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Journal of Environmental Management

journal homepage: www.elsevier.com/locate/jenvman

Research article

Participatory environmental governance of infrastructure projects affecting reindeer husbandry in the Arctic

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ARTICLE INFO

Keywords:

Traditional livelihoods
 Environmental Impact Assessment
 Land-use
 Mining
 Wind farms
 Finland

ABSTRACT

Several infrastructure projects are under development or already operational across the Arctic region. Often the deployment of such projects creates benefits at the national, regional, or global scales. However, local communities can experience negative impacts due to the requirements for extensive land areas, which cause pressure on traditional land use. Public participation in environmental planning such as Environmental Impact Assessment (EIA) enables local communities to provide feedback on the environmental, social, and economic challenges of infrastructure projects. Ideally, participation can improve the means of social learning for all involved parties and help to co-develop sustainable solutions. The subject of our research is reindeer herders' participation in EIA procedures of mines and wind farms in Finland because these types of projects affect reindeer husbandry. We study empirically how stakeholders involved in the EIAs perceive the participation of reindeer herders in the planning and implementation of infrastructure projects, and how these differ from the perceptions of the reindeer herders who are affected by the infrastructure projects. Our qualitative data is based on in-depth semi-structured interviews (N = 31) with members of the industry sector, consultants, governmental authorities, and representatives of local communities; in this study, the reindeer herders. The results show that herders' level of participation in the EIAs and the benefits and challenges of participation are perceived differently. Furthermore, the regulatory framework does not adequately ensure that the developer carries social and environmental responsibilities throughout the infrastructure project's lifetime, and that regular communication with herders will also be maintained after the EIAs. Herders' expertise should be used throughout the project lifetime. For example, more attention should be paid to both negotiating possible options for compensation and monitoring mechanisms when the infrastructure projects are pre-screened for the EIAs, as well as to co-designing the different project alternatives with herders for the EIAs.

1. Introduction

The Arctic region is facing rapid changes caused by changing land use due to forestry, as well as infrastructure development such as mining, wind and hydropower, peat production, oil and gas extraction, and many others. The deployment of large scale infrastructure projects and extraction of natural resources can be beneficial to local communities, but they also create challenges such as land use conflicts and protests: this is particularly the case if they violate land rights and erode culture and traditional livelihoods of local and indigenous communities (Dale et al., 2018; Ross, 2018). As the local residents and indigenous communities have already been struggling with land use changes and abuses of land rights in the past (van Schie and Haider, 2015; Stammer and Ivanova, 2016), their capacity to adapt to these multiple changes is

once again under the spotlight due to climate change (Forbes, 2007; Ford et al., 2008; Whyte, 2016). The involvement of local people and their knowledge during the planning, implementation, and monitoring phases of natural resource management can reduce the social and environmental impacts (Kearney et al., 2007). Therefore, participatory governance can help to deal with land use conflicts while aiming to develop compromise solutions based on the different opinions and views. However, heterogeneous perceptions of project developers, authorities, or the public regarding “effective participation” exist and identification of this “efficacy” is difficult. To some, participation seems efficient if local people are consulted, and to others it is efficient only if it succeeds to reduce resistance (legitimation). Usually those affected by the projects, consider participation efficient only if their voices are truly influencing decision-making and planning (see O’Faircheallaigh, 2010).

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2. Conceptual background

2.1. Environmental Impact Assessment (EIA) for industrial infrastructure projects

In many Arctic countries, such as Finland, Russia, and others, an Environmental Impact Assessment (EIA) is required for large-scale infrastructure projects such as mines that are likely to have considerable negative impacts on the environment (Koivurova et al., 2016). Basically, EIA allows public participation because public participation is at its core and lay people can comment on its outcomes. The “public” can be local residents, representatives of traditional livelihoods, or non-governmental organisations, such as environmental protection agencies.

The purpose of EIA in Finland is to reduce or prevent the negative environmental impacts of projects that could have a major impact on the environment while still allowing public participation in planning (Act on Environmental Impact Assessment Procedure 468/1994, substituted by 252/2017; Decree on Environmental Impact Assessment Procedure 713/2006, substituted by 277/2017). The Ministry of the Environment in Finland develops EIA policy and legislation in Finland. Land use in the reindeer husbandry area in Finland is mainly regulated by National Land Use Guidelines (*Valtakunnalliset alueidenkäyttövoitteet*, VAT), Land Use and Building Act (*Maankäyttö- ja rakennuslaki* 132/1999), Reindeer Husbandry Act (*Poronhoitolaki* 848/1990) as well as by forest legislation (e.g., Act on Metsähallitus, *Laki Metsähallituksesta* 234/2016).

