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Climate Change and the Green Transition: Double Burden for Indigenous Sámi Reindeer Herding Communities

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ABSTRACT

This article presents a case study examining climate injustices faced by Indigenous Sámi reindeer herding communities in Sweden, within the context of climate change and the green transition. Drawing from critical discourse analysis, the study identifies four key patterns of injustice: (1) Swedish public authorities do not fully recognize the disproportionate effects of climate change on the Sámi population; (2) the cumulative effects of being negatively impacted by both climate change and the green transition create a double burden that is insufficiently addressed by authorities and companies, which risk hindering Indigenous rights by threatening traditional practices (3) current consultation mechanisms are inadequate for meaningfully influencing land management issues, as consultations mainly involve information exchange; and (4) the traditional Sámi knowledge, Árbediethu, passed down through generations, is often downplayed in institutional settings, where seemingly just processes can lead to unjust outcomes. The green transition's parallels with the historical colonization of Sápmi have led scholars and Sámi actors to describe it as a new form of colonialism. The study concludes that achieving Indigenous climate justice requires prioritizing Sámi rights, leveraging Indigenous knowledge, and expanding the focus beyond solely emission reduction to foster sustainable societies that address power imbalances and systemic injustices.

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Climate justice; indigenous rights; green transition; green colonialism; Sámi reindeer herding communities

Introduction

Amid accelerating global warming, Indigenous populations and their traditional livelihoods face some of the most profound challenges posed by climate change and associated ecological disruptions (Datta and Kairy 2024). In response, climate justice has become increasingly recognized as essential to addressing these disproportionate impacts (Bartmann, Halsband, and Schapper 2024). While climate action strategies to mitigate and adapt to the effects of climate change are progressively implemented, global greenhouse gas emissions continue to rise, and each year since the Paris Agreement has been the warmest on record (WMO 2024).

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In line with the Paris Agreement, economically developed nations bear historical responsibility for emissions and should lead reduction efforts (UNFCCC 2015). Consequently, the EU strives to become the first climate-neutral continent by reaching net-zero emissions by 2050 through a 'just and inclusive green transition'. The green transition seeks to enhance the economy through green technology, establish sustainable industry and transport, and reduce pollution (EU 2020). Sweden has an even more ambitious target of net zero by 2045, driven by fossil-free energy, industrial electrification, and carbon-capture technologies (Regeringen 2017). To achieve this, attention is turned to the northern part of the country, where large-scale wind power plants, mines and infrastructure are planned to become the engine of the country's green transition. In extension, these developments are framed as key to green innovations across the entire EU (Busch and Pehrson 2023). To support this, Sweden and the EU are advancing faster and more effective permit processes for industries involved in the green transition (Busch, Pourmokhtari, and Svantesson 2024). For instance, the EU has adopted the European Critical Raw Mineral Act which aims to streamline permitting processes for minerals and metals deemed crucial for the green transition (EU 2023).

While northern Sweden is increasingly referred to as the engine of the country's green transition, it is also a part of Sápmi, the traditional Indigenous Sámi land. Sápmi, located in the Arctic, is warming four times faster than the global average (Rantanen et al. 2022). Limiting global warming is critical to minimizing the negative impacts of climate change on Sápmi. Despite this, the fast-paced green transition in northern Sweden is increasingly becoming an additional threat to the future of various Sámi cultural activities and practices, through continued encroachments and exploitation of Indigenous lands (Cambou et al. 2021; Lindberget, Skarin, and Sandström 2024; Sámidiggi 2021a; Sandström 2024).

Recognized as Indigenous people in Sweden, the Sámi population has the legal right to preserve and develop their traditional practices, languages, and identity. Currently, the double burden of climate change and land encroachments associated with the green transition is placing significant pressure on various Sámi livelihoods and activities, threatening the future of Sámi culture and traditions. The traditional reindeer husbandry livelihood, protected under Swedish and international law as part of Sámi Indigenous rights, is particularly under pressure from competing land uses and climate change (Sámidiggi 2021a; Sámi Youth Council 2021).

The urgent drive to reduce emissions through the green transition, primarily driven by industrial demands and the pursuit of economic growth, creates an ethical dilemma as it conflicts with the importance of protecting and upholding Sámi Indigenous rights. This article addresses this ethical dilemma by presenting a case study that examines climate injustices faced by Sámi reindeer herding communities. The study begins by examining the impacts of climate change and related mitigation measures on Sámi reindeer herding communities in Sweden. Thereafter, climate injustices connected to the findings are discussed together with potential first steps of turning injustices into justice.

Conceptual and theoretical framework

Climate justice emerged in the 1990s within civil society and academia, initially focusing on the unequal distribution of climate burdens and benefits between nations (Bartmann,

Halsband, and Schapper 2024). Article 2 of the Paris Agreement reflects this by recognizing interstate justice of varying responsibilities among nations (UNFCCC 2015). As an affluent welfare state, Sweden is required under the Paris Agreement to reduce emissions rapidly, supporting climate justice for economically developing countries disproportionately affected by climate change. However, focusing solely on interstate justice risks overlooking unequal intrastate impacts, such as those affecting Indigenous populations in economically developed countries like Sweden, who may be excluded from a narrowly framed climate justice approach (Bartmann, Halsband, and Schapper 2024; Wilkens and Datchoua-Tirvaudey 2022).

