discusses the various aspects of co-management by emphasizing its complexity and governance within the field of reindeer husbandry. In this section, I pose some research questions that are

³ In paper #1, a Sami pastoralist who is a member of an Area Board and is appointed by the County Council alleges that many pastoralists feel committed to following the policies of the political party to which they belong when decisions in the Area Board are made because these pastoralists fear that they will not be re-elected otherwise. These pastoralists are referring to the type of behavior that contradicts the agreed-upon long-term goals for reindeer husbandry. In paper #2, several Sami pastoralists explain that they feel free to vote for the alternatives that they desire when decisions are made in the Area Board, but they also emphasize that this autonomy is limited by the reindeer husbandry law and other laws and regulations. Additionally, the pastoralists state that important long-term goals for the reindeer husbandry industry are of considerable value to them. Therefore, there are no contradictions between the findings in these two papers, but the circumstantial references differ between papers #1 and #2.

discussed in the appended papers. Therefore, I do not aim to answer all of these auxiliary questions in the introduction; rather, I aim to trigger scholarly interest in the appended papers. The ninth section of this paper discusses the results and focuses on the challenges of implementing co-management in the reindeer husbandry industry. Additionally, various issues that arise from attempts to meet political goals with the current governance system are dissected. Finally, the tenth section synthesizes the four appended papers.

4. Research questions

This thesis discusses policy instruments, co-management and governance in the reindeer husbandry industry as an integrated set of institutional mechanisms. It is not possible to view the co-management system as separate from the corporative system and the policy instruments/economic policies. The four central and interrelated research questions are as follows:

1. What is the role of the state/state agencies in co-management systems? (papers #1, #2, and #3)
2. How do power structures in governance systems impede the ability of the system to adapt to changing circumstances? (Papers #2, #3, and #4)
3. Can large and complex natural resource governance systems be adaptive and flexible, and what are the risks that such systems, which have many stakeholders, will become rigid? (Papers #2, #3, and #4)
4. Can the governance system and the social-ecological system harmoniously coexist, and does a broad collaboration between state and industry serve to accomplish its sustainability goals? (Papers #2, #3, and #4)

The idea of “power sharing” is important, as this concept provides a basis for including marginalized groups and other stakeholders in the management decision-making process. Ultimately, however, power and responsibility must be reorganized to enable resource users and other stakeholders to ensure that power sharing works in practice and not merely in theory. In this process, power should be shared between the state and the resource users and among different state agencies. Moreover, power should be attentive to the heterogeneity of resource users. Ensuring that this power-sharing agreement functions adequately is often a challenge because a multitude of

interests must pull in the same direction. In addition, these large and complex systems often have unintended effects that are impossible to anticipate and that may even be coincidental, as it is difficult to predict how these systems will unfold in reality. However, these unintended consequences may also arise as a result of interventions by powerful stakeholder groups who can take advantage of ambiguous situations and exert their own imprints on the governance system. For instance, power and networks could be used to decelerate ongoing adaptive management processes. This deceleration may have serious consequences because adaptability is important for the functioning of large and complex management systems. Adaptability is also important to the overall success of the governance system. However, in practice, adaptability is hindered by many factors, such as power struggles, difficulties related to eliciting cooperation from multiple actors at different levels, and the inherent rigidity of formal systems. As a result, the political economic system encounters severe problems adapting to changing socio-ecological circumstances. Consequently, “one size fits all” programs often arise.

5. Methodological perspectives

The methodological approach to a phenomenon imposes restrictions on and opens the way for the conclusions that one can infer based on the data (Ragin 1994) and must therefore be adjusted in accordance with the questions that one seeks to answer (Yin 1994; Yin 1999). The intention of this study is to capture the complex aspects of co-management and corporatism that are intertwined in a governance system of reindeer husbandry. Co-management and corporatism are multifaceted and composite phenomena that require a relatively deep grasp of policy instruments and multifaceted phenomena, such as power sharing, user-group participation, and implementation processes related to laws and regulations. The diversity of these phenomena suggests the need for a method that is both flexible and capable of capturing the many dimensions that one phenomenon may contain. Therefore, the case study method was used (Ragin 1994: 90). Case studies enable a researcher to devote a large amount of time to a relatively small number of subjects. By using case studies, a researcher can prioritize depth within a relatively narrow subject field over generalizability to populations. Consequently, this approach implies a trade-off between the representativeness and external validity of conclusions, as discussed below (Ragin 1994: 91).

The case studies are based on empirical data that were retrieved using three different sources and instruments: (A) the coding and reuse of existing research data and reports, (B) repeated measurements in the form of open-ended interviews in a fieldwork and telephone interview setting, and (C) repeated measurements in the form of semi-structured interviews in a fieldwork and telephone interview setting.

5.1 Research questions – case study approach

It is worth clarifying that this text uses the concept of “reindeer husbandry natural resource management”. This conceptualization is implemented to specify the overarching topic of the project: natural resource management systems in the empirical setting of Norwegian reindeer husbandry. Reindeer husbandry is embedded in a variety of public and private management systems, but this discussion is limited to natural resource management systems. Similarly, many natural resource management systems exist, but this project is limited to reindeer husbandry. In addition, many methodological options are available for studying the phenomenon in this project, but I have chosen to employ a case study approach because this approach will enable me to explore the interplay among the subsystems in greater depth.

5.1.1 The case study approach in this study

The case study approach was selected because this study aims to discuss the effects of the organization of natural resource management systems (Anderson et al. 2005; Gerring 2004; Yin 1992). Of course, this dissertation does not discuss all of the nearly infinite aspects of natural resource management. Rather, we illustrate the organization of this case study through the principles that are used to select the cases. First, the management of reindeer husbandry is the main *empirical* case that is discussed in this dissertation. At this point, limitations are already imposed on the external validity of the conclusions that are derived from the case. Other natural resource management systems, such as the natural resource management system of fisheries, are not discussed. By analogy, some of the findings from this study may be applicable to other natural resource management systems; however, such comparisons are not the purpose of this study, which focuses only on the natural resource management systems of the reindeer husbandry industry. The importance of this restriction in this setting relates to the fact that this paper is not a comparative study. Second, the

management of reindeer husbandry involves several aspects of the reindeer husbandry industry itself. Therefore, a variety of issues in the industry that are directly or indirectly related to the natural resource management system that is embedded in the industry could have been discussed as relevant to the *analytical* topic of the dissertation, *i.e.*, natural resource management.

In the reindeer husbandry context, the analytical topic of natural resource management systems encompasses several topics. Initially, we may consider a subset of these topics to be vertically integrated. These topics are related to how natural resource management systems are institutionally situated in time and history. Institutions develop over time, and current reindeer husbandry institutions have resulted from processes with deep historical roots. Another subset is horizontally integrated; these topics relate to the manner in which natural resource management systems in the reindeer husbandry industry are related to other ongoing processes, such as developments in the legal system, welfare policies, foreign policy and other sector developments. In sum, the relatively limited topic of reindeer husbandry natural resource management systems is integrated into a variety of historical and ongoing processes. Therefore, it was necessary to limit the number of topics in this project, and a specification of the analytical topic (*i.e.* research questions) has assisted in guiding the selection of cases.

The analytical topic of the project was power-sharing systems for public authorities and resource users in the Norwegian reindeer husbandry industry. Consequently, the project was limited to a subset of the larger topic of the reindeer husbandry natural resource management system. We focused only on the power-sharing mechanisms between public authorities and users in the natural resource management system. Thus, occurrences of power sharing between public authorities and resource users served as the main guide in selecting the empirical cases for the project. These cases were selected because they represent a setting for discussing theories of power sharing, such as co-management models. With respect to the division between the horizontal and vertical integration of the analytical topic, factors of both types were integrated into the project when they were found to be relevant to the focus of the project. In summary, the cases that are discussed in this project refer to incidents of

power sharing between public authorities and resource users that are empirically situated in the natural resource management of reindeer husbandry in Norway.

We conducted an in-depth investigation of one topic to identify the essential features of the specific empirical cases and gain insight into the key relationships among these features. To some extent, the ability to concentrate a project on a limited topic is the primary feature of case studies. Because of this concentration, the project becomes close to both the informants and the phenomenon under study. This feature is important and may be the main incentive for employing case studies in this particular context, in which the intention is to discuss various aspects of a complex natural resource management system. Because case studies enable a researcher to follow the various aspects of a management system, this project was able to pursue the complexity of the cases themselves. In addition, the case studies repeatedly return to the empirical cases. A researcher is familiar with some features of the social phenomenon under study before the data collection process begins in the sense that the researcher possesses a set of general concepts and constructs that he or she will apply when interpreting the data. These concepts may be called a priori known phenomena. However, during the fieldwork, unexpected issues will always arise. These issues can be termed a priori unknown phenomena. Such phenomena may be vastly important to the overall understanding of the phenomenon and the subjects under study. Case studies enable a researcher to seize both categories of understanding because he or she can adjust the research process during the fieldwork and repeat the data-gathering process. The amount of time that is available is directly related to the extent to which case study conclusions will be precise, valid and reliable (Cook and Campbell 1979). However, the case study approach has limitations, especially with respect to external validity (Cook and Campbell 1979; Wise, 1994).

Case studies can draw valid, in-depth conclusions about one case in exchange for drawing invalid conclusions about all possible observations of similar cases. In the language of Cook and Campbell, the construct validity of conclusions is increased at the cost of external validity. Construct validity refers to the testing and measurement of concepts and analytical constructs. Because case studies enable repeated measurements, concepts and analytical constructs are tested repeatedly and against various observations within the perimeter of an empirical case. External validity refers

to whether the concepts and analytical constructs that are used in the analysis of a specific case are also valid in the analysis of other cases. Because this study is limited to reindeer husbandry natural resource management systems, the conclusions are not tested against conclusions for other contexts, such as the natural resource management systems of wild reindeer or fisheries. Reindeer husbandry natural resource management systems in other countries, such as Sweden, Finland and Russia, are also excluded from the analysis.

5.1.2 Sampling

The case studies were initially based on purposive sampling because the project already focuses on a limited phenomenon before the data collection process is even initialized. Thus, all of the individuals who were interviewed in this study are connected to reindeer husbandry natural resource management in Norway in some manner. Snowball sampling was employed to contact the informants (Biernacki and Waldorf 1981; Faugier and Sargeant 1997; Newman 2003). At the beginning of the sampling process, the informants who hold positions within the various parts of the reindeer husbandry natural resource management system in Norway were contacted for interviews. During the interviews, these informants were asked to name other informants who have beneficial perspectives regarding the system and/or positions within the system. This process was repeated until network closure of the sample was achieved. Network closure, which also refers to a high-density sample, occurs at the moment in which informants name persons who have already been sampled. Network closure is also the essential feature of snowball samples because the probability of being selected for the sample depends entirely on the informants being a part of the system and/or related to the issue under study.

As a result of this process, a total of 47 informants were interviewed for this project. These informants are of two types: One type was interviewed only once in relation to the topics discussed in these papers, and the other type was selected as the key informants. These informants have strong relationships with the substance of this project. I contacted and requested interviews with these particularly knowledgeable informants to develop a wide-ranging panel of key informants. To enrich my understanding, I included people who have perspectives with regard to the research questions or who are familiar with different aspects of the research topics as the

informants. Interviews with public officials in various positions at different administrative levels were also held.

