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Locals' perception of permafrost thaw in the Republic of Sakha (Russia): dimensions at risk in face of climate change

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1. INTRODUCTION



Map of the Sakha Republic (Russian Federation). Source: self-elaboration

REPUBLIC OF SAKHA OR « YAKUTIA »

1

Surface: over 3.000.000 km²

2

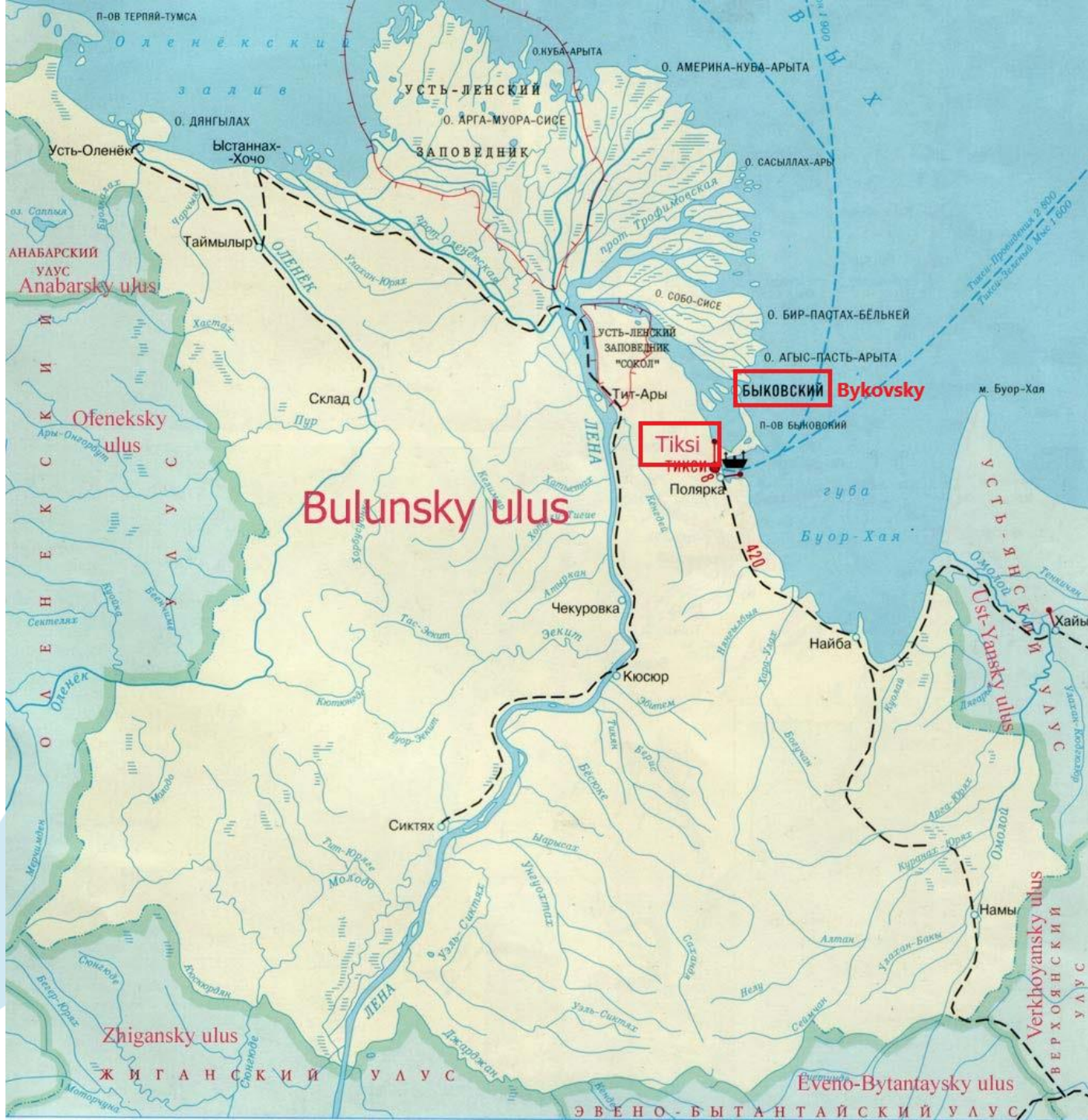
Climate: Sharply continental

3

Indigenous Peoples of the North: Evenki, Even, Dolgan, Yukaghir, Chukchi

4

100% of the territory contains some form of permafrost



BULUNSKY DISTRICT (TIKSI AND BYKOVSKY):

