Understanding Climate Change from an Indigenous Paradigm: Identity, Spirituality and Hydrosocial Relations in the Arctic

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This paper reflects on ways of understanding climate change from an Indigenous paradigm. Through the lens of Indigenous water concept (Griffith, 2018), it will look at the contemporary processes shaping the identity, spirituality and hydrosocial relations in Sakha (Yakutia). It will look at how these processes are influenced by climate change. Traditionally, the relations between societies and water in permafrost areas have been understood in strict economic terms as cost-ineffective and unprofitable. Previously, research has pointed out the "cost of the cold" (Hill & Gaddy, 2003). However, what was often omitted was the actual efficiency of cold and ice. In fact, Indigenous communities in Sakha (Yakutia) have succeeded in building a partnership with the ice and learned to benefit from it in conditions of scarce economic resources and lack of infrastructure. However, climate change and rapid transformations of the permafrost environment are not only causing additional costs but also cultural loss. Focused on this connection, this paper reflects on the following questions: how has the ice shaped the identity, spirituality and traditional hydrosocial relations of Indigenous communities in Sakha (Yakutia)? How do their identity and spirituality change under climate change and current transformations in the cryosphere? And finally, how is climate change transforming the traditional hydrosocial relations in the Arctic?

Introduction: why cold matters

My parents recall the elders saying twenty years ago: *"People nowadays rush through the skies [by planes] tearing it through, the Nature is changing."* It is a handy metaphor for growing technological pressure on the world's ecosystems. Climate change is happening faster in the Arctic than anywhere in the world. Earlier, a lack of intensive human development, an extreme climate and long distances from major population and economic centres resulted in the relative well-being of many Arctic ecosystems (Arctic Biodiversity Assessment Report, 2013). However, in light of recent events in Russia's Arctic, including devastating outcomes of the diesel oil spill in Norilsk and wildfires in Sakha (Yakutia), we see that the situation has changed dramatically in less than a decade.

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The Republic of Sakha (Yakutia) is one of the northernmost, remotest and coldest regions of Russia. Its territory is about 3 million square kilometers, almost one-fifth of the total Russian land area. In the late 1980s and early 1990s, the population was reported to be slightly more than a million people. However, the economic turmoil of the early 1990s caused an intensive outflow of population (Cruickshank & Argounova, 2000) which had arrived earlier in the frameworks of the Soviet project of "mastery" (osvoyenie) of the North (Vitebsky, 2006). Since 1997, the population has never reached a million people but the demography has changed. Today, unlike during the Soviet period, the majority of the population is Indigenous. The Sakha (Yakut), according to the latest data provided by the territorial branch of Federal State Statistics Service, have a population of 466,400 and are the most numerous of them (Statistical Handbook, 2020: 6).

The increasing worries about environmental changes in Sakha (Yakutia) have been proliferated in media and social consciousness following the massive drought in summer 2019. During those summer months, the Lena river, the main artery of Sakha (Yakutia) that connects people and is one of the primary means of transporting produce supplies, had the lowest water level in recent history, putting the short northern navigable season under threat. At the same time, the region suffered from severe wildfires. These factors reflect the water-related issues experienced by local communities, such as its accessibility and quality. In summer 2020, the wildfire season started earlier in Sakha (Yakutia) and lasted up until October, generating societal debates and raising serious concerns not only locally but also from the international media, such as the New York Times (Sengupta, 2020) and National Geographic (Stone, 2020), among many others. With the ongoing impact of COVID-19 and the effects of wildfires, the past summer posed a great challenge to the resilience of local communities.

While the topic of social aspects of climate change in Russia's Arctic is not very widely studied itself, even less research appears to have been done on the social aspects of water and Indigenous relations to it, and how it is affected by climate change. In general, there is a certain imbalance in research on Indigenous relations to land and water, the latter being represented comparatively less in academic research. In particular, there is still a knowledge gap on human-water relations in the Republic of Sakha (Yakutia). Little research is done through the water lens.

Major contributions have been made on understanding the social aspect of flooding and risk mitigation (Boyakova et al., 2011; Stammler-Gossmann, 2012; Vinokurova L. et al., 2016). Some analyses have been conducted on the dramatic consequences of permafrost degradation and their societal impact (Gotovtsev, 2016; Vinokurova U. et al., 2019). Important research has been done on water in a context of political ecology (Crate, 2011) and ice roads as part of transport infrastructure system (Argounova-Low, 2012; Kuklina & Osipova, 2018). Some research has been done on the spiritual aspect of water ecosystems (Danilova, 2015) and river symbolism (Varavina, 2019). The Indigenous paradigmatic approach has been used in some permafrost analyses from ecosophy and Indigenous axiological perspectives (Vinokurova, 2010; 2014; 2019) and on traditional perceptions of permafrost in relation to human health (Sleptsov, 2014). However, despite contributions of local scholars to understanding human-water relations, there is still a lack of research done from an Indigenous paradigm.

