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ENVIRONMENTAL SUSTAINABILITY GENERATED BY THE VIEWS OF THE SKOLT SAMI AND GREGORY BATESON

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ABSTRACT

This article contributes to the debate about environmental sustainability, using the Skolt Sami conceptions of nature obligations as guides to this theme. The author's recent research material is analysed in relation to other relevant publications and sources of environmental anthropology. Three key factors emerge: reasonableness in the use of natural resources, protection of nature, and respect for nature. Gregory Bateson's models help to arrange these elements in relation to each other. It is argued here that respect for nature sets a scale for the conceptions of reasonableness and nature protection as the basis of environmental sustainability. The article produces questions and principles that may help put environmental sustainability into practice.

KEYWORDS: environmental sustainability • environmental anthropology • cognitive anthropology • Skolt Sami • Sami peoples

INTRODUCTION

This article explores environmental sustainability. In this attempt certain Skolt Sami conceptions prove valuable and Gregory Bateson's views help to arrange them. Anthropologists have long been interested in the relationship between the environment and culture. The cultural ecological approach of anthropology has linked people's way of life to the natural environment as part of the evolutionary framework (see Steward 1955; Harris 1968: 654–655). The article at hand combines the environment with ways of life (but without evolutionary emphasis). The interaction between people and the environment goes in two directions. Natural resources determine the development of culture and people change their living environment (Malinowski 1944: 68, 214). One of the key issues is how livelihood activities adapt to their environment (Sarmela 1994: 93).

Through their studies anthropologists may have something to say in the discourse of human–environmental relations and in the defining and implementing of environmental duties. Anthropological research can facilitate trans-cultural interpretations of environmental knowledge and practices. (Kopnina and Shoreman-Ouimet 2017: 5–6)

Following ideas of environmental anthropology, the article examines the human–environment relationship and seeks tools that help cope with current environmental challenges (Kopnina and Shoreman-Ouimet 2017: 6). One starting point here is the ecological anthropology of the mid-1960s (Brondizio et al. 2017: 10, 13). One of its representatives was the anthropologist Gregory Bateson, whose environmental ideas this article draws on. According to Bateson (2000 [1972]: 496), environmental problems were caused by the combination of three factors: technological advance, population increase, and questionable ideas about human nature and the human relationship with nature. Individualism, rationalism, and metaphors of social power were included in Bateson’s list of causes of ecological problems. He looked for ways to liberate us from the structure of thinking that had created the ecological “mess”. (Harries-Jones 1995: 30, 34) Bateson reminded us that the raw materials of the world are finite. He claimed that our values have been wrong and claimed that people have only alleviated the symptoms without curing the disease, as in cases where the disease is self-healing or fatal. (Bateson 2000 [1972]: 268, 497–478) A critical anthropological approach has questioned economic growth as an aim and has argued that future generations might consider restraining their own consumption (Trawick and Hornborg 2015: 39). This can be linked to human needs and their possible limitations as the basis of culture (see Malinowski 1944: 91).

This article approaches the ecosystem from the perspective of the human mind, as did Bateson up to a point. Humans use their minds to understand how species interact and how they cope with human-induced disturbances (Kempton 2001: 59). In this case, cognition, perceptions, and environmental values come into focus (Brondizio et al. 2017: 10), moreover, comprehensions and concepts. People’s ways of conceptualising nature depend on how they use it and how they “invest knowledge in different parts of it” (Ellen 2008: 327). It has been claimed that today most people have only limited contact with nature, which is why their cognition is degraded in relation to the environment (Kempton 2001: 50), but in the case of Indigenous peoples, a close connection with nature can still be based on profound environmental knowledge.

Environmental anthropology can utilise an ethnobiological approach when it explores the concepts of plants and animals in a certain cultural circle. When the research deals with concepts of wider ecological entities, such as environmental features, climate, weather, places, or landscapes, it can be called ethnoecological research. (Anderson 2017: 34) This article belongs to the ethnoecological trend insofar as it analyses Skolt Sami understandings of human responsibilities related to nature.

The ethnoecological dimension relies here on *Indigenous knowledge*, which by definition is based on communities whose culture has continued for a long time in a certain region utilising natural resources (Kempton 2001: 50). Several related conceptions come close to Indigenous knowledge or even become part of it (see Anderson 2017: 35). The related knowledges may be called, for example, traditional knowledge (see Kidner 2017: 122) with links to the past, or local knowledge (see Anderson 2017: 38), which is often associated with specific places. Indigenous knowledge is holistic, dynamic, and constantly developing through external influences (Posey 2000: 36). Sometimes a distinction is made between Indigenous people’s knowledge and non-Indigenous people’s knowledge, which can be called, for example, scientific knowledge (Kalland 2000: 320). As part of Indigenous knowledge, research can produce ecological knowledge that is biologically logical and compatible with modern scientific knowledge (Thayyib 2021:

140). This article seeks to draw on the dynamics between Indigenous knowledge and scientific knowledge. Indigenous societies can show how to look at the natural world (Anderson 2017: 37). Indigenous knowledge can “generate alternative philosophies” for administrative resource management (Posey 2008: 100) and contribute to nature conservation (Dove and Carpenter 2008: 4).

