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Can Traditional Knowledge Play a Significant Role in Nature Management?

Reflections on Institutional Challenges for the Sami in Norway

Árbediehtu as Knowledge and Resource

All societies have a knowledge base which forms a foundation for the activities of everyday life. This is passed on from generation to generation, and individuals have access to it in their daily lives (Berger & Luckman 1980). In the Sami community, this knowledge is called árbediehtu, Sami traditional knowledge. It is part of what is known internationally as indigenous or traditional knowledge. Árbediehtu is an independent knowledge system deeply rooted in Sami culture and the Sami view of life. Fikret Berkes (2008) has studied analogous systems and calls them *knowledge-practice-belief-complexes*, based on the identification of coherent systems, see Figure 1.

We have adjusted the author's original figure (Berkes 2008, 18) in order to emphasise our focus on traditional knowledge and practices.

The figure has been designed for analytical purposes, i.e. to be used as a tool for understanding the basic relations between nature, knowledge, use and the relevant social context. The figure shows several internal levels: an intact nature and resource base; traditional knowledge about animals, plants, earth and landscape; traditional practices and management systems; social institutions with effective rules and customs/moral codes and a world

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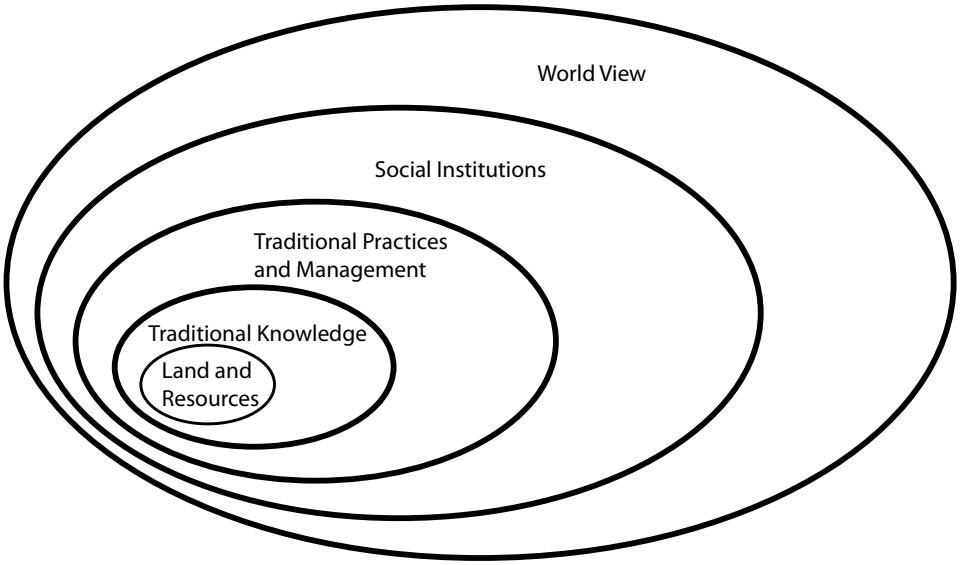

Figure 1. Levels of analysis for traditional knowledge and practice systems (Adapted from Berkes 2008, 18).

view including religion; ethics and belief systems, which forms a basis for interpreting the world we observe around us.

The Á*rbediehtu* project focuses on the mapping, preservation and use of Sami traditional knowledge, i.e. the second and third levels in the figure. My aim in this presentation is to shed light on the significance of the fourth level, the social institutions, in interaction with the knowledge and its use and preservation. The conservation and use of Sami traditional knowledge imply a series of challenges. In this article we consider whether an institutional approach may contribute to a better understanding of the possibilities of meeting these challenges. The article aims to discuss which institutional conditions are, or may become, significant for the preservation and use of árbediehtu. The main focus will be on the use and management of nature, and the examples discussed are based on Sami conditions in Norway.

In order to discuss the interaction between knowledge and institutions, I would like to start by relating árbediehtu to epistemology.

Knowledge

Sami traditional knowledge is found locally with people who maintain a traditional Sami way of life (Vars 2007; Nordin 2008). To refer to the knowledge as traditional implies that its foundation goes back in time, and that it is passed on from generation to generation. Important fundamental aspects of this knowledge include surviving in nature, coping successfully with everyday activities, making a living, managing in life, etc. In the Sami context, it also includes more specific knowledge within limited spheres of activity, e.g. hunting, fishing, reindeer herding and *duodji* (Sami handicraft). Almost all of this knowledge is *practical knowledge*, i.e. knowledge about how to do something; "knowing how", as opposed to knowledge about what something is; "knowing that" (Ryle 1980). A distinctive characteristic of all practical knowledge is the fact that the form and content of the knowledge are inseparable from the bearers of that knowledge or the situations where it is taught and used. Nordtvedt and Grimen (2006) call this the *indexicality* of practical knowledge, i.e. that the knowledge has distinguishing marks showing where it comes from, who possesses it, and what it is used for. The design of the traditional Sami costume, for example, will tell most Sami people which area it comes from, the more initiated will be able to place it in specific families, and experts can often see exactly who the tailor was.

In Western history, practical knowledge has long been allocated to an epistemological shadow world, i.e. been under-communicated. This is the historical heritage from Plato and his concept of knowledge (*episteme*) as substantiated, true understanding. In the Western tradition, it is precisely *episteme* which has been the model for scientific knowledge[1]. By contrast, practical knowledge consists of skills based on familiarity with the world around us, and is therefore more difficult to articulate in relation to the Platonic concept. Plato's student Aristotle, however, introduced a distinction between *episteme* and two other forms of knowledge: *techne* and *phronesis*. While *episteme* is demonstrative knowledge about something eternal and unchangeable, *techne*[2] is knowledge about how to make things, and *phronesis* is knowledge about morally sound actions. In árbediehtu, everyday knowledge

1 We thus typically call the theory of knowledge *epistemology*.

2 Techne is the origin of the term *technology*.

about arranging fishing nets, setting grouse snares and drying and smoking meat would be part of *techne*, whereas Sami life wisdom, including ethical and moral judgements, would come under *phronesis* (Jentoft 2006). These two concepts from antiquity embrace much of what we today call practical knowledge, but they were "re-discovered" relatively late in the last century (Nordtvedt & Grimen 2006) and have thus had limited influence on Western scientific thinking and practice.

However, the same authors (Nordtvedt & Grimen 2006) emphasise that practical and theoretical knowledge should be recognised as equally important forms of knowledge, since knowledge is not only expressed verbally, but also through action. They point out that there is much common ground between indexed (practical) knowledge and theoretical knowledge. Summing up, the authors state that practical knowledge is "learnable, criticisable, transmissible and articulable through action. And it may accumulate." (Nordtvedt & Grimen 2006, 190).

