A Phenomenology of Industrialised Dwelling:

Case study of Kostomuksha, Northwestern Karelia (Russia)

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Abstract

This thesis is a case study of an industrialised community in Karelia, Russia. Kostomuksha is home for approximately 30 000 people who are to a smaller or larger extent influenced by the iron ore mining, which is why the town was actually founded. This research looks at how the residents see their relationship with the natural environment in the industrialised settings. In order to investigate the phenomenon, this paper uses a phenomenological approach with the theoretical concepts of material realism. The analysis of the thesis consists of the fieldwork and online ethnography findings incorporated into theoretical analysis. The results of this study reveal that the residents of Kostomuksha are rather dwellers of the industrialised environment than of the natural environment, which occurs due to the dominating narratives of economy and technology in the contemporary times, whilst the main role of the environmental dwelling is seen to be carried by the actual industrial entity, Karelsky Okatysh.

Keywords: Human ecology, iron ore industry, community, culture, power, sustainability, phenomenology, Russia, Karelia

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1. Introduction and background

This case study is about people, nature and industrialisation. Anthropogenic presence in nature is often perceived as a norm in the current world system, like for example agricultural, urban and earth mining. However, many of them lead to a degradation of nature. industrialisation is the origin of many environmental crises, but it is easily left unrecognized in contemporary civilization. Meanwhile many industrialised communities still consider themselves to be part of nature, but living directly off natural resources. But how do these communities perceive nature, and what are their roles in it? Coming from an industrial community which basically lives in a remote area of taiga in northwest of Russia (see figure 1), I got inspired to investigate how people in such towns relate to the global environmental crisis or to the local environmental crisis, if such "crisis" exists for them, considering that the whole municipality is fundamentally supported by the iron ore industry.

In the northwest of Karelia, also known as Kalevala land (Leontyev, 1990), in the 1960s a cross-country/bilateral project between Finland and the Soviet Union was initiated for building a town which today is called Kostomuksha or Kostamus; an interesting aspect is that the name of the town means 'revenge' or 'really humid place' in Karelian (Leontyev, 1990). In 1967, the Ministry of Iron Metallurgy and Gosplan (state planning committee) made the decision to launch a building project of the iron ore mining factory, which was later named "Karelsky Okatysh" (Karelian Pellet). They also started a side project for providing living spaces for the construction workers and for the future factory workers, which then turned into the town project.

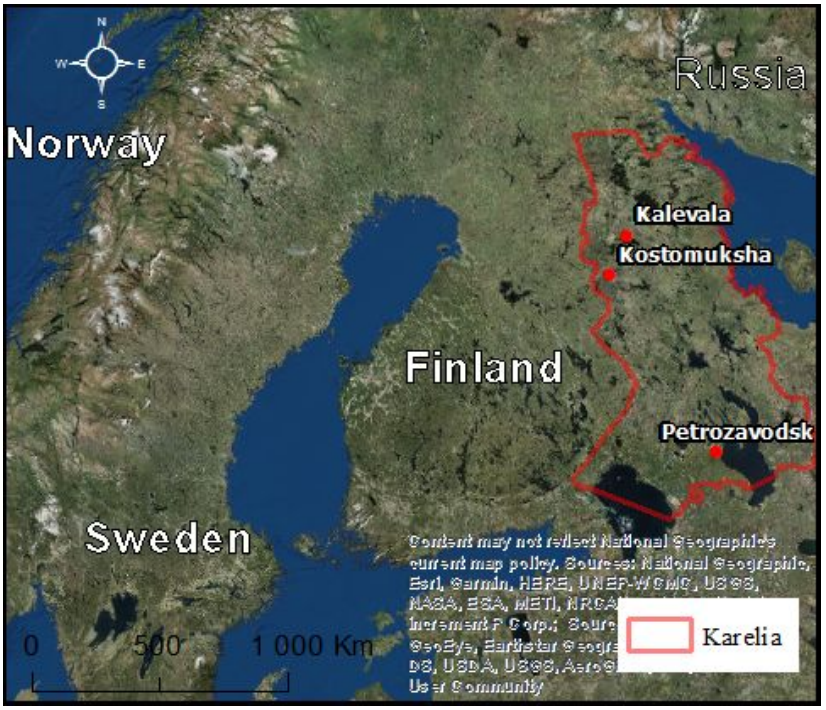

Figure 1. The location of Kostomuksha in the republic of Karelia. Map compiled by Viktoriya Kulikova. Map data: Department of Human Geography and Google Earth

The economy of the town is strongly dependent on the work of the Karelsky Okatysh. The company does not only provide jobs but it is also an important sponsor for many activities happening in the municipality and in its surroundings. The town is located in a small territory, and therefore most of the population live in apartment blocks but many also have their much loved summer cottages where they

spend most of their time in the summer. There the residents grow all kinds of vegetables and berries that can survive the northern climate.

Now the town is growing rapidly, as more and more different cultural and business centres are started along with new projects, such as "Project - Nature reserve", "Kostomuksha - the leader of green technologies", "Life without barriers for year 2018" planned for the year 2018. Although many young people are leaving the town to pursue education, the population rate is not decreasing but stays rather stable (30 000 residents in 2017) (Pavlova et al., 2017, p.15). An obvious and practical problem in the town environment is that there are more cars than there are parking spaces. The residents drive cars for extremely short distances, like for instance 5 minute walking distance to a nearest swimming pool or a football pitch. On the other hand, the residents have quite active lifestyle in terms of sport culture. Cross-country skiing, ice-hockey, football, basketball, jogging, hiking and many other different sports are actively represented in the town. Moreover, outdoor activities are popular among the residents, from community work to camping and forestry. The beauty of Karelia is appreciated by the residents. On the other hand, it can be observed that the utopic representation of the environment-community relationship is often distorted in the landscape. An issue which I have experienced in the town, for instance is that the surrounding lake Kontokki does not stay really clean on the popular beach because of human-produced waste such as broken glass or plastic bottles are often found.

During my pilot fieldwork conducted between December 25th and January 6th 2017-2018, I tried to understand how concerned the residents are about the environmental impact coming from the iron ore factory. My findings did, however, not provide any significant outcome, since people are not generally worried about the possible environmental crisis that Karelsky Okatysh may be creating in the municipality. I made the assumption that this lack of interest in the environmental problems might be due to the fact that these problems are actually not so evident in the region (this will be discussed in the following sections of this thesis). Residents were justifying their life in harmony with nature even though there is a clear anthropogenic presence in the surroundings of the municipality. With this study, therefore, I decided to focus on people's perception of their environment and their social role in the nature.

1.1 Aim and Research Question

This study will be a contribution to social environmentalist research of culture, power and sustainability. My idea was to a large extent inspired by a field trip to Kiruna and by Nordgaard's field study (see Previous Research) of a Norwegian village community and their perception of climate change (Nordgaard, 2011).

Our class of Human Ecology went to conduct fieldwork in Kiruna (see more in Previous Research) in May 2017 to look for the aspects of culture, power and sustainability in the relocation of an industrialised town, specifically iron ore mining town of Kiruna. Being there reminded me of the place I have always been so close to, and then I realized that I could use the methodological knowledge and empirical information of the fieldwork in Kiruna that I acquired to investigate the environmental position of the people living in parallel social and economic conditions. Although the town Kostomuksha might at a glance look similar to the socio-economic structure of Kiruna, also located in the North, in this study I primarily consider the ontological and empirical difference of the factors creating the environment. Cultural, ideological and environmental differences in the demographic conditions of the two cases cannot be discounted, moreover the environmental impact of the industry must be differently experienced, since in Kostomuksha the town is not (yet) at risk of being "moved", which implies another set of political, economic and social interests.

Russia is one of the most active countries in extracting their natural resources, yet activist movements and public demonstrations against the extractions virtually do not take place at all in this particular context. The aim in this study, therefore, is to uncover the dominating discourse of how the engagement of industrialised communities with the environment is formed.

Research question: How do residents of Kostomuksha perceive the relationship between the natural environment and their mining community?

2. Methods

The method for this research is a field study in combination with online ethnography. For my empirical material I use what the subjects have shared with me in various social situations during the fieldwork along with the findings from online research and participatory observations. For the analytical framework I use critical realist perspective with phenomenological approach.

2.1.1 Sampling and the Interviews

Semi-structured and unstructured interviews had been conducted with 14 residents of Kostomuksha. The interviewees had different backgrounds, occupations, age and both women and men are represented. The choice in sampling is in accordance with random sampling method, which is a procedure that contribute to maximized representation of people with distinct background and motives that is possible in the scope of this research (Berg, 2004, p. 35). All of the interviewees are locals, which contributes to the thematic and geographic settings of the research. In terms of the research agenda, an important factor for methodological considerations is to use a wide sampling range in order to allow an average representation and not only a particular group of people within the community. In this case social/professional statuses of the interviewees are represented in the following manner: mine workers (six men and two women), employees from nature reserve (two men and two woman), one municipal employee (man) and one unemployed (woman). The following examples of the questions that were asked: *What is nature for you? What do you think about the environment in your municipality? Do you notice any environmental change? What do you know about environmental impacts caused by Karelsky Okatysh?* One of the aspects during the interviews is to look at how differently people's perceptions are formed from what the nature reserve know, from their objective positions as environmentalists, about human-nature relation in the particular community then what do the residents outside of the nature reserve say and do. The specific question about people's activity of learning and protecting the natural environment was addressed at the nature reserve centre: *How do residents of Kostomuksha engage with the nature of Kostomuksha?*

2.1.2 Online Ethnography and Secondary Data

With the help of online ethnography, which is a method for collecting and analysing social online platforms along with data acquired via online communication between a researcher and the target group (Bryman, pp. 654-667), I studied online social platforms of the town, conducting a type of discourse analysis. In addition, I kept an online dialogue with the administrative unit of Karelsky Okatysh who had provided relevant material for the development of this research, such as radio records, recent publications and brief answers to my questions addressed in the emails, such as: *What kind of responsibilities are taken by Karelsky Okatysh in prevention of pollution of water/air? Working at*

Karelsky Okatysh requires hard physical labour, how does the company compensate this for the workers? How would you evaluate the role of the workers in environmental protection?