The developer submits the EIA assessment programme to the ELY Centre (Centre of Economic Development, Transportation and the Environment) for evaluation. The ELY is responsible for pre-screening and makes the decision whether an EIA is required. It also coordinates the EIA procedure and makes sure that public hearings required by law are organised. What is regarded as a “considerable impact” depends on the nature of the project and is case-specific. The Decree on EIA consists of details on the types of projects that require an EIA. The EIA is not a decision-making procedure, but an evaluating and planning procedure, which can inform policy (Koivurova et al., 2016). One of the main aims of the EIA in Finland is to encourage the participation of different parties in the planning phase before project implementation takes place. For example, the EIA assessment report has to be accepted before an environmental permit to implement the project can be given by the Regional State Administrative Agency (AVI) responsible for environmental and water permits and monitoring implementation. Usually the developer does not have the capacity to prepare the EIA, so a consultant is hired (see more details on the EIA procedure in Finland in Ministry of Environment, 2013; Koivurova et al., 2016, 35–53). However, past experience of EIAs and the deployment of infrastructure projects in the Arctic has shown that the participation of local communities can be challenging (Koivurova et al., 2016; Stammler and Ivanova, 2016). This is, for example, due to the lack of holistic understanding of social, economic, and environmental consequences of the projects, especially in the long-term. Sometimes EIAs can be biased due to different opinions and views of stakeholders, sometimes even due to manipulation for example when developers want to hide some information (Enríquez-Salamanca, 2018).

2.2. Land use changes and reindeer husbandry in the Arctic

Social and environmental impacts are especially significant for traditional and indigenous livelihoods. Among existing livelihoods in the Arctic, reindeer husbandry is one of the most important indigenous and traditional livelihoods in the circumpolar Arctic and Barents region (Oskal et al., 2009; Rees et al., 2008). However, these livelihoods are

being affected by existing industries in the region and also facing the risk of planned industrial infrastructure development and other land use changes (Herrmann et al., 2014; Kumpula et al., 2011; Vistnes et al., 2009).

In Finland, there are differences in reindeer herding practices due to cultural and biogeographical differences. The sizes of individual herding cooperatives, and ownership across the cooperatives, the maximum size of the reindeer populations per individual herding ‘cooperatives’ (*paliskunnat*) are regulated. Reindeer husbandry is steered on the national level by the Ministry of Agriculture and Forestry and it belongs to agriculture sector under the European Union agricultural policy (Saarni and Nieminen, 2011).

Climate change together with rapid industrial development create new, “emerging” risks that cause much uncertainty for the future of reindeer husbandry in Finland. Climate change affects reindeer husbandry directly, for example, while reducing availability of forage in winter due to more frequent ground ice conditions (Turunen et al., 2016). Capacity to adapt to climate change and land use change varies across the reindeer husbandry area. For example, the access to suitable pastures has become limited especially due to intensive forestry practices throughout the history (Helle and Jaakkola, 2008) but also due to other land use factors (Kumpula et al., 2014). Land use changes affect the availability and quality of forage and pastures, the size of the pastures and the reindeer population. The land use changes also cause ecosystem degradation and increase supplementary feeding demand in winter (Anttonen et al., 2011; Heikkinen et al., 2012). It is inevitable that supplementary feeding changes the nature of reindeer husbandry and requires more financial resources, more time, and more work of herders, which cause economic impacts. But it can help overcome critical winters if digging conditions are difficult or (arboreal) lichens are lacking, and reindeer would otherwise starve. Changes in reindeer herding practices and agreements on compensation are needed if damages to property, as well as impacts and conflicts due to multiple land uses, will increase.

Currently several mining and wind farm projects are under development or already operational in the reindeer husbandry area in Finland which covers 36 percent of the total area of Finland (Fig. 1). The environmental impacts of mining can originate, for example, from wastewater spills and risks of such spill-overs can increase due to climate change because of increasing precipitation and extreme weather events (Northey et al., 2017). In the case of wind farms, pollution is not an issue, but power transmission lines that cut across the pastures, as well as potential noise impacts, can affect reindeer. More systematic and longer-term monitoring of reindeer behaviour is still needed while the impacts of wind farms on reindeer are still debated among scholars (cf. Colman et al., 2012; Flydal et al., 2004; Flydal et al., 2009). Reindeer might avoid the area, have difficulties moving within the area, pastures will be fragmented, and calving disturbances may occur (Skarin et al., 2015). Furthermore, the increased traffic, particularly during the construction period, could cause injuries and the death of reindeer. Additionally, reindeer could also be disturbed by the dust and noise of the construction work, especially during the calving time.

2.3. Participatory governance

In general, with the phrase “public participation” we refer to any involvement of the public in all or some of the different phases of infrastructure project life cycle: initiating, planning, decision-making or follow-up (e.g. monitoring). “Participatory governance” means integration of views, knowledge, and values of local communities and civil society organisations into decision-making and planning of the projects. Following the definition of O’Faircheallaigh (2010, 20) we

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