Climate justice encompasses various dimensions of justice related to both the impacts of climate change and mitigation efforts (Bartmann, Halsband, and Schapper 2024). While climate justice issues are receiving increasing attention in academia and policy, researchers have identified risks, particularly for Indigenous populations, of mainstreaming the concept without addressing the underlying causes of oppression and ecological crises linked to climate change and climate action (e.g. Álvarez and Coolsaet 2020; Mels 2023). The mainstream conceptualizations of the three main dimensions of climate justice – distributive, recognitional, and procedural – have been critically analyzed within decolonial Indigenous studies to highlight the need to expand these concepts to validate Indigenous knowledges, modes of living, value systems, and worldviews (see Table 1) (e.g. Álvarez and Coolsaet 2020; Jones, Reid, and Macmillian 2024; Wilkens and Datchoua-Tirvaudey 2022).

The Indigenous scholar McGregor (2018) claims that Indigenous climate justice requires addressing historical and ongoing oppression while also recognizing, promoting and respecting Indigenous knowledge and value systems. Indigenous knowledge and value systems are often considered inferior to Western science and knowledge systems (Álvarez and Coolsaet 2020; Lajoie-O'Malley, Bronson, and Blue 2023; Sámiradđi 2023). Consequently, Indigenous climate justice cannot be achieved if Indigenous worldviews are systematically silenced while others are amplified.

Table 1. An overview of the definitions of distributive, recognitional, and procedural justice, followed by a critical decolonial analysis of these dimensions of climate justice.

Dimensions of climate justice	Definition	Critical decolonial analysis
Distributive justice	Fair allocation of benefits and burdens associated with climate change and climate action	Environmental exploitation remains unquestioned, framing deliberate exposure to environmental harm as a justified solution. This approach risks perpetuating the misrecognition of alternative modes of life incompatible with the capitalist mode of production (e.g. Álvarez and Coolseat 2020)
Recognitional justice	Appropriately recognizing disproportionately affected populations and groups	Risk of misrecognizing a plurality of worldviews, modes of living, value systems, knowledge systems, and relationships with the more-than-human world (e.g. Wilkens and Datchoua-Tirvaudey 2022)
Procedural justice	Fair, transparent, and inclusive decision-making processes	Failing to address power asymmetries, whether between actors or knowledge systems, risks perpetuating injustices even in seemingly fair and inclusive decision-making processes (e.g. Jones, Reid, and Macmillian 2024)

A central element of climate justice for the Sámi population is the protection of Indigenous rights (Fjellheim 2022; Sáminuorra 2020). The Swedish Sámidiggi (Sámi Parliament) (2021a, 1) explains the Sámi traditional worldview to be rooted in a holistic perspective, where humans, nature, and the landscape are seen as an indivisible whole. As a result, every issue is inherently connected to the environment and cannot be separated from other aspects, such as culture. Thus, protecting Indigenous rights is central to issues related to land management and climate change, including those connected to climate justice (Fjellheim 2022; Sáminuorra 2020). Indigenous rights are covered by international instruments asserting that Indigenous peoples have the right to preserve and develop their culture, languages and traditions, should not be forcibly displaced, and that any legislative or administrative measures affecting them require their free, prior and informed consent (ILO 1989; UNDRIP 2017).

Method and materials

Case selection

The case study examines Indigenous climate justice within the context of Sweden at the national level. As the world rapidly transitions to 'greener societies', primarily through energy transitions, Indigenous peoples in various countries are increasingly impacted by injustices (e.g. wind power in Norway violating Indigenous rights, Mósesdóttir 2024). Sweden is an interesting case due to its ambitious green transition plans for northern Sweden, alongside repeated international criticism for violating Indigenous rights in land use conflicts (UN 2016, 2020). At the same time, the EU has stated its commitment to a 'just and inclusive green transition' that respects Indigenous rights (EEAS 2024).

A growing body of research examines how various infrastructure projects associated with the green transition impact the Sámi population in Sweden, particularly the reindeer husbandry livelihood. This study aims to examine aspects of climate justice connected to climate change and the green transition. The focus on Indigenous climate justice seeks to emphasize the needs and contexts of reindeer herding communities, aiming to identify systemic changes necessary for achieving sustainable transformations rooted in justice, equality, and respect for Indigenous rights.

The Sámi population in Sweden is a heterogeneous group and may hold diverse views on the green transition and climate justice. Nevertheless, a country-level analysis can reveal general patterns of potential climate injustices. This study primarily focuses on the traditional livelihood of reindeer husbandry, as most of the empirical data focuses on this practice. However, various other Sámi activities, practices, and values are also affected by the double burden, even though they are not specifically addressed in this study (Sámiráđđi 2023).

Document selection and analysis

The case study is based on secondary sources consisting of reports, statements, research articles, and book chapters by Sámi and non-Sámi authors connecting climate change, green transition, climate justice, and Indigenous rights. Issues related to climate change and climate mitigation efforts have long been raised by Sámi organizations, making secondary sources a relevant approach.