Since this thesis focuses to uncover positions of the community in the environmental questions which is to be contrasted with the dominating discourses that are present in the particular social settings, the media and other accessible sources from the fieldwork are used as well for the data of this thesis. In order to place this study in a historically and scientifically appropriate way, this paper also takes into account secondary data used for demonstrating important facts that had not been raised by the interviews or could not be noticed during own observations. Secondary data like scientific studies from the fields of biology and engineering is used in this paper to explain the work of the mine and its impact on the environment. In addition, secondary literature about Russian environmentalism will be used to give a general overview of environmental conditions in the studied demographic settings.

2.1.3 Observations

Observations from the fieldwork are shared in the findings in form of discussion and images (photographs taken during the fieldwork and one from an online source). Observations is a process that allows to note a phenomenon in the field through the eyes of the researcher (Creswell, 2013, p.166) This method contributes to the important remarks that cannot be accessed without ethnographic methodological use. This is a way to experience and better understand the conditions that are influencing social structures at the site. In addition, the fieldwork includes an excursion to the Karelsky Okatysh mine. This trip was made in order to get physically acquainted with the iron ore mining industrial environment and its infrastructure.

2.1.4 Critical Discourse Analysis and Phenomenology

In order to incorporate findings from the fieldwork into an academic discussion, critical discourse analysis is used for the analytical contribution to this thesis. This experimental approach is the key tool to understand dialectics along with material/physical elements and processes of phenomenological ramifications. A critical discourse analysis consists of three interrelated processes: the object of analysis (the iron ore mining community), the processes by which the object is perceived (environmental perceptions) and the socio-historical conditions (Janks, 1997). Conventional discourse analysis focuses on the linguistic use, however in the case of this study discourse analysis examines these discourses that are prevalent at the place in their textual, verbal, social and time specific forms. The adaption of analytically dualistic position, which is an approach to reveal social elements in additions to semiotics in a discourse analysis, is necessary for the discussion of this research (Fairclough, 2005). Dimensions of critical discourse analysis must include: text analysis, processing analysis and social analysis (Janks, 1997, p. 329; Fairclough, 2005). However, in order to regain various forms of ontology in the discourse analysis the analytical approach to the findings of the study require a complex ontological articulation of a phenomenon (Fairclough, 2005; Bhaskar, 2010). The words differ between natural and social, whilst the social world affects the natural world. Meanwhile the social world deceives the ontological validity of knowledge and it similarly limits human epistemological understanding of the natural world (Bhaskar 1986, Archer 1995). Therefore in order to avoid “epistemic fallacies” (Bhaskar, 1986, pp. 23-24) this inductive approach exhibits the triangular relationship of critical realism. The complexity of the triangular relationship of critical realism lays at the empirical, the real and the actual (Bhaskar, 2010) of a small iron ore mining community. The empirical is a domain covering direct and indirect observations and experiences. The actual is all the events and phenomena presented in the case. The real is then all the factors/mechanism that influence construction of the actual (Høyer, 2010, pp. 167).

Phenomenological approach is also added to the methodological approach as a fundamental analytical method for the presented research, because traditional social scientific methods may lead to greater confusion in terms of the complexity of how the data for this research had been gathered. As Schilbrack (2014) notes that although critical realist approach provides with the fundamental framework to uncover the material elements of the studied phenomenon, it does not reach the notion of immediate perception of the researcher, which is a significant source of data of conducting this fieldwork. Phenomenology is a practical method to question the seen dimensions on the field, and although it is pragmatic to use phenomenology as a social scientific method it is a way to challenge the purity of theoretical thought which can never be achieved by analysing what is beyond social experience by learning the the field by being in it. Phenomenology does not aim to theorize a phenomenon but it provides a meaning/purpose by unwinding structures of a particular phenomenon (Van Manen, 2014, pp. 26- 45). Moreover, the aim of this research is not to give a definite answer to the research question, but rather to describe, interpret, and explore in which ways culture, power, and sustainability may be represented in the awareness of the people.

2.2 Ethics and my Role as a Researcher

Interviewing people is a sensitive process and the interviewer must provide as much sense of comfort as possible to his/her subjects. I chose not to record the interviews because the risk that the interviewees would refuse to talk in front of the gadget. On the other hand, some of the questions could be delicate for the interviewees to give open answers, but this was never appeared to be an issue during any of the interviews or conversations. This could either be because I as a researcher did not know the interviewees personally and therefore could not evaluate their emotional stage in details. The other reason could be that the interviewees were hiding their discomfort from me, or there was not such a thing at all. The formulation of the questions had been adjusted to the target group and since I was acquainted with the community before the time of the fieldwork process I could estimate how a respondent would react to a certain question. My position in the field as a researcher was not found problematic by the interview subjects, rather it was a normal situation for them. I've been told that some of the interviewees help students conducting various projects. Moreover, the town is visited by a number of different national and international organisations with whom Kostomuksha residents often are in touch at different levels of collaboration.

2.3 Limitations

Sampling for the interviews could have been wider and/or more specific, however the purpose behind the sampling method is to represent the average person living in the community. Another important aspect is in linguistic discrepancies, which limits conveying of the information gathered during the fieldwork and fro the secondary data. Linguistic aspects are also fundamental in understanding the culture of the community, however since Russian is my mother tongue I do everything that is in my capacity to describe the settings of the case as accurate as it was presented to me in its original language.

3.Conceptual framework

In the following sections I will present the framework of theoretical conceptualisations that are relevant to the purpose of this thesis. The Heideggerian idea of socio-environmental existence will be

interplayed with the Eco-Marxist philosophy of Kate Soper about the social construction of how nature can be construed, along with Marxist idea of social alienation. Despite that the concepts of Deep Ecology often are seen incompatible with Eco-Marxist critique, this does not to be the case in this study. Kate Soper (1986 p.20; 1995) suggests that there must be placed a theoretical dialogue about anthropogenic presence which would entitle to explore both realist and metaphysical implications acknowledging that reality is both human-constructed and dependent on development of particular discourses. David Scott at a workshop on A Dialogue between Critical Realism and Phenomenology in Educational and Pedagogical Research (2014) argued that the dominant empiricist position and its hermeneutics misrepresent the nature of society because of the division between the ontological realism with the epistemological relativism. Henceforth, Marxist materialist approach cannot fully uncover dialectics of a phenomenon, whilst phenomenological approach (in the case of this study it is Heideggerian framework) cannot explain the material being in social phenomena. Concequently, the the combination of the two distinct schools avails to render the existential with real elements of the research aim (see more on material and existential being Stahl, 1975).

3.1 The fall of Cartesian Dualism

Social anthropological research on a community often tends to use a phenomenological approach (for example Ingold, 2000, Gooch, 1998 and Turnbull, 1962) in investigating nature-people relationships. Often these studies are conducted on traditional communities. However, more and more people live in industrialised communities, which could suggest even a greater split between society and nature, which is one of the the forms of the so called Cartesian dualism (Heidegger, 1958; Soper, 1993; 1995). The division between mind and body (Hornborg, 2011, p. 28) which is presupposed by the concept Cartesian Dualism, makes nature to be treated as an object by the people despite that ontological and epistemological plurality of human-nature relation addresses a need to a deeper understanding of the role of nature in human life (Soper, 1995, pp. 44-45). Cartesian dualism may stand as one of the main causes for the demarcation between nature and human beings for the problem that can be called environmental crisis, since it distinguishes between human and natural not demonstrating the transdisciplinary interconnectedness of the two.

Tim Ingold suggests that human life can be divided into two domains: interpersonal relations and the ecological domain (2000, pp. 170-71). Soper (1995) also sees the inevitability of social aspects in human-nature relationship. The two distinct schools of Deep Ecology along with Eco-Marxism give similar fundamental characterization to the nature-human relationship, where the environment is something which is an interplay of natural and human. I am defining the environment from a human perspective as everything that is occurring around human beings, e.g. social, political and environmental practices, and physical evidences of the ecosystem including seasonal changes, weather, and environmental change, whereas relationship with the environment that is perceived by people is a continuous process (Heidegger, 1958, 1977; Rentmeester, 2016, pp. 16-17) that seeks to organise and systemise scientific truths and general features of existence. Henceforth nature is the phenomenon which can be defined differently depending on the circumstances mentioned earlier.

The development of human civilization, as it has been discussed by many prominent thinkers like Heidegger, Marx and Kropotkin, had led human beings further away from nature, similarly we have adapted this hierarchical mastery over nature with help of culture, state and labour. Although human civilization aims for even further development, the course which is taken now may be seen as self-destructive. Therefore in order to inspire the necessary changes, eco-phenomenology suggests to look at the actual essence of the problem, elaborating on how the instances are perceived in a causal and interconnected reality. A phenomenological approach in social sciences may be seen as striving to question how people perceive the reality without a deeper ontological truth by looking at the essence of

the phenomenon (Van Manen, 2014; Rentmeester, 2016). Henceforth, the phenomenon in the case of this study is the relation between residents of an industrialised town and their natural environment.

Heidegger discusses how in order to get into the essence of the problem one needs to *leap over* the process of a particular question (1958, pp. 15-16). It is an attempt to open understanding of a natural environment that is enclosed in the narratives of Cartesian mastery, to move beyond the traditional metaphysics of Plato and Kant, and it is an appreciation of the mutuality of the human-nature relationship. Whilst Marxist objection to Cartesian dualism can be suggested to be in society-nature metabolism promoting harmonic relationship of the two (Foster, 2016, p. 401).