This process resulted in the following distribution of the informants, who are classified according to their institutional affiliations:

<i>Institution</i>	<i># of informants (key informants in right column)</i>	
The Ministry of Agriculture and Food	2	3
The Sami parliament	2	1
The Reindeer Husbandry Administration (central)	2	2
The Reindeer Husbandry Administration (regional)	4	1
The Area Board	18	2 ⁴
The District Board	2	2
The Reindeer Husbandry Board	2	0
The Sami Reindeer Herders' Association of Norway	3	1
Ministry of Local Government and Regional Affairs	1	0

5.1.3 Selecting key informants

The key informants are persons who are assigned a particular role as the main providers of information and who can assist in guiding the selection of informants, providing information and offering access to the empirical field. I collected and reviewed the existing research data and reports before determining what additional information I needed to collect from these informants. Subsequently, I contacted the persons who could assist in supplying the necessary information and data. The interviews with the key informants are qualitative in-depth interviews with people who possess expertise in their respective fields. The key informants for this study were affiliated with the Ministry of Agriculture and Food (MAF), the Reindeer Husbandry Administration at the regional and national levels (RA), the Sami Parliament, the area boards, the district boards, and the NRL. I conducted the interviews with the key informants to collect information from a wide range of people with firsthand knowledge regarding the political organization of the reindeer husbandry industry. With their specific knowledge and understanding, these experts

⁴ One of these two is identical to one of the key informants from the district boards. The informant was the first member of the Area Board and a member of the District Board.

provided insight into the nature of problems and recommendations for solutions. Telephone interviews and face-to-face interviews are two common techniques that were used to conduct the key informant interviews. This study primarily utilized face-to-face interviews. In total, 18 telephone interviews were conducted for the work in paper #2 during the fall of 2010. During the entire period of the study, I conducted telephone interviews following the face-to-face interviews to further clarify certain information on several occasions.

Special attention was also devoted to the selection of key informants who hold formal positions in the management system. Before the data were collected, preliminary meetings were held with relevant administrative authorities to sample areas for the study and to explain the rationale, objectives and procedures (*i.e.*, the substantive frame) of the study. To enrich and extend my understanding of how management regimes and policy instruments work, I appointed a wide-ranging panel of main informants. Thus, we established a group that collectively represented a population of concern. The informants were identified, and arrangements were made to determine when the qualitative interviews could be conducted.

The upper limit of this type of informants was set to 11 to follow the timeline of the project, and the data were recorded using field notes that were recorded during and after the interviews. Immediately after each interview, I devoted some time to reviewing the notes and adding interview details that were not written down during the interviews. Tape recordings were not used in this study because many informants stated that they were uncomfortable with this type of documentation, and some informants stated that they would not participate if the conversations were recorded on tape. Confidentiality/anonymity was ensured to all of the informants, none of whom were identified in this text.

5.1.4 Methodological tools

Three different instruments were used to collect the data for the project. Open-ended and semi-structured interviews were used to establish a dialogue between the informants and me. By using a semi-structured questionnaire, I was able to question the informants in a consistent and coherent manner and thus compare their responses. A checklist of the topics and issues to be addressed during the interview was used.

This checklist is important for identifying comparable elements in the data. Although informal and conversational, the interviews were controlled in that I used a predefined set of questions. Open-ended interviews are particularly useful for follow-up interviews: given that a priori unknown objects and phenomena would be detected during the fieldwork, it was necessary to support and complete the anticipated data with information regarding those objects and phenomena that were unknown before the fieldwork began. During the follow-up interviews, more specific questions were asked to fill in possible gaps in the research. The boundaries of the framework for the study may have shifted as more information was obtained. There are also other advantages to the use of open-ended and semi-structured interviews (Wise, 1994). During the discussions, one is able to *become acquainted* with an individual as an informant. This personal relationship assists in the collection of data pertaining to phenomena that are usually inaccessible if a significant amount of time is not spent with study subjects. Existing research data and reports were also used. Such historical data are important because they can assist in verifying information from other sources (Ragin, 1994).

5.2 Learning from the field

Abstract methodological literature often portrays an empirical reality that can appear to be more accessible and easy to comprehend than it actually is. In some instances, interviews proceed as planned, whereas in other instances, they are more difficult to conduct because of a variety of factors that are difficult to anticipate. Therefore, to evaluate the data-gathering process, I discussed the manner in which the various parts of the fieldwork were conducted and described my experience with this part of the project.

5.2.1 Key informants

The key informants in this project are public officials who working full time at different levels of ministries, directorates and other public bodies. The key informants also include people who were appointed to various co-management boards. The latter group consists of both part-time politicians and Sami pastoralists who are elected for four-year terms. The co-management boards are public bodies, and the people who are appointed to these boards are subjected to the same civil servant rules as the public officials who work in ministries and directorates. The key informants were

divided into two main groups: 1) public officials and 2) members of the co-management boards. Different sets of questions were prepared for the two groups because the groups specialize in different fields and work in different capacities.

5.2.2 Informants from ministries and directorates

The public officials in the ministries and directorates were initially contacted through email correspondence, in which I introduced myself and described the project and topics that I wanted to discuss. Because the people with higher administrative positions had limited time, the meetings with this group of informants were often conducted in a “hasty” atmosphere. Prior to the interviews, the informants were given the discussion topics by email to allow them to prepare the information that I needed for my research. In the first few interviews, the informants clarified that I would be permitted to document the interviews only by taking notes and that they would not allow tape recordings. I interpreted this restriction as an indication that we might discuss sensitive topics during the interviews. However, I soon learned that the main topics discussed in the interviews were closely related to the text of the laws, regulations, and directives and that the resulting answers that were given by the informants were basically referrals to and interpretations of the relevant laws, policies and government papers. This group of informants appeared uncomfortable discussing these matters with an outsider. Although we did not discuss a visible cultural or professional boundary in these administrative systems, I perceived that I had encountered a bureaucratic culture of which I was not a member. Because I was granted access to this culture with some reluctance, I felt like an outsider whom they found difficult to trust.

The information that I required is specific to the organizational context. As a rule, all information is open to outsiders. However, employees in public offices are subject to formal rules that limit the information that can be distributed to the general public. Additionally, such informants are often subject to unofficial bureaucratic “rules”; thus, one should err on the side of caution and not disclose any more information than is necessary. Another consideration is the beliefs of the public officials with regard to how the information will be used. If these officials believe that the information will primarily be used for criticism, they are not likely to begin the interview with a positive attitude. Generally, informants are affected by the attitudes of interviewers

and their understanding of the issues that are discussed (Järvinen, 2003). The regulations that govern reindeer husbandry are numerous and complex, and they involve several different groups of people who often have conflicting interests. Thus, it may require some time to obtain an overview of the situation. In this context, it was useful to receive assistance and guidance from the informants who represented public officials.

5.2.3 Informants from the co-management boards

The other group of informants comprises the current and previous members of the co-management boards. These informants have a foothold within both the reindeer husbandry industry and the sphere of politics and bureaucracy. This group was more accommodating and receptive to being interviewed. I assured these informants that their identities would remain completely anonymous and that sensitive information linked to specific boards or board members would not be used. Most of the people in this group communicated to me both a sense of trust and a keen sense of support, which likely reflected their interest in the project. I never asked these informants whether I could use a tape recorder, as I felt certain that asking such a question would be counterproductive. I wrote down information as we discussed the issues.

This group of informants appeared to be more involved on a personal level. They were born and raised in the reindeer husbandry industry, and their connections to the industry were intimate and personal. Naturally, these circumstances also caused them to be more emotionally involved in the industry than the informants from the ministry and the directorates. Most of the interviewees in this second group preferred to discuss the system from an organizational perspective, and this preference demonstrated their concerns (as both politicians and civil servants) with the professional tasks of the co-management boards. These informants were not occupied with their own professional issues and did not discuss them unless I specifically asked them to do so. The wording of the rules and regulations was a minor issue in this context. Additionally, many of the informants noted that there is a difference between how the rules and regulations are intended to work and how they actually work in practice.

I would not have received a large amount of important data from this group if we had not succeeded in establishing a trusting relationship during our interviews. Information techniques are context-dependent, and we always ensured that the interview situations were informal. Highly important factors included anonymity and my relationships with the informants, which were established over time. It is often argued that researchers cannot be neutral toward the data that they gather. This group of informants related their stories in a highly personal manner, which may have overwhelmed my neutrality to the detriment of the other group, who were more stringent and aloof in the manner in which they discussed the topics. In general, the demeanors of interviewees are often connected to their perceptions of researchers (Järvinen, 2001). Therefore, I was cognizant of these aspects during the data analysis (Järvinen, 2003).

6. Theory

This section discusses some of the theoretical issues that arise from co-management. I begin by discussing the complexity of co-management, as the term “co-management” is used in various theoretical areas. Subsequently, I discuss the relationship between co-management and common pool resources because co-management systems are considered a possible institutional solution to the commons problem. Finally, I discuss adaptive co-management because co-management regimes must be flexible and adaptive to manage resources in a shifting environment.

6.1 The complexity of co-management

The management of common pool resources may be organized by principally different forms of management systems: self-regulated systems created via the initiative and participation of resource users, co-management systems based on cooperation and power-sharing agreements between resource users and public authorities, or unilateral government initiatives (McCay, 1996). The literature contains many definitions of co-management. Carlsson and Berkes summarize the common features: (1) co-management is explicitly associated with natural resource management, (2) co-management is regarded as a type of partnership between public and private actors, and (3) co-management is not a fixed state but is a process that occurs over a long period of time (Carlsson and Berkes, 2005:67). By enabling the sharing of power between resource users and public authorities, co-management

provides an institutional response to the “commons” problem, which is essentially the question of how private interests can be better combined with collective interests and, in practice, public interests (McCay, 1996; Sandtsröm, 2009). The reindeer husbandry industry in Finnmark County is a typical example of a co-management system. Because the winter pastures in this county are larger than those in other reindeer husbandry areas in Norway, a large group of beneficiaries must cooperate to ensure the sustainable management of these pastures (Riseth and Vatn, 2009; Hausner *et al.*, 2012).

Co-management has prevailed as the major institutional arrangement since the 1978 Reindeer Husbandry Law (paper #1). The necessary conditions that allow communities to co-manage resources with the state include the abilities to make collective decisions, define rightful users, establish usage rules, monitor use, sanction improper use, and resolve conflicts (papers #2 and #3) (Hanna and Jentoft, 1996; McCay, 1996). By overemphasizing the formal aspects of these power-sharing arrangements, one risks disregarding the functional side of co-management, which should be understood as a continual problem-solving process (Carlsson and Berkes, 2005).

Co-management enables local knowledge and interests to be meaningfully incorporated into management through the representation of user groups in communal institutions, such as boards, committees, and discussion forums. User groups are represented in various forms, including functional and territorial/geographical representation (Jentoft 1998; McCay, 1996; Jentoft *et al.*, 2003; Walker and Hurley, 2004; Jentoft, 2005; Sandström, 2009). However, this representation is based on an ideal image of the state as a type of monolithic structure and neglects that both communities and the state itself have many different representations and interests (papers #1 and #2) (Carlsson and Berkes, 2005). We observe these issues in the reindeer husbandry industry, which has experienced power struggles among groups of resource users and among the state agencies (papers #1 and #2).

Because of this complexity, state agencies are subjected to various couplings and agreements with one another, often within the same resource system. This situation is applicable to the reindeer husbandry industry (papers #1 and #2). Communities are

typically complex systems that consist of diverse interests that are divided according to, for example, gender, geography, political interests, and socioeconomic factors. The behavior of communities in a co-management institution may be highly unpredictable because people have different interests and different conditions of action. This complexity and heterogeneity are also apparent in the reindeer husbandry industry and contributes to explaining why various areas have developed differently and responded unequally to the co-management system (Paper #2). Some communities may choose to communicate with a single voice despite differences within these communities, whereas other communities may be characterized by a lack of consistency that results from highly conflicting views on the problem, difficult obstacles, and ongoing social conflicts (Carlsson and Berkes, 2005; Sandström, 2009).