The focus of this article is on the concept of environmental sustainability, which has recently entered the mainstream of public and scientific discourses. The theme of sustainability appeared 35 years ago in the so-called Bruntland report, compiled by the World Commission on Environment and Development (WCED 1987). The report has been criticised for the built-in assumption that raw capitalist development and environmental protection would not be on a collision course. This has led to multiple interpretations of sustainability. (Howell 2017; Randle et al. 2017: 170–171) The article at hand offers one interpretation of this topic by focusing on environmental sustainability. Nevertheless, behind the article is a broader understanding of sustainability, according to which environmental sustainability is connected to other dimensions of sustainability. A largely similar view is represented by the Sami Parliament in Finland (2006: 2–11, 25), part of the Sami Program of Sustainable Development. The program names culture as one of the key dimensions of sustainability, along with ecological, social and economic aspects.

The concept of ‘sustainability’ is based on the 18th century German attempts to create systematic reforestation. The conservation and cultivation of trees became part of continuous, steady, and sustainable use of forests. (Brightman and Lewis 2017: 3) The planting of trees still belongs to the sustainable use of forests. The original definition of sustainable forestry did not stress biodiversity, although it has received more attention lately.

Many anthropologists reject universalist definitions of sustainability, arguing that concepts of sustainability vary from culture to culture, between countries, and between disciplines. It has been suggested that the definition of sustainability should be viewed as dependent on its context. In this case, the person’s position in relation to different perceptions of sustainable and unsustainable action could also be considered. (Yamada et al. 2022) On the other hand, David Throsby and Ekaterina Petetskaya (2016: 120, 134) have claimed that the paradigm of sustainability is universal, but that culture-bound solutions are varied. The article at hand presents one way of connecting the culture focused approach with the universal one.

Anthropologists have often assumed that Indigenous societies are based on more sustainable patterns than the Western societies (Lockyer and Veteto 2013: 3). It is a common belief that Indigenous peoples live in biologically rich environments and use natural resources sustainably. However, the modernisation process may have caused damage to these environments (Kempton 2001: 58–59). Modernisation can have affected Indigenous sustainability comprehensions as well. However, this article shows that Skolt Sami people’s contemporary concepts of environmental duties are still connected to the terminology of the traditional nature-oriented way of life.

The Indigenous people have at times shown the unsustainability of extractive industry processes and projects of state administration. Indigenous people have questioned the development model, which favours the interests of companies over local ownership. However, the discussion about unsustainable solutions could provide good material for the future. (Randle et al. 2017: 171, 178)

The Sami Program of Sustainable Development in Finland offers introductory material to the themes of this article. It stresses the importance of traditional knowledge. According to the program, the Sami people's use of nature is sustainable and based on old traditions. The Sami Program emphasises the meaning of traditional Sami forms of livelihood in relation to the environment. "The sustainable basis of the Sami culture and way of life is the natural growth and natural state prevailing in a given area which is not altered, damaged or disturbed by people impairing the annual natural growth of nature" (Sami Parliament Finland 2006: 2). The program accepts small-scale farming in the context of traditional Sami livelihoods but considers large-scale changes in the natural environment as part of the culture of the majority population and opposes such a mode of operation in traditional Sami areas. The program claims that modern industrial forms of livelihood, such as mining and mechanical forestry can be practiced only in very limited ways in the Sami homeland area. As representatives of Sami cultural continuity, reindeer herders have often met difficulties when they have defended their claims against large-scale forestry. (Ibid.: 2–11, 26–27)

APPROACH

Anthropology explores the conditions and possibilities of human life. The anthropological method relies here on the exchange of information between Indigenous people and the researcher (see Ingold 2017). The fundamental question reads as follows: Which human factors enable sustainability in the natural environment?

As the key problem of sustainability, Shoko Yamada et al. (2022) have emphasised the importance of who defines what sustainable development means and how this concept is applied in practice, by whom and for whom. Of these points of interest, this article focuses on one, namely *what sustainability means*. The approach is built upon people's understandings, i.e. ways of thinking, instead of evaluating their every day practices (see Brightman and Lewis 2017: 5). This approach contributes to the discussion about what sustainability can be (see Randle et al. 2017: 178).

In search of the meaning of environmental sustainability, the article combines two dimensions of sustainability. First, the culture-focused dimension draws on statements by the Skolt Sami. Second, the broader dimension of sustainability combines environmental information based on different cultures. (See Sullivan 2017: 155–156.) Bateson's way of looking at the environment as a universal systematic phenomenon can be seen as part of the broader approach. Bateson's texts have advanced the ecosystem concept in anthropology (Brondizio et al. 2017: 13).