As practical knowledge is found in people, it is also personal knowledge. Knowledge may be seen as an interaction process between individual and culture. Personal knowledge is thus a mediator between human interests and an intersubjective way of thinking. It makes man a cultural being and bridges the conflict between tradition and reason. In using language, we participate in the knowledge and ideas woven into tradition, society and culture (Polanyi 1958; Rolf 1995). In accordance with this, the formation of knowledge is a process which is at the same time both social and deeply personal (Polanyi 1958). These two aspects of the nature of knowledge also have a more general manifestation in that knowledge is not only fundamental to all societies but is also a commodity which can be bought and sold in a market (Reichman & Franklin 1999).

Knowledge may also be understood from the perspective of common-pool resources or "commons" (see below), as knowledge is developed, used and maintained within both large and small variants of human communities.

Commons

Commons are resources that are common to large or small groups of people. In the well-known article "The Tragedy of the Commons" (Hardin 1968), the author uses the term to signify a free resource where no limits are imposed on

the users' exploitation of the resource. This use of the concept deviates both from the classical use and the use in the international research on commons which has evolved since the mid 1980s. Even though the concept may be used somewhat freely, the legal use of the concept is unambiguous in defining the right of commons as an exclusive collective right of ownership or use of a resource area (Jentoft 1998; NRC 2002). This right may belong to a limited group, such as a local rural community.

In the interior of Finnmark County, the *meahcci* (uncultivated outlying land) in Guovdageaidnu (Kautokeino) was typically a commons until an all-year road was built a generation ago. It was used exclusively by the *dálonat* (settled Sami) during the growing season and in cooperation with the reindeer herding Sami in the winter (Buljo 2008; Hågvar 2006; Riseth et al. 2010; Riseth & Solbakken 2010). Even though the local population has, over the last decades, been deprived of control through public measures, *meahcci* still shows clear signs of being a commons.

The growth and spread of the Internet has made it clear that just as with other commons, *knowledge commons* are also subject to social dilemmas, involving misuse and theft, exclusion and overpricing, and insufficient maintenance and quality assurance (Hess & Ostrom 2006).

Árbediehtu may also be understood as a commons. Such knowledge is a significant resource for those who master it, and it is exclusive in the sense that it is not accessible to all. At the same time, it presents a challenge as regards maintenance and transmission to future generations. It is also vulnerable to competition because of modernisation or marginalisation of the Sami way of life and there is furthermore a risk of cultural elements being misused by outsiders.

The Sami University College has compiled a report which evaluates how documented traditional knowledge should be managed (Joks 2009). The report discusses the relationship between individual and collective ownership of knowledge from an indigenous perspective and refers to a report written by the present chair of the UN Permanent Forum on Indigenous Issues, Victoria Tauli-Corpuz, who emphasises that collective ownership implies that knowledge belongs to a community, not an individual (2003). In accordance with this, the knowledge management report (Joks 2009) also stresses the importance of building up data bases and securing information systems as well as strengthening the role of the local community in the management

of knowledge. Tauli-Corpuz (2003) also emphasises that knowledge only has meaning within its own society, making it therefore difficult to move knowledge without it losing its original meaning. This last point is clearly connected to the above-mentioned indexicality of árbediehtu. This also gives relevance to a commons approach. In reality, it can often be difficult to distinguish between knowledge about a resource and the actual physical resource linked to such knowledge. Formal access to a resource may not guarantee successful use of the resource; a fishing license is in itself not sufficient to catch fish. In order to fish successfully, one normally needs knowledge of both the location of the fish and the use of the equipment. In many cases, practical knowledge will be the key that gives *de facto* access to the resource[3].

As previously mentioned, this article focuses mainly on institutions, but in addition to the social aspect of knowledge introduced thus far, we also need to consider the economic dimension, e.g. how far knowledge may be seen as a good.

Goods

Unlike standard economic theory which has divided goods into either private or public goods (Samuelson 1954), international research on commons resources has aimed at differentiating the perception of goods on the basis of certain general features, partly because of the importance of the management aspect. Table 1 presents an understanding of goods based on two dimensions; horizontal – whether the consumption is *rivalrous* or not, and vertical – whether it is easy or difficult to *exclude* others from consumption. If the consumption is rivalrous, it means for example that if you catch a certain fish, I cannot catch the same fish[4]. Whether it is easy to exclude others from a specific good will partly depend on whether the good is clearly defined.

The table shows four types of goods, where the two classical types, public and private goods, constitute extremes in having opposite properties in both dimensions. Club goods and common-pool resources are intermediate

3 The example here is typical *techne*, whereas *phronesis* will be important in the management of the resource (Jentoft 2006).

4 At the same time, your catch this year will not necessarily limit my catch next year. In this case, it would be non-rivalrous consumption.

Table 1. A general classification of goods (adapted from Ostrom & Ostrom 1977)

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	RIVALROUS CONSUMPTION	
	Non-rivalrous	Rivalrous
Difficult	**Public goods** (e.g. weather forecasts, beautiful views, museum collections)	**Common-pool resources** (e.g. pastures, libraries, knowledge communities, teaching aids, counselling)
SIMPLICITY OF EXCLUSION		
Easy	**Club goods** (e.g. concerts, subscriptions, membership of a cultural association)	**Private goods** (e.g. reindeer, computers, books, personal knowledge of hunting techniques)

types. The common feature of public goods and common-pool resources is the difficulty of excluding potential consumers from them. For *public goods*, this is not a problem, as their consumption does not reduce them in any way. If you and I look at the same view or listen to the same radio programme, these goods are still accessible to other consumers. However, in the case of *common-pool resources,* e.g. the limited number of reindeer compatible with sustainable use of specific pasture land presents a challenge (independent of the difficulty in establishing the precise limit). There may similarly be a limit to how many apprentices a *duojár* (Sami master craftsman) has the capacity to teach, or how many doctoral students a professor can supervise. *Private goods* are distinguished by rivalrous consumption, but do not present a problem as one can easily exclude others from them. *Club goods* are easily excludable even though their consumption is non-rival.

It is important to note that the table only concerns the consumption of goods. For many goods with unproblematic consumption, their supply and maintenance may well present problems. This is what is called *the free rider*

problem. In the case of public goods, this problem is often solved in that the State provides the good, and that its supply and maintenance is financed by taxation. However, in the case of common-pool resources: Who is to take the responsibility for maintaining a reindeer corral? It should also be noted that similar but easily excludable goods (club goods) are easy to finance directly.

Specific goods cannot always easily be classified according to the table above, but the table does illustrate some common types of problems and challenges. It also shows that certain elements of árbediehtu can in principle come under each of the four types of goods. The collective ownership of indigenous peoples' knowledge emphasised by Tauli-Corpuz (2003) belongs to the categories of public goods and common-pool resources. It is important to note that for knowledge-related goods, there will often be a dynamic relationship between these two categories and the two individual categories, club goods and private goods, where the latter two will depend on the former two. However, it is often the relationship of individual goods to markets that creates challenges for árbediehtu.