6.2 Common pool resources and co-management

Co-management is typically proposed as a solution to the challenges pertaining to the management of common pool resources. Common pool resources are defined as resources for which exclusion is difficult and joint use involves subtractability (Ostrom, 1990; McCay, 1996:120; Sandström, 2009). Exclusion is difficult because it is problematic (and sometimes impossible) to control the access of potential users. Subtractability implies that each user's exploitation of resource leaves fewer resources for subsequent users. Because of this subtractability, individuals are fundamentally in conflict with other users over the use and management of resources (paper #2) (Berkes 1996; Borgerhoff-Mulder and Coppolillo, 2005). It is essential to distinguish common-pool resources from common property regimes. Common property regimes are social arrangements that regulate the conservation and exploitation of common pool resources. Common property regimes may be considered cultural institutions in which resource users socially construct a regime (McCay, 1996). The reindeer husbandry industry is historically based on common property regimes, although these *siida* tenures have been difficult to sustain during recent decades (see section 7.1 "short history" for a more specific definition of the *siida*) (Paine, 1994; Bull, 1997; 2001; Riseth, 2000; Kalstad, 1998; Riseth and Vatn, 2009; Kemi, 2010).

A substantial number of previous studies of common pool resources have aimed to describe the circumstances under which local management is present and successful. Although there is no definition of size, many researchers argue that if a territory and a

group of people working together are small, then such a group can more easily cooperate and agree on how and at what rate resources should be harvested (Dolsak and Ostrom, 2003:12-14; Zachrisson, 2003) (paper # 2). Smaller groups of resource users are often more intimately integrated through kinship and other social ties. Additionally, small groups often share many of the same traditions and norms. The face-to-face interactions within these groups provide increased communication and a better understanding of the challenges, needs and wants of each member (Pinkerton, 1989; Jentoft, 1998; Jentoft and McCay, 1996; Ostrom and Schlager, 1996; Borgerhoff Mulder and Coppolillo, 2005; Armitage *et al.*, 2007; Berkes, 2009). This improved communication process also builds trust and is a necessary component of successful regimes (Riseth, 2000; Dolsak and Ostrom, 2003; Berkes, 2007). Many of these characteristics can be identified in the smaller reindeer husbandry areas, such as South Trøndelag/Hedmark, North Trøndelag and Nordland (Paper #2) (Riseth, 2000).

Because uncertainty is often manifested in the lack of assurance regarding the behavior of others, stable and well-delineated boundaries are important for local management (Dolsak and Ostrom, 2003; Borgerhoff Mulder and Coppolillo, 2005). It is important to clearly understand who is and is not eligible to use the commons (Ostrom, 1990; McCay, 1996). It is difficult to value future environmental goods or services if their existence is insecure because of a lack of assurance regarding the behavior of others. This uncertainty reflects a natural tension between individuals and groups as well as between people and ecosystems (Hanna and Jentoft 1996). Many of the pastoralists in Finnmark live with this uncertainty and insecurity on a daily basis when their herds graze on common fall, winter and spring pastures (Paper #4) (Hausner *et al.*, 2012).

Maintaining low transactions costs is easier if resource management is consistent with social standards for representation, distribution, openness and conflict resolution (Hanna and Jentoft, 1996; Borgerhoff Mulder and Coppolillo, 2005) and devolved to the lowest possible level (paper #2) (Jentoft, 1989; Hanna and Jentoft 1996; Jentoft, 1998; 2003). The management system for the reindeer husbandry industry has aimed to accomplish this goal, but in some areas, such as Troms County, the system of representation has not worked as intended (Paper #2).

6.3 Adaptive co-management

Because natural resources are affected by various shifting social and ecological variables (Sandström and Rova, 2010), decision makers are typically interested in identifying and promoting specific features of the systems that will increase the adaptive capacity of management systems (Engle and Lemos, 2010). According to this rationale, strategies and policies are experimental, and learning is encouraged through both structured testing and management flexibility. The key features of adaptive co-management include learning by doing, the integration of different knowledge systems, flexibility in management, collaboration and power sharing (Papers #3 and #4) (Armitage *et al.*, 2007). If management systems are deeply embedded in laws and formal rules, as the governance system is in the reindeer husbandry industry in Norway, then this flexibility and adaptability becomes increasingly difficult (Pahl-Wostl *et al.*, 2007). Decentralization and adaptive management are typically assumed to be useful in building adaptive capacity and thus resilience (Sandström and Rova, 2010). However, Engle and Lemos (2010) argue that the effectiveness of this framework has not yet been sufficiently tested.

7. Empirical background of the study

Now, we turn to the empirical case of reindeer husbandry in Norway. To frame the discussion of natural resource management in Norwegian reindeer husbandry, this section describes some of the contextual and substantial factors that are important when discussing the management of reindeer husbandry. First, I offer a short historical background of the management of reindeer husbandry in Norway. Second, I describe the introduction of power-sharing agreements in reindeer husbandry management. Third, the function of the co-management boards is explained. Fourth, I describe how trust has been built through cooperation. Fifth, I explain how the Sami pastoralists have gradually achieved increased self-determination. Sixth, the most recent proposal to legally revise the co-management system is depicted. Finally, the process for reducing the number of reindeer in Finnmark is outlined.

7.1 Short history

The internal organization of the traditional Sami herding society includes the *baiki* (household) and the *siida* (the group working together). Sami pastoralists within a single *siida* consider themselves to be partners, and this cooperation remains the

foundation of the basic relationship among pastoralists today (Solem 1970; Vorren 1989). Sami pastoralists move their herds among the summer, fall, winter and spring pastures. These pastoralists group and regroup their herds into different constellations during the course of the year. This strongly institutionalized system has a long history of a close partnership and affinity (Solem, 1970; Paine, 1994; Kalstad, 1998; Riseth, 2000; Oskal and Sara, 2001).

Until the 1800s, the state played only a small role in the management of Sami pastoralism in Norway (Solem 1970; Vorren 1989). The determination of national state borders between countries and border closures as well as the competition that the Sami pastoralists gradually encountered through other interests, especially agriculture, led to legal regulations of reindeer husbandry (Bull, 2001:22). The pasture areas were divided into districts. The first area to be divided into districts was Troms (1883), which was followed by Nordland, North Trøndelag and South Trøndelag/Hedemark (1894). The areas of West and East Finnmark were subsequently divided into districts (1933), when the first nationwide reindeer husbandry law was implemented⁵ (Berg, 1994; Bull, 1997; 2001; 2003).

7.2 Power sharing

Power sharing was first implemented in reindeer husbandry in the 1970s. A general agreement between the state and the Sami Reindeer Herders' Association of Norway was introduced in 1976, and a co-management system was implemented in 1978 with a new reindeer husbandry law (1978 law) that replaced the old law of 1933. Many different interests, such as agriculture, forestry, leisure, and the construction of secondary homes (*i.e.*, cottages), are connected to the areas that are used for reindeer pastures. Therefore, many interests beyond reindeer husbandry must be considered in land use management decisions (Papers #1 and #2).

Power can be shared in various ways. In the co-management system in the reindeer husbandry industry, power is shared by delegating authority from the central level to a

⁵ According to Bull, documents show that the Sami pastoralists in the areas outside of Finnmark were given the opportunity to speak to one another and agree on who should share districts. This opportunity was not given to the Sami pastoralists in Finnmark when the summer pastures were divided into districts. For those who had been working with families who became part of a neighboring district, no measures could be taken to reconcile these relationships (Bull, 2001:235).

four-level co-management system at the national, regional, and local levels (Papers #1, #2, #3, and #4). The two upper levels at the national and regional levels are composed of politically appointed members, whereas the two lower levels at the local level are composed of Sami pastoralists who are elected by and among the pastoralists in the districts and *siidas* (Paper #1 and #2). According to the guidelines for appointment to political boards, the members of the Reindeer Husbandry Board and the Area Board must consist of both Sami pastoralists and other actors. The guidelines also state that the members shall be appointed from different geographic regions in each area. The representatives of the Reindeer Husbandry Board at the national level are appointed by the MAF (four) and the Sami Parliament (three). The representatives of the Area Board are appointed by the County Council (three) and the Sami Parliament (two). Because the political constellation in the appointing bodies results from democratic elections, the appointing bodies strive to achieve the same political constellation in the co-management boards for each reindeer husbandry area. The power-sharing system in reindeer husbandry is formal, institutionalized, and highly political. Every aspect of the system is strongly based on democratic principles and founded in law (Papers #1 and #2).

7.3 The Reindeer Husbandry Board and the Area Board

According to government papers, the Reindeer Husbandry Board and the Area Board are designed to be collegial management bodies that represent all interests, both internal and external to the reindeer husbandry industry (Paper #2). Because the Reindeer Husbandry Board and the Area Board are designed to be collegiate management boards that seek optimal solutions, it is logical that the power to appoint members to the co-management boards is delegated to democratically elected bodies that reflect the socio-political and ethnic landscapes of the regions in which reindeer husbandry is practiced (Paper #2) (Ot. prp. nr. 9 (1976-1977)).

The Reindeer Husbandry Board and the Area Board have encountered several challenges and problems over the years. The boards have become highly politicized, especially the Area Board, with respect to both the appointment of board members and the manner in which board members perform their work (Paper #2). The guidelines describing the appointment systems and work of the boards do not specify whether the Sami Parliament and the County Council should appoint only members

from their respective political organizations. Thus, the people (*i.e.*, both the Sami pastoralists and others) who are not part of the majority party or parties in the Sami Parliament or the County Council will not be appointed to these boards, even if they are highly knowledgeable regarding both resource management and other fields that are important to the work of the boards.

Moreover, the members of the Area Board represent concrete interests (*e.g.*, landowners, Sami pastoralists, and farmers) rather than aiming to find optimal solutions for all of the parties affected by board decisions (Paper #2) (Landbruks- og matdepartementet, 2011b). The Area Board has also encountered problems with legal incompetence. Specifically, reindeer husbandry communities are characterized by close social relations, and Sami pastoralists who make decisions in the boards are too close to the pastoralists that are affected by these decisions. Moreover, the pastoralists in the boards may also be affected by their own board decisions (Paper #4) (Landbruks- og matdepartementet, 2011b; Hausner *et al.* 2012).

Many pastoralists are not aware that the Reindeer Husbandry Board and the Area Board are co-management boards for both the reindeer husbandry industry and other industries in the same areas. For this reason, the guidelines state that all boards should consist of a mixture of Sami pastoralists and other representatives. Many pastoralists believe that the Reindeer Husbandry Board and the Area Board constitute a co-management board system that has been implemented to serve the reindeer husbandry industry, and they feel that it is unfair for pastoralists to serve as minority members of the boards. Because of this and other issues discussed above, there are differences in opinion among the Sami pastoralists regarding the effectiveness of the appointment system (Paper #2)

7.4 Trust and cooperation

The level of trust between the state and the Sami pastoralists has developed through the inclusion of pastoralists in various committees that have attempted to enact varying levels of change to the co-management system (Papers #1, #2 and #3). Committees are frequently appointed to review different parts of the economic incentive program in reindeer husbandry, which is an important driver of sustainable development in the industry. Among other purposes, committees are appointed to

review the turnover from meat production, review the structure of the slaughter system, create initiatives to ensure equality between men and women, review the part of the economic system that concerns direct payments to Sami pastoralists, and review measures for those with reindeer herds that are affected by radioactivity.