Bateson (2000 [1972]: 496) wanted to investigate the deeper causes of the ecological disturbance and wanted clear fundamental principles to be formulated for ecological discussions (Harries-Jones 1995: 33). He suggested that we replace the basic principle of evolution, "survival of the fittest", with a formulation that emphasises the interconnectedness between the organism and the environment: "survival of organism-plus-environment" (Bateson 2000 [1972]: 507).

In addition, Bateson (ibid.: 501) claimed that an essential element of ecology was "our thinking", which had already begun to change. Following this view, the approach of this article is based on cognition, perception, concepts, and values connected to

human–environment relations (Brondizio et al. 2017: 10). Attitudes towards the environment belong to the same entity (Kuper 1999: 98).

The article brings together views of cognitive anthropology and ecological anthropology (see Brondizio et al. 2017: 18). Along with his emphasis on human mind, Bateson (2000 [1972]: 512) stressed the importance of scientific ideas as part of the discussion of the ecological system. The relationship between the individual and the environment includes the pair being in reciprocal interaction, shaping each other (Harries-Jones 1995: 5, 33). Bateson called for scientific discussion of patterns, forms, and relations between parts and wholes (ibid.: 32).

Connections between parts can be described with a cultural model. The cultural model can be about ecological management practices, for instance. Cultural ecosystem models can help explanations and predictions and they connect to environmental behaviour. Anthropological studies of Indigenous practices may contribute to the understanding of sustainable management, for instance. (Kempton 2001: 50, 57, 59) Cognitive concepts can be used as well in the construction of a cultural model of the ecosystem. The cognitive cultural model is shared largely between people of the same culture, although with some individual variation (Shore 1996; Strauss and Quinn 1997; Bennardo and de Munck 2020). On the individual level, the cultural model helps organise information (Kidner 2017: 432). This article forms a hybrid model of environmental sustainability by combining the Skolt Sami environmental obligations with Bateson's models that draw partly on a specific culture and partly on more general views.

Inspired by Mahatma Gandhi's (1999 [1909]: 70) way of highlighting his duties as a human being, one of the premises of the article is that it is important to focus on human environmental obligations as well as the rights of the people, because emphasis on duties might promote environmental sustainability more than the focus on rights. Skolt Sami obligations to nature form the basis of sustainability.

The empirical material of this article is largely based on the anthropological research project, 2016–2018, the results of which emphasised the Skolt Sami nature-related livelihood activities and the relationship of these activities to nature and natural resources as key factors in contemporary Skolt Sami Indigenous people's way of life (Itkonen 2018). The Skolt Sami of this research project live in Inari municipality in northern Finland. Their nature-linked livelihood activities consisted of reindeer herding, fishing, hunting, gathering and handicrafts. In addition, traditional nature-related livelihoods could form the basis for modern business activities, such as meat manufacturing, restaurant services and tourist services. Both qualitative and quantitative methods were used in the research project. The research material utilised was mainly collected using interviews and questionnaires.¹ The questionnaire consisted of questions on the nature-related livelihood activities of the Skolt Sami and related natural resources. These themes were approached with an emphasis on structures, customs, sustainability, rights and administration, among other things. Answers were given either on a Likert scale or in writing. All together 25 Skolt Sami gave written responses to the question on human environmental obligations. The analysis shows that around half of these answers pointed at the very essence of human duties, for example respect for nature. The other half of the answers described human duties more as means that help to achieve sustainability, i.e. ways of using and protecting nature. (Ibid.: 13–68)

At the first stage of handling the research material, I arranged and interpreted the Skolt Sami conceptions of human nature obligations according to thoughts of hermeneutics (see Agar 1980). Yet, local voices are not the only sources because the approach of this article utilises comparative views (see Petersen 2003: 12). The objective of the related documents and research materials, including older studies of the Skolt Sami and anthropological texts, is to illuminate the frame of reference of current Skolt Sami conceptualisations of sustainability. The related documents clarify the themes as part of which the Skolt Sami formulations serve as starting points. In the last stage of the analysis, the conceptions of environmental obligations are examined in the light of Bateson's (1980: 209–210, 212–214) models.

This article shows that the Skolt Sami comprehension of obligations to nature consist of three main components: 1) reasonableness in the use of natural resources, (2) the protection of nature, and (3) respect for nature. The argument of the article is the following: respect for nature sets a scale for the conceptions of reasonableness and nature protection as the basis of environmental sustainability. The article clarifies, for instance, what this could mean for fishing. Questions and principles of the article may help to take a step towards applying sustainability ideas to nature-related activities. The formulations may be utilised at the local level or in a wider societal framework.