Árbediehtu is put to the test in that it forms the foundation for the livelihood of the knowledge bearers. Because the knowledge is continually tested, it also has to be dynamic and adapt to changes in nature and society. Encounters with modern technology and Western society challenge traditional knowledge through e.g. markets offering simpler or more modern products and solutions. This can constitute a significant threat to árbediehtu, as the knowledge is tied to established practices that must be maintained in order to keep it intact.

The critical point will be how far traditional practices can be preserved parallel to new ones being introduced, as the Nenets are reported to be doing (Stammler 2008). Correspondingly, the reindeer herding Sami who still keep draft reindeer[5] and use them for racing, even if they use snowmobiles in their everyday lives, contribute to maintaining árbediehtu about taming reindeer and using them as draft animals. This shows how individuals, by developing their personal knowledge, contribute to the maintenance of a common resource. At the same time, the introduction and spread of the snowmobile in Sami reindeer husbandry (Pelto 1973; Nilsen & Mosli 1994; Paine 1994) is a good example of how innovations immediately perceived as beneficial may

5 Intensively tamed reindeer traditionally kept for transport of persons and goods by hauling sleighs (in winter) or pack saddle (in summer).

contribute to a very rapid change[6] in traditional practices and consequently help to undermine a common knowledge resource.

Kalstad (1997) takes an extreme view of this process in stating that in modern Sami reindeer herding:

> "…knowledge about nature, animals and other people has lost some of its value… However, the technology ... has rendered the traditional knowledge dispensable" (Kalstad 1997, 140–141).

Production of the *lávvu* (traditional Sami tent) for sale may illustrate another type of problem created in the encounter with external markets. For many years the Sami company Venor in Guovdageaidnu (Kautokeino), basing its expertise on traditional knowledge, has been producing both traditional and modern *lávvu* tents and selling them commercially. The collective traditional knowledge here forms the basis for the market-oriented production of a commodity. Other companies, without any ties to the Sami community, have since started producing modern *lávvu* tents, based on the same collective Sami knowledge. Vars (2007) points out that:

> "…collective knowledge should still be collectively managed and owned, but there is a need to clarify how and by whom consent for the use of Sami culture in various contexts should be given. … how such knowledge and cultural expressions should be documented, managed, compensated, distributed and re-transferred." (Vars 2007, 161–162.)

Before moving on to a specific discussion of institutional aspects of Sami traditional knowledge, we shall consider in more detail the idea of institutions.

What are institutions?

Institutions may be described as frameworks and social conditions for actions. We are always influenced by standards or rules for what is acceptable, correct or sensible action in different situations. Institutions are, to put it rather simply, these standards of formal and informal rule systems that govern social

6 The (probably) first snowmobile salesman came to Guovdageaidnu/Kautokieno in 1961 and left without any sale. Some of the first snowmobiles were bought in 1965. Four years later 95% of the reindeer herders had bought a snowmobile.

intercourse. Institutions may be explained as constant social structures that give meaning and stability to social life. Different social arenas are governed by different institutions. One definition that sums it up is:

> "… the conventions, norms and formally sanctioned rules of a society. They provide expectations, stability and meaning essential to human existence and coordination. Institutions regularize life, support values and produce and protect interests." (Vatn 2005, 83.)

Different aspects of institutions

In the traditions of different social sciences, e.g. economics, sociology and anthropology, institutions are defined in somewhat different ways, and the different sciences emphasise different aspects of institutions and their functions. The organisational sociologist Richard Scott (2001) has summed up different views and aspects in a common model. He describes institutions as consisting of three pillars: 1) the *regulative* pillar, 2) the *normative* pillar, and 3) the *cultural-cognitive* pillar. Specific institutions may be held up by one, two or all three of these pillars. Alternatively, we can consider the pillars as different layers of a structure that governs our actions.

In the regulative pillar, there are typically written *laws* and *rules* which are followed up with control of compliance and sanctioning of breaches. Speed limits on the roads are a typical example, where with the surveillance of automatic cameras, tickets are issued when we are photographed driving faster than the speed limit allows. The argument for such rules is expediency; in this case the intention is that the rules shall contribute to reducing the speed on the roads and in turn reduce the number of traffic accidents, injuries and deaths. It is also typical for such institutions that a third party, society's coercive apparatus, is behind the enforcement. This means that everybody knows that breaking such rules may result in punishment. Most of us adapt by complying with most of the laws and rules, if for no other reason than the desire to avoid punishment.

The normative pillar first and foremost embraces *values* and *norms*. Values are conceptions about preferred or desirable conditions, and indicate standards for actions and behaviour. Norms specify how things should be done and define legitimate means to reach aspired goals. Normative systems place limits on what is considered socially acceptable behaviour. In some Sami communities,

Laestadianism[7] has such a strong position that failure to attend congregations is likely to be perceived as a breach of socially acceptable behaviour. In other Sami communities, where there might be a similar percentage of Laestadians in the population, normally only confessors and seekers that attend meetings. Others are not expected to attend. In other words, the behavioural norms differ in this case between communities.

The cultural-cognitive pillar denotes shared conceptions about what constitutes the social world and also provides a framework for what is meaningful. This pillar comprises common ideas and a shared logic of action, e.g. through symbols and signs that give meaning to objects and actions. Compliance with this type of action pattern may often be due to the fact that one simply cannot imagine doing things in a different way from the usual one, i.e. that one's pattern of actions has become routine to the extent that it has become "the way we do things here". Another term used for such specific action patterns is *conventions*. Conventions are defined as rules for interaction that solve coordination problems and which we adapt to because we generally find it to be in our collective interest (Bromley 1989; Vatn 2005). Even though conventions are not regulated by a formal third party, there could be *social sanctions* tied to breaches of conventions.

In such cases, there will also be the question of norms connected to the compliance with conventions. In many Sami communities, for example, there is, or has been, an exact distribution norm as to which marshes the various families can use to pick cloudberries[8]. Such a pattern may be so firmly established that everybody is fully aware of it and nobody questions it. Then if newcomers arrive who do not know this and are not socially intelligent enough to ask, problems may arise. Maybe they are not only picking on other people's marshes, but also breaking another norm by picking unripe berries? Such deviants will soon get a reputation, stories may be told about them, and they may get a nasty nickname. These are social sanctions, maybe not very strong, but they often work; many adapt after having been warned. Research on such institutions also indicates that the strength of the sanctions should be in reasonable proportion to the offence (Ostrom 1990).

7 Laestadianism is a Lutheran revival movement important in many Sami areas.

8 Here we will not discuss whether this is also a question of rights.

Institutions and legitimacy

Institutions need *legitimacy* to work, i.e. the rules that are assumed to govern our actions must, at least to some extent, be perceived as desirable and reasonable in order for us to comply with them. The closer the correspondence between society's institutions and our own conceptions, the better the institutions will work. As we have shown above, it is also clear that institutions borne by all three pillars will tend to be the most stable ones. Berger and Luckmann (1980) describe legitimising as the release of meaning of another (higher) order based on the fact that institutionalised activities at an early stage develop as repetitive patterns of actions, and that these gradually develop common conceptions among the participants through affiliation with broader cultural frames or norms.