In addition, some committees are appointed to review legislative aspects of the reindeer husbandry management system. When the 1978 law was being prepared, meetings, consultations and discussions with the NRL and other groups of Sami pastoralists occurred. Further, a committee was appointed in 1987 to discuss the negative effects of the subsidy system in Finnmark because the subsidy program yielded better results in the reindeer husbandry areas outside of Finnmark. A committee was appointed in the early 1990s to discuss the revisions of the 1978 law; these revisions were implemented in 1996. Another committee was appointed in 1998 to discuss further revisions of the law, which led to the 2007 law. A new committee was established in approximately 2001 to make important changes to the subsidy system, and these changes were implemented in 2003. Finally, a committee was established in 2008 to discuss the criteria for sustainable development based on reindeer weights, among other issues. Thus, a large amount of documentation indicates that Sami pastoralists have been consulted during the development of the management system and other important changes.

Because the state and pastoralists have been less successful in cooperating with one another in Finnmark, the co-management system has not worked as intended (Riseth, 2000:198). There does not appear to be a simple solution to this problem. The system may have been unsuccessful because the south Sami were primarily the pastoralists who were consulted when the 1978 law was designed (Ot.prp. nr. 9 (1976-1977); Riseth, 2000). The NRL and its local branches in all of the reindeer husbandry areas (including West and East Finnmark) were consulted in the process of creating the 1978 law. The NRL commented on both the property rights of the Sami pastoralists and their rights to membership on the Reindeer Husbandry Board and the Area Board system depicted in the 1978 law (Landbruksdepartementet, 1977a,b; Paine 1994; Riseth 2000). Nevertheless, it was difficult for the NRL to persuade the state to accept

its demands, although a few demands were satisfied by the law⁶ (Berg, 1997; Riseth, 2000).

7.5 Increased self-determination

After a significant amount of debate, the 1978 law was replaced with a new reindeer husbandry law in 2007. The 2007 law delegated more power to the Area Board, the District Board and various *siidas*. The objective was to grant greater authority to the Area Board representatives, including the ability to sanction Sami pastoralists who did not comply with rules and regulations. The District Board and the *siidas* were also given important tasks; they were delegated the important responsibilities of self-managing the *siida* territories in a sustainable manner (Papers #1 and #2). The 2007 law also gave the districts in Finnmark the responsibility of dividing the common pastures into *siida* territories. This issue has been challenging for many years, and the (state-initiated) committees that have been appointed to attempt to solve this issue have been rather unsuccessful (Paper #1).

7.6 Revision?

The Ministry of Agriculture and Food has recently proposed the abolishment of the Area Board to reduce complexity and achieve more efficient and improved coordination of the regional management through the County Governor (Meld. St. 9 (2011-2012): 197). An evaluation of the reindeer husbandry management organization arrived at the following conclusions: (1) many people, including both Sami pastoralists and others who are familiar with the reindeer husbandry industry, experience difficulties in distinguishing between co-management institutions and the reindeer husbandry industry because the same pastoralists appear in both places; (2) the co-management institutions do not have the necessary distance from the industry; and (3) the industry is managed by people who also have private interests in the reindeer husbandry industry (Paper #2) (Landbruks- og matdepartementet, 2011a).

⁶ In the creation of the 1978 reindeer husbandry law, the MAF insisted that all of the property rights for reindeer husbandry be included in the 1978 law or the text that would eventually become the law. The NRL intended for the property rights of reindeer husbandry to extend beyond the 1978 law, as the Sami pastoralists have their own rights to use the land through their traditional use. The Norwegian Parliament (Stortinget) did not want to adopt an official position on this issue (Ot.prp. nr. 9 (1976-1977)). The MAF's view on this matter has changed since then; the 2007 law states that the reindeer husbandry industry has use rights through traditional use (Innst. O. nr. 98 1976-77) 2, 5; Bull, 2001: 267; Ot. prp. nr. 25 (2006-2007)).

More than 80 percent of the tasks of the Area Boards are related to land use cases that affect the reindeer husbandry industry. Other tasks include treatment of applications regarding recruitment to the industry, the construction of fences, and the distribution of liability payments to the Sami pastoralists within a district. If this revision is implemented, then the tasks of the Area Board will be transferred to the County Governor (Paper #2) in the future. Sami knowledge and local knowledge will be maintained in the management system by retaining the current structure of the Reindeer Husbandry Board, in which the MAF appoints four members (including the chair) and the Sami Parliament appoints three members (Paper #1). The County Governor will consult with the NRL and the Sami Parliament during this work (Paper #2). The decisions of the County Governor can be appealed to the Reindeer Husbandry Board⁷ (Meld. St. 9 (2011-2012) pp. 197). In the current situation, the County Governor possesses the skills, human resources and experience (and perhaps the authority) that are necessary to handle all cases regarding land use in general, and the MAF has argued that transferring these tasks to the Governor will empower the reindeer husbandry industry in its struggle against encroachments by other interests in pasture areas (Landbruks- og matdepartementet, 2011b).

7.7 Toward ecological sustainability?

One of the management tasks of the Reindeer Husbandry Board is to approve and control the number of reindeer. This task is important to the industry's efforts to achieve ecological sustainability. The MAF has occasionally overturned the Reindeer Husbandry Board's decisions regarding the total allowable number of reindeer in many of the districts in Finnmark because the MAF considered the reindeer numbers that were established by the Reindeer Husbandry Board to be excessively high and thus ecologically unsustainable⁸. These conflicting views of the MAF and the Reindeer Husbandry Board were recently resolved through the use of a white paper that establishes guidelines dictating the manner in which the board should set the highest allowable number of reindeer in each district. Currently, the board is able to complete this task more rapidly. For many of the districts, the MAF and the Reindeer

⁷ In paper #1, the term *Court of appeal* is used, but I subsequently realized that this term might be misleading, as the co-management boards are not part of the formal court systems. Therefore, in paper #2, the term *appeals system* is used instead. These two terms are synonymous.

⁸ These decisions of the Reindeer Husbandry Board were not unanimous among the board members. The high reindeer numbers were determined through a majority vote in the board.

Husbandry Board set a lower number of reindeer than the Sami pastoralists desire for their own districts, and according to media reports, many pastoralists are frustrated (*i.e.*, NRK Sapmi 21.11.2011; Finnmarken 08.12.2011; Altaposten 10.12.2011). Regulations that will be used to sanction non-compliance for pastoralists were recently established (November 2011). Pastoralists with excessively large herds will be fined 2 NOK per animal per day until they reduce their herds to the allowable level (Lov om reindrift, 2007, §76, §77, and §78; Forskrift om avgift ved brudd på bruksregler etter reindriftsloven, 2011). As a last resort, mandatory slaughter could be used to force the pastoralists to comply with the regulations (Lov om reindrift, 2007, §79.3). The Area Boards are responsible for controlling and monitoring the districts as well as sanctioning non-compliance. If the Area Board system is abolished, the County Governor will assume responsibility for these tasks (Meld. St. nr. 9 (2011-2012) pp. 197).

8. Discussion

Berkes (2007) divides co-management into different categories. Because co-management can have different meanings in different settings, it is important to operationalize the term and analyze its various applications. First, I will discuss co-management in terms of power sharing. Power sharing is essential because no meaningful form of co-management can exist without power sharing. Second, I will discuss co-management as institution building. The compatibility between the co-management institution and the social-ecological system is important for successful management. Third, I will discuss co-management as a trust-building process because trust is crucial to achieving good cooperation, and a sufficient amount of time is required to build trust (Ostrom, 1990). Fourth, I will discuss co-management as a form of social learning and problem solving. Adaptability is crucial for identifying optimal solutions to problems and ensuring proper functioning. Finally, I will discuss co-management as a mode of governance. Governance has become an important concept in current debates regarding the adequacy of natural resource management systems because cooperative approaches have assumed a more central position in practical management policies. I will discuss the different aspects of co-management in the context of the management of reindeer husbandry in Norway.

8.1 Co-management as power sharing

In co-management systems, power is typically shared via decentralization and delegation to user groups. According to Pomeroy (2003), decentralization “refers to the systematic and rational dispersal of power, authority and responsibility from the central government to lower or local level institutions [...]” He further contends that central governments “delegate some measure of [their] power to lower levels or smaller units in the government system or to industry organizations” (Pomeroy, 2003:251). In the reindeer husbandry industry, power is delegated to the local units of the reindeer husbandry administration, the four-level co-management board system, and the NRL. The vertical cooperation and sharing of power among the levels in this system are extensive and cover several spheres: legal, economic, cultural, social, and ecological. However, I question whether this power sharing has actually increased the quality of the management system (Papers #1 and #4).

In co-management systems in which power is shared, the state should generally act as an equal partner with resource users. In cooperative relationships, it is important to demonstrate the balance of power among all parties and to demonstrate that the results benefit all of the parties involved, even if one of the parties is *primus inter pares* (i.e., possesses greater power). The role of the state must be pragmatic, concise, and goal-oriented to ensure that trust and respect are achieved and that the results of projects assist in fulfilling common goals (Hanna, 2003:316; Jentoft, 2003; Pinkerton, 2003) (see also “co-management as trust building and as process” and “co-management as governance” later in this section). The framework for this type of cooperation is established in formal laws, government regulations and agreements that are developed over time. This framework also applies to the reindeer husbandry industry (Paper #1).

A well-known dilemma is that the state or various state agencies can cooperate only with selected representatives from the community/industry (Hanna, 2003) because time constraints and limited resources render the task of communicating with all people as impossible (Jentoft *et al.*, 2003). In the reindeer husbandry industry, these representatives are appointed to either the co-management boards or the many committees that analyze and revise the different parts of the co-management system. Alternatively, representatives may be selected based on interviews (qualitative and

quantitative surveys) with the Sami pastoralists in the various districts. Based on this cooperation, many important basic documents are created to assist in the establishment of management goals. However, the cooperative partners in this process consist of only a few selected representatives, and there will always be discussions regarding whether these representatives are the “right” people or whether a broader or different set of representatives and informants/respondents should be selected. Some pastoralists will conclude that the co-management system does not share power in the proper sense of the term because the wrong people participate and the right people are not permitted to participate (Paper #2). After analyzing these questions, I pose the following questions: are the reindeer husbandry areas (in Finnmark) excessively large and inclusive of an excessively large number of pastoralists to the extent that sustainable management becomes a challenge? Moreover, does heterogeneity make it difficult to find common solutions to problems and ways of making decisions (Paper #2)?

Legal frameworks often suffer from shortcomings, and new rules are required to meet new or changing conditions. However, the governance system has not attempted to change the system of board appointments or to make changes in order to meet the original intentions. The recent proposal from the MAF to abolish the Area Board is at least partially based on the argument that political power struggles are not producing optimal solutions for all parties involved (Landbruks- og matdepartementet, 2011b). Given that the management system must be adjusted, I ask the following question: Why is the Norwegian state reluctant to change the appointment system (Papers #2 and #3)?

Because the area boards in the various reindeer husbandry areas have different compositions and experience different levels of success, the increased power that was delegated to the area boards in the 2007 law functions differently for the various boards. In other words, the current co-management system is not equally suitable for all areas. The use of “one-size-fit-all” programs to design policies and laws is often problematic because, as discussed by Borrini-Feyerabend *et al.* (2007:102), such programs may struggle to produce a fair distribution of benefits in situations that involve people in different positions with different interests and orientations. Shared management functions and benefits do not assist groups who become the minority

(Borrini-Feyerabend, 2007:69), as we observe in some of the reindeer husbandry areas. These issues were explored in the project. Specifically, we asked the following questions: can poor communication procedures between various levels (horizontally and vertically) contribute to exacerbating these problems? Do effective formal procedures for communication exist among the co-management institutions in the reindeer husbandry management system (paper #1)?