3.2 Concept of Nature

One of the fundamental inquiries of this thesis is in what nature means to the people of the particular community and generally to the people of the times there the industrialisation is playing a significant role in the society, and how they combine nature in their perception of the environment. The perception of nature is a dialectical phenomenon, individuals as well as whole communities view nature in distinguished but relational ways. Kate Soper's (1995) discussion and definition of nature is a realist critique to what we perceive as nature. Many people have a teleological perception of nature, meaning a common perception of nature as mother Earth, which presumes that the planet is the one who is in charge to take care of humanity (see for example Lovelock, 2007) but this does not give a valid characterization of the relationship between nature and human beings. There are both ontological and epistemological complexities in the humanist interpretation of nature, there is much more to nature-humanity relations, like culture, ideology and economy constituting to people's position in the reality of the environment.

The exploitation of nature has been challenged by Soper's realist critique. Speaking to human cultural discrepancies of the relationship to nature, Soper argues that romantic ideology reinforces people's exploitative relationship with nature: "In humanizing nature we also naturalize ourselves in the sense that by creating objective world of our existence we also will determine the nature of even most immediately sensory responses to it." (1994, p.46). This leads to the discussion of object and subject relationship. In the case of this study the subject is evidently the community, however nature does not have a clear object position since it is naturalized into the lifestyles of human beings. Illegitimacy of this assumption where nature has a clear value in humanity is misleading since the structure of the social world limits the existence of nature, similarly diminishing the agency of nature in the society. The iron ore industry is unavoidably dependent on natural resources, however working at the mine does not mean that one is more closely connected to nature than to economic structures: "Nature refers to limits imposed by the structure of the world and by human biology upon what it is possible for human beings to be and do, at least to survive and flourish." (Soper, 1995, p. 35), meaning that today's human survival is about survival at the cost of other beings, particularly at the cost of nature.

In Marxist understanding human-nature relationship cannot be posited in an abstract/essentialist way but in the practical encounter of physical environment. Transcendentalist logic then suggests that Cartesian tendency on nature-human relationship may lay on cognitive fallacies formed throughout the mass (Heideggerian Dasein) knowledge. Heidegger explored this inauthentic nature of human existence by discussing social unconsciousness and sensory responsiveness (Heidegger, 1971; Soper, 1986 p. 57-60). Therefore this alienation from nature may occur not only due to the structural settings but it can also be based in our cognition while people are in search for belongingness in nature (see Evernden, 1993). Both approaches, however, in the end suggest social estrangement as means and causes to the environmental or ontological crisis of humanity (Soper, 1995, pp.45-48). By applying an instrumental or exploitative perspective on nature we exclude ourselves from the space of natural environment. However, despite standing outside of nature as social beings, people also try to place

nature in human life by justifying our belongingness. For instance, by building zoos, national parks, by implementing environmental policies and simply talking about nature, which is inauthentic compromise to the environmental estrangement.

Soper (1995) outlines the three main ideas of nature by distinguishing and also incorporating them: the metaphysical concept, the realist concept and the "lay" (or surface) concept. The metaphysical understanding stands for the interpretations of nature, suggesting that nature is a philosophical concept which can be approached through facticity: history, place, time and context (Rentmeester, 2016). The realist concept reveals structures, processes and causal powers of human interaction with nature. The lay concept is about every day, literary and theoretical discourse where nature is seen in its observable features, which is often a perception unwinding aesthetics. In other words, nature may have a number of conceptualisations, the way we perceive nature is closely dependent on what we feel, value and on what we do. Ecology is behind the broad concept of nature, and though we may misjudge the aesthetic representation of what nature is to us it is still important to preserve the environment, the physical ecosystem of the planet. Thus the Marxist idea of human alienation does not suggest a solution for the environmental emancipation but explains structural conditions leading to the crisis, metaphysical approach proposes a way of how people replace nature in their environment.

3.3 Dwelling

"The world constituted in relation to the organism or person whose environment it is." (Ingold, 2000, p.193).

One of the leading factors that constitutes phenomenology of ecological crises is an ontological knowledge of human being in modern society (Heidegger, 1958; Foltz, 1995). An example of this type of crisis has been discussed by Heidegger (1997, p.7). He describes a wooden bridge on the Rhine river, which is transformed into/by a hydroelectric plant. So what does the river become now for people? A water power supply, rather than a river. Moreover, since the electricity generated in the plant meets human needs, it similarly reinforces the idea that nature is something to be mastered. A number of the similar examples can be brought up. Consequently, in this way we create an expanding distance between us and nature as natural beings advocating the instrumental fundamentality of nature in human life.

The oblivion of being is a phenomenon introduced by Heidegger (1958, p.21), the state of oblivion, or "unrecognized yet enduring impulse for metaphysical questioning". Humanity is constantly searching for a sense of belongingness in nature similarly pursuing it to justify its own existence on the planet. Reading Ingolds' *Dwelling* is a process which is articulated in structural behaviour of the society concentrating from social to individual level of existence (2000, pp. 172-188). *Landscape* is a fundamental form of reality which is perceived by individuals instead of the environment. From the beginning landscape was characterised as painting, or a painted representation that allowed a viewer to build a relationship with the seen (Hirsch and O'Hanlon, 1995, pp. 2-6). However, the timeless painting can never represent the complexities of social life in a particular and general context. Hence, *landscape* of a phenomenon is a continuous process created by people who are part of that phenomenon. This is the material substances in which people dwell in a particular community. Ingold characterizes *landscape* as the world where people dwell therein, whereas environment is attributed to real space and nature, apparent only to a detached observer. *Landscape* on the other hand is perceived in various forms and can be changing throughout time and space. *Landscape* is not land or nature but it is what is perceived by human senses. *Landscape* determines social-relations by attributing certain symbolic values and meanings of a particular being (Ingold, 2000, p.189-195).

Dwelling (Whonen in German) derived from building (human made process of building houses, railway stations, dams, market halls and etc.) is one of the key perspectives that is being discussed in Heideggerian phenomenology of human being: "To dwell…means to remain at peace within the free, the preserve, the free sphere that safeguards each thing in its essential unfolding. The fundamental character of dwelling is this preserving." (Rentmeester, 2016, p.72). Heidegger distinguishes three types of dwelling:

1. Building is really dwelling.
2. Dwelling is the manner in which mortals are on the earth.
3. Building as dwelling unfolds into building that cultivates growing things and the building that erects buildings. (Heidegger, 1971, p.146)

For Heidegger the main meaning of human being is to *dwell* (1971, p. 168). Heidegger expands that since the Ancient period in history, human beings have been creating their own realities about nature and *being*, placing the relationship in a way so it would be in line with the particular period in human history. It led Heidegger to trace back the development of human understanding of term *being.* The authenticity of the world *being* discussed by Heidegger has been lost through the idealistic and practical matters of the times (Heiddegger, 1958, p.15; Rentmeester, 2016). The following periods coming after the Ancient Greek contribute to the hermeneutic and linguistic confusion over *being*: Medieval times brought Christian values of human mastery over other beings, similarly it made humanity to turn away even more from the natural environment because of the dedication to God. The modern epoch was the time of introducing science over nature along with industrialisation which took over all essences of *being* (Heidegger, 1977). In Heideggerian understanding, however, beings are all physical matters that surround human beings, human existence which originally was to cover presence of all that to be considered natural or original to the Earth (Rentmeester, 2016). Consequently in the contemporary world people's dwelling in nature is unavoidable process because of the real conditions that make human interact with natural environment, however it is also inevitable that social and historical constraints create a great impact of how this dwelling is carried out.

3.4 Modern era and technology

Modern era and technology more and more replace the traditional rural way of living, and instead of longing for the past humanity articulates its being in a particular period in history, which in the case of the presented study is the industrialised time and the time of technology advancement.

> The forester who, in the wood, measures the felled timber and to all appearances walks the same forest path in the same way as did his grandfather is today commanded by profit-making in the lumber industry, whether he knows it or not. He is made subordinate to the orderability of cellulose, which for its part is challenged forth by the need for paper, which is then delivered to newspapers and illustrated magazines. The latter, in their turn, set public opinion to swallowing what is printed, so that a set configuration of opinion becomes available on demand. Yet precisely because man is challenged more originally than are the energies. (Heidegger, 1977, p. 8).

There are two common definitions for technology that are given by society: one is the means to an end, and the other one is defined to be a human activity (Heidegger, 1977, p.2). These instrumental definitions do not provide the essence of technology, therefore Heidegger's metaphysical approach results in seeing technology as means to reveal the relationship of existential being and also the relationship between being and the planet in modern times.

Unconcealment is a concept introduced by Heidegger which describes the mode of human living prevalent today, that is built on ages of scientific, linguistic and social development where the origins of being remain forgotten. Consequently, a man is accepting the reality which was given to him because

there is no knowledge that is evoked for questioning how the world is to be. Henceforth, in contemporary world technology is an "ordering revealing" (Heidegger, 1977, p. 8-10). Another social phenomenon can be traced back to a Marxist understanding of humanity, which is alienation (Ingold, 2000, p.215). This speaks to the depiction of people's alienation in the era of technology as well as alienation from nature and society. While people are alienated from their essence, mankind is deeply committed to the artificial relationship with technology. Simultaneously, we attribute the autonomous value to this relationship overpassing environmental aspects of the industrial and capitalist systems, this in Alf Hornborg's perspective leads to social fetishism of modernity (Hornborg, 2013).