Legitimacy may be connected to different authorities, and what is legitimate may be in dispute, especially in complex situations where support from one authority may undermine support from another, so that it becomes a question of whose support counts the most. Confirmed authorities may therefore maintain structures they consider suitable even if challenged by less powerful groups. The foundation for legitimacy varies between the three pillars. The regulative pillar is concerned with acting in accordance with a prevailing set of rules. In the normative pillar, a deeper, moral basis is emphasised in order to affirm legitimacy. Normative policy instruments tend to be internalised to a much greater extent than the corresponding regulative ones. Thus, the bases for legitimacy vary between the pillars, and they may be in conflict. What is recognised as legitimate will therefore vary according to which elements of the institutions have precedence over the others.

Formal rules that lack legitimacy and are not normally complied with or enforced gradually lose their significance. Even though duck hunting in springtime in Guovdageaidnu (Kautokeino) Municipality is formally only permitted on the Kautokeino River according to the Wildlife Act, and only as a trial arrangement, everybody knows that this type of hunting is conducted over a larger area. It is also important that such hunting goes back a long time, whereas the public attempts at regulation are recent. Institutional analysis has concentrated on studying *working rules* or *rules-in-use*, i.e. the rules that the resource users normally adapt to and comply with[9] (Sproule-Jones 1993).

9 Regardless of whether the custom or practice is legalised by the authorities or not.

Which mechanisms maintain the institutions?

A distinctive feature of institutions is their durability. It is thus reasonable to ask what maintains them. Scott (2001) indicates that they are maintained by various types of carriers: 1) symbolic systems, 2) relational systems, 3) routines and 4) artifacts, and that these carriers cross the three pillars, so that the relationship may be described in a matrix format.

Symbolic systems may thus help to maintain laws and rules, values and expectations, patterns of action and conventions. One example could be how the system of symbols used in traffic signs works to stabilise traffic behaviour by indicating traffic rules and expectations for behaviour in traffic, and also how we generally react automatically by reducing speed when we see a sign symbolising lower speed.

Relational systems are based on patterns of expectations tied to patterns of social networks of positions, which in turn are connected to a pattern of social roles. Such systems both limit and empower the role players while simultaneously expanding and changing. Relational systems are, for instance, a significant element in large governance systems such as a state apparatus, which rests on all three pillars with the power of coercion, the control of norms as well as internalised patterns of action. A bureaucrat who does not have the sense to go through formal official channels may therefore easily get into trouble. On the other hand, the adaptable bureaucrat will often advance in his career more rapidly than a competent, but less flexible, professional.

Institutions may also be supported by structural activities in the form of habitual actions and *routines*. Many institutional analysts refer to routine activities as bearing elements in organisations, but the same may also apply to daily life. Two sisters who live apart but get together one day with their little children do not need to talk about what has to be done from when they start getting the children ready for bed until they can both sit down on their own and chat about old memories, everyday problems or whatever else they might be interested in. The basic structure of routines which they learned in their childhood home is intact even if they solve some problems in rather different ways from the previous generation.

Artifacts are elements of material culture, developed by human ingenuity for use for various tasks. The production of artifacts may be based both on formal rules and on normative standards, and may carry symbolic values.

Modern technology also includes artifacts such as computers, which have to fulfil formal demands for e.g. security, business standards of performance and capacity and less articulated demands for user-friendliness. Sami *duodji* is not regulated by laws, but is subject to very strong norms and values, regarding both production and use. Sami crafts have to unite esthetics and functionality and also follow traditional rules for the cut and design of specific details. The very existence and use of *duodji* also contribute to maintaining traditional customs tied to the use of the objects. Maybe the wearing of traditional Sami clothes also serves to encourage traditional Sami social life and social conventions in general?

Institutional levels and relevant knowledge

At the basic level, institutions comprise the rules we encounter in daily life, e.g. as users of a fishing lake. Whereas for most of the people in our community, the fishing lake is a *guollemeahcci*, a lake where we can catch fish for dinner, the same lake might for a few other families be their *guollebáiki*, a lake where they can catch their winter supply of fish (Schanche 2002). The specific rules followed by all users of this fishing lake are called *operational* rules (Kiser & Ostrom 1982), or *action rules*. But these are by no means the only factors to take into account; we also have to consider biophysical aspects and deeper institutional stipulations.

In studying the management of natural resources, we easily realise that rules are not the only contributing factor in deciding the possible actions of the resource users. How much fish one can catch in a lake naturally depends on how much fish there is, the amount of spawn, the condition of the lake bed, the equipment available, etc., i.e. a whole series of biophysical conditions. Institutional analysis presupposes that rules for harvesting are established on the basis of knowledge (traditional knowledge and/or research-based knowledge) about such conditions. One of the prerequisites for effective rules is precisely that the rules should be well adapted to the resource and its use (Ostrom 1990).

We presuppose a social process behind the establishment of operational rules. In principle, we imagine this to be a *collective decision-making arena*, but in reality the operational rules-in-use often originate from several sources; they may be based on formal decisions like laws, regulations and legal decisions, on informal decisions such as local customs and established traditional practices,

or direct decisions by the resource users concerning agreements on dealing with specific situations when they arise. The rules may also to a varying degree be followed up by monitoring and enforcement. Figure 2 suggests some combinations.

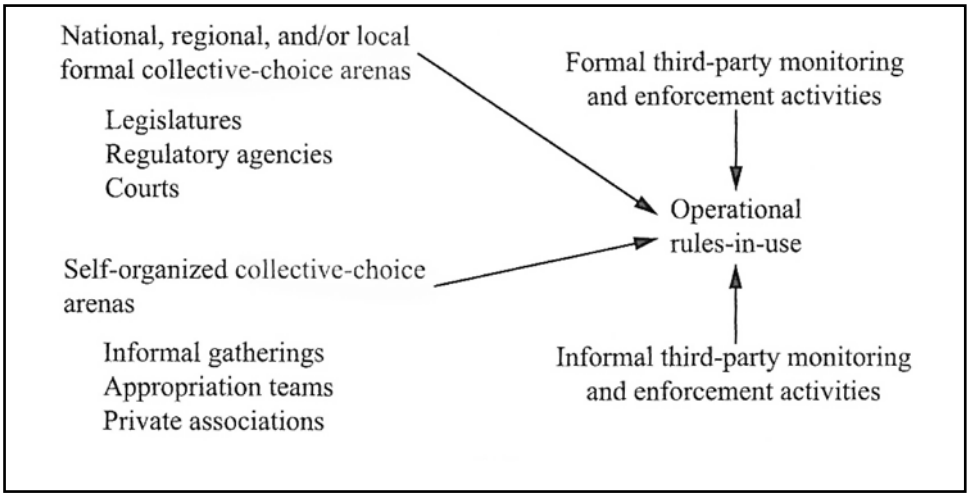

Figure 2. Collective-choice arenas and operational rules-in-use (Ostrom 2005, 62).