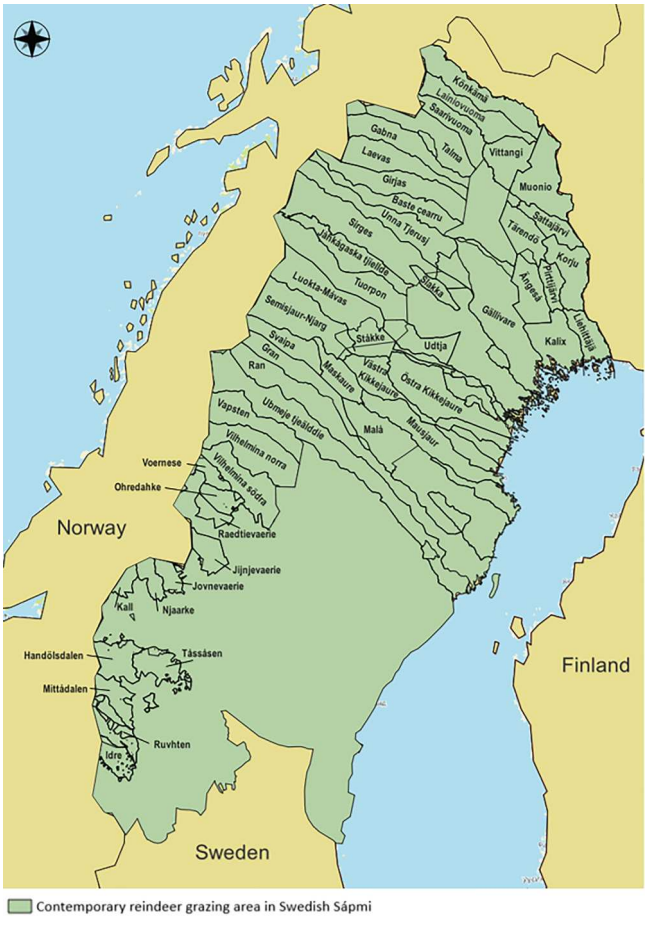
The materials were found through searches on academic databases (DiVA, JSTOR and Scopus), as well as on Sámi organizations' websites, such as the Sámidiggi (The Sámi Parliament), the Sámiid Riikkasearvi (Swedish Sámi National Association), Sáminuorra (the Swedish Sámi youth organization), and the Sámiráđđi (the Sámi Council). The materials were found through searches of key terms in English and Swedish.[1] Collecting materials from Sámi organizations has been essential to ensure that Sámi perspectives, which might be missing from the scientific literature, are included in the study. The data collection focused on publications from the past ten years, primarily between 2019 and 2024. Additionally, reports and policies from the Government Offices of Sweden's website were analyzed to assess how climate justice and Indigenous rights are addressed in official documents related to climate change and the green transition. The same search string was applied to the government's webpage. The selection of material was based on recent government statements and policy documents on green transition, primarily from 2023 and 2024.

The data analysis was conducted through a document analysis of grey literature from Sámi organizations, complemented by a literature review of previous research and a policy review of official governmental documents, to gain a comprehensive understanding of the studied case. The analysis was guided by a critical discourse analysis (CDA) to identify potential climate injustices experienced by Sámi reindeer herding communities. CDA, which examines how discourse shapes power dynamics and social reality (Fairclough 1995; Foucault 1980), is particularly useful for analyzing climate justice, where power relations are central.

The analysis was conducted in three steps. First, the impact of climate change and the climate mitigation efforts associated with the green transition on reindeer husbandry communities were analyzed. This step focused on identifying common themes in the described experiences, particularly how potential problems and solutions were framed in the collected material. Next, within the context of the conceptual and theoretical framework, patterns of injustice related to the double burden were examined. Special attention was given to the power dynamics explicitly and implicitly described in the materials. Finally, the third step built on the analysis of the identified injustices to explore initial actions aimed at transforming them into justice. This involved examining the discourses around proposed strategies for sustainable societies put forward by Sámi researchers and organizations, ensuring that the understanding of justice is grounded in Indigenous perspectives.

Case background

The traditional Sámi land, Sápmi, spans across Sweden, Norway, Finland and Russia. Currently, 51 reindeer herding communities preserve the traditional practice of reindeer husbandry in Sweden. Reindeer herding communities are economic and administrative associations where reindeer husbandry is practised within a designated geographical district, regulated by Swedish legislation (see Map 1). While Swedish Sápmi historically covered a much larger expanse, colonial legislation has narrowed its common perception to the contemporary reindeer grazing areas (Lanyon-Garrido et al. 2024). The Sámi population in Sweden is estimated to be between 20,000 and 40,000 people. However, due to a colonial history of assimilation and forced relocation,



Map 1. The geographical districts of the 51 Sámi reindeer herding communities, covering around 50 percent of Sweden.

it is difficult to accurately determine how many people identify as Sámi (Sámidiggi 2024).

