

MASTER THESIS

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Candidate name: Marat Tukhvatullin

Norwegian-Russian petroleum cooperation in the Barents Sea in the Arctic context.

Comparative analysis of different views

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Summary

Norway and Russia have been developing relationships in the Barents Sea for many years. Besides substantial fish stocks available in the area, according to estimates, this part of the High North holds huge petroleum reserves. However, not the whole territory of the Barents Sea was opened for economic activity due to presence of the border dispute between the states until the recent times. As far as Russia (then the Soviet Union) and Norway adhered to the different principles of maritime border delineation, the ownership of the zone of around 170.000 km² area was disputed by countries.

However, after almost 40 years of bilateral negotiations and consultation, in 2010 the border dispute was finally resolved, when Norway and the Russian Federation signed the Treaty Concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean (the Murmansk Treaty). The Treaty was optimistucally welcomed by many observers in both countries, especially by oil and gas industry representatives, as far as it opened new opportunities for petroleum development in the Barents Sea. The provisions of the Treaty prescribe to initiate unitization process in case a trans-boundary petroleum field is discovered.

The Murmansk Treaty entered to force in 2011, however the level of the Russian-Norwegian petroleum cooperation has been rather passive for almost six years. This Master Thesis aims to get an understanding of the processes happening in the Barents Sea region from the perspective of Norwegian and Russian experts from oil and gas sphere. The final analysis may allow to shed a light on a number of uncertainties associated with petroleum activity of Norway and Russia in the Arctic region.

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Marat Tukhvatullin

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1. Introduction

1.1. Motivation for research

A master thesis, as well as any other research, first of all has a goal to discover an answer to topical and previously unaddressed questions in order to shed a light on a number of other new issues, which will inevitably emerge after the former problem is solved. This especially regards social sciences, because exploring a human nature is indeed an endless process, since motivation of people's behavior and actions depends on a very wide range of various factors. Probably, we are destined to fail to get the finite answers to our questions ever, however the very this fact, this permanent principle of knowledge's conception, makes the process of discovering a truth such an exciting adventure.

This research is devoted to analyzing people's thoughts and opinions about Norwegian-Russian energy cooperation in the High North. Considerations of people, who have been engaged in oil and gas industry in both countries for many years and who have obtained broad experience and outstanding expertise in their field. Nevertheless, in order to find a truth, it is not enough to review positions of the professionals only on the axis "Norwegians - Russians". Any petroleum project, especially a huge one and initiated in such a challenging region as the Arctic, requires involvement of a vast number of stakeholders. Therefore I found it crucial to discuss this topic with representatives of two professional spheres – academic and industrial. An approach based on two-level analysis, which includes national and professional factors, can help to build a more comprehensive picture.

The title of the master thesis itself is entangled with a bulk of uncertainties and controversies. Let's consider first "where" question – the High North. The region is generating more and more interest among state and private actors all around the world, even distant Asian countries such as China have ambitions in the Arctic (Liu, 2016), so there is no room for doubts that not only the Arctic countries intend to play role in the north agenda today. The High North region is indeed enormous in terms of area it covers and the meaning it holds for our planet. Current decisions made in the Arctic will inevitably have huge economic, political, environmental and a number of other consequences for the future generation. And yet there is still no clear answer regarding the Arctic - neither from geological, nor from geopolitical perspective. Five Arctic coastal states are currently defining the borderlines of their respective sectors in the Arctic Ocean - The United Nations' Commission on the Limits of the

Continental Shelf is considering the Russian Federation's claim to extend its continental shelf including Lomonosov and Mendellev Ridge, as well as Denmark's (Greenland's) request regarding the North Pole (Pettersen, 2016). The only comprehensive governing international body in the region – the Arctic Council – has a limited authority to solve a wide variety of hot issues in the region; as a forum for discussions it can provide recommendations to participating members, but lacks to enforce stakeholders to act, or to prohibit some actions. And probably the most challenging and controversial question, which is put on the line today: to develop economically this northern bonanza, or to keep the last pristine piece of our nature for the future?

The answer to the question “what” is energy cooperation. First and foremost, it regards petroleum, and not only in the High North, but globally as well. Oil and natural gas are the most traded commodities in the world nowadays, and there is no need to specify the scope of implications that petroleum has for the global economy. However, various stakeholders regard the most applied and traditional source of energy differently, and the relation to oil is quite controversial. *“It is essential but the world loves to hate it [oil]”*, – said J. Hofmeister in his book (Hofmeister, 2010; cited by Goldthau, (ed.) 2013). Two questions are frequently raised lately: “do we have enough oil?” and “if yes, do we need it any more at all?” A current tendency, demonstrating an incremental shift from fossil fuels exploitation towards development of alternative and environment friendly energy sources even among crude exporting states – in Norway 99% of electricity is provided by hydropower (Coleman, 2016) - proves the assumptions that petroleum is a key resource today, but probably not tomorrow. Moreover, despite oil and gas activity is associated with extremely high incomes, it is also a very unpredictable industry – economical, political, geological, technological and other risks follow petroleum project of any scope and significance. Hence, we need to find out the place of oil and natural gas in our future.