If everything takes place within the domain of the traditional Sami subsistence economy (Hågvar 2006), this collective decision level may consist of informal adaptations within a small local community (in Sami *gillevuođđu*) where the various families and extended families over time have adapted to each other's use, even though they may not have formally decided upon which areas may be used by whom and for what purpose. One may also have a formal organisation with an annual meeting and a board, with written resolutions about the use and distribution of resources. In this type of decision-making arena, traditional knowledge will be the basis for assessments and decisions. This does not prevent the use of other types of knowledge if necessary.

However, the collective decision level may alternatively be part of public proceedings, such as the establishment of a protected area pursuant to the Nature Diversity Act. In that case, the frame of reference would be abstract, impersonal and research-based textbook knowledge. Furthermore, in some such processes, local users and interested parties have experienced that there is no actual dialogue at all (Zachrisson 2008; 2010; Arnesen & Riseth 2008; 2009). This may be explained by the theories of *model power* (Bråten 1998)

and *cooptation* (Selznick 1948). The model power theory denotes power by virtue of models of reality in dialogues between different parties and also unequal distribution of what passes for relevant knowledge, who possesses this knowledge, what is deemed relevant, etc. Model power is exercised when one group's perspective comes to control or govern the dialogue without reference to the content of the knowledge as such. Faced with model power, local players may experience being disempowered, regardless of the argumentation they present and the knowledge base for such argumentation, since they do not fit into the model. Cooptation refers to those governing the process establishing connections to key players in whom the public has confidence, which thus contributes to lending legitimacy to the governing powers. This concept may apply when, for instance, local councils or expert bodies reduce the relevance of the local population's argumentation.

The next level in an institutional analysis is the so-called *constitutional* level, where rules apply for how decisions are to be made at collective level, in this case the decision making process concerning a protected area. The framework for such processes may have great importance for the outcome of knowledge encounters between traditional knowledge and textbook knowledge. For public decision-making processes, the constitutional level will normally be the national political level. In our example, this would include the Nature Diversity Act and the National Park Plan, and also the recommendations typically issued by the Ministry of the Environment and the Directorate for Nature Management in the form of guidelines, directives and practices (Arnesen & Riseth 2008; 2009).

The deepest[10] level in institutional analysis is the *meta-constitutional* level. In our context, the example would be international environmental and indigenous policies. The point of this level is that powerful guidelines can be issued regarding the kind of national politics a state should pursue[11]. There has been a rapid development in international indigenous politics and indigenous peoples' rights for the last two decades. The 1989 ILO Convention No.169[12] has been particularly important for the work of the Sami Rights Committee and the final version of the Finnmark Act from 2006, which were concretised in the Sami Parliament's "Guidelines on changes in use of outlying land"

10 In practice. In theory, there are no limits to the amount of levels one may conceive.

11 For a more extensive discussion on this, see Riseth et al. 2010.

12 http://www.ilo.org/ilolex/english/index.htm

from 2007, which attaches considerable importance to a continuation of traditional Sami use. The UN Convention on Biological Diversity from 1993[13] has also been very important for the work on the new Nature Diversity Act, which replaced the earlier Nature Conservation Act as of June 1st 2009 (*White Paper* 52, 2008–2009). Following consultations, preservation of the natural foundation for Sami culture and experience-based knowledge has been included in the statutory objectives of the new Act (*White Paper* 52, 2008–2009; *The Sami Parliament* 2008); see more on this below.

Viewed as a whole, the *institutional* operational conditions for nature use and management are formed in a dynamic interaction between the biophysical possibilities and the guidelines issued at various institutional levels. We see that institutional development in recent years provides new openings for preservation of Sami traditional knowledge.

Sami use of nature and *árbediehtu*

The history of the Sami and the nation states is to a great extent a history of colonisation. This also applies to the history of knowledge. The title of Anton Hoëm's (2007) book "From the World of the Noaidi[14] to the World of the Scientist" gives us an indication of a series of paradigm shifts where the latitude for traditional knowledge has narrowed over time. However, the author points out that in educational research many have taken for granted that there has been coherence between the goal of Norwegianisation on the part of the authorities and the actual everyday school reality. Hoëm believes that there is little research that substantiates such conclusions. The same author gives a straightforward account of the main lines of progress in the social development in Várjjat (Varanger) and shows specifically how it was the post-war restoration and modernisation that first powerfully activated change processes away from basic Sami livelihood strategies and from a Sami barter economy to a modern monetary economy[15]. A main point for Hoëm (2007) is that as long as the school was the only arena for research-based, impersonal and context-free knowledge, the consequences for the knowledge base in the

13 http://www.cbd.int/

14 Noaidi is a spiritual leader (shaman) in the Sami tradition.

15 However, relief work and development of communications during the interwar period (1918–1940) had started this process.

local Sami community were not serious, but he considers that 1945 was a turning point and that the dominant position of Sami traditional knowledge in the local community from that time onwards became gradually reduced.

There is much that indicates that a study of records for other Sami communities would reveal similar patterns. As regards the *dálonat* or settled Sami in Guovdageaidnu (Kautokeino), Johan Henrik Buljo (2008) dates the building of an all-year road in 1968 as a first turning point in a process that opened *meahcci* (the outlying land resources) to outsiders and where later management-related changes, e.g. from the land sales authority in Vadsø, have contributed to undermining the traditional Sami management system and thus the relevance of Sami traditional knowledge.

In her book on the use of outlying land in Tana, Elina Helander ([2001] 2004) argues that state legislation and management contribute to cultural change. Specifically, she refers to how various types of restrictions in the outlying areas, e.g. on motor traffic, building cabins, use of fishing nets etc., make it difficult to combine various traditional activities to make up a *birgejupmi* (livelihood). It is also implicit in Sami upbringing that one has to be flexible towards different possibilities and take account of social realities when moving about in the countryside. Many public decrees and administrative procedures clash with Sami thinking, e.g. that it may not be allowed to take the shortest route or that one may have to give a detailed account of what one has been doing on various trips. In addition to such accounts going against the grain of normal Sami forms of communication, many also consider such accounts to bring bad luck to harvesting[16]. Such restrictions may also make it more difficult to teach children cultural skills.

As also described by Buljo (2008), this author's respondents also allege that the extensive use by the general public of the Sami local areas constitutes a threat to traditional Sami industries. In her conclusion, she asks whether the Norwegian laws and their application "contribute strongly to crushing significant parts of the traditional Sami culture" (Helander [2001] 2004, 29).

