Perception of cultural and material dimensions at risk due to permafrost thaw in the Republic of Sakha

Natalia Doloisio
PhD Student CEARC Laboratory

INDEX

0. NUNATARYUK PROJECT

- European Project
- Duration: 5 years (2017-2022)
- 26 partners from 11 countries
- PhD financed by this project

Main considerations:

- Most human activities in the Arctic take place in the areas of coastal permafrost
- Permafrost thaw represents a threat to biodiversity and puts pressure on communities
- Contributes to the vulnerability of the global climate system

OBJECTIVES

1) Develop a quantitative understanding of the fluxes of organic matter released by the thawing coastal and sub-marine permafrost;

2) Assess the risks associated with coastal permafrost thaw, infrastructure, indigenous communities, health of the populations and pollution

3) Use this understanding to estimate the impacts of permafrost thaw on climate and economy

4) Develop jointly designed adaptation and mitigation strategies with the Arctic coastal populations

PhD thesis

« Social and economic impacts of permafrost thaw in the coastal Russian Arctic »

More especifically: Tiksi

Source: NORDREGIO (2019)

1.

INTRODUCTION

Republic of Sakha and trends

REPUBLIC OF SAKHA OR “YAKUTIA”

1. More than 3.000.000 km² = 1/5 of the Russian Federation territory
2. Cultural and ethnic diversity
3. More than 40% of the territory is in the Arctic Circle
4. 100% of the territory contains some permafrost

TRENDS

- Climate and permafrost shape every aspect of life
- Their influence on multiple spheres make this socio-environmental system difficult to be understood, predicted and maintained (Graybill, 2016)
- The IPCC (2018) estimated that “human-induced warming reached approximately 1°C (±0.2°C likely range) above pre-industrial levels in 2017, increasing at 0.2°C (±0.1°C) per decade (high confidence)”
- This trend is likely to be amplified in Arctic regions, as melting sea ice and the loss of the snow cover increase the absorption of solar radiation in the seas and landmasses

TRENDS

- Most visible impacts of these phenomena: registered in infrastructure (roads, gas and oil pipelines)
- Most adaptation oriented research focuses on the material dimensions of climate change
- Cultural dimensions of climate change is equally important
- Understanding communities' perception on how these processes threaten their lives and livelihoods is essential
- Non-material processes and resources that enable people to lead meaningful and dignified lives that are at risk, require especial attention (Adger et al, 2013)

Ysyakh Festival – June 2018

- Cultural aspects (beliefs, ritual practices, identity, community cohesion, sense of place) are being threatened by climate change
- Culture moderates the type of societies' perception and responses to the new risk patterns
- Perception of risk is culturally constructed (Garcia Acosta, 2005): notion of risk is not objective. It is an intellectual construction between the members of a society (Douglas and Wildavsky, 1982)
- This is particularly relevant in the Russian Arctic: communities have developed a particular understanding and sense of place related to living in the presence of permafrost and extreme climate
- Considering cultural dimensions contribute to understand which adaptations deemed effective and desired by individuals

CHANGES
& RISKS

- Changes of climate and permafrost unfold new interacting processes and stressors, creating new risk patterns for Arctic communities
- Increased knowledge of the risks can be a starting point for understanding the opportunities for, and implications of, possible solutions
- Our research aims to get a better understanding of these new risk patterns and concerns through the recompilation of narratives of personal experiences

2.

METHODS AND DATA

- Study area: Tiksi (east of the mouth of the Lena River, on the coast of the Tiksi Bay in the Laptev Sea)

- Identify and characterize the social and economic consequences of coastal retreat and permafrost thaw

- First scoping fieldwork: Yakutsk (capital of the Republic of Sakha)

Fieldwork Yakutsk

Natalia Doloisio - Jean Paul Vanderlinden

Identifying key stakeholders

For mapping the actors involved in coastal permafrost thaw

Meet authorities

Better understanding the Russian administration related to permafrost thaw

Regulatory and policy framework

Delineate framework regarding the Arctic region in the Sakha Republic

- ❖ Snowball sampling – we conducted semi direct face to face interviews during the fieldwork expedition.
- ❖ 3 different interview frameworks were conceived in order to address different stakeholders:

- Authorities and Research Institutions
- People who were born or lived in Tiksi
- People who were born or lived in other regions of the Republic of Sakha (included Yakutsk)