The essence of technology in relation to nature creates a certain epistemological fallacy for people, since technology is agency in human practices. According to Heidegger the problem is not that technology threatens human civilizations, the problem is that people are no longer open to other ways of how things can be understood because of the technological advancement that is strictly reserved in lives of people (Rentmeester, 2016, p.53). If there stands a question of an environmental problem, humans tend to *enframe* (*ibid.*, p.55-56), looking for a solution to a certain problem in a specific entity, into technological advancement. The technology that we experience today dominates the other dimensions of being. In these settings nature loses its original meaning, correspondingly human perception of nature is influenced by the normative social order governed by the age of technology. Consequently Heidegger (1977) sees that man is challenged by industrial production practices, because of the age of technology hindering humans to other ways in which entities can be seen.

4. Previous Research

Many studies on small communities and their economies have been conducted before the presented thesis. I have retrieved a few that concentrate on relatively small communities: Nilsson (2010), Nordgaard (2011), Davies and Oliver (2018). All of the communities studied in the presented works were created because of heavy metal industry, except of Nordgaard's field study where the economy of the village was built mostly on tourism.

Nilsson conducts a constructivist discourse analysis of the ideology behind the relocation of Kiruna. Kiruna is a small town in the North of Sweden (with large area around it) close to Finnish and Norwegian borders. The city is sustained largely by the iron ore mining industry. Because of the environmental exhaustion caused by the mine the ground is literally sinking under the town, and in order to save the town it had been decided to "move" Kiruna a few kilometres from the mine. That decision provokes a lot of critique by environmentalists and many individuals, it also raises great interest from various fields (Nilsson, 2009, 2010; Backman, 2015; O'Sullivan, 2015). Nilsson (2010) takes a Marxist approach in revealing the dominating discourses leading to the realization of the plan to move the town. The researcher remarks that the mining activity is essential for the economy of the town. Although in this particular paper Nilsson does not clearly present what the interviewees answered about their attitude on the mining activity in the town, he shares his overall conclusion about the role of the residents, saying that the popular reactions to Kiruna's relocation did not play such a big role in the actual decision, because the economic and technological domination. Nilsson refers to social dependence and subordination of the community which overpowers any other forms of identity than the metallurgic community. To the similar results came Davies and Oliver (2018), whose research is on Wundowie, first iron ore town in western Australia, although the industrial activity continuously experiences ups and downs, the community tries to preserve its social identity as industrial workers.

Despite that Nilsson (2010) and Davies and Oliver (2018) cover social construction of metallurgic community the researchers do not combine the economy of places and the natural environment with

their theoretical considerations, and how the latter contributes to people's perception of the natural environment, which would open a new space for the discussion. On the other hand, Nordgaard (2011) does the opposite research. The researcher focuses on people's perceptions and attitudes about climate change, but not on a particular industrialised group. The results of her research demonstrate that people are generally inactive about the environmental change even though they might notice it happening. This phenomenon is prevailed due to various reasons (such as ontological security, quilt, helplessness, faith and national identity) that contribute to social and individual denial of experiencing climate change. This leads people to choose the ordinary daily activities that correspond to who they are in the particular social settings, rather than acting about the apparent environmental problems.

5. Iron Ore Mining and its Economic, Social and Environmental Conditions

Although tsarist Russia had contributed to massive environmental hazards by inefficiency and insufficiency of the national industry at the time, Soviet initiatives in the environmental sphere did not introduce effective measures to tackle the environmental problems either (Josephson et al., 2013). Furthermore, the socialist regime could not be perceived as being in harmony with nature because of its' exploitative relations, which is also argued by Marxist ideology: "In a state of disorder, or chaos, and it was the task of socialist science and technology to conquer the nature, to transform it" (Bater, 1996, p. 155). During *Glasnost* (a policy that was introduced by Gorbachev to create a greater awareness for the people about the social problems in the Soviet regime (Josephson et al., 2013, pp. 254-255), citizens began to open their eyes to the environmental problems that were obscured by the Soviet regime: "more and more of them saw with their own eyes that the quality of life in Western democracies was much higher – and much less polluted – than they had been led to believe." (*ibid*.,3, p. 256). Average citizens were experiencing environmental degradation in their own gardens and farms. Moreover, the whole rural economy had been in crisis which was apparent in poor supply of groceries. Many people subsisted on hunting, fishing and gathering berries, mushrooms, and nuts. It has been observed that economic and industrial performance is more important for Russia than environmental conflicts caused by it (Josephson et al., 2013; Tynkkynen and Massa, 2001).

5.1 Karelsky Okatysh

Today Karelsky Okatysh is Russia's fourth largest iron ore producer with a yearly pellet production of 10 million tonnes (Woodmac, 2016). From 1994 until 1999, Severstal, which is one of the world's largest metal manufacturing enterprises, acquired a controlling stake of Karelsky Okatysh. By 2008, Karelsky Okatysh became a fully owned subsidiary of Severstal. There are more than 3500 people working for the factory, which is approximately one tenth of the town's population (Severstal, 2017). The district was empty at the time when the construction started and in the beginning of the project people were being recruited from all over the Soviet Union. During the Soviet times Kostomuksha was a closed district and one could visit it only with personal invitation. Karelsky Okatysh is continuously searching for new specialists to improve and bring innovations to the manufacture. The factory is steadily engaging younger generations of Kostomuksha by introducing them to the working spaces. Through employment at Karelsky Okatysh, a worker is guaranteed a permanent position, stable salary, social package, and an opportunity for further their education and qualifications (Severstal, 2017).

5.1.1 Mining and Processing Integrated Plant

The deposits that sustain the factory consist of three main quarries: Central (figure 4), Southern and Northern. In addition to iron ore, Karelsky Okatysh extracts a range of natural resources that can be used for various industrial purposes, one such resource is breakstone (Lapin, 2015). Technical name of the iron ore mining factory is 'Mining and Processing Integrated plant' (in Russian: Gorno-obotitelnyiy Kombinat or GOK) and it is divided into 12 stages of work: Geological exploration, explosion, excavation, transportation of mine rocks, dry magnetic separation, railway transportation, fragmentation and grinding, enrichment, pelletizing, roasting and shipment (Severstal, 2017). GOK is located around 10 kilometres from the town (see figure 2) itself which is in accordance with national health and safety regulations of Russia (in Russian СНИП СН-245-71: iron ore mining 500 meters distance and iron ore processing 300 meters distance from residential areas) (Lapin, 2015). Figure 3 illustrates the main entrance to GOK, photograph was taken during the excursion.

Figure 2. Overview map of Kostomuksha municipality. Map compiled by Viktoriya Kulikova. Map data: Department of Human Geography and Google Earth

Figure 3. The main entrance to the factory. Photograph taken by Viktoriya Kulikova

Figure 4. The central quarry. Photograph taken by Viktoriya Kulikova

Severstal adapts international and national regulations to meet environmental standards that are passed by both political levels. The core objectives of the company in the field of environmental protection are:

- To prevent pollution of the environment, take part in decision-making on cutting greenhouse emission rates
- Economical and natural use of natural resources
- Efficiency in waste processing (Severstal, 2018).

The main sources of air pollution are: poisonous gases, for example PbO, produced during the explosions, the dust release from drilling, and the use of transporting vehicles. The water basin is also in the risk group that is affected by technological quarry transports, energy systems, fuel materials, central units and the repair unit. The pipe illustrated on figure 6 is 18 metres long, which according to one interview subjects is enough to minimize the environmental impact in terms of air emissions of the factory on the municipality.

Figure 5. The exhaust pipe, photograph taken by Viktoriya Kulikova

The choice of location was motivated by maximized prevention of lake pollution, therefore all of the polluted substances end up in the lake Kostomuksheskoye (see figure 6), an artificial water basin, created on the place where the earlier Kostomuksha village was located. Remarking on this basin, one of the respondents said that the lake Kostomuksheskoye emerged on the place of the old cemetery of the people who lived in the village, however no issues were raised about this in the interviews. After 1994 the Kentti river system had been utilized for the emission stocking. The monitoring of water concentration is conducted yearly, moreover Karelsky okatysh is constantly upgrading technological tools for the greener alternatives. For instance, in 2006 Karelsky Okatysh had implemented a new system for concentrating emissions from grinding and enrichment works in shorter cycles and that reduces polluted water zones by 30 percent (Severstal, 2016).

Since the start of the plant work a zone of dust was created that extended up to 5 kilometres south-west and up to 10 kilometres north-east. The plant catches 45 percent of all of the emissions (Lapin, 2015), and the development of the modernized technology of Karelsky Okatysh is aiming to liquidate 70 percent of affected areas, for example by replacing old motor tools (Severstal, 2018). Moreover, with the ore excavations a lot of so called “empty” fossils are extracted. Most of it ends up in the hills, this is illustrated on figure 6. However, some of the extracted resources are also processed and used on the market not only due to the profit interest but also because of the environmental principles listed earlier in the section. In addition, noise pollution is an important issue to consider. The plant conducts two large explosions in the mine per week at a certain time, during that time no visits are allowed to the mine. However, though this process does not bother the residents, interviewees did bring it up during the conversations as more like an interesting aspect of work of the plant.

Figure 6. The hills of the "empty" fossil, photograph taken by Viktoriya Kulikova

5.2 More on Environmental Impact of Metal Mining Industry

The abundance of iron on Earth makes the iron ore industry the largest metal ore industry in the world, it contributes to 95 percent of all metals used by modern industrial society (Yellishetty et al., 2010, p. 1085. Global iron ore production has been gradually increasing but the production rates are not of interest in terms of sustainability problems. According to Yellishetty et al. there are two main factors leading to the concern of the increased production and the iron ore mining in general: conservation and sustainable management of the finite resource, and the environmental damage that is caused by all stages of the industrial explorations, as well as processing and usage of the raw material (2010). Findings of various environmental investigations reveal that the emissions caused by the iron ore mining industry are contributing to climate change and to various health risks (Yellishetty, Ranjith and Tharumarajah; Elgstrand and Vingård, 2013; Masaitis, 2011). A number of studies uncover that iron ore mining possesses its environmental, economic and social implications (Yellishetty et al., 2010, Ferreira, 2015; Lupo et al., 2015; Smit, Beer and Pienaar, 2016; and Davies and Oliver, 2018;). Metallurgy is a uniting factor for a community subsisted by an iron ore factory (Nilsson, 2010; and Davies and Oliver, 2018) and metallurgy is also a process which endangers the environment by the conditions at work, deforestation and changes in the ecosystems (Ferreira, 2015, Lupo et al., 2015). In this section the environmental impact of Kostomuksha iron ore plant will be discussed.