The third aspect of the research regards the parties, which are reviewed in the study – “who”, or Norwegians and Russians. First of all, it should be mentioned that relationships between the two states represent a unique case in a world history. Both Norway and Russia have witnessed periods of glory and grief, prospering and challenging times throughout more than 1000 years, but have stayed peaceful neighbors during all these centuries. In fishing industry the countries have always been good partners. Despite the existence of distinct state positions on a number of international issues and some disagreements concerning the ways of resolution of certain disputes, Norway and Russia have always demonstrated a willingness to

solve problems in the most efficient manner through negotiations and mutual respect, thus making “win-win” deals even in very complex cases. The most recent of them – Murmansk Treaty on Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean (“Murmansk Treaty” hereinafter) – is a vivid example of a successful diplomatic solution, which was achieved with regard to a longstanding and complicated quarrel between two countries (regjeringen.no (1), 2010). The Barents Sea is playing a key role in this research, because it is believed to become a door opener for the further economic development of oil and gas resources in the High North, hence the implications of the abovementioned Norwegian-Russian agreement cannot be overestimated. However, in spite of the fact that Murmansk Treaty was considered a breakthrough in the international legal practice and made the Barents Sea, namely the previously disputed zone (PDZ), very lucrative and promising area for the further cooperative hydrocarbon development, practically nothing has been done there within almost seven years that have passed as of now. So the question is whether anything will happen there ever.

We have answers on the questions “who”, “what” and “where”, although these answers are not clear and require an analysis based on the discussions with various stakeholders of both nationalities and of different professional spheres. But there are also two important factors that should be examined additionally – “when” and “how”. Indeed, these two questions are especially topical now, given the current freezing in bilateral energy cooperation in the Barents Sea between Norway and Russia.

1.2. Background of the territorial dispute

In 1982 the United Nations established an Act that was destined to resolve the issues and disputed occurred on the seas – UN Convention on the Law of the Sea (UNCLOS). The Convention came to force in 1994 (UNCLOS). Nevertheless, some countries have not joined the UNCLOS.

However there is a controversy emanating from the legislation of the Convention. According to the Article 15 of Part II: Territorial Sea and Contiguous Zone states that: *“Where the coasts of two States are opposite or adjacent to each other, neither of the two States is entitled, failing agreement between them to the contrary, to extend its territorial sea beyond the median line every point of which is equidistant from the nearest points on the baselines from which the breadth of the territorial seas of each of the two States is measured. The above*

provision does not apply, however, where it is necessary by reason of historic title or other special circumstances to delimit the territorial seas of the two States in a way which is at variance therewith". So the main recommended principle to resolve maritime disputes is «median line». However, the term «special circumstances» makes the rule ambiguous and excludes an opportunity to exercise above-described law in all-inclusive way. Initially two countries used different approaches to the problem of delimitation. Norway has argued that the «median line» principle must be a guiding tool for such kind of quarrels resolution. And Norway actually exercised this principle to delimit maritime boundaries with a number of states in the North Sea.

At the same time the Soviet Union insisted on the «special circumstances» of the issue. The Soviet negotiators suggested to divide the area in accordance with «sectoral line» - the line that stretches from the previous Western state border along the meridian up to North Pole. This line was drawn in 1926 as a part of a decree in accordance to which some particular islands belong to the Soviet Union (Timtchenko). Another circumstance that the USSR appealed to pay attention on is the level of development of northern regions of Russia and Norway and respective differences of these areas. Norway claimed that only geographical aspect must be taken in account within the discussions of the Barents Sea delimitation and other circumstances connected with population size, economic development and other conditions are insignificant in the case.

Nevertheless, the final line under this of more than 40-years long dispute was drawn quite unexpectedly. The breakthrough was achieved during the official visit of the President of Russian Federation to Norway on 27th of April in 2010. The Ministers of Foreign Affairs have signed a joint statement that announced the preliminary agreement reached by negotiators concerning the issue of delimitation in the Barents Sea. Later the same year on 15th of September the Russian President Dmitry Medvedev and Norwegian Prime Minister Jens Stoltenberg signed the agreement on the ceremony in Murmansk

1.3. Problem statement

As it was discussed above, the aim of this research is to review judgments of different stakeholders concerning partnership between Norway and Russia in the petroleum sphere in the Barents Sea, especially in the PDZ, and then to illustrate a broad picture of the current climate regarding the stated problem in various professional circles by making a comparative analysis.

Hence, the research question of the thesis is:

“What is the understanding of academic and industrial actors in Norway and Russia with regard to cooperative development of Barents Sea O&G resources?”

The research is conducted on two axes: “Norwegian - Russian” and “Industry - State”. This two-level approach can be used as an effective tool in order to find out, whether there are more similarities and differences in stakeholders’ viewpoints depending on their nationality or professional background.