The 2007 law strengthened the management of the reindeer husbandry industry by delegating more power to the Area Board, the District Board and the various *siidas*. Four years after the enactment of this law, the MAF proposed the complete abolishment of the Area Board. Would this reform increase or decrease power sharing in the reindeer husbandry industry? Alternatively, would power sharing be more successful as a result of revisions of appointments, tasks, and guidelines to increase the internal and external legitimacy of the Area Board? Sami pastoralists with relevant knowledge and political experience will no longer play an equal role in managing regions, but they will remain part of the Reindeer Husbandry Board at the national level. Thus, the reindeer husbandry areas will become less politicized and will no longer be governed by Sami pastoralist politicians who are skilled at lobbying to promote their industry interests. Conversely, it is important to recall that the 2007 law clearly strengthened the power of the industry by devolving authority to Sami pastoralists at the local level (*i.e.*, the District Boards and the *siidas*). According to the 2007 law, the District Boards and the *siidas* are given all responsibility for achieving sustainability in their districts and have accordingly been given the legal power to make their own rules to achieve this goal. The Area Board plays only a controlling role: the board accepts or rejects plans and sanctions non-compliance. Scholars may hypothesize that this controlling function would be better managed by an independent third party, as requested by many pastoralists (Hausner *et al.*, 2012). Whether this arrangement would enhance or reduce power sharing would depend on whether the increased local power of Sami pastoralists can compensate for their lower degree of involvement at the regional level.

Because the 2007 law provided flexibility with regard to the involvement of pastoralists at the local level, the question of whether the abolishment of the Area Boards will weaken the co-management system largely depends on the MAF.

Undoubtedly, finding the proper distribution of power that will lead to the optimal solution is a challenge. Even if the abolishment of the Area Board does not weaken the co-management system, the question remains as to whether this abolishment may be compensated for by giving additional power to the District Board in a manner that would maintain or improve the quality of the co-management system (see “co-management as governance”).

8.2 Co-management as institution building

Many scholars have argued that management institutions are more successful if participants have good and trusting working relationships with one another (Ostrom, 1990; Borgerhoff Mulder and Coppolillo, 2005; Borrini-Feyerabend *et al.*, 2007). The question is how such relationships can be built. Should designers of policy systems identify pre-existing cooperative relationships among user groups before institutions are established, or should designers establish institutions prior to encouraging cooperation (Berkes, 2007:25-26)? In the context of reindeer husbandry, the aim was to design a co-management system that would be maximally compatible with the pre-existing institutions. This design was implemented by establishing a local co-management board (*i.e.*, the District Board) in each summer pasture district in all six reindeer husbandry areas. The summer districts in which the Sami pastoralists have a long history of cooperation became the formal connection to the co-management system (Kalstad, 1999:137; Karlstad, 1998:251). This partnership is generally considered a positive foundation for cooperation because the sustainable use of resources is important to achieve long-term environmental goals through strong social ties and functional collaborative relationships based on solidarity and trust (Jentoft, 1998; Ostrom, 1990; Borgerhoff Mulder and Coppolillo, 2005; Borrini Feyerabend *et al.*, 2007).

The various reindeer husbandry areas have experienced different levels of success with the co-management system. In particular, two areas, West and East Finnmark, have experienced greater difficulties than compared with the areas outside of Finnmark. The difficulties in these areas are connected to the high density of reindeer on the pastures, the social tension among the pastoralists and the unsustainable use of the pastures since the 1980s (Paper #2) (Riseth, 2000:144-145, 172-173; Riseth, 2003:237). Because of these differences, I asked the following question: Why have

the co-management institutions in Troms, Nordland, North Trøndelag and South Trøndelag/Hedmark experienced more successful development than the co-management institutions in West and East Finnmark (Paper #2)?

The main difference between Finnmark and the other areas (paper #2) is that the entire area (West Finnmark and East Finnmark) is vastly larger than the other areas. Therefore, in Finnmark, several of the larger districts with many groups of Sami pastoralists and reindeer have “second-order” commons situations (Riseth, 2000). In other words, viable, long-term local solutions do not exist unless the solutions to the larger commons dilemma are institutionalized (Herring, 1990), as shown by the case of Finnmark (Paper #2). Larger areas with more people are generally more difficult to manage than smaller areas with fewer people (Ostrom, 1990; Jentoft, 1998:7; Riseth, 2000; Dolsak and Ostrom, 2003; Borgerhoff Mulder and Coppolillo, 2005; Borrini Feyerabend *et al.*, 2007).

Another important difference is that almost all of the Sami pastoralists or groups of Sami pastoralists in Troms, Nordland, North Trøndelag and South Trøndelag/Hedmark have privately defined grazing territories that are not disputed by other pastoralists; in contrast, the Sami pastoralists in Finnmark do not have such privately defined grazing territories. The spring, fall and large winter pastures (where reindeer graze from approximately November to May) are large common pasture districts in which herds from several summer districts graze together. Although each family group has its own parcel of grazing land that is distributed according to traditional use within the larger common winter pastures, this system is not formalized; therefore, the exclusion of other pastoralists is difficult (Paper #3) (Kalstad, 1999; Karlstad, 1998; Riseth, 2000). When exclusion is difficult, the pressure on resources tends to increase as a result of competition. Institutions generally affect how people act and how they use resources (Hanna and Jentoft, 1996). This situation has resulted in a lower degree of trust among the Sami pastoralists, and as a consequence, the cooperative partnerships among them have disintegrated (Kemi, 2010; Hausner *et al.*, 2012). These partnerships have been replaced with a higher degree of competing herding strategies (Riseth and Vatn, 2009; Hausner *et al.*, 2012). This well-known issue has also been discussed in the academic literature. Within these contexts, it generally becomes more difficult for resource

users to work collectively and coordinate their actions to reach important long-term goals (Ostrom, 1990; Hanna and Jentoft, 1996; Borgerhoff Mulder and Coppolillo, 2005; Borrini Feyerabend *et al.*, 2007). We attempted to address this issue by asking why, after more than 30 years in operation, the incentive system has not regulated the common pastures in Finnmark as expected (Paper #3).

Although the co-management system is based on established institutions with a long history of cooperation, the compatibility between the management systems and sociopolitical structures of reindeer husbandry is less optimal in Finnmark than in other regions because the larger winter commons are based on the *siida* tenure system. This informal institution has been weakened for historical reasons. Specifically, sedentarization in citizens and the use of motorized vehicles have resulted in a system in which the commutes of men to pastures have influenced this development (Kalstad, 1998; Riseth, 2000; Riseth and Vatn, 2009). In the 1960s, the law committee had already warned that conflicts on the winter pastures in Finnmark would increase and that the *siida* system had been weakened. The committee recommended the establishment of a new institutional arrangement for the common pastures (Innstilling fra Reindrifstsløvkomiteen, 1966:21). After the governance system was established in the mid-1970s, the numbers of reindeer and pastoralists increased rapidly because of the incentive system and the beneficial winter conditions (papers #3 and #4) (Riseth, 2000). The institutional mismatch has steadily increased, and according to the pastoralists, many newcomers have misinterpreted the common pastures as freely accessible and have ignored the traditional *siida* boundaries (Hausner *et al.*, 2012). This issue is difficult, and it is not uncommon to find traditional institutions changing or even dissolving after new regulations are implemented and resource use becomes less sustainable (Feeny *et al.*, 1990:6; Berkes 1996; Jentoft) In this project, I sought to determine who is responsible for resolving problems when traditional use rules are dissolved and resource use has changed because of external factors that, in turn, lead to the overexploitation of resources (Papers #2 and #3).

8.3 Co-management as trust building and as process

Co-management systems are assumed to build trust between resource users and the state through communication and cooperation. Berkes (2007) contends that trust among cooperating parties is essential for strong working relationships in co-

management systems. The co-management system can build trust between resource users and state representatives by inviting resource users to become involved in preparing new legislation; making changes and adjustments to current legislation; and creating management plans for environmental, economic and social sustainability. Because the building of trust and cooperation requires time, the attainment of successful co-management is often a long-term goal (Berkes, 2007:27 Sandström, 2009).

In the reindeer husbandry industry in Norway, this process has been ongoing for more than thirty years. The level of trust between the state and Sami pastoralists has increased because the pastoralists have been included in various committees that work to enact varying levels of changes in the management system. This close cooperation between the state and the pastoralists has generated positive results in many areas. Although it has been more difficult to implement sustainable resource use in certain parts of Finnmark, the state and the pastoralists have engaged in regular dialogue and close cooperation to attempt to resolve the main problems. The process of reaching common goals through broad participation and agreement is challenging in areas beyond the management of natural resources. The design of any management system is typically difficult because there is a large number of factors to be considered, and it is difficult to address all factors in the context of a single system. There will always be some people who do not agree with the goals and/or the methods (Dahl, 1989; Mikalsen and Jentoft, 2001; Christensen *et al.*, 2004; Jentoft *et al.*, 2003). Therefore, I question whether it is possible to design procedures that will encourage board members to make decisions that favor the common good (Paper #2).

However, there is another aspect of the relationship that has been less considered in the co-management system of reindeer husbandry. Solid cooperation between the state and the representatives of Sami pastoralists (vertical integration) does not necessarily result in a good relationship among the pastoralists (horizontal integration). Social tensions and conflicts among pastoralists or groups of pastoralists occur in several areas (*i.e.*, Troms, West Finnmark and East Finnmark). This difficult issue has been given less priority by the state (Papers #3 and #4). Generally, laws and regulations affect how resource users relate to one another. However, if laws and regulations affect people differently, then people develop different opinions of such

laws and regulations, and these differences ultimately affect their behavior (Hanna and Jentoft, 1996:35). This discontent sometimes leads to irrational behavior and social conflicts, which lead to a lower degree of trust among resource users (Borgerhoff Mulder and Coppolillo, 2005). This issue is also relevant in the reindeer husbandry industry. The Sami pastoralists share common interests and belief systems, but there are many different sub-interests within this community. The pastoralists develop different strategies and find different solutions to the challenges that they encounter (Paper #4) (Paine, 1994; Hausner *et al.*, 2012).

Because trust and respect affect a party's images of other parties and their activities, Berkes (2007) claims that the ability of the co-management system to establish or facilitate a process of communication and cooperation among the various parties of the system may be critical to overcoming problematic barriers (Berkes, 2007:28). For instance, this process can be implemented by designing board compositions and rules that give all parties equal opportunities to be heard and by allowing the use of third-party arbitration among groups of resource users in conflict. The Sami pastoralists were given the co-management opportunity by the 1978 law, and the 2007 law gave them even more power and responsibility. The 2007 law also attempts to clarify some of the problems that prevailed among the pastoralists by clarifying the rules (see also "co-management as institution building" in this text) (Papers #1, #2 and #3). The building of trust and cooperation among groups of Sami pastoralists are now generally left to these groups. Based on these issues, several research questions have arisen: at what level of the system should these issues be solved? If the authority to make decisions and solve problems is devolved to the local level, then should the local level bear all responsibility for solving these problems (Paper #1)?

Why are state representatives or state agencies reluctant to participate in the process discussed above? Could the state be worried that a stronger degree of involvement may reduce the authority of the pastoralists in the co-management system (Jentoft, 1998)? Alternatively, is it easier for the state to maintain less involvement because of the criticism that it could receive after decisions are made? The parties in the co-management process work toward agreement on plans for sharing management rights and responsibilities. However, one important topic of discussion in co-management is whether users can be entrusted to manage their resources (Pomeroy, 2003:249). The

current government has embraced a solution in which governmental officials engage in formal decisions with user representatives in committees and boards but practice a hands-off strategy with regard to internal issues among pastoralists. This strategy is not necessarily in the interest of the pastoralists, many of whom have requested that an independent third party facilitate conflict resolution among them (Prestbakmo and Ravna, 2009; Hausner *et al.*, 2012).