The paradigm depicting the cold as a threat to a human preventing their development and life in the Arctic has long prevailed in academia, including with Toynbee's "arrested civilisations" analysis (Toynbee, 1989). However, Indigenous activists point out the special role of the cold for

Indigenous cultures and identities, known as their "right to be cold" (Watt-Cloutier, 2015). They argue that the cold required maximum human capacity to survive, leaving them nothing but the bare minimum for sustenance, warmth, food and light, thus shaping Arctic civilization (Vinokurova, 2011). In this regard, Indigenous people regard the cold Arctic environment not as something to fight against, but as something to work with (Vitebsky, 2006).

However, climate change and rapid transformations of the permafrost environment cause not only additional costs but also cultural losses. Losses threaten the conditions that support Indigenous languages, prayers, and beliefs (Balzer, 2010). Despite the considerable amount of academic research on climate change and human adaptation in the Arctic, not much research has been conducted on how the relationship between humans and frozen water in the Arctic appears from a social and cultural viewpoint. Meanwhile, the frozen water, or ice, plays a significant role in traditional cultures in the Arctic.

By doing so, we can employ the concept of *Indigenous water* as a methodological approach through which we can better understand these relations. It is inspired by the concept of "Indigenous water" (Griffith, 2018) which I found highly relevant when studying human-water relations in my native area, central Sakha (Yakutia). The paper is further motivated by talks with my parents and relatives living in rural areas. The pictures I used in the paper are made by my relatives in their settlement.

There is no denying that water is life. For the Arctic communities relying on natural resources in their daily lives, not only is water life, but ice too. To demonstrate this, the analysis will focus on how we can understand current climate trends from an Indigenous paradigm in the context of human-frozen water relations in rural settlements in central Sakha (Yakutia). In order to understand climate change from an Indigenous paradigm, it is necessary to understand, *what* we are losing due to these changes, rather than *how* we are losing it. With this in mind, I choose to concentrate on telling about our way of Being in relation to frozen water, on and underneath the ground. This holistic concept includes also what we usually call identity, spirituality and hydrosocial relations.

Human "water protectors" activated a profound and powerful human/water relationality when they decided to protect and defend their water relatives from destruction by the Dakota Access Pipeline (Yazzie & Baldy, 2018). This paper will not bring novelty in theories of relationality being developed by Indigenous feminist scholars (e.g. Kim TallBear, Melanie K. Yazzie, Cutcha Risling Baldy, and others). However, this is an attempt to bring my humble contribution to the Indigenous voices from my part of the world.

Indigenous paradigm

As Wilson (2001) suggests, we need to move beyond an "Indigenous perspective in research" to "researching from an Indigenous paradigm." It sounds challenging. How do we understand the Indigenous paradigm? How does it differ from other paradigms? Is a "clash of paradigms" even more articulated than a "clash of civilizations" (Huntington, 1996) or a "clash of worldviews" (Little Bear, 2000)? Wilson (2001) explains that it is moving beyond an Indigenous perspective to a full Indigenous paradigm employing Indigenous ontology, epistemology, axiology and methodology that, as he argues, are fundamentally different from dominant Eurocentric paradigms. The fundamental difference of the Indigenous paradigm is that knowledge is shared with all of creation. It is not individual, but relational.

To me, it was easier to understand an Indigenous paradigm when I realized the complicatedness of relations between Indigenous people and academia. Sometimes, the academy still divides scholarship and Indigeneity. The conferences often gather the "scholars, experts and Indigenous people," although probably Indigeneity should not be defined along with professional domains since there are more and more Indigenous people as scholars and experts in various fields.

However, as we "were faced with leaving our Indigeneity at the door when we entered the academic world" (Hart, 2010), we do not always question ourselves about why and how we do the research we do. We succeeded in becoming scholars but very often we do research about ourselves from Eurocentric paradigms. It allowed us to enter the academy and build our academic identity. However, even recognizing this, we have not sufficiently acknowledged the relevance and legitimacy of our own knowledges and cosmologies which were represented as inferior to others (Chambers & Buzinde, 2015).