- Established in December 1930
- Territory of 223.600 km²
- 1 urban and 6 rural settlements
- 2000 km away from Yakutsk by land transport, 1270 km by air and 1703 km by waterway
- Main river: the Lena River and discharges in the Laptev Sea in the north

TWO COASTAL CASE STUDIES

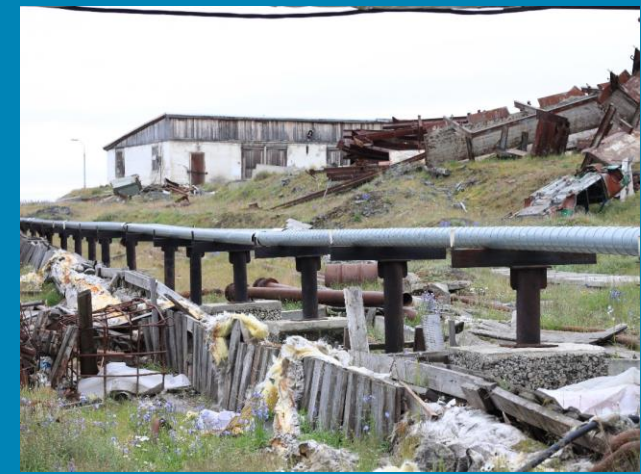
БЫКОВСКИЙ – Bykovskiy

- Rural settlement: 526 inhabitants in 2019
- Peninsula
- Permafrost erosion on the coast: 1.1-2.1m/year
- Human activities:
 - self-sufficiency fishing and hunting
 - professional fishing
 - public services (Bulunsky district municipality office)
 - technicians (electric station, heating system)
 - public services (kindergarten, teachers)
 - etc..

Тикси – Tiksi

- Urban settlement: 4604 inhabitants in 2017
- On the mainland
- Permafrost erosion on the coast: 0-1m/year
- Human activities:
 - public services (Bulunsky district municipality office, library, teachers, museum guide)
 - accountant, lawyer
 - veterinary, professional fishermen, harbour employee, horse breeder

TIKSI



BYKOVSKY





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2. OBJECTIVES

FIRST SCOPING FIELDWORK: YAKUTSK (CAPITAL CITY OF YAKUTIA)

- Identify key stakeholders related to permafrost thaw
- Stakeholders mapping
- Better understanding of administrative system

➤ Obtaining information:

Which are the risks associated to CC¹ & PT² perceived by local inhabitants?

Which sectors are most impacted?

Regional trend?

Adaptive strategies implemented and/or desired to be implemented?

¹ CC= climate change

² PT= permafrost thaw

SECOND FIELDWORK: TIKSI AND BYKOVSKY (BULUNSKY DISTRICT)

- Local interpretation of PT and CC
- Direct and indirect effects of PT and CC

Traditional activities

Indigenous Peoples

Non-Indigenous People

- Similarities and differences between both settlements
- Role of PT and CC in locals' future perspectives
- Local forms of agency



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3. METHODOLOGY

Semi-structured interviews (snowball sampling)