8.4 Co-management as social learning and problem solving

Whether there are systems of government or governance, broad or narrow user group participation, or a combination thereof, uncertainties and surprises always accompany the management process (Berkes, 2007; Elbakidze *et al.*, 2010). By learning from mistakes through trial and error and adjusting the system accordingly, those involved in the system can better adapt to existing social and ecological circumstances (Armitage *et al.*, 2007; Sandström and Rova, 2010). A process of ‘learning by doing’ generally leads to a better understanding of specific needs and may create new opportunities to involve institutional actors (Borrini-Feyerabend *et al.*, 2007:103); in practice, these outcomes are likely to increase the quality of the system.

The reindeer husbandry co-management system has been rooted in legislation since the 1978 law, but the system became more direct and distinctively stronger following the implementation of the 2007 law. This foundation was important for the reindeer husbandry industry, as it served to strengthen the legal security of the participation of Sami pastoralists in policy formulation (Paper #1). Notably, the 2007 law was prepared by a committee in which the majority of the members were Sami pastoralists. The law-making process was lengthy and involved regular consultations with the NRL and the Sami Parliament. These consultations ensured that both professional and local knowledge were considered throughout the process. The idea behind the law was “co-management” and a legal arrangement that was adapted to local needs (Ot. prp. nr. 25 (2006-2008)).

Properly functioning co-management must rely on the multiplicity and diversity of the knowledge and experience among those who are involved in the system. Different social actors possess different capacities and comparative advantages in terms of management, and partnerships emphasize and build upon the complementary roles of

individuals. However, different social actors may also possess conflicting interests and concerns. The challenge is to create a situation in which everyone can obtain greater benefits through collaboration than through competition (Hanna and Jentoft, 1996; McCay, 1996; Jentoft; Borrini-Feyerabend *et al.*, 2007). Although already in force, the 2007 law is still not fully functional because it has taken many years for the state to complete all of the regulations that are necessary to ensure that the system functions properly. Moreover, many districts still struggle with their self-management tasks. In many Area Boards, there is more rivalry than cooperation, as different parties are more engaged in publicizing their views than in finding solutions that will work for everyone. Thus, the knowledge base of the boards, which is their greatest asset, is not always used in an optimal manner. If power struggles determine the type of knowledge that is used in the boards, then I question how the legitimacy of the board decisions are affected (Paper #2).

A system without the ability to change will lack the quality of adaptability and will thus be likely to generate less social learning (Hanna and Jentoft, 1996). Generally, both adaptability and social learning are fundamental factors required to solve problems (Berkes, 2007). Without adaptability, the reindeer husbandry co-management system will be unable to implement the changes that are necessary to meet the needs of the social and ecological system. Moreover, without social learning, co-managers will not know how to solve the social and ecological problems in the reindeer husbandry industry. Some scholars argue that the most important feature of co-management regimes is the ability to create management partnerships that are capable of responding to varying needs in an efficient and flexible manner (Berkes, 1996; Feeny *et al.*, 1990; Carlsson and Berkes, 2005; Borrini-Feyerabend *et al.*, 2007). In this project, we asked how flexible these formal systems may actually be (Paper #4). How important are general revisions of management systems, and how important have the revisions of the management system of reindeer husbandry been to the success of the system (Papers #1, #2, and #3)?

How can the governance system be changed to make it more successful? The MAF has been criticized for failing to take the steps that are necessary to render the reindeer husbandry industry in Finnmark a sustainable undertaking. Because deliberations through an extensive co-management system and incentive-based mechanisms have

not worked over such a long period, we ask whether the lack of sanction opportunities and enforcement is a general weakness of the system. Mandatory slaughter is obviously an excessively drastic measure, and the MAF must ensure the reindeer husbandry industry that such actions will not be taken⁹. Rather, the MAF would prefer to continue using incentive-based mechanisms to achieve sustainability. The political inability to act may be ascribed to several reasons.

One reason may be related to international conventions. As indigenous people of Norway, the Sami are protected under international law, which establishes limits regarding the power of the authorities. Norway has ratified ILO convention no. 169 and is thus obliged to follow the recommendations of this convention. Another reason relates to the history of the Sami population in Norway. Throughout the history of the country, the Sami have suffered injustices in a number of incidents that have continued to influence the conscience of the Norwegian public and politicians. With deep historical roots, this conscience may also limit the use of stricter policy instruments to reach political goals. A third reason may be associated with the minor role of reindeer husbandry in the Norwegian national economy and the ability of the Norwegian government to afford to support reindeer husbandry because of oil revenues. The last important factor is that the MAF shares power with the NRL. This structure ensures that the NRL and the MAF agree on politics and the procedures that are used to induce changes in the current regime. My goal is not to provide an exhaustive explanation of why the MAF hesitates to intervene; rather, I simply wish to outline some points that may have influenced the status quo.

Attempts to control reindeer numbers have primarily consisted of incentive-based mechanisms. The incentive system has been beneficial, and pastoralists have been able to participate in the incentive system without reducing their herds. Since 1994, harvest requirements have been associated with subsidies and include the following: i) slaughtering the required number of reindeer, ii) producing the required amount of meat, or (iii) producing a sufficient amount of meat to meet the income level that is necessary to be eligible for subsidies. However, the goals of the subsidy program have not been reached (Papers #3 and #4) (Riseth, 2000). The subsidy programs in other

⁹ http://www.nrk.no/kanal/nrk_sapmi/1.7949481

primary industries have encountered similar results (Jentoft, 1998). As a consequence of this practice, the subsidy system also provides direct payments to pastoralists who do not practice reindeer husbandry in a sustainable manner (according to the state's definition of sustainability) (Paper #3). Hanna and Jentoft (1996:45-46) argue that when government institutions ignore noncompliance and management systems continue on the same track, problems are not solved because the legitimacy of the system decreases for those who do comply with the rules. With the exception of a few changes in the sanction regulations, the management of reindeer husbandry continues to use the same incentive-based mechanisms that have been used previously¹⁰.

Berkes (2007:30) contends that a co-management system (governance system in this context) must generate different policy strategies that lead to desirable solutions to problems. The governance system in reindeer husbandry has suggested many different strategies over the years, but most of these strategies have never been implemented. In an ideal situation, the governance system would select and implement some of these strategies. The effectiveness of these policy strategies would then serve as the basis for the design of new policies. This process is termed feedback-based problem solving and increases the adaptability of the co-management system (Berkes, 1996; Hanna and Jentoft, 1996; Berkes, 2007; Sandström, 2009). An interesting example is the incentive program that pays Sami pastoralists to produce meat. When pastoralists produce more meat, they receive more subsidies. Clearly, this system has not reduced the number of reindeer; rather, the system has stimulated the pastoralists to increase their herds (Papers #3 and #4). Why has the combination of taxation and economic incentives not been suggested? As the size of the herds increases, the taxes that must be paid by pastoralists also increase; thus, the amount of subsidized income decreases as the herds increase. These discrepancies between the desired and actual development of the industry have motivated the project to discuss the reasons that the incentive system has not worked as intended and to analyze whether the regulatory authorities of the reindeer husbandry industry are sufficiently coordinated with the incentive system (Paper #4).

¹⁰ http://www.nrk.no/kanal/nrk_sapmi/1.7949481

In Finnmark, neither the state nor the NRL has acknowledged the criticism of the low ecological sustainability of current reindeer pastoralism (Paper #3) (Riseth, 2000:199). Although the state and the NRL appear to have exhausted their opportunities to use subsidies to reach political goals, they have been reluctant to use other policy instruments. Policy strategies that encourage more sustainable development may solve some of the social and ecological problems. *Inter alia*, the state may adopt a leading role in the co-management process and choose to implement sanctions itself; this strategy may be effective because research from other countries shows that it is difficult for resource users to punish their “own” (Jentoft 1989). If old methods are not successful, then new alternatives must be utilized (Paper #3). Is it the structures of the governance system that has made it so difficult?

8.5 Co-management as governance

Governance is understood as a process by which policies are produced within multi-actor structures that extend beyond a formal hierarchy (Carlsson and Sandström, 2008; Kooiman *et al.*, 2005). The co-management system in the Norwegian reindeer husbandry industry is a large, comprehensive and complex system. Although the co-management system is separate from the corporative system (the NRL), the former is legally intertwined with the corporative system because the NRL has the legal right to negotiate with the state on behalf of the industry and a statutory right to nominate members to the Reindeer Husbandry Board and the Area Board (Paper #1). These cases render the co-management system as more complex than it appears based on its definition. Therefore, Carlsson and Berkes (2005:66) argue that “co-management should be understood as an approach to governance and not merely as some kind of formalized power sharing arrangement”. Co-management also involves the exchange of information, the allocation of resources, policymaking and implementation as well as monitoring, controlling and sanctioning activities. Consequently, co-management is a rather complex system that involves interactions among different state agencies and between state agencies and groups of resource users (Carlsson and Berkes, 2005).

Collaborative governance arrangements have emerged to secure and expand the role of stakeholders and community participation in decision-making processes (Ansell and Gash, 2007; Armitage *et al.*, 2007). Through the complex governance system in reindeer husbandry (see “co-management as power-sharing”) and numerous

cooperative groups (see “co-management as trust building and process”), a rather broad number of stakeholders and communities have been included in the management of the reindeer husbandry industry. This development was important for reindeer husbandry, as Sami pastoralists were relatively poor and experienced difficulties making a living from reindeer husbandry in the 1960s. Although the Sami pastoralists continue to struggle with low income, they have been empowered politically, and their legal rights have been strengthened. Today, these pastoralists play an essential role in the management of their own industry and in their own political development, and reindeer husbandry is considered a cornerstone of traditional Sami culture. The devolution of power in the reindeer husbandry industry has been important because a fair distribution of power between the central level of management and the communities of resource users is believed to be the basis of more legitimate management. This mode of governance brings multiple stakeholders together with public agencies in common forums to engage in consensus-oriented decision making (Jentoft, 1989; Berkes *et al.*, 1991; Berkes, 1994; Berkes, 1995; Pomeroy and Berkes, 1997; Jentoft, 1998; Jentoft, 2000; Ansell and Gash, 2007; Armitage *et al.*, 2007; Borrini-Feyerabend *et al.*, 2007; Carlsson and Sandström, 2008; Sandström, 2009; Elbakidze *et al.*, 2010).

However, the devolution of power may not always have the intended effects on systems. For example, the subsidy system that developed in the corporative system of the reindeer husbandry industry has not resulted in a more sustainable development process (Paper #3). Therefore, we could question whether additional regulatory approaches are needed (paper #4). Another example of this issue is the Area Board system that is operated by the co-management system of reindeer husbandry (paper #2). After examining the effects on legitimacy when the system procedures are correctly handled, I discovered that such outcomes are viewed as unfair (Paper #2). Many factors may contribute to explaining this finding. An important factor is the manner in which the institutions/parties are linked in the governance system (Carlsson and Berkes, 2005). In the reindeer husbandry industry, we observe that the NRL plays a crucial role in the governance system because the organization links the corporative system to the co-management system. Because the NRL has a foothold in both spheres (Papers #1 and #2), the NRL influences both the development of economic policies (in the corporative system) and the regulatory framework in which the

economic policies are implemented in practice (in the co-management system). In addition, the NRL is frequently invited by the state to appoint members from the industry to different committees that are tasked with reviewing the management system (see “co-management as trust building and process”). In contrast, the Sami Parliament is rarely invited to appoint members to these committees. Therefore, representation in the governance system is strongly oriented toward the interests of one interest organization rather than the broader goals of the entire Sami community. As both the 1978 and 2007 laws emphasize the importance of reindeer husbandry for Sami culture, the lack of representation of the broader interests of the community could be questioned.