Reindeer husbandry is far from solely an economic activity; it is an indispensable part of Sámi culture, traditions, languages, and identity. It also encompasses a knowledge system based on a socio-ecological relationship between people, animals, and the environment, passed down through generations (Holand et al. 2022; Sámidiggi 2021a). Cultural well-being is closely tied to the well-being of reindeer and the natural environment. At the same time, traditional reindeer husbandry plays a crucial role in protecting biodiversity in the Arctic region (Sámi Youth Council 2021).

Reindeer are semi-domesticated seasonal breeders, sensitive to disturbances, and traditionally fed on natural pasture. Reindeer husbandry requires large, unfragmented land areas, as reindeer migrate between grazing sites throughout the year. The reindeer husbandry year is divided into eight seasons, each with specific events and migration routes used for thousands of years (Skarin et al. 2022). According to Sámidiggi (2024), changing migration routes is nearly impossible, as reindeer are easily startled animals of habit.

The Sámi population have long fought for their cultural rights and self-determination over their land. Historically, Sápmi has been exploited to develop the country. Mining, hydropower, and forestry contributed to the Swedish welfare state, at the expense of forced relocation, assimilation, and discrimination of the Sámi population (Larsson 2017). For instance, hydropower is accountable for 45% of the total Swedish energy production, which of 80% is produced in Sápmi. Most of the hydropower plants were established in the early 1900s as part of the colonization of Sápmi, which led to forced relocations, decreased grazing areas, limits on the number of reindeer allowed, fragmented lands, more dangerous migration routes, and other cultural impacts (Össbo 2014). Even decades later, hydropower continues to negatively impact the Sámi population through disturbances in their livelihoods (Inga and Kløcker Larsen 2022). Although the Sámi population was recognized as Indigenous people in 1977, Sweden has yet to ratify the ILO No. 169 Convention, the key international legal instrument protecting Indigenous rights. Additionally, Swedish legislation heavily regulates reindeer husbandry, including community formation and herd size (Holand et al. 2022).

Findings: the double burden

Climate change

The changing climate impacts the ability to preserve and develop traditional reindeer husbandry, primarily by threatening reindeer survival through reduced food availability and an increased risk of disease. Slow onset changes in vegetation and rapid shifts between warmer and colder temperatures, in combination with increased precipitation, impact the reindeer's ability to find food. Warmer summers can cause droughts, reducing food availability and decreasing snow patches that reindeer use to cool down and avoid insects (Vannar 2024). As a result, it becomes difficult for reindeer to build enough energy reserves to survive the winter (Vannar 2024; Rambaree, Båld, and Rambaree Backlund 2020). During the wintertime, shifting temperatures can create an ice crust on the snow, making it challenging for reindeer to dig for food (Rambaree, Båld, and Rambaree Backlund 2020; Sámidiggi 2023). Additionally, milder winters endanger both reindeer and herders due to weakened ice conditions. The later arrival of spring puts calves at risk of freezing to death (Sámidiggi 2023). These challenges increase stress levels and the workload for reindeer herders. The unpredictable weather patterns also lead to higher dependency on flexible adaptation strategies to deal with various new situations (Löf et al. 2012; Rasmus et al. 2022; Sámidiggi 2023).

In extension, the consequences of climate change challenge the ability to protect Sámi culture, practices, identity, and languages, as it disrupts the transmission of knowledge between generations (Holand et al. 2022; Rasmus et al. 2022; Sámi Youth Council 2021). Some situations are so different from any previous experiences that the Sámi languages lack words to describe them (Axelsson-Linkowski et al. 2020). Younger herders have expressed that they have rarely experienced a 'normal' winter compared to older generations (Axelsson-Linkowski et al. 2020; Sámiráđđi 2023; Sámi Youth Council 2021). As a result, the accelerating effects of climate change make Sámi youth concerned about its impact on the future of their traditional livelihood (Kowalczewski and Klein 2018; Sámi Youth Council 2021). In extension, climate change and associated

ecological disruptions have severe negative effects on the mental health of the Sámi population at large, due to increased anxiety, cultural losses, threatened adaptive ability and ecological grief (Sámiráđđi 2023). As reindeer husbandry is central to Sámi culture, maintaining this traditional livelihood is essential for safeguarding Sámi culture (Sámidiggi 2021a). Thus, climate change impacts on reindeer cause direct and indirect negative effects on the traditional livelihood, culture, identity and languages.

The green transition

The reindeer herding communities face not only the adverse impacts of climate change on their traditional livelihoods but also challenges related to mitigation efforts. Sámi organizations call for rapid action to limit global warming while demanding that their livelihoods and culture are not sacrificed for the green transition (Kuhmunen 2023; Sámidiggi 2019; Sámi Youth Council 2021). Only about four percent of reindeer grazing land across Sweden, Norway, and Finland remains undisturbed by various land encroachments, including wind power, forestry, hydropower, mining, predators, tourism, and other human activities (Stoessel, Moen, and Lindborg 2022). Encroachments associated with the green transition exacerbate land pressures, limit culturally appropriate climate adaptation strategies, and raise ethical concerns regarding the protection of Indigenous rights (Sámiráđđi 2023).