1.4. Outline of thesis

The master thesis includes five parts, namely:

- **Chapter 1. Introduction. Problem statement.** The first part of the thesis aims to explain the motivation for research and to justify the significance of the study. It also presents the background of the issue and states the research problem.
- **Chapter 2. Theoretical framework.** The second chapter specifies the theories, which are applied in the research, and proves advantages of handling the selected frame of reference for the thesis.
- **Chapter 3. Methodology.** This chapter describes the methodological approaches used in the study: research philosophy, research design, applied methods and data collection.
- **Chapter 4. Empirical part.** In this part the results of interview discussions with experts are described.
- **Chapter 5. Analysis. Conclusion.** The final part of the thesis is devoted to the analysis of the gathered data and making some conclusions with regard to potential Norwegian-Russian petroleum activity in the region based on information received within the research.
- **Appendices.**

2. Frame of reference

In order to collect empirical data and afterwards analyze the findings, there is a necessity to refer to established theories. While natural science laws are constant and firm, in social sciences we have the theories, which can be quite changeable and flexible depending on the case they are implemented in. Hence we have an opportunity to use the chosen theories as a set of “lens” in our scientific “glasses” with the purpose to approach to the research problem in the most efficient and detailed manner.

2.1. Stakeholder theory

“We can be the generation that makes business better.”

R. Edward Freeman

A modern economic map of the world is far from being homogenous - there are countries with developed economies, economies in transition and developing economies (un.org, 2014). However it would be fair to say that markets of the majority of states are based on principles of capitalism today. In some places it works successfully, in others - not that much. Nevertheless, the ideas suggested by an outstanding economist and philosopher Adam Smith in 1776 in his book *Wealth of Nations* serves as the main footing for a present market-oriented economy. Considered to be the founder of modern capitalism, he presented the general concepts of the competitive economy, namely the notion of “invisible hand”, the advantages of free market with low level of government’s involvement and the idea that every individual can make the best contribution in the prosperity of a society by working hard and pursuing his personal gain (Smith, 1776).

The industrial boom that happened afterwards at first in a number of European countries and then in other parts of the world, as well as a rapid development of electronics, digital and robotics technologies at a later time, were mostly caused by innovations proposed by individuals. In the environment of an ever-increasing and fierce competition people did their best in order to offer the most efficient and attractive idea, product or service for the sake of getting a maximum possible gain. However, by the end of the 20th century, while new forms of business have evolved, cutting-edge technologies have been continuously emerging in all spheres of industry and people obtained unavailable previously knowledge and tools, it became clear that the traditional paradigm, based on the idea that cash is the only target of

business activity, is too narrow and archaic. The concepts of *profit maximization* and *strong competition* must be replaced or supplemented by a new approach.

R. Edward Freeman suggested an alternative view on the goals and factors, which business should take in account, in his seminal book *Strategic Management: A Stakeholder Approach* in 1984. Presented *stakeholder theory* explains the existence of a wide variety of actors, who are also involved in the business process besides the company itself, and emphasizes a necessity to pay attention to all stakeholders and not neglect their interests. Employees, costumers, suppliers, communities, investors, rivals and many other parties are tightly interconnected with business operation (Freeman, 1984). According to Freeman, the corporate approach based on the aspiration to maximize profits of the organization no matter what tools are applied, is outdated, and not only shareholders and financiers should have an opportunity to enjoy the value created thanks to business activity (stakeholdertheory.com, 2014).

One of the reasons, why this concept was successfully admitted by the society, lies in people's awakening of the distractive nature of some forms of business and in the willingness to set some limits for corporations on their way to get as much money as possible from the operation. Bad labor conditions, pollution of the environment and oppression of local inhabitants must not become a sacrifice only for the sake of increasing a share of corporations. Of course, taking in account a number of stakeholders is a task, which requires additional efforts, time and funds from the business. Nevertheless, such multilateral approach can be more than useful in a longer time perspective. So in this part we refer to a concept of *sustainable development*.

The notion was for the first time introduced by Bruntland Commission's (formally *World Commission on Environment and Development, WCED*) report *Our Common Future* in 1987 and is defined as "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (United Nations General Assembly, 1987; cited by Emas, 2015). This approach implies an importance of our commitment to continue the current economic development in a responsible and rational manner by keeping the environment clean and limiting the scope of natural resources' exploitation in order to provide enough opportunities to develop to the future generation. In other words, while enjoying the nature's bounty today, we also need to care about tomorrow.

This especially regards oil and gas industry due to a number of reasons. Fossil fuels are finite, petroleum is non-renewable source of energy, hence the more we extract now, the less we will

have afterwards. Oil, natural gas (to some extent) and the petroleum industry itself negatively influence the environment in the process of production – earthquakes caused by hydraulic fracturing in addition to air and water pollution associated with shale gas development (nrdc.org, 2014) – as well as in the form of refined products by emitting CO₂ gas in the atmosphere. Moreover, no major can be secured against an accident on offshore platform or floating tanker in the sea, which can cause unrecoverable consequences for the ecosystem.