In Eurocentric paradigms, the Indigenous people have long been a research object, a problem, or societies with problems (Smith, 1999; Coates, 2004). Meanwhile, the scientific approach requires problems to be solved. When research problematises Indigenous, it does not answer our needs, it does not benefit our communities and it does not offer solutions to the problems that we face in our societies. It puts Indigenous peoples and cultures in a post-colonial context, which does not encourage epistemic de-linking from Western ways of thinking (Mignolo, 2009). Such an approach does not focus on Indigenous agency, instead, as suggested by Heiss (2003: 43), it is largely meaningless to them, "bearing in mind the political, social and economic status they currently occupy." The "post-colonial" suggests the state, while the notions of the process doing change are attributes of decolonizing approach (Tlostanova, 2012).

In the Indigenous paradigm, we use alternative epistemologies and methodologies shaped by the Indigenous agenda (Smith, 1999; Porsanger, 2004). The paradigm determines the object of study. In the Indigenous paradigm, the research focuses on problems to be addressed, not the people and their cultures. By doing so, it allows making visible "what is special and needed, what is meaningful and logical in respect of Indigenous people's own understanding of themselves and the world" (Porsanger, 2004: 107). It creates "space for critical analysis and encourages essential dialogue that challenges the influences of the colonialism" (Linklater, 2011: 73). Such a decolonizing approach "leads any investigation through the scholar, intellectual or researcher, *into the world,* rather than keeping him or her *within the discipline"* (Tlostanova & Mignolo, 2009: 131).

Doing research from an Indigenous paradigm requires locating ourselves in our study. In this connection, the personal subjectivities are vital to research. We "write our own stories and share our position in the world before we write about the world. This is a big task because we have to come to terms with *who we are* and *how we come to do the work that we do*" (Linklater, 2011: 1). It is more than accepting our Indigenous identity. It is taking our Indigeneity with us to the academy. While shifting our own identity to re-position ourselves from objects of research into "questioners, critics, theorists, knowers, and communicators" is necessary (Ndlovu-Gatsheni, 2017), it is not enough since it does not apply to Indigenous scholars who support the Eurocentric, post-colonial discourses.

Being an Indigenous scholar does not automatically translate to the research being done from an Indigenous paradigm. The understanding of paradigms, post-colonialism and decolonisation is lacking among Indigenous scholars ourselves (Chambers & Buzinde, 2015; Trees & Mudrooroo,

1993). As Linda Tuhiwai Smith (1999) argues, it is a devastating effect of colonialism that not only imposed control over Indigenous lands and resources but most importantly, dominated the Indigenous mentality. In doing so, it created a jagged worldview with "overlapping, contentious, fragmented, competing desires and values" (Little Bear, 2000: 8). However, the Indigenous paradigm does not compete with or replace others (Porsanger, 2004). It is about developing a holistic approach by combining different paradigms in Indigenous scholarship in order for our research to be beneficial for our people. Indigenous research should serve Indigenous interests. In this connection, the research from the Indigenous paradigm can be seen as "a scientific service to our people" (Vinokurova, 2017: 14).

The quest for the Indigenous paradigm is thus a challenge to Indigenous researchers ourselves to strive to reach an intellectual independence. As Linda Smith reminds us, "what is more important than what alternatives Indigenous peoples offer the world is what alternatives Indigenous peoples offer each other" (Smith, 1999: 105). In this regard, it is important to build partnerships with other researchers in our common mission to contribute to our well-being, facilitate healing and help building stronger resilience.

"Indigenous water": relation, not possession

In Eurocentric paradigms, the water is mainly understood in discourses of entitlement and commodification, while hydrosocial relations are largely apprehended within modes of management and governance (Stevenson, 2018: 99-108). In this connection, Indigenous relations to water are traditionally seen in the context of land rights, risk management and disaster mitigation discourses. However, such discourses limit the ways we understand our relations to water to a mere natural resource and potential disaster. They limit Indigenous aspirations regarding the water to political struggles in the same way that Indigenous methodologies have often been interpreted by the academic world as a political gesture in an Indigenous struggle for self-determination (Porsanger, 2004). In such a paradigmatic approach, the assumptions about what Indigenous peoples want are often limited by the discourse of land rights. These limits do not allow for an understanding of Indigenous ways of knowing and thinking about the water. What defines the concept of "Indigenous water" is the Indigenous epistemologies and spiritual relationships to water. For Indigenous peoples, all that exists in nature is imbued with awareness and power (Nelson, 1983: 31).