To explore and analyze the governance system, it is important to clarify who the participants are and from where they come *i.e.*, “starting from the bottom and see how the management is organized, is power really shared, if rights and duties are contracted out, if state authorities have a finger in the pie” (Carlsson and Berkes, 2005:73). Because co-management is more than merely ‘community’ and ‘state’, it is important to determine how and to what extent these linkages connect central-level decision making to local levels (Carlsson and Berkes, 2005:74). In this study, we examined the effects of the power of the NRL in the governance system. However, the NRL’s power in the co-management system differs from its power in the corporative system. In the appointment process of the co-management system, the NRL has less formal power because it only has the right to nominate candidates for the boards¹¹. In the corporative system, the NRL has considerable power, as it is the only industry organization that has the right to negotiate with the MAF. The NRL can negotiate policies with the MAF without considering the satisfaction of its members because there is no other organization to which the disappointed NRL members can “escape” (Papers #1 and #3).

¹¹ Paper #1 concludes that the NRL has the least amount of power among the parties that are formally involved in the process of board appointment, even though the NRL has the largest stake in the outcomes and represents the stakeholders that are most likely to be affected by the decisions of the co-management boards. The County Council and the Sami Parliament have the right to appoint members, whereas the NRL has only a statutory right to nominate members. This conclusion is valid only with respect to the appointment process because the NRL also has considerable power in the governance system, as argued in this introduction and in papers #2, #3, and #4.

The NRL members are democratically elected in a bottom-up fashion (Paper #1). Although many pastoralists appear to be satisfied with the NRL's policies, the NRL cannot please all Sami pastoralists (Ecosystem Finnmark report, 2009). Regardless of how the NRL represents the differing interests, one could question the practice in which one institution (*i.e.*, the NRL) is the only link between the central-level decision-making process and the local level. Berkes (2007:29) argues that good governance is generally associated with efficient user participation and problem solving. The NRL would or could not address certain challenges, such as the excessive number of Sami pastoralists, social conflicts and unclear user rights regarding the common pastures in Finnmark. Typically, interest organizations that encounter environmental conflicts focus on the issues that are popular among their members, such as jobs or increased income, as a failure to focus on such issues would likely lead to a loss of legitimacy and power (and thus members) (Nie, 2003). Although the NRL represents all six reindeer husbandry areas, 75% of all reindeer husbandry is located in Finnmark.

Good governance also entails the principle of subsidiarity, which means that state authority should be vested at the lowest possible organizational level. *Inter alia*, this principle involves multiple links across different levels and domains (Berkes, 2007:29-30). This feature does not appear to be present in the reindeer husbandry organization. For instance, why has the Sami Parliament not been more closely involved in the management of reindeer husbandry? The Sami Parliament may actually be the institution that could optimally examine the management and politics that affect the reindeer husbandry industry from a broader perspective. Is the NRL reluctant to cooperate with the Sami Parliament, or is it easier for the MAF/state to negotiate with only one institution? The Sami Parliament is endowed with relevant resources, such as financial, cultural and human resources, in addition to its political power and connections to other national and international institutions. The NRL is a rather small organization with few resources and confronts many legal, economic, cultural, and social challenges. This finding leads us to question whether the NRL has sufficient knowledge and other resources to adequately address all of the challenges that the industry is confronting. Good governance also involves "overlapping centers of authority" (Berkes 2007:29-30) such that different institutions can deliberate, negotiate and contribute using various types of knowledge and specialties. The co-

management boards could contribute to some aspects of this issue, but as discussed under “co-management as social learning and problem solving”, these institutions may be more suited to addressing politics than resource management.

Experience in various parts of the world indicates that the devolution of authority is necessary but not always sufficient for the optimal management of ecosystems (Acheson, 2006; Armitage *et al.*, 2007), as demonstrated in the context of the Norwegian reindeer husbandry industry (Riseth, 2000). Because governmental actors possess unique resources (*e.g.*, legislative power, budgets, personnel, and democratic legitimacy), these actors exert considerable influence over governance processes. Moreover, different state agencies may play important roles in policy processes (Carlsson and Sandström, 2008). How has the state used these resources to manage the reindeer husbandry industry? As discussed previously (see “co-management as trust building and process”), the MAF has experimented with numerous options, including both legislative changes and various economic policies, to achieve their goals for the industry. However, many of these changes have not offered any major contribution in terms of transforming the current governance system (Paper #3). In this project, I examined several of the issues that arise in the context of these findings. Why is the state so reluctant to intervene (Paper #3)? Why is the achievement of both economic and ecological sustainability excessively difficult (Papers #3 and #4)?

Because many societal problems require commitment from a broader set of participants and new ways of thinking, the tasks of the state are manifold and constantly changing (Kooiman *et al.*, 2005). These circumstances also apply to the reindeer husbandry industry. After decades with an (almost) unchanged co-management system, the MAF unexpectedly proposed a major change to the co-management system in April 2011 (Papers #2 and #3) (Landbruks- og matdepartementet, 2011a). Because this proposal was made without making any prior consultations with the NRL or the Sami Parliament, the MAF did not exactly follow the ‘spirit’ of governance, as governance implies a process in which policies are produced within a multi-actor structure (Carlsson and Sandström, 2008, Kooiman *et al.*, 2005). MAF’s proposal was to abolish the Area Board system, which means that the main link between the central level and the local level in the co-management system will disappear. If this proposal is adopted, then the co-management system

will exist only at the national level (the Reindeer Husbandry Board) and the local level (the District Board and *siida* boards). Between these levels, a state agency (the County Governor) makes important decisions on behalf of the reindeer husbandry industry.

How would these changes affect the governance system? First, the Area Board has a statutory right in the Building and Planning Law to oppose development plans that will negatively affect reindeer husbandry (for more details, see paper #1 pp. 63). The Building and Planning Law also grants the Sami Parliament the statutory right to oppose development plans that have *major* effects on Sami culture, industry and life (Lov om planlegging og byggesaksbehandling, 2008). The question of whether the transfer of authority to the County Governor will ultimately strengthen or weaken land use rights for the reindeer husbandry industry remains unanswered. Because the County Governor has extensive experience with land use cases and human resources, the County Governor has a solid basis for implementing various types of decisions. Second, even if fewer Sami pastoralists participate at the regional level, it is possible to compensate for their reduced power at the regional level by devolving more power to the District Board and the *siidas* (see “co-management as power sharing”). This devolution of power would ensure that the principles of good governance, direct and efficient user participation, and the principle of subsidiarity could be maintained. Third, if the County Governor were responsible for all of the tasks that are currently vested with the Area Board, then this office would actually monitor, control and sanction the Sami pastoralists. Consequently, some of the pressure on the co-management boards would be alleviated. However, comments from the industry (*i.e.* the NRL, some of the area boards and district boards etc.) are that they are more opposed to the administrative process in which this proposal was made rather than to the idea to abolish the Area Board system.

The source of many of the problems in Finnmark appears to be the shared winter pastures. The Reindeer Husbandry Administration has attempted to obtain a voluntary agreement regarding the division into *siida* tenures, but the process failed as a result of overlapping claims (Hausner *et al.*, 2012). It is currently the responsibility of the Sami pastoralists to perform this delicate work, which will require a long process. Without clearly defined rights and clear boundaries for the common winter pastures,

the pastoralists will experience difficulties achieving both sustainability and cooperation (see “co-management as institution building”). Both the unsustainable use of pastures and the lack of cooperation could easily lead to social tension, which is painful to handle in such small and tightly woven communities, especially in situations in which there are no second-order institutions that can assist in finding solutions through arbitration (Riseth, 2000; Prestbakmo and Ravna, 2009; Hausner *et al.*, 2012). Therefore, I have discussed whether it is adequate to give users most or all of the responsibility to reverse unsustainable development, which is the outcome of the winter pasture situation (Paper #2). Some examples already suggest that the pastoralists have taken the law into their own hands and have even committed criminal actions. Without defined rights, neither the Area Boards nor the police can address conflicts regarding pasture use.

9. Conclusion

The overall question in this thesis concerned institutional challenges in the governance of the reindeer husbandry industry. I discussed this question by analyzing the seven necessary phases of co-management (Berkes, 2007:19-20). Co-management is generally considered to be a complex and manifold process (Jentoft, 1989; 1998; 2003; Carlsson and Berkes, 2005; Plummer and Armitage, 2007; Armitage *et al.*, 2007; Berkes, 2007; Berkes, 2009; Sanström, 2009). In the reindeer husbandry industry in Norway, the co-management system is closely intertwined with the corporative system (the NRL) (Papers #1, #2, #3, and #4). This system comprises a large and complex multi-level governance system with the participation of many different groups. This governance system has encountered several institutional challenges, some of which are discussed in this thesis: vague and conflicting sustainability goals, power asymmetries among stakeholder groups, undefined rights on common pastures, a lack of formal institutions in conflict situations, and the absence of sanctioning and enforcement mechanisms.

The primary goals for the management of reindeer husbandry in Norway are ecological, economic and cultural sustainability. Each of these goals is complex and difficult to attain. Nevertheless, the Norwegian state has aimed to achieve these objectives in the same order of priority as listed above through a comprehensive

governance system (Papers #1, #3 and #4). The process of reaching an agreement in such governance systems requires time because several institutions are simultaneously working to achieve sustainability at the national, regional, and local levels (Papers #1, #3 and #4). Generally, these governance processes have reshaped the governance landscape in many parts of the world and markedly increased its adaptability (Olsson *et al.*, 2004; Armitage *et al.*, 2007) in terms of reaching agreement regarding sustainability goals. In a governance system in which power is shared, different stakeholder groups work toward goals related to their views and interests, and some groups are stronger than others. The three pillars of sustainability are vague and ambiguous goals; nevertheless, the interests of policymakers and active herders do not differ substantially (Paper #4) (Hausner *et al.*, 2012). However, the third pillar that is associated with cultural sustainability could be questioned because the interests of the broader Sami community are not represented when political goals are defined.

Power imbalances among stakeholders are evident in many collaborative governance systems (*e.g.*, Ansell and Gash, 2007). A substantial amount of the participation in the political boards is motivated by political agitation for interest groups rather than by goals that serve broader interests. Stakeholders who have less power, who are not members of the most powerful organization(s) in the governance system, who do not have the proper status (*e.g.*, connections through political networks) or who do not have the ability to participate equally with other stakeholders are apt to be manipulated in the collaborative governance process by stronger actors (Paper #2). The NRL also appears to have a markedly higher rate of participation in the governance system than other groups because of the NRL's foothold in the corporative and co-management systems (Papers #1, #2 and #3) (Riseth, 2000). Co-management arrangements exploit multiplicity and diversity to make optimal decisions for all involved parties (Borrini-Feyerabend *et al.*, 2007). Unfortunately, this ideal has not been realized in the reindeer husbandry industry, as some groups often become the minority, and in these cases, the majority vote wins (Paper #2).