No doubts, the Arctic is the most controversial region in this respect – the last ecologically clean area on the planet holds enormous petroleum reserves and currently is dramatically melting due to the climate change, which in turn is caused by antropogenic activity, namely greenhouse gas emissions. On the other hand, ice melting opens new logistic opportunities for shipping and economic development (North-East and North-West Passages), which in turn increases a risk of crude spill in the High North.

Therefore there is no common view with regard to the Arctic future; a lot of stakeholders get inevitably involved in any business activity initiated in the region, whose interests should be taken in account.

2.2. Strategy

A business initiative should be primarily thoroughly reviewed in terms of its viability. A plenty of internal, as well as external factors, influence a project, so the management should be ready to face as many as possible of them in order to achieve the planned level of performance. Hence building an incremental tactics of activities for the short time perspective and comprehensive strategy for a long term is crucial.

There is a huge number of various marketing theories, which have been developed in business sphere, however a SWOT-analysis is considered to be the most applicable and useful in the given research thanks to its flexibility, simplicity and comprehensiveness.

According to the *businessdictionary.com* SWOT analysis is a “*situation analysis in which internal strengths and weaknesses of an organization, and external opportunities and threats faced by it are closely examined to chart a strategy. SWOT stands for strengths, weaknesses, opportunities, and threats*”.

This strategic approach, designed for evaluating environment inside and outside of a business project, is widely used in practice; SWOT-analysis is one of the subjects, which any student

studying management and marketing would hardly avoid to face while passing exam at school. Despite its popularity, there is no common opinion regarding the origin of the notion, but it is believed that for the first time it was mentioned and implemented in 1960s (Helms & Nixon, 2010).

Potential Norwegian-Russian petroleum cooperation in the Barents Sea can be efficiently examined in the framework of the strengths-weaknesses-opportunities-threats matrix, since a management team of any business project in the region will have to envisage a plenty of factors in advance. There is also an important concept that cannot be neglected while building a business model for designing a petroleum initiative in the High North - corporate social responsibility.

P. Kotler,

D. Hessekiel and N. Lee define this notion as: *“corporate social responsibility (CSR) is a commitment to improve community well-being through discretionary business practices and contributions of corporate resources”* (2012). Today the implementation of CSR commitments is playing a crucial role in companies' agendas.

2.3. Climate change

The issue of climate change is one of the topical contemporary problems in the world, which is actively debated. The Earth is getting warmer. According to IPCC's (Intergovernmental Panel on Climate Change) Climate Change 2014 Synthesis Report *"Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems"*.

Indeed, a number of sources, including the abovementioned organizations, confirm that the global warming process has been dramatically intensifying on the planet since the beginning of the industrial era, and its consequences, namely the climate change and sea level rise - from 1901 to 2010, global mean sea level increased by 0.19 m (IPCC, 2014) - can have an unrecoverable effect.

An accelerated economic development and rapid world's population rise within last two centuries increased the level of carbon dioxide emissions in the atmosphere, thus inducing formation of greenhouse effect. Although the global society has recognized the seriousness of the radical climate change and antropogenic contribution in the global warming, the common

solution cannot be achieved in a simple way. The level of greenhouse gas emissions in the air depends on the rate of the energy consumption in countries, which in turn is explicitly interconnected with population growth and economic progress. While modern developed states have changed their policies regarding domestic energy consumption approach and shifted from coal to oil by the end of the last century and now are moving towards using only ecologically clean sources of energy, such as natural gas and renewables, countries with emerging and developing markets primarily has a goal to satisfy domestic economic growth and cannot consume only costly alternative energy sources.

Today the United Nations Framework Convention on Climate Change is a platform where these issues are mostly discussed. Kyoto Protocol (1997) recognized the responsibility and role of developed countries for the consequences of greenhouse gas emissions and imposed certain constraints on them in accordance with a principle of "*common but differentiated responsibilities*" (unfccc.int (1), 2014). Paris Agreement (2015) obliged its parties, including the developing countries, to make common efforts in order to take under control the rate of global temperature rise (unfccc.int (2), 2014).

Nevertheless, some scientists and stakeholders deny the argument that a human is mainly responsible for the climate change. It is considered that a current global warming is just another period in a cyclic development of the Earth; age of global warming follows global cooling in sequence and this natural process is not affected by human's activity.

2.4. Unitization procedures

Since the Murmansk Treaty signed in 2010 is a starting point for the research, it is important to realize the implications of this agreement and the opportunities it provides. The document was prepared by diplomats from both parties and covers a number of issues connected with Norwegian-Russian relationships in petroleum and fish industry, however one mentioned provision in the treaty plays a special role in potential energy cooperation between the countries, namely the Article 5. In particular, part 3 of this Article says: "*Exploitation of any hydrocarbon deposit which extends to the continental shelf of the other Party may only begin as provided for in the Unitisation Agreement*" (regjeringen.no, 2010).