We can sum up by concluding that the problems are created by a combination of competition for land and enforcement of public authority in areas traditionally managed by Sami communities without much interference by the authorities. Helander ([2001] 2004) has also, with the concept of semi-

16 Cf. Nils Oskal (1995) on reindeer luck.

autonomous social field (Benda-Beckmann 1997) as her basis, analysed the traditional Sami activity *golgadeapmi* (drift-net salmon fishing) to see how the Norwegian legislation works. Even though Norwegian normative rules exist and there is an (apparently) efficient administration, she has concluded that these laws are pretty much invisible. That is to say, the local population has an established practice that continues more or less regardless of the legislation[17]. They thus have their own effective rules. "The local Sami are conscious of and reflect on the differences between the Sami sense of justice and the Norwegian legislation" (Helander [2001] 2004, 41). She emphasises that members of a local community first and foremost follow the rules and customs that apply there and know their obligations towards other members, and suggests:

> "In reality, there are probably two legal systems at work in large parts of North Norway, the common law legal system and the Norwegian state legislation. Depending on people's respective ethnic identities, their familiarity with local customs and levels of knowledge etc., they adapt to one or the other of the two legal systems..." (Helander [2001] 2004, 42.)

The points here referred to from Helander's work may be summed up in two statements:

- Two competing institutional systems are operational in Northern Norway: the traditional Sami system and the legislative system of the State.
- Sami culture is threatened by the fact that the legislative system is expanding into the semi-autonomous social fields of the Sami communities.

The actual situation as to the relationship between these two institutional systems obviously varies considerably with different activities and customs and with local geographic areas, but we can at least confirm that as long as there exists a traditional Sami institutional system, functioning mostly independently of the official system, it must necessarily be based on a working knowledge system in Sami society.

17 The way Sami involved in reindeer herding react to attempts by the authorities to regulate the number of reindeer in Finnmark may also be seen in this perspective (Riseth & Vatn 2009; Riseth 2009).

A good example of the fact that local management and knowledge systems may hold a stronger position than many seem to think, is the so-called Svartskogen case. The population of Olmmáivággi (Manndalen) in Kåfjord has been using the 116 square kilometre outlying area of Svartskogen for logging and pasture as far back as anybody can remember, i.e. they have managed the area on the basis of traditional knowledge. The State has formally been the landowner for more than 100 years, but in 2001 the local community won the right of ownership to the area by a Supreme Court verdict, based on substantiated claims to immemorial usage (Eriksen 2008).

Elements for a situational analysis

In the introduction, we presented the problem: which institutional conditions are, or may become, significant for the use of árbediehtu in nature management. A status analysis of the position of árbediehtu would presuppose an extensive empirical survey, but we may still present a preliminary outline for assessment. With reference to Figure 1, the basics are:

- Traditional Sami ways of life are strongly tied to an intact natural resource base.
- Á*rbediehtu* forms a significant part of the livelihood basis for Sami communities and activities.
- The use of the traditional knowledge in the form of specific practices and resource management systems is the basis for its preservation.
- Sustainable use of resources depends on well-functioning social institutions.
- A Sami world view provides a common basis for understanding the surrounding world.

Traditional knowledge is one of the basic elements in a "knowledge-practice-belief-complex" (cf. Berkes 2008, 18) and it would be difficult to imagine culturally alive communities lacking such knowledge. Without making a statement as to their relative importance, árbediehtu can be compared to the Sami language as a basic element in the Sami life-world. Preserving and maintaining such knowledge is, in other words, a key cultural-political issue.

Threats

We have already referred to Elina Helander's ([2001] 2004) statement that legislation destroys central elements of Sami culture. With Figure 1 as our starting point, we will extend this perspective to an assertion that local Sami knowledge and practice systems are threatened by several types of external influences over a broad front. This may be illustrated by a series of different processes, whose combined actions contribute to driving *a double splintering wedge* into such a system, see Figure 3.

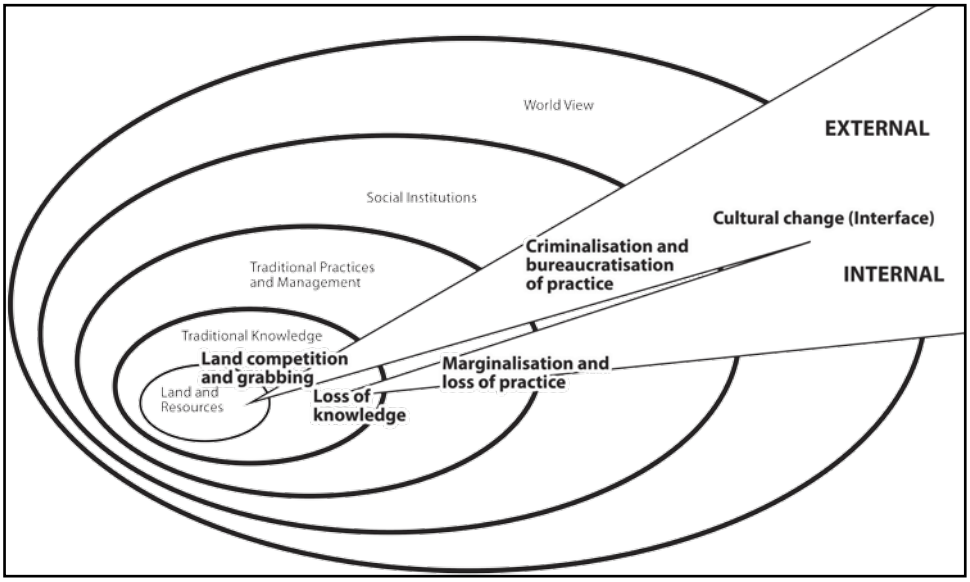

Figure 3. The double splintering wedge. The combined actions of several processes drive a double splintering wedge into a traditional knowledge and practice system.

The figure illustrates that traditional practices seem to be threatened by a series of influences, which include both external and internal sub-processes. The two wedges signify the external and internal influences. Since the levels in the system are contingent upon each other to a greater or lesser degree, the various threats will also be able to create a ripple effect in the whole system.

The external influences are:

- Both external economic actors and the general public contribute to loss of, and competition for, land and resources.
- Criminalisation or bureaucratisation of traditional practices through institutional expansionism from the nation state, which also undermines the local Sami communities' semi-autonomy.

The internal influences are:

- Loss of traditional knowledge.
- Socio-economic marginalisation and/or modernisation which render practices less relevant and less able to survive because of more limited possibilities for transmission.

All in all, different types of influences and the interaction of various factors lead to *cultural change* in the interface between different cultures (Nakata 2008). The challenge will be to steer the changes in a direction which promotes the preservation of traditional knowledge.

The first-mentioned trend, *loss of or competition for land*, both from external economic actors and the general public, is probably one of the strongest external threats to both reindeer husbandry (UNEP 2001) and other Sami primary industries. This trend and the other external trend, *criminalisation or bureaucratisation of traditional practices,* reinforce each other and must to some extent be seen as consequences of both the historical Norwegianisation policy and post-war social modernisation.