REASONABLENESS

One fourth of the answers that dealt with the essence of human obligations to nature could be gathered under the thematic heading *reasonableness*. One version of this was being 'reasonable' (šičttâl in Skolt Sami; *kohtuullinen* in Finnish), which also meant "living in harmony" with nature and "living sparingly". Besides being descriptions of the essence of human duties, reasonableness can be interpreted as a mean that helps to achieve sustainability. Close to reasonableness came two other Skolt Sami formulations. "Maintaining" (retaining) nature was one of them and connected to "keeping it" for future generations. By being moderate (reasonable) in the use of nature and its resources, a person can maintain continuity in nature and in relation to nature. "Sustainable consumption" was one of the Skolt Sami characterisation of the essence of human environmental duties related to reasonableness. This too could support sustainability in the use of nature and natural resources. (Itkonen 2018: 65–68)

In addition, the Skolt Sami were asked to give examples of situations where reasonableness would be exceeded in relation to the use of natural resources. The answers gave hypothetical or real-life examples of exceeding the borderline that could be divided into two groups. First, there were external cases where factors from outside the local Skolt Sami community generated inappropriate activities, and second, cases where local actors within the local community played key roles. The local community also included people other than the Skolt Sami.

External factors that could exceed reasonableness were often industrial activities with unsustainable features from the Skolt Sami point of view (see Randle et al. 2017: 171), for example, industrial forestry, mining projects (planned), and railroad construction (planned) through the Skolt Sami home areas. According to one statement, reasonableness is exceeded in the use of nature when northern forests are cut down and

“Lapland is raped”. There were also worries that small scale tourism could evolve into disturbing mass tourism. All these activities can pose threats to the Skolt Sami’s nature-linked way of life. (Itkonen 2018: 67–68)

Political and administrative representatives of the state and regional administration recently took forward a plan to build a railway to the shore of the Arctic Ocean through Skolt Sami home grounds. The majority of the Skolt Sami considered the railway a threat and did not want it in their home areas (ibid.: 139). This railway plan and possible related plans for mining work were rejected publicly by the local Skolt Sami leader as threats to environmental and cultural sustainability in the Skolt Sami area (Feodoroff 2019). The Skolt Sami village meeting and the Sami parliament of Finland have expressed opposition to the railway plan. For various reasons, the plan has been officially suspended for the time being.

The influence of other external factors, namely the surrounding society and the economic system, caused some environmental concerns for the Skolt Sami as well. In a few of their views, threats to environmental reasonableness were connected, as follows, to the contemporary economic model that stresses industrial production: “Forestry is practiced like today”; “Tourism is not developed sustainably and in collaboration with locals”; “Tourists and cottage owners get too many rights” (Itkonen 2018: 67–68).

On a local level, the Skolt Sami share the use of nature and natural resources with other local people, cottage owners, and visitors. According to statements by the Skolt Sami, some local phenomena could go beyond reasonable. The following factors were mentioned: greed, fishing by putting nets across an entire lake, lack of control in fishing, having too many reindeer (thinking about the carrying capacity of pastures), and driving wildly in nature with all-terrain vehicles (ATVs) (ibid.: 67).

The total and personal number of reindeers is limited, which supports sustainability in relation to pastures. The majority of the Skolt Sami reindeer herders thought the condition of reindeer pasture was good. Most Skolt Sami reindeer herders considered their own reindeer herding practices sustainable. A clear majority of the Skolt Sami stated that their ways of fishing were sustainable as well. “We have this way of thinking that we don’t empty the river of fish but take as many as we eat and maybe a few for the winter,” one Skolt Sami said. Three quarters of the Skolt Sami were satisfied with their fishing opportunities. In hunting, game stocks have been strained remarkably by both local and visiting hunters. A third of the Skolt Sami considered game stocks sufficient and a slightly smaller proportion thought that the stocks were insufficient. Several Skolt Sami said that shortages of fish and game stocks were caused by people other than the Skolt Sami. A clear majority of the Skolt Sami thought that “traditional ecological knowledge of the Skolt Sami” guarantees sustainable use of natural resources. Nearly all of them supported the sustainable use of nature as part of their culture. Reasonableness as a component of culture also received strong support. (Ibid.: 32, 43–44, 65–68, 73–75, 79, 81, 133–134)

Concerning the Skolt Sami’s original Petsamo home grounds, Väinö Tanner (1929: 339–347, 358) described the Skolt Sami people’s traditional livelihoods and relations to nature. The Skolt Sami had access to their environment and they were able to utilise the surrounding natural resources in their livelihood activities. In the Skolt Sami villages (*sijds*), the village meetings (*norraz* or *sobbar* in Skolt Sami) set guidelines for the administration of the areas, stressing continuity among people, in forms of liveli-

hood, and in general rules of the community. In the defining of the size of each family's specific area, the village meeting took into consideration the number of people in the area. The natural resources of the family area were evaluated in relation to the needs of the family. These resources consisted of fish, reindeer grazing grounds, berries, and animals that were hunted, among other things. The village administration also negotiated with neighbouring *sijds* about the sharing of some fishing rights over *sijd* borders. In other words, the Skolt Sami evaluated environmental sustainability in relation to the number of people and their needs. The understanding of the size of the expected catch belonged to this estimate. As a summary of the issues that emphasise the perspective of traditional culture in relation to reasonableness conceptions of today's Skolt Sami, we can say that human needs formed the basis for assessments of the adequacy of natural resources and the evaluation was done collectively in the village meeting. This also meant that human needs were limited.