The *unitisation* term is actually not used in legal practice oftentimes, that is why the mechanism of its implementation is not elaborated perfectly. Nevertheless, it is the tool that

can be used in order to start and develop Norwegian-Russian petroleum project in the PDZ of the Barents Sea. One of the special features of the above-described agreement lies in the area where a new borderline was drawn; although the line divides a previous “grey zone” on two similar parts on the surface, the geological boundaries of petroleum reserves underneath are different, or in other words, offshore oil and gas fields in this area belong to both states. However, respective volumes of crude are dispersed in different proportions, so each party has its stake in a hydrocarbon reservoir, which is bigger or smaller than another. However, no matter how the reserves are apportioned between parties, none of them can start exploration and development of oil or natural gas field autonomously. Countries sharing petroleum resources should first negotiate and agree on the respective geological proportions of the common reservoir, as well as on the profit stakes that each party will receive after the crude is encashed. Moreover, development of the reservoir in an unilateral manner is unacceptable, because all the volume of oil and natural gas may be pumped out by one party, since gas and fluids can migrate from one part to another.

The very approach based on the collaborative development of common hydrocarbon reservoir as one *unit* is dated back to the beginning of the 20th century, when petroleum industry was actively prospering in the USA and plenty of oilmen drilled wells around the whole country. Prior to that the main principle that landowners followed was a *rule of capture*, according to which “*the owner of a tract of land acquires title to the oil and gas which he produces from wells drilled thereon, though it may be proved that part of such oil or gas migrated from adjoining lands*” (Hardwicke, R. E. 1935; cited by Chooramun, R 2014)

Norway has an experience of successful conclusion of unitisation agreement with the United Kingdom in the North Sea with regard to cooperative development of Frigg and Statfjord petroleum fields. However, it does not mean that these solutions can be duplicated in Norwegian-Russian case due to the different approaches that the countries take in resource and project management. Unitisation agreement is unique in each individual case.

In accordance with the alternative option, each party has a right to sell its own share to a counterpart by one-time payment.

3. Methodology

This part of the thesis is devoted to specifying of a methodological approach applied in the research, data collection and analysis methods and justification of the selected scope of study. There is a vast number of various techniques and tools that can be handled within the

framework of the research in order to achieve a stated scientific goal, especially in social science. Nevertheless, it is important to select an appropriate set of methods and approaches to find a truth in each particular case.

3.1. Research philosophy

First and foremost, I need to define the research philosophy, which I adhere to in the study. There are two fields of philosophy: *ontology* and *epistemology*. According to Easterby-Smith et al., ontology can be described as philosophical assumptions about the nature of reality, while epistemology represents a general set of assumptions about ways of inquiring into the nature of the world. In other words, ontology helps us to find an answer to a question “what?”, and epistemology – “how to learn it?”.

In turn, both philosophical studies are divided on several scientific approaches. Two main ontologies are *realism* and *relativism*. A traditional realism considers that the world is concrete and external, and the science can progress only through observations that have a direct correspondence to the phenomena being investigated (Easterby-Smith et al., 2015). Realists insist on the objective view on the phenomena and argue that there is only one truth. This view is commonly typical for natural scientists. In contrary, relativism emphasizes that scientific laws are not simply out there to be discovered, but that they are created by people (Easterby-Smith et al., 2015). Hence, relativists tend to adhere to a subjective approach to a phenomena and consider that a truth cannot be single because it's observed by different people from various angles. As far as this research is conducted in the field of social sciences, it is necessarily to note two more types of ontology, namely *internal realism* and *nominalism*. In a nutshell, internal realism differs from a traditional realism, because the former one agrees that the truth exists, but it is obscure, and facts are concrete, but cannot be accessed directly, while nominalism argues that there is no truth at all and facts are just human creations (Easterby-Smith et al., 2015). So, internal realism is a sort of a “milder” version of a traditional realism, although sticks to the general idea of the paradigm. According to nominalists, it is people who label various events and processes around us by handling knowledge and experience, so it is interesting to observe why and how people group phenomenon. Nominalism represents an extreme form of relativism.

With regard to epistemological theories, there are also two main philosophies: *positivism* and *social constructivism*. According to Easterby et al., the idea of positivism is based on the

assumption that social world exists externally, and that its properties can be measured through objective methods rather than being inferred subjectively through sensation, reflection or intuition. Correspondingly, a social constructivism implies an opposite approach, that many aspects of “societal reality” are determined by people rather than by objective and external factors (Easterby-Smith et al., 2015). Positivists are convinced that a phenomena should be observed distantly and independently by a researcher, otherwise collected data is irrelevant, when social constructionists argue that a researcher has to become a part of the study and this is the only way to discover the truth, especially in social sciences. There are also radical versions of abovementioned epistemologies, that is, *strong positivism* and, respectively, *strong constructivism*.