Interviewees working for or representing Institutions/Authorities	Type of Institution
The Melnikov Permafrost Institute	Research Institution
Office of the Northern Arctic Peoples Culture	Research Institution/ Representative of Minorities
Office for the Arctic	Research Institution
Ministry of Nature Protection	Governmental authority
Upper Authorities from the North Eastern Federal University of Yakutsk	Educational authority
Researchers on the medical area	Research Institution
Institute for Humanitarian Research on Indigenous Issues	Research Institution/ Representative of Minorities
Ex representative of the Indigenous People in the Parliament	Representative of Minorities
Mammoth Museum	Cultural Institution
Indivuduals	
Young entrepreneur from Momsky District	
Journalism student from Tomponsky District	
Law Student from Yakutsk	
Reindeer herder from Kolimskoie	
Seamstress from Saskylakh	
History student from Tiksi	
Financial Economics student from Anabarsky District	
3 Students from Tiksi	
Biologist from Kazachie (Ustiansky District)	
Financial Economics student from Vilyuysky District	
Worker on Power Supply from Siktyakh (Bulunsky District)	

Table 1: Interviewees from the scoping fieldwork in Yakutsk

- Interviews: authors accompanied by an interpreter.
- All interviews were registered.
- Semi-direct interviews: better understanding of the experiences, concerns, values, knowledge and ways of thinking, seeing, and acting of the interviewees
- Difficulty to express the results quantitatively + need of a detailed and repeated interpretation of these
- Linguistic limitations: live translations, loss of terminological precision
- Do not represent the population in statistical terms (not intended)
- Aim: capturing the diversity of experiences

Translated interviews were transcribed and qualitatively analyzed with Atlas.ti 8:

1. Created thematic codes in order to thematically organize the citations
2. Conceive a mental map in the form of a network including relationships between the mentioned topics/codes
3. We created broader categories to regroup the aforementioned codes according to different levels of action or concerns:

- Negative impacts on natural resources
- Negative impacts on infrastructure
- Negative impacts on health and mental well-being
- Governance needed
- Knowledge related issues
- Opportunities

3. RESULTS

PRELIMINARY OBSERVATIONS

- Marked enthusiasm for telling us about their life experiences with permafrost
- Familiarity with the terms “permafrost”,“permafrost thaw” and “climate change”
- Differences in type and level of concerns according to their places of origin
- Awareness of the complex network of modifications that environment, lives and livelihoods in Sakha Republic are currently experiencing
- Narratives did not contradict each other, but extended the state of knowledge about local stakeholders’ perception regarding the rapid and nonlinear changes due to permafrost thaw and/or climate change

Samples associating changes to both permafrost thaw and climate change	Interviewee	Quote #
"It (permafrost) affects reindeer herders because before we were moving along the coastline. Now the climate has changed, big bushes have appeared and it has become really hard to herd the deer (…) Because the soil has changed, the lakes are disappearing, there are landslides, insects have appeared, the white bear started to move around, everything has changed. The birds, the water, the nature, the soil and the weather of course. It appeared that the weather affects many things, the routes have changed, of birds, of animals, there are also migrations, the diseases of animals."	Reindeer herder from Kolimskoie	1
"Another challenge you see, last years there were catastrophic floods for our people. Why this comes? Many reasons. More snow water. More rains. Another reason: maybe because the delta of these rivers now are not dug and that's why water can't flow. But hydrologists say that one of the main reasons of the new floods in the Northern rivers it is because of the amount of water stuck (more than 30%) coming from melting permafrost. It comes to the Rivers and this is another challenge of permafrost melt."	Representative of the Institute for Humanitarian research and Indigenous Issues	2
"Actually there was an article maybe a month ago. They found huge glacier that broke away from the shore and the main reason I read in the article was because of permafrost, the weather is getting hotter and today is close to 19°C and a week ago was -2°C. When I was studying there (Tiksi), the weather was not like that. Maybe we got a few days which were very hot in the middle of July and afterwards it was always very foggy and under 2 degrees."	Student #2 from Tiksi	3
"People living in Tiksi are concerned about climate change-melting of permafrost. (…) As I know, students of the Arctic gymnasium conduct their own research to identify changes in climatic conditions. (…) Changes in permafrost most influenced the flora and fauna. New plants appear in the tundra, which are more common in the western and southern regions of Yakutia. The animal world changed of habitat. (…) Local hunters also agree with the fishermen and believe that animals traditionally being hunted (deer, arctic foxes) change their habitat and move further away from old	Student #3 from Tiksi	4