A good example of criminalisation and bureaucratisation of a traditional practice is the previously mentioned springtime duck hunting in the Sami district of Guovdageaidnu (Kautokeino). Traditionally, the settled Sami have hunted ducks in spring to obtain fresh meat when this was scarce after a long winter[18] (Hætta 2007). This practice challenges the standard logic of ecological harvesting, which stipulates that hunting shall take place in the autumn and it has therefore been forbidden by Norwegian legislation. At present, the traditional duck hunt is permitted as a trial arrangement, but

18 Before freezers became common the access to other than salted, smoked or dried meat was limited in spring.

limited to the Kautokeino River only, whereas it still remains prohibited everywhere else in Kautokeino Municipality.

These trends have considerable power and dynamics and counteracting them with political and institutional measures is demanding, especially as it will take time before the majority population and the control systems of society are ready to change and fully recognise Sami practices and the physical space and freedom of resource management these require.

The internal trends, *loss of traditional knowledge and marginalisation/modernisation*, are closely linked. The most vulnerable point here is the transmission between generations. When a certain practice dies out with the older generation, the knowledge is often lost at the same time, since the next generation adopts a new practice. Such cases are described as *transmission failures* (Ostrom 1998). For árbediehtu to survive as living knowledge, the most important premise is that it is transmitted to younger generations through practices and that the practices are maintained.

At the same time, it is important to ensure that practices that cease to be in common use are documented and preserved, by the aid of modern media, museums, schools, tradition bearers, etc. This is no doubt an area where the *árbediehtu* project can play a key role both by enhancing the status of such practices, giving "emergency aid" and developing and ensuring permanent organisational solutions (Joks 2009, 57). The Norwegian Government's ambitions to expand such work in a cross-border perspective is promising as regards political support and financing (The Norwegian Cabinet 2009, 42).

These two developmental trends concern conditions within the Sami community and will be a challenge even if the external pressures are dealt with. The challenge is to achieve a development where the new and the old can be integrated in a balanced way from a Sami cultural perspective (Smith 1999; Kuokkanen 2007; Nakata 2008; Porsanger 2010).

New possibilities?

Changes in international political processes relating to both environmental and indigenous issues and the Sami policy of the Norwegian government open up for revitalisation and status upgrade for árbediehtu. These changes create new possibilities, but are limited both by loss of traditional knowledge

and insufficient political and cultural will to pursue this goal. The challenges here are two-sided; both between the Sami and the State/the majority population and internally within Sami society and local communities.

With regard to political authorities, the state apparatus and the majority population, the changes in the official Sami policy in recent decades have been extensive. However, much of this is so far only change at a superior or symbolic level. In areas where competition for resources and institutional expansionism constitute considerable threats, changing the situation for the better will require concerted efforts over a long time.

Elina Helander's ([2001] 2004) analysis and our extension of it in Figure 3 seem to be relevant for large parts of Sápmi (Samiland). I would suggest that the most important conclusion to be drawn from her argument is that it is a major challenge to (re-)create and preserve an institutional, and strictly speaking also physical, space for Sami practices. It is pertinent to note that the Norwegian Government's High North Strategy operates with Sami knowledge only as a supplement to textbook knowledge (*The Norwegian Cabinet* 2009).

It is positive that the knowledge thus gains both attention and status, but this is hardly sufficient for ensuring that árbediehtu remains living knowledge. Porsanger (2010) also mentions this and states that it has been pointed out by many other indigenous peoples. The whole perspective clearly needs to be turned around and the issue seen through the eyes of everyday local Sami reality, so that árbediehtu itself is the starting point. If we adopt indigenous expert Linda Tuhiwai Smith's line of thought about knowledge, we will be concerned with

> "…centering our concerns and world views and then coming to know and understand theory and research from our own perspectives and for our own purposes" (Smith 1999, 39).

This perspective points towards establishing árbediehtu as autonomous knowledge, but this also implies that the Sami must have a self-determination perspective on their own natural surroundings and their own local communities (Kuokkanen 2007; Sara 2004). We may then ask about the role institutions and institutional conditions will play for árbediehtu. Returning to the above presentation of institutions, what might strike us first when explaining what institutions are may be the fact that they are very durable

social structures. In relation to our problem, this has both a positive and a negative effect.

The positive effect is the aspect we referred to from Anton Hoëm's (2007) work, i.e. that the efforts at Norwegianisation have not made as much of a mark as we often think. Randi Nymo's theses (2003, 2011) on health and care systems in the Sami communities of Ofoten and Sør-Troms confirms this; the Sami in these communities have received new impulses and modernised their lifestyles while at the same time maintaining traditional Sami thinking and practice in many areas.

A 2009 survey in connection with proposed nature conservation areas in Guovdageaidnu (Kautokeino) (Riseth et al. 2010; Riseth & Solbakken 2010) also substantiates very extensive and versatile *meahcceávkkástallan* (use of outlying land). Because of its size and scope, this use must play an important role in *birgejupmi* (livelihood) for a large part of the population.

In other words, there are many indicators pointing to traditional Sami practices and knowledge being very much alive over large parts of Sápmi. If we tie this to Scott's presentation of aspects of institutions above, the cause is evidently the fact that the practices and knowledge are linked to the cultural-cognitive pillar and thereby also to the most deeply-rooted institutional structures possessed by mankind.

The negative effect is that in areas where the threatening trends relating to Figure 3 (competition for land and resources, institutional expansionism and socio-economic marginalisation/modernisation) have undermined traditional Sami practices and árbediehtu, formal institutional systems will be a considerable obstacle to re-establishment. Public bureaucracies have their own logic, where laws, regulations and management practices exercise a hegemony and presumably use both model power and cooptation (see above), maybe without reflecting on the fact that they may completely override the local population and their interests.

Institutional reforms may therefore pave the way for new possibilities for what kind of knowledge and what interests should have a hegemony, or at least be given considerable importance, e.g. in natural resource management. The nature management sector, however, has a strong natural science-oriented tradition and has not been very open to other types of knowledge such as traditional folk knowledge (Aasetre 1999). As previously mentioned,

knowledge monopolies and limited openness may lay a foundation for model power and co-opting, rather than real participation (Arnesen & Riseth 2008; 2009).

It often takes a long time to implement such reforms. Even though the Sami Parliament was established nine years after the appointment of the first Sami Rights Committee in 1980, another 16 years were to pass before Norway implemented reforms which could give Sami interests (apart from reindeer husbandry) greater influence on natural resource management than other relevant pressure groups.

