

Sámi Generational Knowledge and Culture in the Face of Climate Change

Climate Change Threatens TEK

Land and nature are traditionally considered sacred among many indigenous groups and tribes in the world, and thus many of these groups tend to play the part of environmental stewards or protectors of biodiversity in their native land. Indigenous interactions with and practices regarding the environment are passed down, often orally, from generation to generation. Because of the importance of the environment in various historical native livelihoods and cultures, many indigenous groups have developed a system of knowledge about their ecosystems that they also pass down (Dowie, 2009).

Indigenous traditional ecological knowledge — abbreviated as TEK — is often essential to the survival of native communities but, because of its roots in spirituality and its qualitative nature, TEK is often underestimated in comparison to the more quantitative Western scientific knowledge and data (Roturier, 2009). TEK is a holistic system that incorporates all biotic and abiotic factors in an ecosystem and is inextricably tied to an indigenous group's language and culture (Oskal, 2009). This traditional system of knowledge can also be considered an authority system within indigenous groups as the most powerful members of a community are often the ones with the most knowledge about their ecosystem and environment (Dowie, 2009).

Unfortunately, multiple TEK systems are in danger of disappearing as the lands that this type of knowledge depend upon are being changed by forces such as industrialization, militarization, encroachment, and climate change. These changes are happening all over the world — such as in Canada, Alaska, Brazil, Australia, and

Indonesia — but as the Arctic is warming and consequently thawing at a faster rate than the rest of the world, the circumpolar land and sea are becoming increasingly available for exploitation (Horstkotte, 2017; Riseth, 2011). While some people are likely to benefit from the various industrial developments in the Arctic, the groups that rely on the land, often indigenous people, may be forced out of their traditional regions by these changes (Wallace, 2016). Thus, not only is climate change endangering biodiversity in many areas, but also cultural diversity as climate change refugees are likely to assimilate into the majority culture or to lose certain aspects of their TEK once they no longer depend on their ecological knowledge (Riseth, 2011; Dowie, 2009; Oskal, 2009; Baer, 1994).

Sámi Culture Depends on Nature

The Sámi are one of the many indigenous groups that live in the Arctic and are currently experiencing threats to their historical livelihoods, land, and culture. This group, native to the northern regions of Norway, Sweden, Finland, and Russia's Kola Peninsula, depend heavily on their traditional land — often called Sápmi, Saami, or Lapland. Their massive territory has been divided among the four aforementioned nations since colonization and thus the Sámi identity became somewhat fractured in the past. The dispersed Sámi are not protected by borders and therefore they are subject to different, often discriminatory, policies by the multiple governments that rule over them who often see them as an obstacle to resources and land in the Arctic. Even though it is divided among different European nations, Sápmi is a cultural symbol for the Sámi, something that their identity, their livelihoods, and their language is rooted in. When their land is in danger, their society is in danger as a result (Lehtola, 2004; Baer, 1994).

Historically, the Sámi have faced colonization, Christianization, and attempts at assimilation or forced migration to the northernmost reaches of Sápmi at the hands of the Scandinavians — and to a lesser extent, the Russians — justified largely by Social Darwinist attitudes. The Scandinavians regarded the Sámi as inferior, primitive, or mystical and thus had no qualms about dividing Sápmi for their own colonial and economic interests. Despite this colonization and discrimination, the Sámi have managed to maintain some aspects of their culture and language and have gained some autonomy in their own parliamentary organizations in the Fennoscandian countries, though their concerns are not always heard or considered by the majority as they should be (Wallace, 2016; Lehtola, 2004; Baer, 1994).

Sámi reindeer herders are typically some of the most vocal of the Sámi and are considered to be protectors of their culture and their language despite the fact that they only make up a small percent of the Sámi populations across the Arctic. The reindeer herders are unique in their interactions with their ecosystems and have been romanticized, recorded as a mystic population, and isolated from the southern Scandinavian populations (Wallace, 2016; Lehtola, 2004). Traditionally, the reindeer herders migrated in response to the intense seasonality of the Arctic in an attempt to ensure that their reindeer had access to food despite snow conditions, but that nomadic pastoral lifestyle has since been severely limited by restrictive policies regarding land ownership and increasing industrialization. Their ability to adapt to environmental changes by migrating has also been limited by these factors (Eira, 2018). Because of their role in the preservation of Sámi culture, reindeer are an important cultural species

and the Sámi are economically and socially dependent on them — a fact made clear by the similarity of some Northern Sámi words such as *eallu*, herd, and *eallin*, life — but if the reindeer herders are unable to adapt to or to manage the new changes in their ecosystem, both them and their herds could be in danger (Horstkotte, 2017; Oskal, 2009).

Not only is the livelihood of reindeer herders threatened by policies and development, but it is also threatened by the increasingly unpredictable weather and dramatic climatic changes. The Sámi have extensive TEK regarding snow, a fact that is reflected in their language and their multitude of words for snow, but the nature of snow in the Eurasian Arctic is changing due to variations in temperature and precipitation (Riseth, 2011). The herders need to be able to predict where they have to move their reindeer in order for them to be able to find sustenance, but the availability of lichen and other foods under the snow is becoming less predictable to indigenous and non-indigenous people alike (Eira, 2018; Oskal, 2009). Many Sámi have a full understanding of the complexity of factors that have always impacted snow cover, but they are facing challenges in applying this TEK as their world changes around them.