Samples associating changes solely to permafrost thaw	Interviewee	Quote #
"…in the houses built on permafrost, soon the permafrost melts and the building is destroyed so we need another place to build the houses. Such cases are in villages (…) The fishermen special areas are eroded and they need to move their houses in order to survive. And even the technology cannot move that."	Seamstress from Saskylakh	5
""…earlier, 2 or maybe 3 centuries ago we had epidemics for example black death. The people and the cattle were buried in some places but we don't know exactly where. Now permafrost is melting and they (dead bodies) are appearing during the autumn or they come to the water, rivers, lakes. However, we don't still have any diseases like epidemics in Yakutia, but the example of Yamal shows us that this is one of the big problems for us and the future."	Representative of the Institute for Humanitarian research and Indigenous Issues	6
"I think yes (people is concerned about permafrost) because permafrost melting begins erosion processes. People start losing their houses which are destroyed. And in tundra it creates holes."	Biologist from Kazachie	7

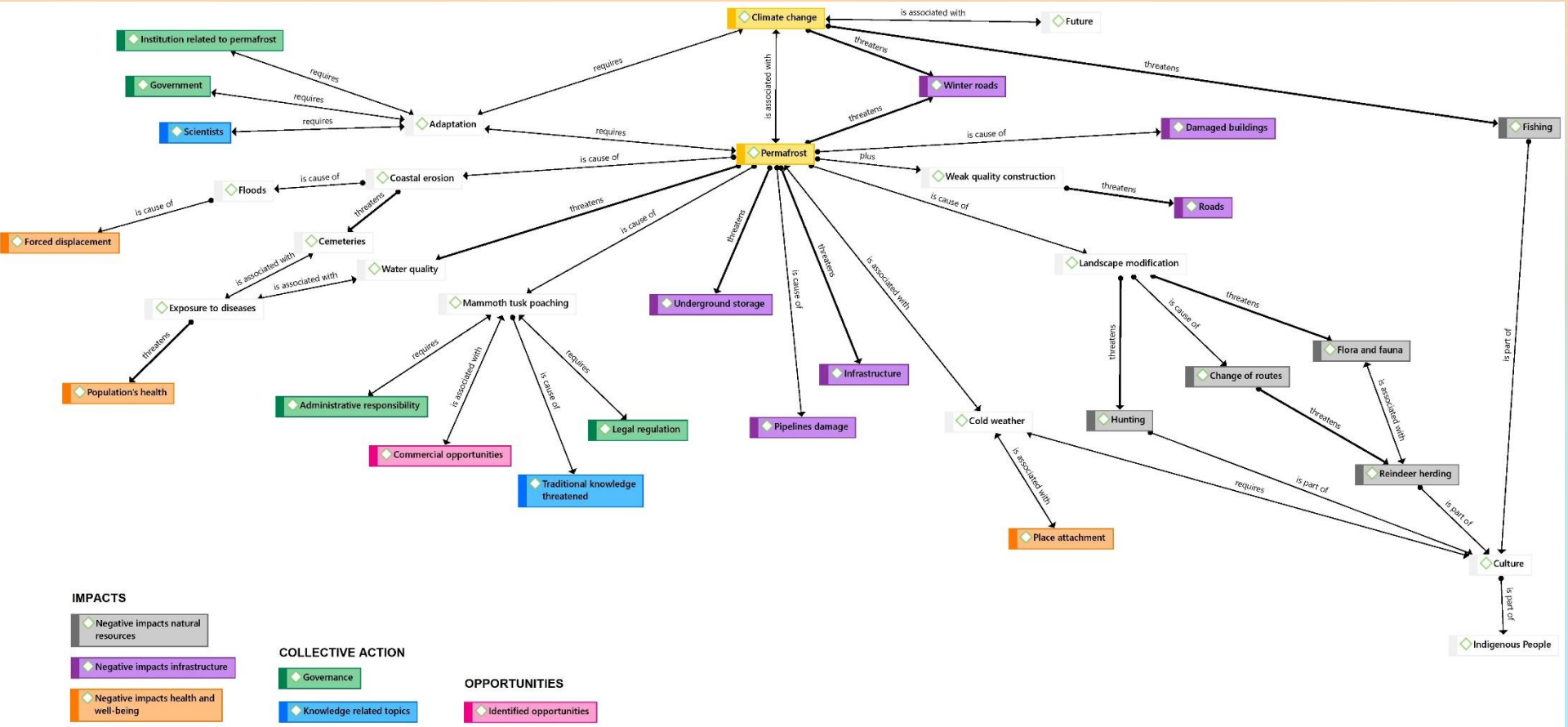
Samples identifying a weak relevance of permafrost	Interviewee	Quote #
"…people in our city and in our Republic are not usually thinking about permafrost. We don't care. We only care about winter and I guess people from villages must care about weather in winter because sometimes they get food for themselves by fishing or hunting and they need to understand at which time they can go outside and how to get dressed. So, about permafrost nobody cares, we don't think about this."	Law student from Yakutsk	8
"…most people don't want to know about the conditions of permafrost. It is a topic for scientists. People is interested in knowing about the conditions of land under Tiksi because there are seismic movements."	Student #1 from Tiksi	9
"I can't say whether it (permafrost) is important or not important because permafrost is part of our lives. All the territory of Yakutia is covered by permafrost and all our traditional lifestyle is connected with this, it depends from it."	Representative of the Institute for Humanitarian research and Indigenous Issues	10