Despite having some difficulties finding recently published studies about the environmental impact of this particular mine, in this section I will bring up a few empirical studies. From the regional statistics was revealed that Kostomuksha is the first place for the pollution rates in Karelia, although population of the town is approximately ten times lower than the capital Petrozavodsk where the overall atmospheric emissions in 2016 reached 2 577 tonnes while in Kostomuksha municipality it was 72 880 tonnes (Kareliyastat, 2017).

The hydrological cycle has been studied in the mine impact zone. The waste from the mine is being deposited into the closed basin, an artificial reservoir, lake Kostomuksheskoye (or Kostomuksheskoye ozero in Russian) (Tkatcheva, 2007; Kalinkina et al, 2003; Kuchko, 2015). Tkatcheva (2007) referring to Lozovik et al. (2001) and Holopainen et al. (2003b) suggests that water becomes harder in the chemical reaction with the emitted elements, similarly, saving the biota of the severe consequences of the industrial presence: "It seems that the effect of water quality on solubility and speciation will decrease the availability of metals for uptake by biota and thus help to make the metal pollution less

severe" (Tkacheva, 2017, p. 7). Tkacheva (2007) concludes that chemical emission levels in waters vary between a number of lakes around municipality of Kostomuksha. In a number of cases the chemical concentrations in water may negatively affect certain fish species, however the overall findings of the study speak to a satisfactory level of toxicity, which is not above the environmental and safety regulations. Moreover, Kalinkina et al. (2003) have suggested that this overflow of the emissions can still threaten biodiversity; such environmental problems were predicted: impaired local fishing and contamination of drinking water. It has been also revealed that because of the complexity of Kentti river system (existence of the bypass channels) polluted water is reaching down into the White Sea (Kuchko, 2015).

In Poikolainen and Lippo's (2000) research it is revealed that the sulphate emissions of Karelsky Okatysh create a considerable impact on healthy environment on not only the forest in Kostomuksha municipality but also on Kainuu province (Finland) which is the closest neighbour territory to the mining area. Although the emissions coming from the mine had drastically decreased during the 1990s and in the 2000s the research still refers to a continuous change in ecosystem of the forest. The researchers have been especially concerned about sulphur emissions. According to Fedorets and Solodovnikov (2013) the air in the area affected by the mine is more concentrated with heavy metals than the soil levels. It is also observed that the consistency of heavy metals have in overall a decreasing tendency (*ibid.*, 2013). In addition, it has been demonstrated that heavy metal concentration in air and water varies between the seasons (Tkacheva, 2007; Ivanova and Vinogradova, 2013).

6. Findings from the Fieldwork

Specificity of the place is one of the main factors when locals address the environmental situation in Kostomuksha. None of the interviewees see the iron ore mining factory as the main cause behind the environmental issues of the area. Many refer to the natural environment itself; the northern geographical location creates conditions that can be seen as challenging for the welfare of the citizens. All of the interview subjects highlight the "greenness" of the municipality. Forest which is present in the town itself and in its surroundings is the main source for the people to get in touch with nature. Concerning the climate, people do not seem to be seriously feel the impacts of the climate change in the town, rather they notice cyclonic weather. My findings also demonstrate that the residents are to some extent concerned about the anthropogenic factors, but mostly about the issues with use of waste.

6.1 The Discourse of Environmental Issues Covered in Media

Mineworkers are notified of the development of Karelsky Okatysh via Severstal newspaper, regional news, regular reports, qualification courses, radio and email. Most of the information is available for all citizens with exception of emails and technical reports. Severstal is sharing news about all its sectors. An interesting recent post was shared by Severstal about pollution that is concerning citizens of Vologda, a city which is located next to the industrial centre of Severstal in the city of Cherepovets (Severstal, 2018). The article starts with "Vologda citizens do not take care of nature, often are sick and die early…": the environmental conditions are critical in the region, particularly water and air quality are not satisfactory. The regional administration receives complaints from the citizens about the issue on regular basis. The article adds, that Severstal aims to decrease its own emission, and that the air is gradually getting cleaner.

Severstal gives regular updates on new environmental solutions the company is implementing. During my fieldwork I went to an exhibition about the new explosives that are introduced to the quarries described as environmentally safer and domestic equipment. However, while I was there it seemed to me that these types of events are not so popular among the residents, since I was alone there, and only two children passing by decided to take a look at it with me. Perhaps many of the interested had already checked the exhibition before but still, people's initiatives are lacking in their activity, which had been raised as one of the concerns at the annual municipal meeting. I happened to attend this meeting where all of the citizens and town's guests were invited, but no more than 70 people were present. Asking people about their activity in municipal life reveals that people are simply not interested in it, or they are busy with work. Some of the interview subjects said they participate in some of the social activities arranged by Karelsky Okatysh or the labour union, but not so regularly.

On the other hand, Karelsky Okatysh shared radio podcast records with me about the 2017 National year of Ecology that brings a new light on citizens' initiatives in town's events. In the podcast, Engineer-ecologist of Karelsky Okatysh shares work for the Year of Ecology that has been achieved by the mineworkers. For example, she talked about various contests organized between different units of Karelsky Okatysh for the most ecological work. Some of the criteria for the winner were the most disciplined in sorting waste and clean working space. Moreover, it had been emphasized that workers of Karelsky Okatysh had willingly and freely gone on a street-cleaning day already for the second time that year. Quoting the engineer-ecologist:

> I have noticed that people's consciousness has drastically changed, because the amount of waste-dumps had considerably decreased. Actually, in the beginning we sometimes faced scepticism against our projects, but now recycling and battery sorting – is already the norm. It is obvious that ecological problems indeed are concerning them. It is partially because of our work. (Mestnoye Radio: Kostomuksha, 2017).

Interestingly, more than half of the people I interviewed were not aware about the theme of the previous year; one employee from the nature reserve said: "I would have not been able to tell that the last year was the year of ecology if I was not working here".

6.2 Connecting with the Environment

Many respondents spoke of the uniqueness of the town and the region itself. The area is rich in different minerals and metals, especially in iron. This leads to the issue of magnetic anomalies caused by high iron concentration in the soil, which concerns some of the respondents, and for others it is just another fact that does not bother them. Early settlements used to extract iron from the swamps, which is an oxidized sort of iron. This process requires a lot of effort and time, and the quality of the product is not so high. Nevertheless, many interviewees referred to the history of iron in the region and therefore they see metallurgy as the tradition of the town. Moreover, in respect to the metallurgists of the town there is a street named after the mine workers – Gornyakov street (Miners' street). Karelian traditions have been preserved in the region throughout generations. Iron trade had already begun in the early 12th and 13th centuries. The early Karelians, also called peddlers, would transport iron goods to Kem, St. Petersburg and Oulu. In addition, Karelians are known for being pagans, although today it has been challenged because Christian influences have taken over the people. Nevertheless, paganism is still reflected in subtle ways: "On the way to the forest a Karelian whispers to his gods asking for fertile soil, and then on Sunday he goes to church service" – described one of the respondents.

The taiga is the pride of the residents. When talking about the environment the respondents often mention the forest, the trees and clean air. Many of the respondents define nature as a place which is full of natural sounds, the sound of life, like birds singing, wind blowing, or sound of water. One of the

respondents answered that “First, nature is the life!”, continuing to say that nature gives us food, water, heat, feelings and good mood. Then he concluded saying that nature gives us enlightenment. Some of the respondents define nature as harmony. It was then hard for them to define what harmony actually is. In response to this, some of the respondents added that this harmony could involve a harmony between people and the natural environment. It was harder to depict the disposition of an individual in relation to nature, a few of them were imagining themselves being in the centre of clean air, greenness, blossom, water and birds, while others gave a more distant depiction of nature. Another interesting finding came up when one of the respondents created a parallel with Spain and nature, while describing nature in the summer in the end added “like in Spain”. In addition, many described the seasonal change in nature, imagining snow during winter and flowers in summer. The human factor in their perceived environment is not critical, according to interviewees; rather it is seen as a natural development of being – many of my respondents highlight the importance of an interaction between people and nature. All of the interviewees say that they are in touch with nature, if not by going into the wild nature, then by living in nature itself. Kostomuksha was designed so that the town is in the forest and the forest is in the town, figure 7 illustrates abundance of the green areas in the municipality. In addition, with figure 8 it is demonstrated of how the central street leading to the cultural house is surrounded by the coniferous forest.

Figure 7. Kostmuksha’s view from helicopter. Source: Gidkareliya, 2016

Figure 8. Central street Pervootkryvateley. Photograph taken by Viktoriya Kulikova

Asking citizens about their thoughts on the environment in their surroundings reveals that they do not show a lot of concerns about environmental problems that can be caused by iron ore mining. Moreover, most of the respondents see the plant as the economic source for the municipality. “Without Karelsky Okatysh Kostomuksha would not exist”, most of the respondents would agree with this statement. Some of the interview subjects honestly answered that they do not care about the environmental issues at all adding that: “In comparison with other parts of Russia the environment in Kostomuksha is preferable for living”. Some of the respondents shared that they simply do not have time to think about environment and climate if it does not hinder them from working. Respondents who are familiar with the construction of the iron ore mining plant said that most of the pollution coming from the mine goes in the opposite direction from Kostomuksha. Additionally, some of the respondents have highlighted the fact that the plant had been built by Finns emphasizing that Finnish construction is famous for its quality and safety.