There is an obvious correlation between internal realism ontology and positivist epistemology on one hand, and relativism and social constructivism on the other hand. Nevertheless, no study is conducted in strict accordance with a single philosophy, since oftentimes a researcher is destined to look at the problem from different viewpoints. However, this particular research has an aim to discover a truth through a direct involvement of a student into the subject matter. A limited number of cases is required in order to make an inductive analysis and then build a broad picture of events. The research question of the master thesis “*What is the understanding of academic and industrial actors in Norway and Russia with regard to cooperative development of Barents Sea O&G resources?*” implies an attempt to find an explanation of the phenomena and to generalize the research results afterwards. People’s opinions and viewpoints are considered as a key factor in the problem’s examination, therefore a scientific paradigm based on relativism and social constructivism is selected as the main research philosophy of the study.

3.2. Research strategy and design

Before conducting research, a strategy must be built. Primary and secondary data will be gathered within a study. Among a huge number of various scientific methods, such as action research, cooperative inquiry, archival research, ethnography, narrative research, case study and grounded theory (Easterby-Smith et al., 2015), there are two of them, which are relevant and topical for given research – *case study* and *archival research*. The latter one will support and justify the data collected within a case study.

A case study looks in depth at one, or a small number of, organizations, events or individuals, generally over time (Easterby-Smith et al., 2015). By addressing several cases within a framework of the research, I will be able to make a comparative analysis of viewpoints. Through making an archival research, I plan to collect a secondary data. The main source of this information is national Arctic strategies of Norway and Russia.

In order to find an answer to the research question, empirical study is required. There are three research approaches used in this case: *quantitative*, *qualitative* and *mixed*. According to Johnson & Christensen, a pure quantitative research relies on the collection of quantitative data (i.e. numerical data), while a pure qualitative research relies on the collection of qualitative data (i.e. non-numerical data, such as words and pictures) and follows the other characteristics of the qualitative research conditions, in which the experimenter randomly assigns participants to groups, manipulates only one factor, and then examines the outcome. Hence, in accordance with preferred scientific paradigm, gathering and analysis of qualitative data is required for this research.

Interaction with a research participants will be implemented via qualitative interviews. Depending on the conditions, interviews will be conducted in a face-to-face regime, if a respondent resides in Moscow, or remotely. First of all, I invite potential respondents to take part in the research via e-mail correspondence. In case of a positive reply, I send an interview guide to participants in order to introduce them a topic of coming discussion and leave some time to prepare answers. The interview itself will be recorded for the further transcript and analysis only after the respondent confirms his consent. Otherwise, necessary notes will be made during the interview process without recording. Anonymity of a respondent will be also discussed before the interview.

With regard to the structure of the interview, as suggested by Easterby-Smith et al. *highly-structured*, *semi-structured* and *unstructured levels*, it is preferable to opt for a semi-structured type of topic guide for the sake of more flexibility and having opportunity to transform a questionnaire during an in-depth conversation, if required.

The scope of the research involves participation of ten Russian and Norwegian oil and gas industry specialists. Information received from the conversations with interview respondents, as a primary data, will reflect the main tendencies and viewpoints in various professional circles concerning the issue of cooperative petroleum development of trans-boundary resources in the Barents Sea. The research will be conducted in two dimensions, that is, the

analysis will be made given nationality and profession of a participant. Hence, besides the axis “Norwegian - Russian”, there will be another one “Academia – Industry - State”. Thus, the goal of the study is to understand attitudes to the above-stated problem given not only feedbacks of respondents from Russia and Norway, but also viewpoints of researchers, industry representatives and state authorities, albeit it is the same people. This “two-level” approach will help to avoid biases while making analysis of answers.

Another condition, which will also increase a credibility of the research, is invitation of two people in each interviewed group, that is, two Norwegian researchers and two Russian researchers and two Norwegian and two Russian industry representatives.

Research participants are outstanding and widely recognized professionals in the oil and gas industry. Most of them have experience of operating in both Norway and Russia, not to mention other parts of the world. They also have a rich expertise with regard to the topic of Arctic energy resources development, in particular in the Barents Sea.

The interview guide is built on the theoretical framework, which includes stakeholder theory, strategy, climate policy and unitization procedures. A goal is to understand what has happened in the region since the Murmansk Treaty was signed in 2010 and what may happen there in the future.

There are three types of research design: exploratory, descriptive and explanatory. In this research it is reasonable to use mainly descriptive approach with some exploratory elements.

4. Empirical part

The empirical part of the paper represents the data gathered within the research. As it was mentioned in the previous chapter, I am referring to discussions with interview respondents, so the review of the collected information will be detailed below.

The views of interview participants on a number of related issues, specifically on the current state of petroleum industry on regional and global scale, on climate policy, on the perspectives of Russian-Norwegian relationships in the Barents Sea, on the role of the stakeholders in the Arctic petroleum activity and on the potential of unitization agreement's conclusion, are introduced.