PROTECTION OF NATURE

The second main category of Skolt Sami obligations to nature was the protection of nature. Skolt Sami comprehensions of duties which advanced nature conservation were the following: "protecting nature", "cherish it", "care", "keep nature clean", and "not littering" (Itkonen 2018: 65–66). The idea of nature conservation got strong support among the Skolt Sami. A definite majority of them thought that it is a good idea to leave partly untouched some of the natural resources they would have the right to utilise (*ibid.*: 133).

The Skolt Sami of the historical Suenjel *sijd* conserved their fishing waters so that the fish stocks were preserved for years to come. They protected spawning streams by an order that fishing was allowed in a certain stream only every four years (Sverloff 2003: 44). When the Skolt Sami of Finland had moved to their new home grounds after the Second World War, they went on with their fishing by applying their yearly fishing cycle to new conditions. The fish had an important role as a supplement in the economic sustainability of the households. This way the Skolt Sami did not have to slaughter as many reindeer for their own use as they would have otherwise. (Pelto 1962: 48–56) Today, fishing is still an important part of the Skolt Sami way of life. Now, the state's administrative organisation *Metsähallitus* (Forest and Park Services) plays a key role in fish stock management in the state-owned waters of the Skolt Sami area. The role of the state is similar in the management of game animals. In relation to reindeer herding, the state's Natural Resources Institute Finland (Luonnonvarakeskus, Luke) studies the condition of pastures and the state regulates the total number of reindeers accordingly. The state also has a say in the use of trees to provide wood for heating houses and for woodwork, as well as in the use of plants and their parts in handicrafts. (Itkonen 2018: 113–117)

The state officials of Finland have carried out land mapping of the state-owned lands and waters in the Sami homeland area in northern Finland. The level of nature conservation varies between different categories of the area. National parks and nature protection areas have high levels of protection, whereas wilderness areas allow more livelihood activities for the Sami. Some of the forests in the Sami district are used for

the purposes of commercial forestry. In such forests, the level of nature conservation is lower than in protected areas, but the forests are renewed by means such as planting trees (see Tolonen et al. 2013). Lately, the biodiversity perspective has grown slightly in public discussions about the state's plans and management of the natural environment, for instance forests.

In Finland, the condition of reindeer pastures is a topic of continuing study (see for example Kumpula et al. 2019) and discussion. The carrying capacity of pastures belongs to this theme. Most reindeer receive additional nutrition for a limited period in winter on the Skolt Sami reindeer pasture areas. The continuity of livelihood is an important criterion in the evaluation of the sustainability of reindeer herding. (Itkonen 2012: 217) Purists stress that herders should not give additional nutrition to reindeer, but this mode is not popular among reindeer herders, who prioritise the physical condition of the reindeer. In Finland reindeer herders' pasture dilemma is the following: reindeer herders can see in many places how the lichen pastures have declined, but they usually do not want to reduce the number of reindeer they own personally, nor the overall numbers of reindeer in reindeer herding cooperatives. (Itkonen 2018: 72)

In the case of Nenets reindeer herders in Yamal Russia, it is far from easy to determine one factor of sustainability, namely the real carrying capacity of reindeer pastures. Models of pastures that rely only on quantitative scientific knowledge are not able to take into consideration the flexible ways in which reindeer and herders use the tundra and how they know their environment. Furthermore, the pasture quality is not solely a consequence of Nenets culture, but, even more so, a result of the wider socio-economic world and its interactions. (Stammler 2005: 243–246) These notions apply partly to the reindeer pastures of the Skolt Sami in Finland as well.

Traditional Indigenous ways of utilising natural resources can differ from developers' protective viewpoints. These two approaches can rely on different cultural, moral, and institutional structures, furthermore, on differing cultures, norms, and economic factors. (McNamara 2017) For example, the protection of predators can cause confrontation. In the case of reindeer herding in Finland, the state-driven predator protection policy has been considered problematic among reindeer herders. Predators kill reindeer and almost all Skolt Sami reindeer herders considered the quantity of predators too high, even though they usually allowed a reasonable number (Itkonen 2018: 30).

Regarding the protection of fish stocks, the views of the Skolt Sami and the authorities have sometimes differed from each other as well. For example, in the case of the Näättäjä river, many Skolt Sami questioned some of the restrictions put in place by the authorities (Itkonen 2018: 77).

A study of Indigenous-inhabited reserves has shown that the overhunting of vulnerable game animal species using firearms has presented internal threats to biodiversity (Shepard et al. 2012). In the hunting grounds of the Skolt Sami, the use of firearms and dogs by all kinds of hunters as well as professional trapping by people other than the Skolt Sami has caused pressure on game animals (Itkonen 2018: 54, 79–80).