6.3 Environmental Issues that were Raised by the Residents

Many also claimed that the weather in Kostomuksha is to some extent manipulated by the grey cloud which appears above the mining plant and moves towards the town. Interview subjects often compare the weather in the town with the weather outside the residential area, saying that often the sun does not reach to the town while just 15 kilometres away people enjoy the sunshine at their “dachas” (summer cottages). Reading the town’s social platforms, there could be hardy found any conversations/talks raising the topic of the environment. However, I found one interesting list of questions that are posted on one of the official websites of the municipality. Under the theme “Ecology” was a list of critical questions, which are not so clearly raised by my respondents. These questions are mainly about the forest, massive deforestation and inquired legality of giving permissions for private house building on the reserved territory. Furthermore, the quality of the air is being questioned in the same list of inquiries.

The respondents also told about mine workers’ complaints when their benefits for harsh working conditions had been cut. A few years ago Karelsky Okatysh had implemented new technological equipment that reduces environmental emissions. Consequently, the mineworkers had become less prone to the discharge of the plant operations and emissions to the environment had been reduced. However, workers were not happy with losing benefits such as earlier retirement and longer holidays;

and even after the situation had been stabilized, workers still question the difference before and after the technological modernization. Nevertheless, workers succeeded in reducing mandatory health checks in response to new, cleaner conditions at the workplace. That was an important achievement for the workers, since they did not want to spend their time going there. Moreover, the workers believe that the health checks are too strict, meaning that many older people and those with chronic diseases are at risk of losing their jobs by taking part in regular health checks. In addition, the residents of Kostomuksha did not lose their benefits of working in the Northern conditions (around 2 percent is added to the standard pay depending on professional position is used at any official workplace in Kostomuksha) which is attainable only in their municipality of Kostomuksha out of the whole republic of Karelia. The workers also shared that the plans they are assigned to are too big, therefore the atmosphere at work is often stressful. They say that many must violate the safety rules in order to complete a plan, but if this gets noticed the directory reprimands the workers.

6.4 Kostomuksha Nature Reserve

Russia has one of the strictest laws for nature reserves. The territories of the nature reserves are restricted for visits. They are often divided into nature reserves and national parks, and in the parks visitors are allowed to hike and camp only accompanied by a special assistant from the nature preserve, whilst the nature reserve territories are closed from any public visit.

Kostomuksha nature reserve shows a great engagement with controlling ecological system in on their territories. Their work consists of monitoring the biota of the forest, protecting the nature, and educating about nature and environmental protection. The nature reserve has its own eco-educational program: craft-work, expeditions, hiking tours, and newspapers about Karelia's nature. Many schools come to the nature reserve to give children the opportunity to learn more about the environment and nature. Children's program at the nature reserve offers to teach about wildlife in the taiga, waste, natural resources and acidic rain, and how to engage with the surrounding environment, figure 9 demonstrates children exhibition at the nature reserve centre.

Figure 10. Children listening to a guide at the nature reserve centre. Photograph taken by Viktoriya Kulikova

Littering is clearly a big concern of the citizens of Kostomuksha. On figure 11 there is illustrated a stand with waste sorting guidelines. Generally, people have become more careful with waste. It has been observed that citizens do not sort waste; there are neither regulated rules nor infrastructure for

recycling in living blocks. However, 5 kilometres away from the centre of the town there is a waste dump which introduced a way to sort waste. Moreover, before the municipality used to burn waste while now it is transported, which is remarked positively by the interviewees. On the contrary, it is worth noting that some of my respondents said that although there is this structural waste sorting possibility citizens do not fully respect the importance of proper waste management. Interestingly, even at the mining factory workers might not take full responsibility for where waste should be taken to. By not taking care of their municipal solid waste they leave that responsibility to Karelsky Okatysh: “The plant will manage this”, said one of the interviewees quoting what he once heard at the factory.

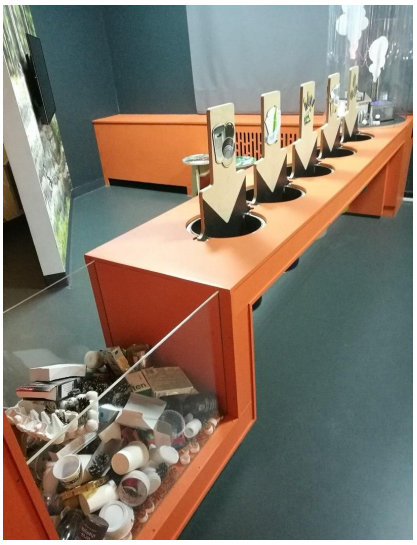

Figure 11. Demo of a waste sorting stand at the nature reserve. Photograph taken by Viktoriya Kulikova

The most common question among young visitors is in the nature reserve is “How many animals live in the forest?”. Children get engaged with the wildlife by learning about the forest habitat, writing letters to the animals and taking care of the animals, like for example building bird nests of which one of them is demonstrated in figure 12.

Figure 12. Bird nest built by a child. Photograph taken by Viktoriya Kulikova

Employees at the nature reserve share that the local adult population are not so active in the pursuit to learn more about their surroundings; it is seen in low popularity among adults visiting the centre of nature reserve; low touristic activities; and in violations on the territory of the reserve, like fishing without license, berry and mushroom picking. In addition, the centre of the nature reserve believes that through the children, adults may also get some new information. One of the employees at the nature reserve said that citizens do not want to visit the centre because forest is all over the area, meaning that people rather go/travel somewhere else, preferably warm countries than spend time on something they experience daily.

The scientific committee of the nature reserve brings up that the area is not experiencing any ecological crisis. From yearly reports 1986 to 2010, that were shared with me at their office, it shows that the biota of the forest has not drastically changed; moreover they have a positive change observed with less waste in the forest and in the town. I had one specific question about the quality of water since hydrological research presented in previous research demonstrated that the iron ore plant generates water emissions that can be harmful for the people, to which the scientists of the nature reserve did not find any danger. The water which is used in the municipality comes from lake Kamenoye which is within the territory of the nature reserve and is not connected with the other waters in the region.

One of the big problems for the ecosystem is in forestry. Hectares of forest are being cut, which is impossible to fight against, since many of the firms that are involved are privatized and it is hard to have a dialogue with these businesses, said one of the personnel from the nature reserve. This creates empty areas in the forest, which then leads to more wind that can be harmful for many species, like cloudberries. Also the old residents of the area notice this difference, the shift from calm and quiet nature to restless and obstreperous. On the other hand, one of the personnel at the nature reserve said that he has spent the New Years eve in Kostomuksha eight years in a row not choosing his home town Petrozavodsk as the weather in the capital of the republic has changed, winters become milder and it is

snowing less, while in Kostomuksha one can really experience “proper” winter. However, soon he will be moving back because of better job opportunities.

The scientists acknowledge a difference in the environment between the nature reserve and the residential area, which is explained to occur due to human impact prevalent in the town that is seen to be caused by usage of cars and littering. During discussions with the nature reserve staff it was repeatedly mentioned that the iron ore mining in its neighbourhood does not have a considerable environmental impact. Moreover, Karelsky Okatysh is described as a close partner of the nature reserve: in Karelsky Okatysh they have a separate unit for the environmental protection, which has been efficient in its work including in keeping dialogue with the nature reserve. In addition, Karelsky Okatysh together with Kostomuksha nature reserve arranges nature trips for its employees, such as walks in the forest, hiking and camping. These events have just recently started taking place, however in the future, the nature reserve aims to meet more workers from Karelsky Okatysh: “For just ventilating their lungs” – as says one employee of the nature reserve.

7. Discussion

Kostomuksha is a small town which carries its own identity of a metallurgic community. The industrialisation plays a big role in the whole modern world, which is not an exception in the case of Kostomuksha. The residents of Kostomuksha perceive that the iron ore mining factory does not limit the space of the natural environment. Furthermore, the residents did not show any signs of longing for the nature, rather it is discussed as it is given to them naturally due to geographical and geological circumstances. However, from a phenomenological perspective of Heidegger and Ingold human-nature relationship is embedded in the transcendental being, social and cognitive, therefore the nature as essence free of anthropogenic influences can never be reached, which also is a part of discussion of the Eco-Marxist critique on human-environment relation, that for example is raised by Kate Soper (1993, 1995, 2007) who is arguing that economic and ecological forms of existence are indeed inseparable. The following discussion encloses how an industrial community relate to their environmental. So why are people not more aware or concerned about the environmental impacts that are caused by the industrial work? With Eco-Marxist perspective I discuss how the industrialised town affects nature and community, and with phenomenological approach I look at the residents’ “being” within these settings.

7.1 Ontology of the industrialised Environment

Living in contemporary settings of political, economic and social structures creates social conditions in which we are integrated. industrialisation plays a big role in human lives. Many would find it hard to imagine life without a public transport, phone or central heating. However, this also carries its social and environmental implications limiting human connection with the reality of nature as opposed to the transcendental idea of nature. Commonly perceived industrialisation is that what is good for people, it gives economic welfare that is fundamental for living in postmodern times. However, it often remains ignored that nature also plays essential and significant role in creating the conditions which people reside in. industrialisation in this case is one of the conditions limiting this space of natural environment.