4.1. Presentation of interview respondents' viewpoints

This master thesis is primarily based on the qualitative research conducted through in-depth interviews with acknowledged and experienced representatives of petroleum industry from Norwegian and Russian sides. The initial interview guide included five thematic blocks listed below, however, given different background and expertise of the research participants, it was rational and topical to transform questionnaires to some extent for each particular case.

Such flexible approach allowed me to put additional specific questions to different professionals and receive interesting and crucial answers, which contributed significantly in the research. By contrast, in other cases we discussed a limited number of issues with respondents, however we immersed deeper in some particular subjects. For example, while talking to supply industry representative, we generally touched upon the issues concerning the contractors' activity on a local scale.

4.1.1. Norwegian researchers

Expert: *Ove Tobias Gudmestad*

Place of residence and work: *Stavanger/ Tromsø/ Moscow*

Professional sphere: *Marine Technology, Arctic Technology*

Professional background: *Professor Gudmestad has been working in the oil and gas industry since 1975. He worked in Statoil company from 1975 to 2008 and has been professor of marine technology at the University of Stavanger since 2008. Professor Gudmestad is also adjunct professor at the University of Tromsø and visiting professor at Gubkin Russian State University of Oil and Gas (Moscow), where he was granted an honorary doctoral degree in 2002. He has published a number of papers and books devoted to the Arctic offshore technologies.*

Current position: *Professor.*

Expert: *Arild Moe*

Place of residence and work: *Oslo, Norway*

Professional sphere: *Oil and gas industry. Norwegian and Russian Arctic policies.*

Professional background: *Arild Moe has been working in the petroleum sphere for more than 35 years. His research interests comprise Russian and Norwegian petroleum industry, in particular in the High North, including oil and gas offshore activities in the Barents Sea. Mr. Moe also studies Arctic policies of different countries, Arctic shipping and climate change issues. A huge part of his research activity is devoted to the analysis of Russian energy sector.*

Current position: *Senior Research Fellow at Fridtjof Nansen Institute.*

Prospects of petroleum industry in the High North

The first part of the interview was devoted to the discussion of several questions of a general nature in order to get an idea of respondents' viewpoints regarding the oil and gas industry in broad terms and in the Arctic specifically. Given the current fluctuating character of price environment in the petroleum market, I wondered whether it is caused by the traditional shifts in "supply - demand" link, or this process has another implicit explanation. Professor Gudmestad responded that these processes are *natural in a "supply and demand" cycle* and noted that the prices are actually not low - there is a direct correlation between the earnings

and costs. Mr. Moe argued that the price environment in petroleum market depends on many developments and there is no a single explanation of the events in the market, therefore it is difficult to make predictions regarding the oil price level. However, he emphasized the increasing role of unconventional energy resources, particularly of shale gas and tight oil, and its impact on the global crude prices: *“Shale oil and gas production is quite flexible. For example, there are a lot of shale projects in the USA, which are shut down, but then they can be turned on again, if the price increases.”* With regard to the so-called “end of petroleum era” assumption, the expert questioned the possibility of oil disappearance, although noticed that due to some current technological trends and potentially stricter climate policy rules, oil may be less enrolled in 30-40 years perspective than now.

Then the oil and gas perspectives specifically in the Arctic dimension were discussed. It is noteworthy to mention here that, while talking about the petroleum potential of the High North, I frequently referred to the data provided by the US Geological Service, which estimated the undiscovered energy resource base of the Arctic as equal to around a quarter of the whole global petroleum potential, the interview participants emphasized that these forecasts regard only to *undiscovered* resources, what is crucial. For example, Mr. Moe mentioned that there is only a possibility that the Arctic can hold enormous petroleum resources, which may also be never realized due to a number of factors.

As concerns the potential of the Arctic resources development, he reminded that the exploration and production period takes quite a lot of time and the oil companies are pretty much reluctant about putting at stake risky projects in the High North, which can compensate investments in 35-40 years time perspective, given also a changeable character of the global crude prices. So, as long as the Arctic fields development is associated with high cost, which cannot be covered given the current price environment, the majors will barely develop the Arctic assets in a short-term. The Shtokman project was introduced as an example of the high level of uncertainty associated with the development of even huge gas field. In a nutshell, nowadays the Arctic offshore petroleum development is less promising than 10 years ago. Professor Gudmestad expressed a confidence in future petroleum development of the Arctic resources.

When we moved to the discussion of the most promising zones for petroleum development in the Arctic region, professor Gudmestad named the Barents Sea (in particular, its ice-free part),

Alaska and huge offshore fields in the Kara Sea as the areas, which will be probably primarily developed.