Wind power

To meet the demands connected with the electrification processes within the green transition, around 8000–13,000 new wind turbines are required in northern Sweden (Lindberget, Skarin, and Sandström 2024). A growing body of research indicates that reindeer are being adversely affected by wind power expansions (i.e. Lindberget, Skarin, and Sandström 2024; Skarin et al. 2021). The establishment of wind power and associated infrastructure in grazing areas disrupts reindeer, primarily because reindeer are extremely sensitive to human-induced disturbances, such as noise and movements (Vannar 2024). Wind power plants disturb reindeer at distances of up to 6 km (Lindberget, Skarin, and Sandström 2024). If reindeer are disturbed while grazing, they lose valuable grazing time, which impairs their ability to build up energy reserves in the summer or maintain them during the winter. Disturbances from wind power can negatively affect reindeer survival and productivity in reindeer husbandry (Lindberget, Skarin, and Sandström 2024; Sámidiggi 2019). Many reindeer herding communities report that their lands are already heavily encroached upon, making it impossible to sustain further wind power developments (Sámidiggi 2019). For instance, in the Vapsten reindeer herding district, 650 wind power turbines are planned to be established, which in combination with already existing land encroachments significantly will affect reindeer herding (Dahlqvist 2024). Beyond wind turbines, the roads and infrastructure they require also heavily impact reindeer husbandry and other Sámi activities (Sámidiggi 2019).

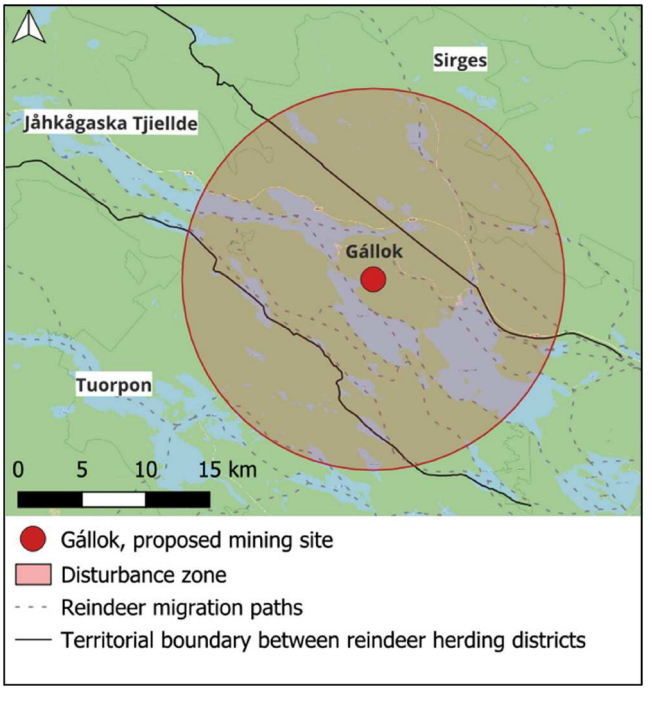
Mining

Mining activities significantly affect Sámi traditional livelihoods, both during extraction and after mine decommissioning (Kløcker Larsen et al. 2022). As the EU's leading mining nation, Sweden aims to supply critical raw materials for the EU's green transition

(Regeringen 2024). Mining affects Sámi traditional livelihoods through encroachment on cultural history, biodiversity loss, ecological grief, loss of reindeer and land, reduced animal health, disturbances from traffic, increased workload, and mental and physical constraints (Kløcker Larsen et al. 2022; Persson and Öhman 2014). Research shows reindeer are significantly disturbed by mining activities up to 14 km from the mining site (Skarin and Åhman 2014). Several communities are threatened by the establishment of new mines. By 2017, 51 processing permits had been granted for mining in reindeer husbandry areas (Österlin and Raitio 2020), and more permits have since been issued. For instance, the proposed Gállok mine in northern Sweden received a processing permit in 2024, despite its potential to severely impact the communities of Jåhkågaska Tjiellde and Sirges, threatening their existence (see Map 2) (Länta 2024; Wik Karlsson 2024).

Due to the severe impacts of mining on reindeer husbandry, the Sámidiggi argue that no mineral exploitation should occur in Sápmi until Sweden has ratified ILO No. 169 to ensure free, prior and informed consent from affected communities (Sámidiggi 2014).

While mining companies are required to conduct environmental impact assessments, social and cultural impacts often receive less attention, a point for which Sweden has faced criticism. Addressing these impacts fully would require significant changes in Sweden's mining governance (Kløcker Larsen et al. 2022). Current mining policies prioritize mineral extraction, often at the expense of land and water conservation, leading to environmental issues like water pollution and landscape degradation. Additionally, Indigenous rights are frequently disregarded in mining operations (Persson and Öhman 2014).



Map 2. The proposed Gállok mine and surrounding disturbance zone cuts off the reindeer migration paths of Jåkhågaska Tjiellde and Sirges reindeer herding communities. Data retrieved from Sámidiggi.