Samples identifying a strong relevance of permafrost	Interviewee	Quote #
"Our culture, or circumpolar civilizations are based on these territories where there is permafrost or cold climate. And that is why each change on permafrost or our climate has an impact on our culture. We start to feel these changes very long time ago (…) when reindeer herders or fishers come to a place, they have like a storage place. One or two meters deep they put their meat, their fish… but now this is disappearing because permafrost is melting. All these places are destroyed. However, we try to do them, but it will be destroyed every time."	Ex representative of the Indigenous People in the Parliament	11
"I cannot speak on the behalf of the whole population of Sakha Republic but for our district it is for sure very important because all our life is related to it (…) I think that all our life depends on the permafrost so we wouldn't exist without it. We get food from the reindeers, so if there are no reindeers we cannot survive, and we also obtain fish."	Seamstress from Saskylakh	12
"First of all, it (permafrost) is a visit card, an image of Yakutia. Secondly, permafrost is really cold and people who live in the cold have a long life expectance. And thirdly, it's our cult."	Young entrepreneur from Momsky District	13
"That (permafrost) is our outstanding special point and that is why we are in a unique place in our World. From the times before, people just got used to live in such conditions and dislike heat."	Financial Economics Student from Anabarsky District	14

Samples affirming that traditional knowledge and occupations are being threatened by changes in their environment	Interviewee	Quote #
"…because ground is moving, changing, that's why we have to change our migration routes. Sometimes we don't know what is the best route because everything started to be unpredictable. Normally we could predict the weather for one month, for seasons, years! Using these predictions, we could choose routes for more comfortable. Now we can't do it because we don't know what is happening. All of our traditional knowledge about weather is being destroyed now. You can say about each of our traditional occupations, fishing, hunting too. Not only infrastructure. " "…the young generation does not come to our traditional occupations like reindeer herding, hunting , fishing, because they understand that they are not comfortable: "they don't give us enough profit for our life" but this is the base of our traditional lifestyle and knowledge! If these young people find one tusk, the price of this tusk is more than the money of one-year salary as a reindeer herder or hunter. This is why we can now say that our traditional occupations, reindeer herders, fishers, hunters, are in crisis because people involved in these are very old persons. The age of them is more than 50 years. If we sustain this situation for a long time, it means we can lose these traditions. "	Representative of the Institute for Humanitarian research and Indigenous Issues	15
"Children after school come to Yakutsk and do not come back. They stay in Yakutsk. That's negative . Traditional reindeer herders, fishers, are disappearing."	Biologist from Kazachie	16
"…all our life is regulated by the official laws, orders and others. For example, in what period of the year we can catch fish. But these laws were for the past, now everything has changed and people lose their harvest (…) And the procedure of changing this regulation is very hard, very bureaucratic system. Spawn time for fish has changed and all the laws and directives regulated this but now everything changed and people can't do anything. And if they go to fish during the real spawn time, they might be considered illegals (…) Three years ago, people raised the question of traps for wolves because wolves trap are banned but now wolves start to be an epidemic for us. This is a big challenge because every year they take 5-10 thousand reindeers from us"	Ex representative of the Indigenous People in the Parliament	17

4. INTERPRETATION AND DISCUSSION

MENTAL MAP OF PERMAFROST THAW



5. FOLLOWING STEPS

- Social science expedition (July 2019)
- Bulunksy Ulus (Sakha Republic): Tiksi (maybe Bykovsky)
- Summer School in NEFU of Yakutsk (July-August 2019)
- Continue the research on the social and economic impacts of permafrost thawing in coastal regions of Yakutia
- Face to face interviews with local inhabitants to understand their perception on how this issue affects their everyday lives and local economies
- Information obtained during the scoping expedition will be useful to compare regional and local impacts linked to permafrost thaw and climate change

Thank you

brenda-natalia.doloisio@uvsq.fr