The most popular category of human environmental duties consisted of formulations that emphasised respect for nature (around half of the answers that dealt with the essence of environmental obligations). In other words, many Skolt Sami thought that it is important to respect nature. They did not explain what this meant, but according to my own interpretations based on discussions with the Skolt Sami, it could be that human beings should be humble and thankful towards nature, accept its superiority, and not try to subordinate it. “Appreciation” of nature was another characterisation that came close to “respect” in the answers of the Skolt Sami. One aspect of the human duties to nature, closely related to respect for nature, was magnitude, expressed in answers that described human obligations to nature as a “big thing” and an “important whole”. (Itkonen 2018: 65–66)

A description of reindeer can include respect for nature. An experienced Skolt Sami reindeer herder characterised his relationship with reindeer as follows: “I like everything connected to reindeer. Reindeer have given work, and are still giving work, although it has become expensive for their owners. Reindeer are the same as they have ever been. People change but not reindeer.” (Itkonen 2012: 158)

In the past, the Sami people tried to influence the unpredictable dimension of nature by giving a sacrificial gift to the deity in a sacred place located in the natural environment. This was to ensure a good catch in fishing or hunting. Guidance from a higher power was sometimes sought to find reindeer in the wilderness. These sacrifices belong to a worldview where nature was associated with deities. Thunder was connected to the greatest deity that was worshiped, respected, and feared. The sun was worshipped as well. (Itkonen 1984 [1948]: 306–311)

The spiritual dimension of nature has been common in Indigenous peoples’ ways of life. Respect for nature has been required in hunting and fishing practices. According to beliefs of the Komi people in Siberia, mocking the catch has caused the spirit of the place to reduce hunting or fishing luck (Leete 2020: ii). In traditional cultures, rituals have helped to harmonise the human–nature relationship (Grinevich 2012: 98).

The Indigenous spiritual dimension of the human–nature relationship leads us to Bateson’s (2000 [1972]: 467) way of phrasing how the individual mind is only a subsystem of the larger mind that lies immanent within the ecology of our planet. In Bateson’s view, sacredness may have something to do with deeper components of the universe (Harries-Jones 1995: 217).

The sustainable resource management of the First Nation peoples of America can mean that “they never took too much and they never wiped out a certain animal that they liked to eat”. This statement points to something that existed in the past, although it could also be applied to today. Other definitions of North American Indigenous peoples’ understandings of the environment state, among other things, that traditional knowledge goes over three generations and connects to traditional society. (Kempton 2001: 57)

Numerous industrial projects have endangered environmental sustainability and Indigenous people’s ways of life: forestry, mass tourism, the mining industry, factories, power plants, railways, road construction. Today, people can gain knowledge of natural phenomena through technology. For example, the location of fish can in some waters be

determined using sonar. People can, in addition, move around in nature with the help of motorised vehicles such as snow mobiles, ATVs, and motor boats; aeroplanes and helicopters are also used in wilderness conditions. All these technologies and processes can lead to a sense of control over nature. Bateson (2000 [1972]: 500) considered the idea that we could control the environment unilaterally and that we should strive for that control a fundamental mistake of the modern industrial lifestyle. Applying Bateson's thoughts, we can say that striving for control of nature and the exploitation of natural resources could be a sign of a lack of respect for nature.

I interpret the Skolt Sami people's respect for nature as potentially still being based on the understanding that people are fundamentally dependent on nature and its unpredictable dimensions, regardless of the fact that the advanced technologies, services and structures of modern society have overshadowed this by giving a sense of control over nature.

APPLYING BATESON'S MODELS

In the following, the Skolt Sami perceptions of human responsibilities towards nature are examined with the help of Bateson's models. This article describes only one phase of Bateson's multilevel models that describe the flow of influence from one level to the next and beyond. According to Bateson (1980: 209–210), mental activities predominate the organisation of the phenomena. His first model (Figure 1) is divided into two different sides. The left side, "form", consists of the themes of interaction. The right side, "process", contains interactions between themes. I interpret the model as saying that "form" may exist on the mental level and can direct "process", i.e. practical interaction between individuals and between people and their environment including other species. In addition, it is possible to consider "process", i.e. the interaction of themes, as conceptual or cognitive phenomena.

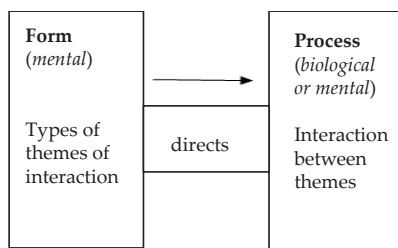


Figure 1. Two sides of Bateson's (1980: 209–210) model, form and process, applied to this article.

Bateson (1980: 211–213) constructed a second model (Figure 2) that described levels of control in an adaptive act. With it, Bateson demonstrated how a temperature control device (after calibration) was used to adjust room temperature to the desired level (through a feedback process). Bateson's model emphasises the importance of feedback in a multilevel holistic system (Harries-Jones 1995: 242).