Cumulative effects

The cumulative effects of past, present, and future land encroachments intensify the impacts of climate change. While Sámi actors have developed strategies to adapt, expanding encroachments limit options for flexible and culturally appropriate solutions (Aira and Aira 2019; Rasmus et al. 2022; Sámidiggi 2023). Research highlights that cumulative effects are often overlooked in impact assessments, failing to address the combined negative impacts on reindeer husbandry (Cambou 2020; Hortskotte et al. 2022; Kløcker Larsen et al. 2016). For instance, assessing a single wind power plant without considering other impacts is often insufficient. Apart from wind power and mining, forestry significantly affects reindeer by drastically reducing grazing areas and altering local temperatures, negatively affecting reindeer health and survival (Stenberg 2023)

The lack of alternative adaptation strategies forces some herders to rely on supplementary feeding during harsh years, which can last for several years (Aira and Aira 2019). While necessary in emergencies, supplementary feeding conflicts with traditional practices and can harm long-term reindeer health (Horstkotte et al. 2020; Rasmus et al. 2022). Research shows that calves reliant on supplementary feeding during their first year have a reduced likelihood of finding nutritious food in natural grazing (Rautiainen 2024). This approach increases disease, vulnerability to predators, intensifies workload, and erodes traditional knowledge (Horstkotte et al. 2020; Rasmus et al. 2022). While it addresses immediate needs, it does not offer a sustainable solution for preserving traditional livelihoods (Rasmus et al. 2022).

The cumulative effects undermine the economic viability of reindeer herding, reduce the number of people who can pursue the traditional livelihood and force many to take on additional jobs to survive financially (Sámiráđđi 2023). Despite numerous hardships, most reindeer herders strive to endure. Leaving reindeer herding is challenging, as it often prevents future generations from engaging in reindeer husbandry due to restrictive Swedish legislation (Gråik 2020). The growing stress, anxiety and workload contribute to reduced psychosocial health with rising rates of depression, anxiety and suicidal thoughts among herders (Sámiráđđi 2023). Moreover, conflicting interests within the green transition exacerbate racism and hate crimes against the Sámi people, particularly reindeer herders (Wallin and Huuva 2024).

Given the vast effects of the green transition on Sápmi, several scholars and Sámi organizations have criticized developments in northern Sweden as a form of new colonialism, where the exploitation of traditional Sámi lands is justified under the guise of climate action (e.g. Larsson Blind 2020; Kløcker Larsen et al. 2024; Kuhmunen 2023; Össbo 2023; Sámidiggi 2021a; Sandström 2024; Wik Karlsson and Blind Berg 2022).

Decision-making processes

Despite being severely affected by the double burden, reindeer herding communities often lack influence over decisions (Sámidiggi 2021a). While a law enforced in 2022 ensures that reindeer herding communities are consulted on projects impacting them (SFS 2022:66), consultation meetings are often limited to information exchange with minimal opportunity for meaningful influence (Cambou 2020; Kløcker Larsen et al. 2024; Rambaree, Båld, and Rambaree Backlund 2020). Sámi actors are usually involved only in the final stages of decision-making, rarely influencing outcomes (COE 2024).

Although lawsuits over land encroachments in Sápmi are increasing, courts rarely favor Sámi interests (Cambou 2020). While there have been some victories, such as the Girjas reindeer herding community's right to self-determination over small game hunting and fishing, no significant changes have occurred regarding Indigenous rights in land management cases (Mörkenstam 2018). Courts tend to prioritize the co-existence of reindeer husbandry and energy developments to achieve renewable energy goals, despite negative impacts on reindeer husbandry (Cambou 2020). By 2015, only about one percent of wind power projects in Sápmi were rejected, compared to 25% in southern Sweden (Liljenfeldt and Pettersson 2017).

Due to their limited ability to influence, reindeer herding communities are increasingly opting to negotiate agreements with companies to mitigate harm. While these agreements can offer some benefits, they also pose risks. Many communities feel pressured to sign agreements to reduce the impact of encroachments and avoid land use conflicts (Cambou 2020; Kløcker Larsen et al. 2024; Sámidiggi 2021b). These deals often prioritize immediate benefits over long-term, culturally appropriate adaptation strategies. Companies involved in the green transition often offer the least favorable terms (Kløcker Larsen et al. 2024).

In legal cases and environmental assessments, traditional Sámi knowledge, Árbediethu, is often undervalued, despite its importance in understanding reindeer behavior and adaptation (Lindberget, Skarin, and Sandström 2024; Skarin et al. 2021). Research shows that this empirical knowledge, refined over generations, is frequently overshadowed by the 'scientific proof' provided by company-led assessments (Larsson Blind 2020; Rasmus et al. 2022). Courts tend to favor company assessments, even when herders' knowledge has been proven accurate in predicting long-term effects (Kløcker Larsen et al. 2022). For instance, in the 2024 court verdict of the Gállok mine, Indigenous rights were not mentioned once, and the impact on reindeer herding was primarily based on company assessments rather than those of the herders (Länta 2024; HFD 389-22). The Sámidiggi asserts that Sámi traditional knowledge and values have not been seriously understood or incorporated by broader Swedish society, leading to a sense of not being taken seriously (Sámidiggi 2021a, 5).

Analysis and discussion

Although the EU and Swedish government promote a 'just and inclusive green transition', several Sámi reindeer herding communities, along with the Sámi population at large, are experiencing injustices in connection to climate change and the green transition. This section analyzes these injustices and explores potential first steps of turning injustices into justice through respecting Indigenous rights while also reducing emissions.