Throughout the period of industrialisation people have created their own concept of how nature and environment are adding a heavy anthropocentric footprint on this. The figure 13 represents a canvas that had been made by a child with the help of his parents. It illustrates a natural environment for the small mining community from the eyes of a child. Despite the birds, trees and other nature elements, we also

see the mining factory on the background of these all. How natural it can be in the nature? At least it cannot be seen as foreign according to the perception of a child. This is how human perception of nature and the environment is like and this is the way the new ontology is created. We can return back to Heideggerian (1977) thought on technology and unconcealment that is discussed in his essay. From the early ages people's perception on nature is being distorted by the presence of the anthropological factors in the environment. Similarly, as children and adult residents of Kostomuksha have been affected by this misleading epistemology of knowledge which is passed throughout the time of human civilization. Hence, it is evident that people's perception of nature is affected by other practical factors of a particular period of time in history. Furthermore, the earlier signs of metallurgy in Kostomuksha has a prevalent discourses that are passed to the community. The village Kostomuksha was famous for its smiths. However, at this age of modernization, the use of iron has taken a larger scale and the small scale iron extraction is now part of the big global industrial framework.

Figure 13. Canvas "Spring Time". Photograph taken by Viktoriya Kulikova

Moreover, the way social knowledge is being passed on illustrates how the social perception of the environment is formed. The monuments placed in the central districts (see for example figure 14) are representing the eminence of the iron ore mining in the town. The abundance of greenery in the town accompanying the monuments creates an ambiguous image of the natural environment that becomes normalized in human cognition. The presence of the metallurgic symbols in the town strengthens the landscape of the community dominating the detached perception of nature and the environment. Most of the residents of Kostomuksha living in the town cannot see the mining plant every day, since only the mineworkers get a chance to see that landscape where the physical iron ore plant is seen. Nevertheless, evidently Karelsky Okatysh transforms industrial significance for the people into the landscape of the community by taking an active role in residents' social and economic lives. Consequently, the presence of the mining plant becomes natural or rational for the environment in human created landscapes.

Figure 14. Monument: The first discovery of the iron ore in Kostomuksha. Photograph taken by Viktoriya Kulikova

7.2 Perceiving Nature

Nature that is discerned by human eye is immediately affected by the social relations. From a realist perspective nature does not exist in its pure essence to the people, rather it is a sequence of causal powers of human interaction. Industrial domination may be distracting for the people to perceive the pure essence of nature. Moreover, the physical effect of an industry on nature can reconstruct a different natural environment for the people and that is often accepted by individuals involved in a certain industry. Iron ore mining is dependent on earth resources, so the iron ore taken from the ground can be considered as a natural process, as coming from the earth for the sake of the civilized being. Many may characterize iron ore mining as a natural process, however then the question must be placed, which beings can be included in this process to be "new" natural in the modernized world if not in the actual sense then in dialectic understanding of human being?

Industrialisation creates a distracting effect on nature at the physical level, similarly it makes people's relation with nature more problematic. Despite that the ecology of Kostomuksha municipality satisfying the the needs of the residents, the industry has a clear ecological footprint in the municipality, which has been discussed earlier in this thesis. However, the residents of Kostomuksha did not correlate environmental issues of the municipality with industrial work, rather they saw them as two separate entities: Karelsky Okatysh is economic welfare and nature is a place to rest. This suggests that the residents divide their role as in two separate worlds of work and nature, however this is a challenging perception of where nothing can exist separately which is argued in both Heideggerian idea of being and in Marxist discussion on the environment and society.

Nevertheless, the residents have raised at least one environmental issue which was seen to be coming from the iron ore mining plant. The grey cloud is often noticed above the area of mining and the town itself. However, the main concern with the cloud appears to be not the physical consequences on the environment and health, but rather it is a concern about access to the sun. Here it can be observed that the residents place themselves before the nature, as people should be the target group for better

environment, whereas nature plays only an assisting role in satisfying human needs. Residents did not share experiencing any issues with water, air or soil, while the findings of scientific studies demonstrated that there are chemical imbalances that have an effect on the environment but not in a way where the biota rates are decreasing. So people can continue using the environment without experiencing any practical obstacles to it.

However, the most environmental issues that were raised by the residents are mainly connected to waste, waste which is visible to a human eye which entails its own practicalities as well. This opens up another important element in connection with nature about aesthetic perception. Kostomuksha residents carry a certain aesthetic concepts about nature characterization, not regarding the iron ore plant in this context. Question about nature definition reveals that nature is important and it is perceived in a positive way by the residents. Some interviewees described some of the attributes characteristic for wildlife, not adding a component about human presence, while others gave nature both essential and instrumental characterizations. Let me return back to the aforementioned "First, nature is the life!" by one of the interviewees, it is a very interesting poetic definition. For that interviewee nature is alive and nature is what lets people live. Essentially, deriving from the latter definition nature is the subject in human-nature relationship. Nature is what gives us physical and mental comfort. Moreover, a curious aspect with the nature definition is with the enlightenment, which also mentioned by the same interviewee. In Heideggerian perspective on human-nature relationship nature can no longer be a source of knowledge, because we can no longer know how nature can contribute to the creation of social knowledge, but with this empirical material it demonstrates that the nature can be in fact perceived as a source of knowledge production.

Moreover, residents of Kostomuksha while defining nature also point to the specificity of the northwestern climate of Russia, describing nature to be different between the yearly seasons. According to the interviewees nature is not something that stays still, it is changing autonomously from human influence. On the other hand, it showed that in many cases it was hard for the interviewees to place human in nature. Some of the interviewees mention harmony between nature and people, but they could not explain what harmonic relationship is to them. Phenomenologically this can be explained as a mode of unconcealment, the interviewees are socially different from what the nature can sustain, and if trying to imagine human being in nature it cannot create settings of a harmonic life, rather it is a pluriverse and dubious way of interaction. Nevertheless, harmony with nature is a romantic perception of what people define nature to be.

Kostomuksha is geographically remote place in the continental north. However, many residents of Kostomuksha come from various parts of the Soviet Union. Kostomuksha has a specific northern climate, which is becoming rare considering the environmental change. Most of the residents have lived in much milder climate in their pasts before moving to the newly built town, therefore the environment in Kostomuksha can be perceived as foreign by many of the residents. The old cemetery which was turned into the artificial basin does not represent a great cultural value, since the connection to the earlier settlements of village Kostomuksha had been lost throughout the critical history of that time. Moreover, the issue that is not brought up in the chapter with findings is that all of the interviewees consider being of Russian ethnicity, rather than specifying to be a Karelian, Mongol, Tatar, Uzbek and so on. The ethnic stories and traditions do not play a big role in this particular research and community, however it once again demonstrates that the residents associate their lives first with the time they are in at the moment rather than looking backwards at the origin.

The conditions of the northern climate are more in the centre of concern than the presence of the mine. The northern climate is heavy for many people to live in. The residents do not have much time to enjoy warmth throughout the year. Consequently, many people dream of their vocation to go somewhere where it is warm. This is addressed for instance in nature preserve workers' observations about how the residents spend their vocations. After a busy work year residents would rather like to change the

environment with some warm instances in it. Furthermore, talking about nature, residents do not only describe what they see in their environment but also add some foreign aspects to the specificity of the location, like for instance the sound of the sea or a characterization of a Spanish summer. This to some extent may be perceived as more familiar in residents' definition of nature than what is in the environment of the municipality, or it could be a representation of longing for milder environmental conditions.

The residents of Kostomuksha attribute several distinct roles to nature which also often contradict with each other. For instance, the residents believe that the nature in Kostomuksha satisfies their needs and if it sometimes does not the residents can manipulate their environment by going somewhere else, away from the ordinary environment. Similarly they are enstranging themselves from the environment they live in and they are not reaching belongingness with the other place. Overviewing on residents' distinct background and perceptions it can be concluded that people are not able to reach the whole interconnectedness with nature of current Kostomuksha as a community, but the starting point for this connection is the industrialisation, whereas the whole human-nature perception is formed around the life of an industrialised community. On the other hand people do attribute these immanent characteristics to nature that are necessary for human life, however they do it in a quite abstract way that is hard to place in particular narratives of the case.

7.3 Dwelling

Previous scientific research demonstrates that the environmental impact of the iron ore plant has its implications in Kostomuksha, however the environmental emissions are not so visible to human senses. This could be one of the reasons why the residents are not concerned about the environmental consequences of mining. Moreover, Severstal gives regular updates in the media about new technological implementations that does not only simplify mine work, but also reduce pollution rates, and Karelsky Okatysh is not one of the most harmful factories in Severstal's enterprise. Oppositely to the latter, the world's iron ore industry have been observed as one of the largest environmental pollutants in the world that contribute to the climate change. Remarking, this problem of the global environmental problems has not been picked up by the residents of Kostomuksha.

Questioning any environmental implications that could have been of concern to the nature reserve did not bring any contradictory responses. The nature reserve did not see Karelsky Okatysh as a threat to the local ecosystem. Karelsky Okatysh had been characterized as an assisting entity in preserving the good ecology of the municipality and in connecting the mineworkers with nature. Interestingly, here, the initiative for dwelling does not come only from the people, but it occurs with help of the company. Henceforth, this contributes to people's assumption that nature and the environment are not two different things since the landscape in the municipality ties nature to human activities. Dwelling is a fundamental process in the relationship between human being and natural beings, which is a human attempt to create the landscape that advocates for humanity's place in nature according to Heideggerian thought. In the case of the present research it demonstrates that dwelling can also be conveyed independently from individual input. Dwelling is a state of being that is adapted by the residents of Kostomuksha through a top-down process.

