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Climate change & permafrost thaw in coastal Russian Arctic: non-material dimensions at risk

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Motivation

Climate change and permafrost thaw are creating new risk patterns and exerting increasing pressure on Arctic communities. However, it is still necessary to conduct further research to understand the interplay between these bio-physical processes and meaningful non-material dimensions. These aspects should not be overlooked in adaptation science and policy-making as they englobe those particular elements, processes, values and forms of interacting that allow local residents to lead meaningful lives and livelihoods. Moreover, the impacts are interpreted within a particular cultural framework¹. This is relevant for Tiksi & Bykovsky (Bulunsky District, Yakutia).



Tiksi & Bykovsky in the Bulunsky District. Source: Yandex (n.d) Retrieved September 25th, 2021 from <https://yandex.ru/maps/?from=tabbar&ll=129.244826%2C71.866079&z=10.23>

Why are permafrost thaw & climate change a threat?

Permafrost and climate are two components of the Arctic system that shape every aspect of life in northern settlements like Tiksi and Bykovsky. Residents have established particular forms of interacting with every element of their surrounding natural environment which also delineate the socio-economic configuration. These relations have to be at the core of adaptation research regarding social and cultural impacts of climate change and permafrost thaw. Northern cultures strongly rely on the practice of their traditional activities (hunting, fishing and herding), which are now being strongly impacted. These are not only a source of monetary income, but also an essential element of their livelihoods that contributes to their well-being². Even if local manifestations can vary according to the geomorphological characteristics of the place, changes in climate and permafrost are now putting at risk cultural sites; sacred places, the access to subsistence resources and traditional food, among others.

Methodology

10-day fieldwork conducted in Tiksi & Bykovsky (July 2019) in order to:

- Identify the local manifestations of climate change & coastal permafrost thaw as perceived by local residents.
- Obtain a broader understanding and reconstruct the complex chain of interrelationships (material and non-material dimensions) within this system.
- Delve into the non-material aspects that are currently being threatened by climate change and permafrost thaw.

Snowball sampling – qualitative semi-direct face to face interviews during the fieldwork expedition:

- Institutions/authorities
- Individual respondents included: people who were born or lived in Tiksi and Bykovsky, as well as people from neighboring settlements in the Bulunsky District
- 2 focal groups of 4 interviewees each, they were voluntarily proposed by local residents in Tiksi.

	TIKSI	BYKOVSKY
INTERVIEWED	27	7
TOTAL	34	

In Bykovsky, interviews were conducted by Mateo Cordier (researcher at CEARC Laboratory) and Viacheslav Shadrin (researcher in Indigenous studies – RAS). In Tiksi, they were conducted by Inga Nikulkina (Professor of Economics NEFU), Lena Grigorieva (senior lecturer in foreign languages NEFU), Pavel Garasyuta (freelance translator), Magali Vullierme (Post-doc in Political Sciences) and myself.

The qualitative analysis of locals' narratives outlined salient topics. These provided an increased understanding of the impacts associated to changes in permafrost and climate on non-material dimensions of their lives and livelihoods.



Accelerated coastal erosion in Bykovsky: Picture taken during the fieldwork by Mateo Cordier (CEARC)

Results

- Locals' narratives revealed that because of the interconnectedness of the elements, and processes of the Northern World they live in, the impacts of climate change and permafrost thaw cannot be categorized within strict conceptual boundaries (e.g: social or economic).
- These processes do not impact Tiksi & Bykovsky equally.

Bykovsky depends exclusively on traditional fishing and **can be easily destabilized by changes in the natural environment and climate** as they can ultimately lead to a sharp reduction of fish or increase its inaccessibility (f.e: new migration routes or spawning places).

Accelerated coastal erosion in Bykovsky is causing irreversible degradation of local cemeteries and other valued places.

Forced displacement of Bykovsky is deemed possible by residents (resettlement inland or to other settlements – like Tiksi-). Emotional and psychological losses at a community level.

Attachment to "cold weather": importance of particular climate conditions for developing their lifestyles, but also on their physical comfort.

Permafrost thaw increases the amount of **mammoth tusks** found in the coastline. **Social fragmentation**: elderly people want to preserve their traditions while the youngest ones need to make ends meet and adapt to the current socio-economic and environmental reality they live in.

Increasing challenges for traditional reindeer herders, hunters and fishermen in the area: might cause cultural distress to the people whose lives depend on them. The alternative of moving to bigger settlements like Tiksi might be experienced as a change in their lifestyle would be for many of them, impossible to adapt to.

Evaluating liveability in Tiksi is influenced by **Soviet Nostalgia** (used as a point of reference to compare the current reality they live in) and **the negative impacts of climate change and permafrost thaw** (e.g: detrimental to buildings, roads, etc).

The **share and support network** (exchange of traditional food based in solidarity and reciprocity) acts as a buffer against high prices and low salaries in Northern settlements. It could be interpreted as an adaptive mechanism.

Contact

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