While hydrosocial relations focus on human-water relations from Eurocentric paradigms, cryosocial relations as human-frozen water relations offer new perspective on the relations shaped in the cryosphere. Cryosocial relations are not only relations to the frozen water on and underneath the ground. From an Indigenous paradigm, the cryosocial relations are one of the numerous ways we understand our Being in the world. It is about being respectful towards the ice underneath – *do not destroy the land surface and dig the ground without great need*, and also being aware of its potential dangers to human health – *do not sit on the ground without something on it*. We learned these two rules from our ancestors' support of our relations with permafrost. I consciously avoid the analysis of Indigenous water as an agent of decolonization as this is not the aim of this paper. Instead, I shall attempt to discuss the human-frozen water relations as seen from an Indigenous paradigm.

In Indigenous ontologies, the water is a relative

The ontology is a belief in the nature of reality, a "way of being, what you believe is real in the world" (Wilson 2001: 175). The use of Indigenous ontologies opens "new perspectives which may differ from those that are familiar and "scientifically accepted" in Western research" (Porsanger, 2004). Though the relation to water as a basis for human existence is universal, Indigenous peoples believe that we as individuals and communities are spiritually related to water. As Indigenous researchers note, *water is seen as an ancestor and as a relative* with agency within this network of life, one who deserves respect, care, and protection. Water is a relative with whom we engage in social (and political) relations premised on interdependency and respect (Stevenson, 2018; Yazzie & Baldy, 2018).

LaDonna Brave Bull Allard, a founding member of the Standing Rock protest movement against the Dakota Access Pipeline, notes: "Water is life. Water is the center of everything. Water is female. As females, we must stand up for the water. We have no choice. Without water, we all die. It's common sense to me. We must save the water" (2016). Kim TallBear (2017) offers a similar framework she calls "caretaking," an expression of "obligations of human kin with our other kin." She argues that scholarly theories of relationality are simply inadequate for capturing the "vibrancy" and "spirit" of "Indigenous relationships with our non-human relations in these lands," largely because they sever materiality from spirit (Yazzie & Baldy, 2018: 3).

Similarly, Sakha refer to the water bodies as lakes, rivers and seas as *ebe* – "grandmother," often using *khotun* with its name, meaning the lady, or mistress (Danilova, 2015; Prokopeva, 2015; Varavina, 2019). In Sakha culture, the water has anthropomorphic features as a female (though the water spirit is imagined as an older man). The lake *ebe*, grandmother, is a guardian and provider for a family who lived nearby. Therefore, *ebe* should be treated with a great respect. There are special norms which have to be followed: it is not allowed to treat her disrespectfully by talking out loud, calling her by name, crowding in her premises. A person who returned from a long journey should greet *ebe* by feeding her some dairy food. Our ancestors avoided inhabiting the shores of the big lakes, called *uluu ebe* "Great grandmother." They believed that the lake could destroy one's life (Danilova, 2015).

In relation to the water in particular, and Nature in general, there emerges the notion of responsibility. Human-water relations in the Indigenous paradigm is about responsibility. We are responsible for the external threats to the well-being of our water relatives with whom we are interdependent. As Sakha scholar Uliana Vinokurova (2014) reminds us, the responsibility is the attribute of the Arctic human. She and her colleagues (2019) note that the permafrost is degrading not only as the result of climate change, but also anthropogenic factors – the irresponsible actions towards the environment. The rural residents in affected areas understand that without their care about the environment, the rural landscape will become non-suitable for living: *"people express their readiness to help the nature to heal her wounds"* (Vinokurova et al., 2019: 14).

In Indigenous epistemologies, the water stories are our stories

Epistemology is how you think about reality (Wilson 2001: 175). It deals with ways of knowing, especially with reference to the limits and validity of knowledge (Porsanger, 2004). Indigenous people think in the ways that connect them with their living environment. We think about ourselves through the stories that connect us to the world, and stories about the world that

connects it to us. In Indigenous epistemologies, we think in a way that our stories are weaved in the greater stories of our water relatives – the lakes, the rivers, the seas. In other words, we observe ourselves in the processes of a greater, cosmic scale (Vinokurova, 2014).

Though storytelling through the prism of water is not exclusively Indigenous, the Indigenous stories are inseparable from the ones of the water. They are interweaved in the way that one cannot separate them. As Christian and Wong (2017: 7) write, "when we tell the stories of ourselves, we are also telling the story of the specific waters that move through us at a particular moment… When we tell a story of water, we are also telling stories of ourselves, or our societies." Indicating the connection with nature as defining feature of our identity (Larsen & Schweitzer, 2010), and being directly dependant on our water relatives, we are more sensitive to the changes occurring with them than other societies.