Unrecognized impacts

The findings show that climate change and associated climate actions have disproportionate effects on reindeer herding communities and the Sámi population at large. Climate justice, whether intrastate or interstate, is seldom discussed by representatives of the Swedish Parliament. When it is discussed, it primarily revolves around the affordability of energy. The effects on Sámi people are very rarely, if ever, mentioned (Baard,

Melin, and Lily Magnusdottir 2023). The Swedish Parliament repeatedly emphasizes the need to ensure the survival of Sámi culture, but there has been limited action to implement policies and practices that address this (Lindberget, Skarin, and Sandström 2024). While the Swedish government's Climate Action Plan, released in 2023, recognizes that reindeer husbandry is affected by climate change, it is mentioned alongside agricultural practices, forestry, and the fishing industries. It does not address the social and cultural implications of climate change on Sámi traditional livelihoods (Regeringen 2023, 111). In particular, the concerns expressed by Sámi organizations regarding how climate change is affecting their traditional practices, culture, languages, identity, and future are not addressed in official governmental documents. This suggests that Swedish government representatives do not fully acknowledge the disproportionate impact of the changing climate on Sámi traditional livelihoods and culture.

Cumulative challenges

While recognitional justice regarding the effects of climate change on Sámi culture, traditions, and identity is insufficiently addressed by state representatives, this lack of acknowledgement similarly extends to the cumulative impacts of past, present, and future events. The double burden from the green transition and climate change risks accelerating historic land conflicts as well as creating new ones, particularly if cumulative effects are not considered (Lindberget, Skarin, and Sandström 2024; Raitio and Löf 2023). In turn, this has serious negative effects on the Sámi people's health and well-being and risks forcing Sámi people to abandon their traditional practices, restricting the right to practice their culture (Lindberget, Skarin, and Sandström 2024; Sámi Youth Council 2021). The urgent push to build sustainable societies at the national level raises ethical concerns, as it jeopardizes the Sámi reindeer herding communities' ability to live sustainably at the local level (Cambou et al. 2021; Sandström 2024). It not only highlights the unfair allocation of burdens related to climate change and the green transition, but also treats environmental exploitation as an unquestioned solution to the climate crisis, while neglecting alternative solutions, ways of living, and value systems (Àlvarez and Coolseat 2020; Wilkens and Datchoua-Tirvaudey 2022). Instead of helping Sámi actors find culturally appropriate long-term solutions, many of the efforts in the green transition are making it more challenging for them to adapt to climate change and thus find ways to preserve and develop traditional practices.

Lack of meaningful influence

The findings suggest that, while consultation on land management issues is legally required, it often primarily involves an exchange of information rather than meaningful engagement. In the Climate Action Plan, the government acknowledges the legal right of reindeer herding communities to be consulted when there are potential conflicts between Sámi traditional livelihoods and the green transition (Regeringen 2023, 61–62). This implies that Indigenous rights are protected through consultation during the green transition. However, the findings indicate that consultation meetings often do not provide a meaningful opportunity for influence. As a result, questions arise regarding the fairness and inclusivity of these meetings. The lack of free, prior, and informed consent

on land rights issues, which are central to Indigenous rights, raises concerns that the current approach to exploitation in the name of the green transition mirrors previous forms of colonization in Sápmi (e.g. Kløcker Larsen et al. 2024; Kuhmunen 2023; Sámidiggi 2021a; Wik Karlsson and Blind Berg 2022). The acceleration of permit processes may further limit the comprehensiveness of impact assessments on Sámi actors, reducing their opportunities to influence outcomes as the pace of decision-making increases.

Power asymmetries and knowledge-holders

Notably, Swedish public authorities are slow to acknowledge Indigenous rights and include the perspectives and knowledge of Sámi stakeholders in climate action strategies (Össbo 2023). Relying on consultations and the legal right to take disputes to court as mechanisms for protecting Indigenous rights risks overlooking crucial aspects of achieving Indigenous climate justice, particularly by failing to recognize the power imbalances between different actors and the disparities between knowledge and value systems (Lajoie-O'Malley, Bronson, and Blue 2023). The state's agenda of rapidly advancing the green transition often conflicts with the interests of Sámi actors. Consequently, the power asymmetry in these court cases may be called into question. In particular, current institutional structures will continue to reproduce unequal power relations if Sámi traditional knowledge, Árbediethu, is not considered as equally important as the information provided by companies or the state (Larsson Blind 2020). There is an apparent power imbalance when courts rely on companies' assessments of the impacts on reindeer and reindeer husbandry, rather than the information provided by Sámi actors. Previous research has shown that the court is an inadequate mediator in lawsuits between reindeer herding communities and wind power companies, as it struggles to balance the information provided by both parties (Cambou et al. 2021). Thus, one of the major injustices associated with the green transition appears to be an over-reliance on procedural justice, without addressing the power asymmetries inherent in the institutions, both in consultations and lawsuits.