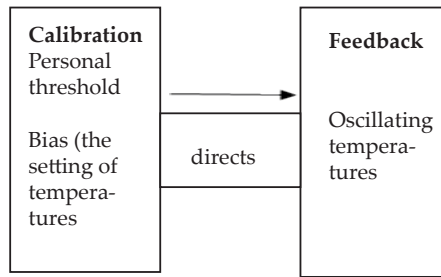


Figure 2. Extract from Bateson’s (1980: 212–214) second model, the control of domestic temperature, applied to this article.

Bateson (1980: 212, 214) made comparisons between his two models. He drew a parallel between the form–process dichotomy of the first model with the calibration–feedback dichotomy of the second. In the second model, the setting of the thermostat was called the “bias”. Bateson compared this with the bias of a person and named it a personal threshold, set by a feedback system where experiences of the physical world give the person information. If you alter the bias, you change the attitude of the system, Bateson stated (2000 [1972]: 479).

For purposes of this article, I apply Bateson’s models in Figure 3 so that on the left side cultural “bias” is comparable to attitude, and on the right side “process” connects to conceptions of human–environment interactions (adjusting interactive themes).

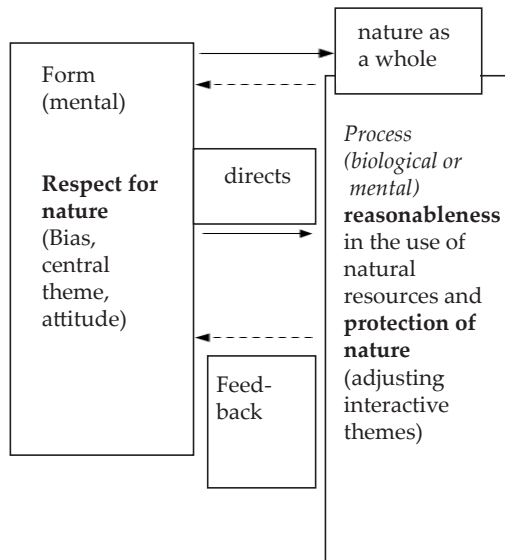


Figure 3. The Model of Environmental Sustainability. An application of Skolt Sami nature obligations and Bateson’s (1980: 209–210, 212–214) two models.

In the Model of Environmental Sustainability (Figure 3), Skolt Sami obligations to nature are combined and placed in the application of Bateson's two models. Respecting nature on the left side is the base (bias, attitude) that directs the other parts (lower right side of the figure). Respect for nature sets the frame for reasonableness in the use of natural resources and for the protection of nature. Through the feedback system, the ways of using natural resources and protecting nature can influence respect for nature.

If respect for nature is low, the levels of the protection of nature and reasonableness in the use of natural resources are low as well. If respect for nature is high, protection and reasonableness are essential in relations to nature. Or the other way around, we can first look at the level of nature protection and the level of reasonableness in the use of natural resources. Based on this information, we can conclude what the level of respect for nature is.

Thinking about the interaction between themes on the right side and simplifying the issue somewhat, the question is about using nature and leaving it alone (not using it). Then, respect for nature refers to the scale at which the level of the use of natural resources is defined.

In addition, following Skolt Sami ideas about respecting nature, respect can be directed towards nature as a whole (upper right side of the figure). Then the feedback can be understood broadly as coming from larger natural phenomena. This stresses the position of an individual as part of the whole. This dimension also refers to nature beyond human control.

A remarkable feature of the Model of Environmental Sustainability is that respect for nature has two different dimensions. In the first dimension, respecting nature directs both the sustainable use of nature and nature conservation. But the scope does not end there. In the second dimension, respect is directed to nature as a whole and to nature beyond human control which includes nature beyond the reach of human knowledge. One consequence of this setting is the possibility to see the human-linked dimension of nature as a fraction of the larger whole.

CONCLUSION

In an attempt to complement the debate on environmental sustainability, the article combines Indigenous knowledge with scientific knowledge. In order to reduce environmental harm, a new way of thinking (Bateson 2000 [1972]: 501) and an alternative philosophy (Posey 2008: 100) have been called for.

The article has explored conceptions of environmental sustainability. It has asked what sustainability means and what it can be. The article formulates themes, a model, and, furthermore, questions and principles in relation to environmental sustainability. Regarding environmental sustainability and models, two different approaches have emerged among anthropologists: culture-bound and universal. In addition, there are approaches that combine these two dimensions one way or another. This article combines culture-bound views with universal ones. The article suggests testing first the effectiveness of its sustainability formulations at the local level. After that, they could be applied in wider areas.

In search of the meaning of sustainability, Skolt Sami comprehensions of human environmental obligations have been explored. They consist of three main themes: (1) reasonableness in the use of natural resources in order to secure continuity; (2) conservation of nature, keeping it clean and caring for it; (3) respect and appreciation for nature as a large and important whole. These themes have been analysed and interpreted in connection with other research results and publications.