The water, as a living being, tells us stories that we ought to understand. The water relatives give us life, nurture us, warn us, and even punish us if we are disrespectful and disobedient. As Hansen (2016: 52) put it, "we feel need, love and fear of Arctic nature all at the same time." This is how things work in our world; this is the way we think about reality. In telling stories and locating ourselves in relation to water bodies, we do not just express our place identity or sense of belonging, we express our very way of *being related to* a certain water, be it a lake or a river. In this sense, we form the "imagined community" (Anderson, 1991) with our water relatives.

In Indigenous axiologies, the water is a teacher

Axiology is a set of morals or a set of ethics. It is how your research has to do something beneficial in this world (Wilson, 2001). As Porsanger (2004) notes, the Indigenous axiologies deal with the nature, types and criteria of values and value judgments. She also mentions, however, that the great majority of contemporary Indigenous academic publications are contained within the field of education. Indeed, the field of education is the most popular among Sakha scholars, too.

Stevenson (2018: 96) quotes Leanne Simpson, who articulates water's qualities and how it quite literally acts as a teacher: "The water, Nibi, teaches us about relationships, interconnection, interdependence and renewal." In this regard, Cutcha Risling Baldy writes, "many of our ceremonies give us an intimate connection to the river, they remind us that we are responsible for our river, our environment. These ceremonies teach us that our well-being is tied to our environment and our community. They teach us that we are intertwined with our world, not separate, not dominant" (Yazzie & Baldy, 2018: 8).

The Nature is a subject of pedagogy, writes Uliana Vinokurova (2014: 62): "the Nature has a great range of pedagogical influences, from punishment by death to rewarding with long life. Her main pedagogical principle is the interrelatedness of All Being." She claims that when life is supported only by information gathered from natural sources, own reflections, and abilities to foresee, it develops the delicate energy-informational connection to Nature. The big floods and droughts in Sakha (Yakutia) were the signals, they are our grandmother's warnings to people to help, to take care of her.

In Indigenous methodologies, we converse with our human and water relatives

The methodology is how you are going to use your ways of thinking (your epistemology) to gain more knowledge about your reality (Wilson, 2001). As Margaret Kovach suggests, the

conversational method aligns with an Indigenous worldview based on orality as a means of transmitting knowledge. She conceptualises the conversational method as an Indigenous research method, justifying storytelling as a traditional way to collect and disseminate the knowledge (Kovach, 2010: 40-48).

It is an understanding of ongoing changes in our traditional relations with water. In research of human-water relations from an Indigenous paradigm, we use the conversational method with our relatives, both human and water. It is talking to people around you, to your family, or your wider community. First and foremost, it aims to understand their motivations and needs. It teaches us to be respectful towards them, and listen to the stories they tell us, since everybody has something to tell.

When researching human-water relations from an Indigenous paradigm, we should try to understand our water relative, our grandmother. It is crucial to understand her needs, acknowledge and respect her rights by observing closer and by consulting with people who know her longer and better. In this regard, the sources usually considered as alternative become important. It engages not only sources of various genealogy but a transdisciplinary approach since we understand the knowledge as whole and relational. We need to observe, listen and feel better in order to understand what she is telling to us, whether she is happy, whether she warns us, needs our help or punishes us for being disobedient and disrespectful.

Human-frozen water relations in central Sakha (Yakutia)

Water has been a powerful metaphor for describing various social situations in many cultural contexts. Sakha use the expression *uu saha*, literal translation – "water Sakha," if they want to describe themselves as being "true" Sakha, mainly, speaking fluent Sakha language. As in many world cultures, clean water is considered by Sakha as one of the fundamentals of Being (Vinokurova, 2011). The water has indeed become central in climate change discourse, as one of its most prevalent effects is the altered water regimes (Crate, 2001). However, as previously mentioned, research tends to focus on water in its liquid state, while the frozen water is in fact a highly significant factor. The degrading permafrost landscapes challenge traditional living arrangements influencing the view of the world. Those who until recently felt belonging to land, now do not see prospects for living in rural areas. The emerged insecurity and constant externally imbued challenges along with sudden changes in environment cause severe anxiety among rural residents (Vinokurova et al., 2019).