Climate justice and Indigenous rights

Sámi organizations consistently state that they are not against limiting global warming; rather, they actively promote it. However, if the climate action associated with the green transition comes at the expense of Indigenous rights, it can never be just or sustainable (Kuhmunen 2023; Sámidiggi 2019, 2021c; Sámi Youth Council 2021; SSR 2023). The primary focus on urgently reducing emissions involves significant ethical dimensions, as it often compromises the pursuit of justice, particularly affecting those most impacted by climate change, such as Indigenous peoples (Nightingale et al. 2019; Whyte 2019). While both Swedish public authorities and Sámi organizations aim for sustainability, differing worldviews and discourses lead to conflicting approaches on how to achieve it.

In the EU's strive to create a 'just and inclusive green transition', the key question to consider is: What is the goal of the green transition? If the aim is to mitigate the effects of climate change, especially for those disproportionately affected, then the focus should move beyond only reducing the amount of greenhouse gases in the atmosphere. Instead, it is crucial to also address the impact on those suffering from its consequences

within the country as well as globally. Solely relying on technical transitions focusing on mitigation falls short of leading to transformative change that challenges injustices, protects ecosystems and halts biodiversity loss (Nightingale et al. 2019). When the Swedish government and the EU at large push for a green transition in which industries continue to extract Indigenous lands, they simultaneously face the ethical dilemma of contributing to further environmental harm and violating Indigenous rights. Undoubtedly, there are other ways to limit global warming besides expanding industries and establishing large renewable energy plants.

Indigenous perspectives on sustainability can provide essential insights into transformations toward more just and inclusive societies, with limiting global warming being one of several focus areas (Larsson Blind 2020; Sámidiggi 2023; Sámi Youth Council 2021). While this study primarily focuses on reindeer husbandry, traditional Sámi values and knowledge systems expand to a holistic perspective of protecting land and water to foster sustainable societies (Sámidiggi 2021a). The Swedish government and broader society could favorably recognize and embrace the value of the knowledge held by Sámi organizations and communities. Not only for the sake of protecting Indigenous rights but also to understand how the traditional Sámi knowledge and value system could contribute to creating a sustainable nation. To do this, the Sámi organizations and communities must have influential roles, and existing power asymmetries must be challenged (Sámidiggi 2021a; Sámi Youth Council 2021). The self-determination of Sápmi through free, prior, and informed consent is highlighted as one of the most important first steps in challenging existing power asymmetries (Larsson Blind 2020). By focusing on long-term solutions that integrate traditional Sámi knowledge and value systems on the Sámi population's terms, it may be possible to achieve climate justice that protects Indigenous rights while also prioritizing limiting global warming (Sámidiggi 2023). Achieving Indigenous climate justice is crucial to ensure that those who have already sacrificed their land for the country's development will not have to do so again without their free, prior, and informed consent.

Conclusion

This study highlights the double burden faced by Indigenous Sámi reindeer herding communities in Sweden, as they are disproportionately affected by both climate change and the fast-paced efforts to mitigate its effects through the green transition. Four main aspects unfold when examining the climate injustices linked to the double burden. First, climate change's disproportionate impact on Sámi culture, traditional livelihoods and identity is not fully acknowledged by Swedish public authorities. Second, cumulative effects impeding the possibility of fulfilling Indigenous rights by preserving and developing traditional practices, culture, languages and identity are frequently overlooked, challenging the possibility of continuing with the traditional practices. Third, reindeer herding communities have limited ability to influence land use processes and assessment, as the consultation mechanisms often merely consist of information exchange. Fourth, the traditional knowledge, Árbediethu, carried through generations is frequently downplayed in institutional settings, where processes that appear to be just and fair may produce unjust outcomes. In general, the green transition follows previous modes of colonization of Sápmi, where Indigenous voices and concerns are undervalued.

Achieving Indigenous climate justice requires prioritizing Sámi rights and knowledge while addressing the need to reduce emissions. Climate action must guarantee free, prior, and informed consent, ensuring Sámi actors have meaningful and influential roles in decision-making and land management in Sápmi. Recognizing the Sámi population as experts on their lands and placing Sámi actors at the forefront of shaping climate policies promotes just and inclusive sustainable societies by addressing the ethical dimensions of rapidly reducing emissions while protecting Indigenous rights.

The effort to create sustainable societies must move beyond a narrow focus on emissions reduction to address broader impacts on human well-being, ecosystems, and biodiversity. By embracing long-term, transformative approaches that challenge systemic injustices and power imbalances, we can achieve climate justice that not only protects Indigenous Sámi rights but also leverages Indigenous expertise and brings justice to voices that historically have been undervalued. This strategy could potentially benefit sustainability efforts in the whole country, and in extension, the entire EU.

Note

1. The full search string was 'climate change' or 'green transition' or 'wind power' or 'mines' or 'green infrastructure' or 'green colonialism' AND 'Indigenous rights' or 'Sámi rights' or 'reindeer herders' or 'reindeer husbandry' or 'Sámi communities'.

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Maria Båld is an interdisciplinary researcher and social worker. In her most recent role, she worked at the Department of Peace and Conflict Research at Uppsala University in Sweden, where she contributed to various interdisciplinary research projects examining the intersection of environmental, social, and geopolitical issues and their impact on communities, particularly Indigenous and marginalized groups.

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