Benefits of Knowledge System Integration

Although conservationists and world leaders have previously dismissed TEK in favor of Western scientific data, they actually share many similarities: they are based in reasonable predictions, they are verified by repetition, they are subject to changes, and they generally regard biodiversity loss as an ecological crisis. The major thing that these two knowledge systems do not agree on is methods of resource management. The Sámi,

like many other indigenous cultures, view the environment and nature very differently from the typical Western view. Indigenous people are often more frugal, or sustainable, with their resource extraction and ecosystem use because, to them, it is a source of life rather than an economic resource to be exploited and controlled, as it is often viewed by Western society (Dowie, 2009. Lehtola, 2004).

Despite this one glaring difference, multiple studies and researchers suggest that an integration of TEK and Western scientific ecological toolboxes is the key to more sustainable policies and practices that preserve biomes and cultures around the world. Unfortunately, this mixture is difficult to actually apply; in order for a large amount of people to agree upon the combination and accept TEK as a valid source of qualitative knowledge, many Western policy makers and members of the scientific community must change their mindset about the supposed primitivity and inferiority of indigenous knowledge (Dowie, 2009). If this shift were achieved, most cultural and human ecologists agree that the cooperation among indigenous populations and the majority populations would be beneficial to the environment and to society (Eira, 2018; Horstkotte, 2017; Riseth, 2011; Oskal, 2009; Roturier, 2009).

The inclusion of TEK into modern governmental policies and environmental programs will not only increase their sustainability, but will also provide a more powerful voice to more indigenous people. There are hopes that an integration of knowledge systems would include indigenous input and contributions and return some of the control of native land to native populations or at least increase the influence they have over their land (Oskal, 2009). TEK could also potentially motivate policy makers to

be more flexible to the needs and livelihoods of indigenous people, loosening restrictions on migrations and traditional ways of adaptation (Riseth, 2011). An incorporation of TEK, or even just an understanding of TEK, can also be used as a framework for regulations or limits on resource extraction and overall exploitation of land, not just in the Arctic (Roturier, 2009). For the Sámi, the management of reindeer pastures could be more efficient if power over them were put into their hands of the, especially after decades marginalization and oppression (Eira, 2018). A group of ecologists from Norway and Finland even suggest that, if TEK is accepted and included in Western systems, the reindeer of indigenous herders in the Eurasian Arctic — including the Sámi — could be used as “ecosystem engineers” to maintain the tree line and other aspects of the Arctic ecosystem (Horstkotte, 2017). Since this integration and the concept of TEK are relatively new ideas — the term TEK was first coined in the 1980s — there hasn’t been much time to attempt an incorporation of TEK and Western scientific knowledge other than in a few semi-successful workshops. Generally, Australia, Canada, and Jokkmokk, Sweden are considered pioneers in this ethnoecological movement (Dowie, 2009; Roturier, 2009; Fernandez-Gimenez, 2006).

Arguments Against TEK Integration

While most researchers agree that the documentation of TEK its incorporation into Western ecological knowledge and sustainable policies are desirable goals, there are some factors that they tend to overlook. The majority of the research on the topic of TEK, regardless of what indigenous society or culture the studies are focused on, seems to be done by mostly non-indigenous people. This means that the research and

propositions regarding TEK, a system of knowledge that is usually imperative in the identity of indigenous communities, tends to exclude the very important voice of indigenous people (Fernandez-Gimenez, 2006).

There also seems to be some opposition to the use of generational traditional knowledge on behalf of some indigenous groups and in some indigenous communities for a few reasons. Some researchers argue that the inclusion of TEK into governmental policies and frameworks may exploit the indigenous people and their native knowledge. Their TEK might be collected and used, but there is no guarantee that they will reap any societal or environmental benefits from this use of their knowledge. This potential for co-optation of indigenous knowledge could just be another offense committed by a colonial population determined to profit from the experience of native peoples as much as possible. It is also important to acknowledge that these knowledge systems have a long history of often negative interactions behind them; there is an inequitable power dynamic between Western society and indigenous societies and indigenous people may not be willing to cooperate with Westerners because of this history unless some type of reparations are made (Fernandez-Gimenez, 2006).

There are also still some critics that doubt this application of TEK because of their opinions on its validity and merit when compared with the quantitative data collected by Western scientific research and studies. They fail to see the similarities between the two knowledge systems and doubt TEK because of its connection to spirituality and cosmology in indigenous cultures (Dowie, 2009). Researchers also caution that the application of TEK into sustainability programs needs to be done

carefully and meticulously as it is very specific to certain local ecosystems and biomes. The TEK of an Amazonian tribe should not necessarily be implemented into Norwegian policies regarding management of the Arctic, and vice versa (Fernandez-Gimenez, 2006).

Conclusion

The Sámi have accumulated extensive knowledge of the various Fennoscandian and northwestern Russian ecosystems, especially the snow cover, from centuries of observations and experience. Overall, there is little evidence that the generational TEK of the Sámi — and of other indigenous groups — is not valid ecological knowledge in the same way as modern scientific knowledge. The inclusion of indigenous voices in an attempt to become more sustainable and perhaps more equitable is a better solution than accepting only Western knowledge and excluding the voices of native groups who have been largely successful in preserving biodiversity in their localities. While the integration of knowledge systems will be challenging and will likely meet with some opposition, an attempt to do so in the name of sustainability and environmental conservation is a better alternative than sitting idly by as the climate continues to change drastically. Not only will TEK hopefully implement more sustainable practices across the world, but it may also return some control of indigenous land to indigenous people and help to save their cultures, languages, traditions, and livelihoods from extinction or assimilation (Dowie, 2009; Fernandez-Gimenez, 2006).

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