I share the stories from *Uus-Aldan* district, namely the villages of *Suottu* and *Kurbuḥah* on the right bank of the Lena river east of Yakutsk. It is an area where I come from and my family lives. Though the geography suggests close proximity to the capital Yakutsk, Uus-Aldan is marginalized in infrastructural terms. Some of its communities severely lack roads and remain remote despite comparatively small distances. Lately, the longer and warmer autumns pose even more challenges. The ground cannot support the transport in the rainy season, thus rural roads are being destroyed. It is possible to drive on the majority of roads in Uus-Aldan in autumn and spring only when on four-wheel drive, and even all-terrain vehicles.

My native area has not yet faced the permafrost degradation at such a dramatic scale as in other locations (Gotovtsev, 2014; 2016). Previously, it suffered from a number of destructive floods. As a result, many affected households were moved to the areas on the hills. Living in close proximity

to the Lena river, our lives are dictated by its seasonal changes, namely, *suol turuuta*, literally, road standing. It is the ice roads season that enables locals to travel across the river to the capital Yakutsk. Moving on the frozen ground is a key element of ways of Being in the world for Sakha people:

> there is a concept of *uluu dobdurğa,* now forgotten; *uluu* – great, *dobdurğa* describes the sound made by horses on a frozen ground. It is an ancient concept of Sakha, describing a period of the first autumn frosts that enable travelling; in ancestral times, every significant event took place during this period, including wedding negotiations, military conflicts, relocations, because it was easier to travel on the frozen ground. Today, we no longer use this concept, but we still wait for this frozen ground period to be able to travel like hundreds of years ago…(from family conversations).

I will present some examples associated with the frozen water in the beginning and end of winter. This is a natural cycle we follow in my native area, and is also how we perceive and count the time (might be also an illustration of Indigenous perception of a non-linear time). Rural areas in central Sakha (Yakutia) have been experiencing drinking water-related issues long before the climate change discourse appeared.

In the second half of October, when the ice on the river gets thick, ice extraction for drinking water happens. The whole process is organized according to proper technology. The ice is not extracted from any lake, the choice is made accordingly as people assess its quality. Usually families extract ice from particular places on river or lakes for years. Sometimes due to warm autumns the thickness of ice is not enough, so people clean the snow on the ice to accelerate the process of freezing. The ice slabs extracted on a river or lake are then cut into cubes and used for drinking water throughout the year. It is a traditional event symbolizing the beginning of winter. Sometimes it has a communal character as people get together with their extended families to facilitate the process and also, they do it for the needs of the local school or hospital. The process of ice extraction is accompanied by observations, recollections of past extractions, analysis of conditions of ice and roads, and commenting on changes happening in the environment:

> they now use new technologies, new ways; when we were children we did not have anything, we drank icy cold water directly from the lake where we extracted ice, nobody got ill after that, surprisingly; now it is comfortable, we sit in warm cars, we have hot tea in thermoses, but the way we get our drinking water is not changing as time passes by… The lake and river ice are still free of charge though, however, maybe soon we will have to pay taxes for usage of ice as other water resources (from family conversations).

Though we do not ascribe the spiritual aspect to the process of ice extraction, this event is nevertheless associated with gratefulness. We are grateful to our *ebe* from whom we get the ice, for having access to clean drinking water. Without a doubt, the clean drinking water is of great universal value. Though there is some research done on its poor quality in some areas of Sakha (Yakutia), people in the rural settlements simply do not have any alternatives. In warmer periods, the ice cubes are stored in underground storage cellars called *buluus*.

Figure 1. The two types of *buluus*: with storage house and shed. It is done to protect the permafrost. A good example of Sakha cooperating with and conserving the permafrost. Credit: Maria Burnasheva, Vasilii Burnashev.

Buluus is a cellar almost two meters deep in the permafrost ground, used for storing deep-frozen food such as meat and fish, and also ice cubes for drinking water. In summer, it is crucial for a person going down to buluus to put on a thick coat and hat to avoid thermal fluctuations which are traditionally perceived as dangerous for health. Also, my relatives did not allow us as children to enter buluus. Even today with various freezers available on the market, the underground natural cold storage is still the most preferred way to store food and ice. Our relations with cold and frozen water teach us to care for the ground as we literally live on it. Our ancestors learned how to understand the frozen water underneath and successfully cooperated with it. Today, the permafrost degradation is challenging this partnership. Both local residents and researchers have been observing longer autumns in central Sakha (Yakutia) (Gotovtsev, 2014; 2016). Until recently, the cold has been a stable and free resource that helped maintain our households. The climate was even colder centuries ago, and the life of our ancestors was well-arranged in accordance with the climate, locality and their needs (Nogovitsyn et al., 2015). Now, we no longer rely on it as much as our ancestors used to.