On the other hand, not only is Karelsky Okatysh creates the opportunities of dwelling for the community, but it can also be observed that the residents are the dwellers as well, that they attribute they life with the particular discourse of Kostomuksha. It might not be so obvious immediately in relation to nature, but in relation to their social and economic statuses. Looking back to Aristotle's discussion on *ergonomics*, (Heidegger, 1958, p. 15; Rentmeester, 2016, p.21) the term characterizes the nature of being as a working community, which is seen as the dominating dimension of being in the case of this study. Davies and Oliver (2018) demonstrates the importance of a sense of identity in an

industrialised community, which to a large extend is driven by the economy of the place. Consequently, the present research inherits a similar prospects on identity for the residents of Kostomuksha, however not on the individual level but rather as social dwellers. Unlike Davies and Oliver (2018) and Smit, Beer and Pienaar (2016) results the findings of this research demonstrate that Kostomuksha residents are not greatly concerned about the conditions at work nor about the social, economic or environmental conditions in the whole municipality. The residents of Kostomuksha have an imperious sense of belonging to a metallurgist working community, therefore the environment perceived by a resident is constrained in industrial settings. For them the iron ore plant is not seen to be as a destructive aspect of their nature-relationship, rather it is a contributing factor in creating particular landscape.

People overvalue the importance of an industry over nature, they know that in order to sustain their lives they have to extract iron, and since life in the centre of being, the environment which is perceived by the residents is dominated with presence of the iron ore plant. In other words, the landscape of Kostomuksha will not exist without presence of the mine. Consequently, the residents are dwelling nature in a manner which is not contradicting with benefits of having the industry in the environment. This also speaks to Norgaard's (2011, p. 148) concept of ontological security which suggest the people would protect their way of living even if they would need to deny the apparent consequences or conditions, because no other way of life can be seen. Residents of Kostomuksha do not falter in experiencing nature despite the industrial presence in the environment being evident. Moreover, the Kostomuksha nature reserve does not see any issues in preserving nature next to the industry. However, the major parts of the nature reserve territories cannot be discovered by the residents. Henceforth, the environment which is experienced in the municipality is full of anthropogenic factors, and not only of those caused by the iron ore plant's activity but also of people's everyday life.

The relationship between natural environment and the mine is epistemologically divided in the residents' perception of the reality, at the same time it unites in the residents' social being. In the perception of Kostomuksha residents the nature exists independently from the mine while the physical environment demonstrates the opposite. By putting nature and the industrialised environment into two different blocks, where the industry is the dominating discourse, the residents are systematically dwelling the social order of an industrialised community rather than the original essence of the natural environment which is also suggested by Heidegger's environmental thought.

Although the residents of Kostomuksha and especially the mineworkers experience some negative sides of the industry they still construct the life in a way that does not hinder them being connected to nature and also be a part of the industrial community. For instance, the mineworks can go for a walk in the forest after a dusty working day which similarly compensates the experience of the natural with the industrial. This suggests the relationship with nature is not required by the residents to be constant. In addition, health issues in relation to the environment that had not been discussed by the interviewees demonstrated that the workers were not so much concerned about the health risks as such, but rather about losing the material benefits that used to be distributed with the taken health risks working at the mining plant.

Dwelling is a process that is seen in Kostomuksha community that uncovers existential being of the people with social settings created to a large extent by Karelsky Okatysh. However, that being that is acquired by the residents is also constituted by industrial narratives of the place. The perception of nature is then affected by how Karelsky Okatysh dwells the environment for the residents. Henceforth, it is ambiguous to view human-nature relationship as independent from the social and economic framework of the place. The residents are dwellers of the industrialised town which provides with discourse of how to be good for the environment on a social level and on the environmental level as well.

7.4 Machine Fetishim

> Only by keeping Society and Nature analytically apart can we hope to progress in the demystification of that hybrid web in which we are all suspended, and which more than anything else obstructs our pursuit of relatedness: the realm of animated objects that we call technology. (Hornborg, 2013, p. 34)

Technological advancement of Karelsky Okatysh is a comforting discourse for the residents to support the mining processes, because it adds to environmental considerations for its metallurgy. However, in Hornborg's analysis, technology is the essence that distances people from the reality. The socio-environmental relations are no longer constructed by human beings, rather they are defined by the authorities who adapt the technological advancement. Marx explicitly speaks about the nation-state (Hornborg, 2013), but in case of the present study it is characterized in the municipal authorities' actions, like the town's administration and even the private enterprise Karelsky Okatysh.

Technology is not only a material tool to achieve certain productive ends, but it is also a discourse of what people believe in. Karelsky Okatysh demonstrates economic achievements and also participates in the adaption of environmental protection, moreover the company is quite vocal about its achievements in the environmental protection, in which technological modernization plays the essential role. Furthermore, from the answers of the interviews it can be claimed that the residents of Kostomuksha fully rely on the safety of technology when it comes to the environmental protection issues. Consequently, technology becomes imperative in human social cognition forming people's unconcealment of other ways to perceiving the issue (Heidegger, 1977). Frankly, this technological compulsion indicates machine fetishism (Hornborg, 2011), to which people appropriate the agency of true being. Consequently, the perception of nature is affected by the attributes of the technology, whereas the exploitive relation towards nature is taken for granted if the technology is involved. Moreover, these exploitations are not seen as exploitations in the residents' perspectives, it is rather a normal set of order for economic but authentic being, authentic because of the iron ore history of the place, economic because technological utilization (Hornborg, 2011) is a part of large economic utilitarian system.

Moreover, a long industrial history of Russia carries the essence of technology that is a part of nearly every person's reality. Soviet economic development was led by 5-year plans and the population had an important role in achieving those. Henceforth, the interaction with technology got integrated in social relations in order to enhance the process. Economic along with social and environmental implications of an industrial society are enframed in technology due to individuals' perception in the era of technology.

As Hornobrg (2011) suggests that the reliance on technology in the contemporary times speaks to Marx's concept of fetishism of money and commodities that obscure any other social relationship. With this emerged alienation between the labour and the products (Hornborg, 2011, p. 27). Therefore no matter what is produced by the iron ore mining plant the residents do not associate that with their being, it is a separate process that is basically not up to them to decide. However, the residents still need to preserve their roles in the local economic system as workmen, since this is an inevitable role of the working class society in a utilitarian regime. The average citizen of Kostomuksha is a worker, and this puts limits on any other forms of being, like natural and social being. Therefore for example, some of the residents mentioned that there is not enough time for social activities in the life, or there is not enough time to think about the environment, there is simply lack of room in a worker's life to consider other forms of being.

Technology, which takes place in industrial development of iron ore extractions, brings economic life to Kostomuksha, which supports the material well-being of its residents. Now the residents in the presented environment can extract and sell more than it used to be done in village of Kostomuksha. On the other hand, this reliance on technology creates epistemological gaps, of how technology can be contradicting with the natural environment, in social interaction where people become alienated from

what is original being suggested by Heidegger (see section Dwelling). Hence, the relationship with nature and environment is an articulated phenomenon of people's deceiving consciousness affected by the technological representations in the environment. Similarly is also discussed in Nilsson's (2010) study suggesting that technological rationality is the leading term for social acceptance of the industrialised environment.

8. Conclusion

People's perception of environment and nature is an interactive process where the environment is perceived as it is socially constructed and where the perception of nature can never be wholly true. In the case of Kostomuksha community perception of the environment and the nature implies a number of aspects and conditions. The focus of this presented thesis is in critical realist method along with phenomenological approach to explore perceptions of an industrialised community. I followed Heideggerian thought of being in technologically advanced time exploring the discourse of Karelsky Okatysh as the dominating discourse in the community.

Nevertheless, nature carries its certain meaning for the residents independently from the iron ore plant but also with relationship to iron ore extraction, which is seen as a natural process of being that does not contradict with natural limits. The residents acquire this dualistic position towards nature, where nature is something to be preserved from anthropogenic impact and where nature is something to be exploited. The whole emancipation from the contemporary social order of economically utilitarian system cannot realistically occur in such community like in Kostomuksha, therefore human-nature relationship is vulnerable to which type of the environment is to be dwelled. It is unavoidable to give more significance to the exploitative relationship with nature in this context, because it provides to the economy of the town, and many will not see the place without the industry. The iron ore industry is part of a larger contemporary world structure, in which people experience it to be a must in order to preserve their welfare. Moreover, the company represents itself as a sustainable industry with minimum damage to the environment by taking care of the workers and advancing technological equipment. Technological assessment is what people rely on nowadays, considering technology as a solution to any practical and theoretical inquiries in human life, which is also demonstrated in the particular case, therefore it leads to people's unconcealment and machine fetishism. It can be also linked to my own observation about the use of cars in Kostomuksha, there cars are not only like machines but they become part of the society.

On the other hand the residents could feel different about technology in constructing the natural environment if this was failing or not efficient enough (like in Vologda), as industrialised presence and its negative consequences would be felt more. Perhaps then people would associate with the relationship between the natural environment and the mine in a different sense. Furthermore, the residents are shared with these other discourses of industrialised lifestyle and they can compare and contrast their conditions living in a remote, greenery and snowy place with what is happening in bigger industrialised centres, which then also contributes to positive attitudes about their environment. Henceforth, as long as the negative environmental effects are not felt by the population, the industrial reality of Kostomuksha that contributes to climate change and extracts from nature co-exists with the residents dwelling with nature, as if in parallel worlds.

This thesis focuses only on the community within the town of Kostomuksha, whereas the surroundings of the areas, surrounding villages and communities, were not investigated, which environment can be contradicting more with the industrial landscape. People living in Kostomuksha have an urban, industrialised lifestyle, and the residents of the rural communities could have brought another

dimension to the studied phenomenon of their environment and nature perception. Moreover, it would be interesting to conduct a research comparing several industrial community in different part of the world. Nevertheless, this research is about the industrial impact on the essence of human being in relation to nature and environment illustrating how the modern world's settings distance the human being from nature, similarly creating a new natural environment adjusted to economic and social structures of modern being, which could be a starting point for me or any other interested in this topic to study more on various theoretical perspectives that could be considered in future research.

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