With the exception of its proposal to abolish the Area Board, the MAF has not offered any concrete revisions to restore or implement more symmetric power relations among the stakeholders in the governance system (Paper #2). Governance is a process in which policies are made within multi-actor structures in more horizontal political

arrangements (Carlsson and Sandström, 2008). In the reindeer husbandry industry, we observe less participation from pastoralists who are not members of the NRL, and the NRL has a rather low membership rate in Finnmark (Paper #1). Therefore, in this governance system, policies may not be created within multi-actor structures and thus theoretically may not be created in accordance with good governance standards. Abolishing the Area Board system will reduce the ability of the NRL to participate directly in the co-management system. Such a change may also give the governance system a more hierarchical structure, unless the District Board and the siidas are given corresponding power in compensation, which would, in practice, strengthen the position of the Sami pastoralists. The main difference is that the pastoralists would be able to utilize the services of an independent third party with sanctioning power to monitor and control the districts and siidas.

Initially, the co-management system in the reindeer husbandry industry was largely based on existing institutions. Nevertheless, the co-management system has been less successful in West and East Finnmark. Borrini-Feyerabend *et al.* (2007:105) argue that “if the social actors / stakeholders with relevant interests and concerns are not effectively organized, capable of conveying their positions and willing to develop an agreement, the time and resources invested in a collaborative process may be fully wasted”. Many of the Sami Pastoralists in Finnmark struggle with problems related to commons and undefined property rights, and such problems have led to the disintegration of partnerships (Paper #2) (Hausner *et al.*, 2012). Hanna and Jentoft (1996:54-55) argue that successful co-management is difficult without well-integrated communities because co-management is based on trust and cooperation among stakeholders. Borrini-Feyerabend *et al.* (2007:105) explain that co-management systems are difficult to implement and require certain combinations of circumstances that must be fulfilled to ensure success. Some of these requirements are not satisfied in Finnmark. Most importantly, grazing rights on common pastures, which is highly important according to Ostrom (1990:28), are not defined.

Co-management systems build trust between resource users and the state through communication and cooperation. However, this process is time-consuming, and “quick fixes” do not exist. The governance system in reindeer husbandry has been in effect for more than thirty years and can be viewed as an interesting example of this

dynamic. Cooperation between various state agencies and groups of resource users has served as the basis for management revisions throughout the entire period, although the state has not actually addressed the relationship and tensions among the Sami pastoralists. Rather, the pastoralists rely on self-determination to solve problems (St.prp. nr. 25 (2006-2007)). All or most societies are founded on professional legal systems with specialized professionals who guide, assist and, if necessary, arbitrate among people as such societies develop. Furthermore, low-cost conflict resolution mechanisms and third-party arbitration have been regarded as essential for building trust and achieving sustainability (Ostrom, 1990). Many Sami pastoralists find self-determination to be a painstaking process because they must become their own “police, judge and jury” (Paper #3) (Prestbakmo and Ravna, 2009; Hausner *et al.*, 2012).

By learning from mistakes and adjusting the management system accordingly, policymakers can adapt the system to the changing social and ecological environment (Armitage *et al.*, 2007; Sandström and Rova, 2010). Modern co-management regimes are founded on formal laws and regulations, and changes are often laborious, expensive processes, as shown in the context of reindeer husbandry in Norway (Paper #1). Groups with vested power in the system, such as the NRL, might also be reluctant to adopt changes because they fear the loss of their power in the system (Paper #3) (Riseth, 2000:162-163). Many economic incentives have not functioned as intended, and pastoralists who have received subsidies but have not practiced ecologically sustainable husbandry have not been sanctioned. Perhaps because of the previous injustices that the Sami people have suffered and the rights that are accorded to them through international law, the state has been reluctant to initiate further regulative measures in the reindeer husbandry industry (papers #3 and #4). However, the histories of other places and industries show that incentive-based mechanisms must often be supported by the “shadow of the state”, including enforcement by regulations or courts (Ansell and Gash, 2007:553). Such enforcement mechanisms are currently lacking in the Norwegian reindeer husbandry industry.

Why do most of the problems that are associated with the implementation of actual government policies appear in Finnmark? It might be hasty to conclude that Sami pastoralists in Finnmark are merely rational pastoralists who act in their own self-

interests or “undersocialized”, as termed by Dennis Wrong (Granovetter, 1992). In a culture that has been built on traditions that are more than a thousand years old and that has evolved in a hostile environment, opinions that are incompatible with common Norwegian cultural understanding may form (Riseth, 2000). In this context, recent research has demonstrated (Hausner *et al.*, 2012) that the pastoralists in question generally support an adaptation of reindeer numbers to pasture capacity. However, most pastoralists follow a “not in my backyard” philosophy, according to which it is always others (*i.e.*, the owners with very small or very large herds) who should adjust their herds. There is also a widespread feeling among these pastoralists that the herding licenses and subsidies that were granted in the past allowed an excessive number of pastoralists to accumulate herds on shared pastures. However, there is also a widespread feeling among the pastoralists that the herding licenses and subsidies granted in the past allowed too many pastoralists to accumulate herds on shared pastures. Likewise, it is perceived that the transfer of responsibility to the pastoralists to agree among themselves to solve the problems is a repudiation of responsibility on the part of the authorities.

Finally, it could be discussed whether these problems are actually related to the governance system or whether there are other causes behind the lack of adaptation. The attainment of sustainability goals has also been difficult for Sami pastoralists in the northern parts of Sweden and Finland. The governments of Sweden and Finland also developed economic rationalization policies in approximately 1970, but the subsidy level is much higher in Norway than in Sweden and Finland (Riseth *et al.*, 2007). Economic rationalization policies that emphasize herd restructuring combined with benign winters could have caused these changes in all three countries (Forbes, 2006). Although Sweden has a low subsidy level, the industry receives a rather high level of compensation for the loss of reindeer due to predators. The management system in Sweden has three boards at the regional level, and approximately 40% of the board members are Sami pastoralists. These boards do not make any politically important management decisions and are not actually co-management boards according to the definition in this thesis (Moen and Danell, 2003; Jernsletten and Labba, 2004; Riseth *et al.*, 2007). The reindeer husbandry industry in Finland did not receive any subsidies prior to 1994, when Finland became a member of the European Union. Additionally, Finland has the strictest regulation policies. The management

system in Finland is hierarchical, and there are no co-management boards in which pastoralists and state representatives share responsibility for major tasks in the reindeer husbandry industry (Jernsletten, 2002; Myrvoll, 2004; Riseth *et al.*, 2007). It is puzzling that the governance system in Norway has not attained a higher degree of sustainability than the more hierarchical systems in Sweden and (especially) Finland. In this thesis, I identified some of the weaknesses in the current governance system. These weaknesses may explain why the Norwegian system has been unable to counteract such unsustainable trajectories. There is a need for comparative studies across Scandinavian countries to truly understand the relative influence of the governance system versus other causes of the lack of adaptation.

10. Presentation of papers

This section provides a brief introduction to the papers that are referenced in this project and the ways in which they are related to one another.

Paper #1:

Management of reindeer husbandry in Norway - Power sharing and participation.

Many governments realize that the optimal method of managing natural resources is to include resource users in governance systems to increase the legitimacy of such systems. In the Sami reindeer industry, the Norwegian government has implemented two different management models to meet this challenge. First, there is a corporative management model in which a few democratically elected Sami pastoralists represent the entire industry in its annual negotiations with the government. Second, there is a co-management model in which Sami pastoralists are represented in boards at the local, regional and national levels. The government has delegated a number of management functions to these boards. In addition, there is also a hierarchical administrative management system in which only public officials serve as employees. Nevertheless, media reports, surveys and interviews suggest that dissatisfaction exists among Sami pastoralists, who claim that the system is not sufficiently inclusive. I argue that the elections of Sami pastoralists to the different co-management boards and corporative units have been challenging because it is difficult to establish systems of representation that are fair for everyone involved. Pastoralists have varying opinions with regard to which institution should appoint members to the co-

management boards. The paper also argues that it is complicated to ensure that such comprehensive systems actually work as initially planned. It is difficult to link all of the institutions in the management system together in a fruitful manner. We find little communication among the institutions in the reindeer husbandry management system.

Paper #2:

Problems and challenges for user participation: The system of user participation in the Norwegian reindeer husbandry industry.

This article is based on a case study of reindeer husbandry management in Norway. I argue that the inclusion of resource users in a co-management process may sometimes increase social tension and weaken the system of governance. The co-management experience indicates that the system works well in most areas. However, because of differences in contextual circumstances, the system suffers from a legitimacy deficit with respect to how the representatives are appointed and how interests are distributed among the various boards. The study argues that even if policies and institutions are adapted to local contexts, a stronger connection between the co-management boards and other institutions, such as the Sami Parliament and the Reindeer Husbandry Administration, may be necessary. Specifically, I argue that rather than increasing legitimacy through equal user-group representation in management decision making, the actual structures of the system—in particular, nominations and appointments—may lead to unequal user-group representation and thus threaten the success of the management system.

Paper #3:

Incentives and regulations that are designed to reconcile conservation and development: Thirty years of governance of the Sami pastoral ecosystem in Finnmark, Norway.

Incentive-based mechanisms are regarded as efficient instruments for reconciling conservation and development. Because these win-win objectives have often been difficult to accomplish, cross-compliance has been suggested as a means of ensuring sustainability. A popular instrument in the Common Agricultural Policy (CAP)

reform, cross-compliance obligates producers to conform to production requirements and environmental standards to qualify for direct payments. Since 1990, cross-compliance has been the main policy in the Sami reindeer husbandry industry in Finnmark, Norway. All direct transfers to Sami pastoralists have been connected to harvesting demands to decrease the number of reindeer and thus conserve pastures. The incentive-based mechanisms are chosen through negotiated agreements with the Sami Reindeer herders' Association of Norway (NRL), whereas the regulation of reindeer numbers and access to pastures are delegated to co-management boards. Despite the heavy involvement of Sami pastoralists in policymaking, these win-win objectives have not been achieved. Although the cross-compliance program could have been improved by payments based on results over time, the lack of effectiveness in terms of adapting the reindeer numbers to pasture capacity is likely due to the lack of regulations on common pastures from the administration or the co-management boards. Despite the long-term failures of the cross-compliance program, the progress toward policy change has been slow, which could be explained by the strong position of the NRL in the negotiated agreements. In the annual negotiations with the state, the NRL has desired fewer changes to the efforts to create a more sustainable reindeer husbandry industry than the state has. Such changes have usually been incremental adjustments with little effect on sustainability.

Paper #4

The ghost of development past: The influence of economic security policies on Sami pastoral ecosystems.

Any efforts to meet the millennium development goals (MDGs) must reconcile conservation with development interventions to ensure economic viability over time. Particularly in marginal and risk-prone areas, the erosion of resilience could increase the susceptibility of production systems to environmental risks that compromise economic security. By conducting longitudinal analyses of long-term data records, we investigated the effects of *big push* policies on the Sami pastoral ecosystems in Arctic Norway. The *big push* was accompanied by the accumulation of reindeer herds and a corresponding degradation of resilience, which increased the susceptibility to herd losses via predators and adverse winters. For the last 20 years, the Norwegian government has attempted to halt the degradation of its pasture ecosystems and reduce

its susceptibility to environmental risks. These intended *win-win* policies have primarily been based on economic incentives, which have been developed with the Sami pastoralists through negotiated agreements. We argue that the continued degradation of the Sami pastoral ecosystems is a “ghost of development past”, as the *big push* policies have resulted in an economic security trap (EST). The gradual reduction of resilience has persisted, as the *ex post* payments of disaster relief and predator compensation have impeded the long-term actions that are necessary to reduce susceptibility to environmental risks (*i.e.*, *ex ante* policies). Thus, these policies have increased the dependence of the government on elevated economic inputs to manage risks. The transfer of liability for managing risks to benefactors through both *ex ante* and *ex post* policies has further discouraged and constrained opportunities for adaptation by the pastoralists.

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Paper 1

Paper 2

Paper 3

Paper 4



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