At the beginning of November it is time for *muŋkha*, traditional ice fishing of Sakha. It is probably the second most significant event after the summer festival *Yhyah*. The process is usually led by elders who coordinate all activities since it requires synchronized, coordinated actions from its participants. Importantly, it involves the ceremony of the blessing, feeding the lake – *ebe*, grandmother, asking for good luck from *Baaj Bajanaj*, spirit of hunting and fishing. The catch is then allocated to everyone who participated. It has also been the form of supporting the elders and big families who get their shares even if they could not contribute to the work as much as others. It was not only about food and subsistence but also about a community get-together. These traditions of mutual aid and support have been a foundation for human survival in the conditions of the North (Vinokurova, 2011; 2014). However, today *muŋkha* is losing its significance in community life. My relatives, who always take part in their community *muŋkha,* report that fewer people become involved each year.

> People do it differently today, in much smaller scale. Earlier it used to be collective, people shared fish and ate together, now they do not do it anymore. Now food is

> available everywhere in the grocery stores, there is no its shortage as it was before. *Sobo* was significant part of our diet back then, now it is less popular, especially among city people. People say they cannot find volunteers to work, and *muŋkha* is much work indeed, it requires a lot of effort; but then it is about enjoying the process and then sharing the catch. *Sobo* helped our ancestors to survive long winters and starvation (from family conversations).

People know exactly which *ebe* has the best fish. These relations were coordinated by knowledgeable people who, for example, decided when to let the lake rest when it gave less and smaller fish, or in contrast, too much, then it meant that *ebe* was exhausted. Though these aspects of *muŋkha* is a good example of what is usually referred to as TEK (traditional ecological knowledge), however, in an Indigenous paradigm, it is our relations with our grandmother. Our people have always been grateful for saving their lives by providing them with *sobo*, carp (crucian) fish, during hard times, especially when they faced severe starvation in the 1940s. To celebrate this, the Sakha people made a monument honoring *sobo* in Yakutsk. The *muŋkha* teaches us to be thankful, to enjoy meaningful work and good relations in our community, enjoy ourselves and the time well spent.

Early November is a period of *ôrùhù satyy tuoraaḫyn*, crossing the river; in my native area, it is the Lena river herself. Traveling and driving on the ice roads in Sakha (Yakutia) is well studied (see Argounova-Low, 2012), whilst walking and crossing rivers undeservedly received little attention. Until recently, crossing the river was a necessity for those living in Yakutsk and maintaining strong connections to the villages across the river. It was especially popular among students from the villages. We used to embark on the suburban bus that took us to the town located several kilometers from the river. There, we would tip the bus driver to get us directly to the river. We would walk for an hour or so, depending on ice conditions. The river navigation would be still ongoing, we would see the barges not far away and see our *ebe* "breathing," as she was freezing inconsistently with visible clear surfaces of open water. We would pave our route considering the condition of river ice choosing the areas where it was thicker and layered. We would avoid the open and clean areas where the ice was thin. After some time, hundreds of people would transform it to a very winding road that took into account all possible ice factors.

> Nowadays, people almost stopped crossing the river because of various reasons. First, in the 1990s and 2000s students used to do it to restore their food supplies as November is usual time for slaughter. But now the situation has changed, various food, including local meat and fish products made their way to city markets, people's income increased, they no longer rely on their connections to the rural areas and their relatives as before, they no longer keep frozen food supplies on their balconies as they used to during "hungry" 1990s and early 2000s. Second, there are now boats on the river that can drive on thin ice, so no need to walk unless you need to save money (from family conversations).

As some still walk through the river, the authorities try to regulate the cross-river movement, preventing "life-threatening situations". As Stammler-Gossmann (2010) noted, avoidance of risky situations and knowledge of ice serves Indigenous people well. Whilst traveling on river ice we indeed rely more on local experts' ice knowledge, and locally produced forecasts, than on institutionally produced knowledge. The example of Nenets reindeer herders demonstrates that

the use-value of non-locally introduced knowledge on safety requirements, in contrast to many other forms of scientific discourse, seems to be quite low (ibid: 152). Similarly, in case of river crossing, what an outsider may perceive as dangerous, for us, as locals, it is the usual order of things. As my relatives confirm, indeed, they see driving in a city as a more dangerous and risky business than moving in taiga or walking on the ice. It is in line with the Indigenous axiology, when we learn to read and understand the river ice. While walking across the river, our *ebe* teaches us to be respectful and aware of the natural powers, not overestimate our abilities, be humble in the face of Nature and the Cold, and exercise our moral and physical strength. As Sakha scholar Vinokurova (2010; 2014; 2019) reminds us, these are the foundations of our very Being in the world.