Bateson (2000 [1972]: 513) wanted to go deeper than the surface when he analysed causes of trouble in the human–environmental relationship. He thought that focusing on “things” was typical for modern thinking and stressed relationships instead (Harries-Jones 1995: 217). According to him, only by understanding interconnections and dependencies can the ecosystem’s problems be solved (*ibid.*: 5).

With the help of the Skolt Sami conceptions and using Bateson’s two models as starting points, the Model of Environmental Sustainability was built. The new sustainability model describes relations between nature-linked themes. Respect for nature can be seen as directing the two other themes, reasonableness in the use of natural resources and protection of nature. Respect may connect, for example, to how much natural resource can be used and how much nature is left outside human influence. Feedback from experiences of human–nature interactions can cause changes in the scale of respect.

In addition to nature under human influence, respect can be related to nature as a whole. Sacred places can be seen to connect to the greater spiritual dimension of nature. Respect includes not mocking nature.

Bateson has claimed that we should, as the basis of survival, combine the survival of the (individual) organism with the survival of the environment instead of talking about the “survival of the fittest” as the basis of evolution (Bateson 2000 [1972]: 507). In the case of humans, this article’s way of combining respect (individual) with reasonableness (in the environment) is somewhat similar with Bateson’s vision of survival that is built on relations.

If respect for nature guides the action, there is room for harmony in productivity (see Tsing 2001: 3) in relation to natural resources. Respect for nature is connected to reasonableness. In fishing this would mean that nothing is wasted from the catch. Moreover, the fish and catch are treated with respect and the catch is only used for personal needs including family (see Malinowski 1944: 91; Tanner 1929: 339–347, 358). Commercial fishing would make an exception to this, but here the size of the catch can be measured per fishing enterprise. Sustainable fishing does not endanger fish stocks. So, the total amount of fishing is adjusted to nature’s carrying capacity. A certain portion of the fish would be excluded from fishing activities not only to ensure the continuity of fish stocks, but also to honour nature, which means that some of the fish could live outside of human influence.

If we want to define reasonableness in nature activities, we can take into consideration cases where reasonableness has been exceeded. In fishing, attention could be directed, for example, to excessive numbers of nets and catches compared to the size of a lake.

In the planning and implementation of practical actions concerning nature and natural resources, one can ask how respect for nature is reflected in them. What kind of respect for nature can be seen in the use of natural resources and in the possible related reasonableness? Further, how does respect for nature relate to defining the quantity

and quality of nature protection? And finally, how important is respect for nature in the survival of humans and society?

From the Skolt Sami point of view, sustainability in relation to natural resources is primarily endangered by external factors. Large-scale industrial projects can cause problems, as can people who do not take reasonableness into account sufficiently in the use of natural resources.

The current industrial-economic attitude towards nature relies on maximising effectiveness in relation to natural resources. Replacing the principle of maximisation with the principle of respect would mean a change in the basic attitude or orientation of the system (see Bateson 2000 [1972]: 479). In this case, for example, the effort to control nature as completely as possible would be replaced by goals where nature remains partially free from human control and influence (see *ibid.*: 485, 500). Instead of striving for control of nature, the control of the harmful effects of technology could be improved, for instance.

At the level of practical applications, Bateson supported the formation of the Office of Environmental Quality Control in the administration of Hawaii in the United States. He hoped that the office would be able to explore in depth the causes of environmental problems (*ibid.*: 496). In Finland, in various organisations and on different levels of administration, the themes of nature conservation and the use of natural resources are well presented. However, the theme of respecting nature is less emphasised. This article shows that the Skolt Sami have paid a lot of attention to respecting nature. Therefore, it could be justified that respect for nature would also gain more visibility when evaluating nature and the use of natural resources in their home region. In addition, among the Skolt Sami, the protection of nature and sustainable use of natural resources had solid support, and these nature values were strongly connected to theme of reasonableness (Itkonen 2018: 156, 158). Therefore, it could be justified that respect for nature would gain more visibility when evaluating and administrating nature and the use of natural resources in their home region. Then it would be important that respecting nature would support the Skolt Sami people's way of life. Their values and environment could be defended if external factors started to threaten them.

NOTES

1 The Skolt Sami are bilingual. Just over half of the local Skolt Sami speak fluent Skolt Sami, but all of them speak fluent Finnish (Itkonen 2018: 19). Therefore, the use of Finnish made it possible to explore the views of all the local Skolt Sami in the research project. Answers were given in Finnish, with parts translated into English for the purposes of this article. This approach is limited because it does not emphasise the linguistic details of the Skolt Sami language. A controversial dimension of this approach is the fact that the use of Finnish in data collection among the Skolt Sami stresses the language of the majority population instead of the original language of the Skolt Sami minority. Thereby, this approach runs the risk of being linked to social power structures. The author is aware of this and nevertheless emphasises the Skolt Sami perspective in this article.

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