1 & 2
fieldwork

Translate and transcribe interviews

Qualitative analysis (Atlas.ti8): analysis, codification and interpretation

1
fieldwork

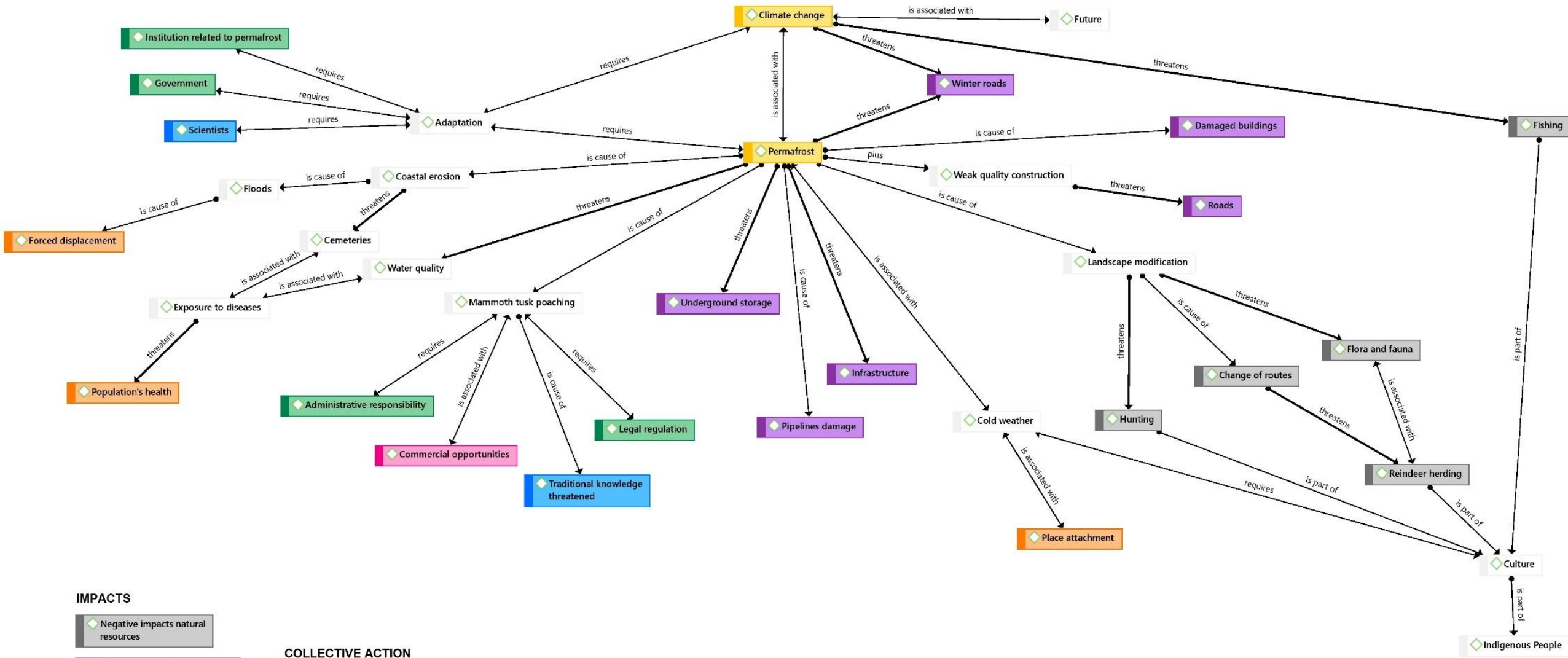
Mental map: visual comprehension of new risks, material and cultural impacts related to climate change and permafrost thaw in Yakutia



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3. RESULTS & CONCLUSIONS

MENTAL MAP



IMPACTS

- Negative impacts natural resources
- Negative impacts infrastructure
- Negative impacts health and well-being

COLLECTIVE ACTION

- Governance
- Knowledge related topics

OPPORTUNITIES

- Identified opportunities

- Changes with regard to climate and permafrost are giving rise to new, inter-related processes and stressors → create new risk patterns
- Explicit understanding of the complex causal webs
- Transformations lead to changes in traditional activities and worldviews:

Access to traditional resources

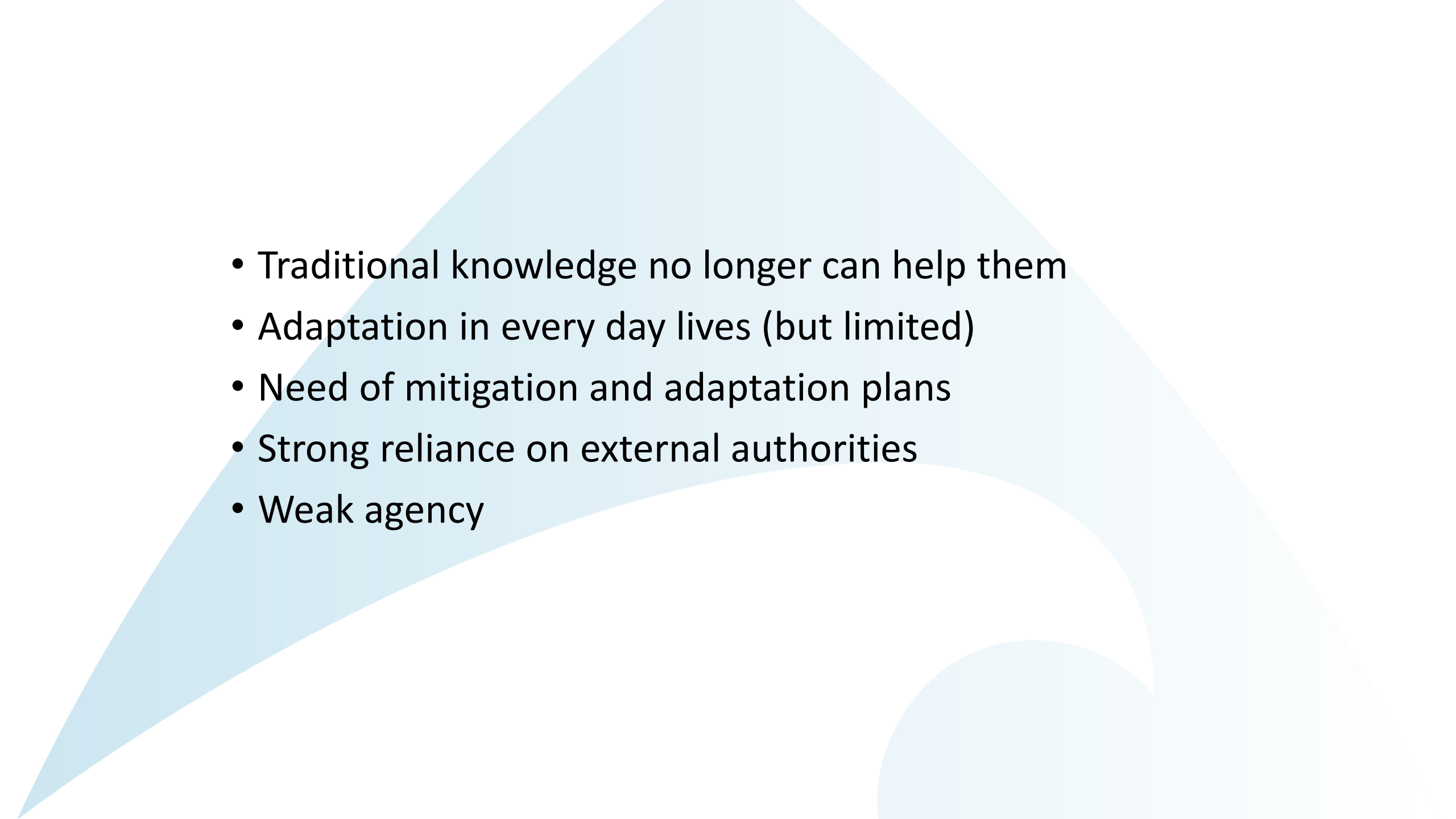
Exposure to new diseases

Exposure to new species

Forced displacements

Gathering of mammoth tusks

Complex & fragile socio-environmental system

- 
- The background features a light blue abstract design with a large triangle on the left and a curved shape at the bottom right.
- Traditional knowledge no longer can help them
 - Adaptation in every day lives (but limited)
 - Need of mitigation and adaptation plans
 - Strong reliance on external authorities
 - Weak agency

Local specificities:

- Frame of reference: harsh climate; socio economic conditions; national and regional historical processes; demographical structure and a particular sense of mobility
- The socio-economic, cultural and natural dimensions: constantly overlaid - synergistic feedback loop
- Impacts associated to CC and PT: hard to insert within well-delimited boundaries. E.g: coastal erosion in Bykovsky
- “De-structuration” of the Northern World
- Redefine the ways of interacting with environment + create new tools/mechanisms to absorb negative impacts



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THANK YOU

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