In May, the season of floods start in central Sakha (Yakutia). Each spring we guess how our *ebe*, grandmother, will behave this year. Will she bring much water to pose danger to houses (not wanted), high enough to nurture the pastures and crop fields (the ideal situation), or too low it will not even fill its usual river bed (not wanted)? People spend weeks before the floods discussing forecasts made by locals and hydrological services, and even *bilgeḥitter*, the traditional forecasters. However, despite all the research and made forecasts, our *ebe*, grandmother knows its ways better, everything is up to her own will. I remember the way our community handled the seasonal floods in springtime when our grandmother leaves its river bed and floods the valley, including the houses on its shores.

> It was when the big flood hit our village, *ulahan uu*, the "big water" in 2013, which already caused disasters on its way and now was coming inevitably. There was a lot of ice. The big ice pieces were rushing down the river destroying everything on their way. A colleague's husband stood in front of their house with a long stick and pushed every floating ice chunk away so that it would not crush the wooden house. After floods, without much complaining and lamenting about their property and animals, the villagers immediately rushed to work to get their lives together, building, restoring, cleaning, trying to get the works done before the autumn cold hits (from family conversations).

I remember how people handled the numerous floods also in other villages in central Sakha (Yakutia) accepting our grandmother's will as *"the Nature always knows its ways better."* Accepting the challenges of the Nature is a foundation of our view of the world (Vinokurova, 2010; 2014; 2019). These are just some examples of our relations with frozen water in central Sakha (Yakutia) as we learned to respect, understand and protect it.

Conclusion

This paper offers a limited account of a way climate change can be understood from an Indigenous paradigm. I focused on human-frozen water relations in the context of central Sakha (Yakutia). As Sakha poet, philosopher, and one of founders of Sakha literature Aleksey Kulakovskiy – *Ôksôkùleeh Ôlôksôj* reminds us (1909), our nation is shaped by the cold. Less cold and ice means less connections to ourselves, as we were shaped by the great Cold. Throughout the year we deal with water in its frozen state. We maintain sustainable relations with frozen water on ground and underneath it. The other paradigms would suggest that people in Sakha (Yakutia) "domesticated"

the cold. From the Indigenous paradigm, however, we would say that we built a partnership with it.

When we speak about protecting the waters, including frozen water on the surface and underneath the ground, we protect the rights of our relative, our *ebe*, our grandmother. As a living being, the water has got rights. The Indigenous movements for water protection demonstrate our relation to water as not something to claim rights for but a living being with her own rights. We should strive to protect the rights of our water relative as we can understand her needs and try to address them. Sakha scholars, permafrost scientists and sociologists, pledge for the actions for her protection. With their support, in 2018, the local government adopted a regional Law on permafrost protection and submitted a project of the federal law on sustainable use and protection of permafrost. The academic community proposes to consider the loss of dwellings due to degrading permafrost as equal to the loss due to other natural disasters, for example, the floods. In this connection, the federal law on emergency situations needs to be updated to include the permafrost degradation (Vinokurova et al., 2019).

Climate change is a disruption to our cryosocial relations. As we are forced to leave our native places and relocate due to degrading permafrost, we face a dramatic challenge for our relations with our water and human relatives. In the very beginning of this paper, I stated that we first ought to understand *what* we are losing due to climate change, rather than *how* we are losing it. So, this is what we are losing as people living in the coldest area of the world – our very way of Being in this world.

Certainly, working on this paper I had fears of falling into what Kim TallBear described "as scholars furiously producing theories to capture the turn of relationality in the context of climate change" (Yazzie & Baldy, 2018). However, as a Sakha scholar, I would like to contribute to Indigenous voices heard from my native area. It is thus a proposal of how we can understand climate change in Sakha (Yakutia) from an Indigenous paradigm. My intent is to open up opportunities for future discussion.

Notes

1. ISO-9 (1995) is used for transliteration of Sakha words.
2. Although Russia's federal law N104-FZ limits the "Indigenous small-numbered people of the North" by 50,000 representatives, here, I am using the United Nations definitions of "Indigenous peoples".
3. Much of what I wrote in this paper, I already knew growing up as an Indigenous Sakha in a small rural community. However, as Shawn Wilson suggests, it was important for me to check in with others (my parents and relatives).

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