The final passing and early stages of enforcement of the Finnmark Act constituted a turning point for nature management in Norwegian Sápmi, perhaps primarily because of the *right to consultation* that was established as a constitutional usage, and formalised through an agreement between the central authorities and the Sami Parliament in 2005. This led to the following:

- An agreement in 2007 between the Sami Parliament and the Ministry of the Environment on "Guidelines for protection plans in Sami areas pursuant to the Nature Conservation Act", giving Sami interests and organisations special rights at all stages of the planning process.
- In 2007 the Ministry of the Environment endorsed "The Sami Parliament's guidelines for assessment of Sami interests regarding changed use of meahcci/outlying land", which contains specific rules for the access of Sami interests to consultations and decision-making processes.
- In the Nature Diversity Act, in force from June 1st 2009, Section 8, Subsection 2 reads: "The authorities furthermore have to attach importance to knowledge that is based on the experiences of many generations through use of and interaction with nature, including such use on the part of the Sami, and which may contribute to sustainable use and protection of the natural diversity". (*White Paper* 52, 2008–2009.)

Here we see that the previously mentioned international processes (e.g. the Convention on Biological Diversity) have influenced the attitude to knowledge in laws and regulations (Riseth et al. 2010).

During the consultations on the Nature Diversity Act, the Sami Parliament worked at getting *traditional knowledge* incorporated as a concept in the Act. This concept is used actively in the Sami Parliament Guidelines mentioned above

and is recognised internationally as a dynamic concept of knowledge (Berkes 2008), but the Ministry still argues that "traditional" may be interpreted as static. Regardless of this difference of opinion, the wording of the Act is still unambiguous, and the knowledge monopoly of the natural sciences has been broken. The challenge now will be to ensure that this provision is complied with in practice.

The establishment of nature conservation areas in Norway has so far been one-sidedly based on a solely scientific concept of knowledge (Arnesen & Riseth 2008; 2009). In this context, it is interesting that the Ministry of the Environment has stopped/postponed on-going protection plans in Guovdageaidnu (Kautokeino) and Karasjok with reference to the Sami Parliament's opposition (NME 2010). This may perhaps open for attaching greater importance to árbediehtu in future management of the areas, should they become protected.

Within the reindeer herding sector, an analogous development can be seen. Since the implementation of the Reindeer Husbandry Act of 1978, the public reindeer herding administration has been very concerned about adapting the extent of the herding to the pasture resource base. In most of Finnmark, these efforts have not been very successful (Riseth 2009a; Riseth & Vatn 2009). In an evaluation from Sami University College (Joks et al. 2006), particular importance was attached to the fact that local experts had not been involved in the work of the administration; this would have given relevance to the knowledge of the herders and enable this knowledge to be included in the basis for the proposed decisions. The reindeer herding authorities seemed to attempt to respond to this criticism, as they then produced guidelines (NMAF 2008) where the criteria for assessment of pasture utilization were not wholly scientific but also based on experience-based knowledge (Riseth 2009b).

In reality, I believe it is difficult to create a larger space for *árbediehtu* in practical nature management without changing the management systems from centralised hierarchical structures towards *co-management systems* (Borrini-Feyerabend et al. 2007), where the resource users participate on a more equal footing with formally educated bureaucrats, and possibly also have the responsibility for nature management returned to them. How to achieve this in the best possible way is one of the big issues in the international debate on nature management (Carlsson & Berkes 2005; Armitage et al. 2007); one lesson seems to be that it is important to let processes between different players continue for some time to find out how to cooperate as constructively

as possible, followed by the design of a management model based on the experiences gained in the processes. In Scandinavia, we have not come very far in this field, and participation by local communities seems to have had only a marginal effect on practical nature management (Sandström et al. 2008).

A large part of the problem so far seems to be that there does not appear to be any understanding of co-management processes in the central nature management machinery in Norway. This can be illustrated by the fact that the Norwegian Directorate for Nature Management (NDNM, *Direktoratet for naturforvaltning*), after having summed up relatively unsuccessful attempts at decentralised management of protected areas, rather than asking what is required to make decentralised management work better, advises that the Ministry of the Environment allocates the responsibility for nature management for the relevant areas to the county environmental department and to newly-established national park administrators or government departments[19] (NDNM 2008).

Seen in this perspective, it is interesting that the Finnmark Act paves the way for some new formal possibilities, e.g. § 24 concedes a "special right to local use", i.e. a kind of tenancy arrangement for up to 10 years. This offers precisely the opportunity for trial and error, learning from both good and bad experiences, without any important consequences other than that the parties involved learn what works and what does not. Likewise, it is an excellent idea to have a trial arrangement for the spring duck hunt on the Kautokeino River. Although the trial arrangement is insufficient, it does prevent this habitual activity based on árbediehtu from being unambiguously branded as environmental crime, and at the same time it gives Norwegian environmental management authorities time to reflect. Another example is the trial arrangement for small game hunting in Tossåsen Sami community in Jämtland County in Sweden. The arrangement is basically that the local reindeer herders control the whole hunt and may direct the hunters to where they do not disturb the reindeer herding. In other words, the management is based on árbediehtu. I believe that such examples which reveal árbediehtu as a sound foundation for long-term, intelligent resource management are of great importance in involving this body of knowledge more strongly in future nature management.

19 The ministry followed the advice, but stipulated that a regional/local protection board be established.

The formal recognition of traditional knowledge in the reindeer herding sector is typically also tied to reforming of the legislation in that the Reindeer Husbandry Act of 2007 (*NOU Official Norwegian Report* 2001:35) assigns the traditional Sami *siida*[20] a significant role in reindeer husbandry management, whereas it was considered non-existent in the Reindeer Husbandry Act of 1978. Furthermore, I also believe it is important that there are active pressure groups that ensure the preservation of traditions, through training and positive examples, and also serve as spokespeople addressing both the general public and the authorities. I also attach importance to the fact that Sami interests, organs and organisations are on the offensive and make use of the formal opportunities available, even though they may not be ideal.

Summary and Conclusion

We introduced this presentation by looking at some basic features of both árbediehtu and institutions. We proceeded to outline some features of Sami use of nature and árbediehtu, and presented some elements for a situational analysis. In this context, we emphasise that this body of knowledge is fundamental to culturally alive Sami communities and that it depends on continued transmission of the practices involved. At the same time as threats from loss of and competition for land and resources, institutional expansionism and socio-economic marginalisation/modernisation are all too real, changes in policy towards indigenous peoples internationally and towards the Sami in Norway open up for new opportunities for árbediehtu to play a more important role in nature management.

To sum up, árbediehtu is beginning to be recognised, both within the nature management sector and the reindeer husbandry sector, but there is every reason to question whether this process will be rapid enough for it to be of essential practical significance. Parallel to the recognition process there is, as we have mentioned, a continual loss of knowledge through both modernisation and social marginalisation.

Even though it is now established by law that the authorities should attach importance to Sami traditional knowledge, it is difficult to imagine that árbediehtu will attain prominence in nature resource management unless valid

20 In the context of reindeer herding, the term *siida* means a group of people jointly herding reindeer usually belonging to several households and persons.

co-management solutions replace centralistic management models. There are various partly contradictory factors and both how these work in relation to each other as well as the future prospects for preserving árbediehtu should be the subject of further research on selected areas of knowledge, preferably based on distinct Sami communities with strong tradition bearers and an appropriate cultural environment.

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