Mr. Moe expressed an opinion that it is crucial to consider the Arctic as a heterogeneous area, since it is very miscellaneous in terms of climate conditions and accessibility, as well as in terms of hydrocarbon potential. With regard to the RCS, currently petroleum production is going only on the Prirazlomnoye oil field in the Pechora Sea. There are also other fields in this area, but the smaller ones, while the size of discovery is especially important in the northern region, as far as it indicates the economical feasibility of the potential project. As concerns the Kara Sea, two giant gas fields were discovered there in Soviet times - Rusanovskoye and Leningradskoye, and in 2014 Rosneft and ExxonMobil started exploration in order to find oil reserves. Although Rosneft announced a major oil discovery, namely the Pobeda field, some researchers would argue that it is rather early to indicate discovery based on the results of one drilling. In any case, costs are very important, they are changeable and related to the oil price. In the current price conditions companies aim to find efficient and cheap solutions, as Statoil does on the NCS by cutting costs on the offshore projects.

Climate policy

Although the climate policy issues do not have a direct and determinative influence on the Russian-Norwegian cooperation in the Barents Sea now, it can have huge implications in a longer time perspective, therefore some questions of the discussions were devoted to this subject. First and foremost, it is worth to mention that the majority of respondents underlined that they are not climate experts, therefore the expressed opinions are based on the personal reflections on this matter.

When we discussed the potential reasons of climate change, Mr. Moe said that he nears himself to the scientific consensus, which is clearly saying that the changes are antropogenic, while professor Gudmestad stated that the changes are caused both by antropogenic influence and regular cyclic processes on the Earth.

The implications of the Paris Climate Agreement, which was signed in 2015, were also discussed. Mr. Moe mentioned that it is different in comparison with the Kyoto Protocol. He described the Agreement as: “It is much more bottom-up and more flexible, at the same time it is less stringent, but covers more countries. It is not obligatory, but it is a framework for trying to impose restrictions based on certain national and local specifics.” Nevertheless, he

claims that the perspective of the climate agreement depends on the political framework and interests. Professor Gudmestad offered an opinion that the achieved agreement implies an increased demand for natural gas.

Lastly we discussed the possibility of a new stringent climate policy rules emergence in the short time perspective. Professor Gudmestad questioned such possibility, at least with the present US government. Mr. Moe assumed that the climate policy may become stricter, but the question is “when?”

Strategy of Norwegian-Russian interaction in the Barents Sea

The third block of the questions discussed within the framework of the interviews includes the main subject of the research – petroleum cooperation between Norway and Russia in the Barents Sea with the emphasis on the implications of the Murmansk Treaty signed in 2010, reasons of low activity in the PDZ by this time and future perspectives of collaboration.

While discussing the Norwegian-Russian relationships in the Barents Sea, first of all we touched upon the Murmansk Treaty and its implications on regional and global scales. Mr. Moe commented that the Treaty makes a contribution in the international law, as far as “*it has been agreed on the principle of the delimitation, namely on the median line with some adjustments*”. Yet the expert underlined that he had expected that this Treaty would had been accompanied by additional provisions on concrete cooperation projects. This did not happen. Professor Gudmestad was of the opinion that the Treaty «*is a good sign for the international activity and implies that good neighbours can agree*» and that it «*will lead to joint projects*».

Then I wondered who is more interested in the development of trans-boundary resources – Russia or Norway? Mr. Moe said that both Norway and Russia have carried out seismic surveys in this zone, Norway is completing the work this year. However, there are different systems of license granting in two countries. In Norway exploration and production licenses on certain blocks have been given to groups of companies, which expressed interest in this area. They will explore and develop the various blocks together, with one company as operator. Meanwhile, in Russia Rosneft was awarded with a license to conduct operations for the whole Russian part of the PDZ in 2011 and the company has carried out the initial seismic surveys. In 2012 Rosneft established joint ventures with Eni and Statoil for further exploration and development. If a trans-boundary field is discovered, the Russian and Norwegian counterparts will start unitization discussions in accordance with the Treaty. Both

parties are interested in development, and existing geological data seem to indicate that there may be a large discovery in this area. However, they also indicate that the largest part may be on the Russian side, which could make Russia more interested in development. Professor Gudmestad expressed an opinion that both countries are interested in such development; however Norway has the access to the necessary technology.

The last question of this interview block was devoted to the review of potential challenges, which can occur in case Russia and Norway will start cooperative petroleum project in the PDZ of the Barents Sea. Mr. Moe assumed that it could be a difficult technical and scientific task to determine, how the trans-boundary reservoir should be divided between the parties. Afterwards, even more complicated industrial solution must be made, that is, how this reservoir will be developed. He emphasizes that: *“The point of a unitization agreement is that the deposit should be developed as a whole, because it is more economically rational. But there can be disagreements about what is the rational way of doing it”*. Moreover, the expert noted that cost and transportation issues could be also difficult to agree on. Nevertheless, despite the possible challenges, he is confident that the parties will be able to find a solution, if they are interested in the field development. At the same time Professor Gudmestad stated that, the political interference from other countries may represent challenges, given also that the current sanctions were not initiated by Norway.

Stakeholders' role in the Barents Sea

Any business activity implies an involvement of a vast number of stakeholders, especially in the High North. In this block the respondents reflected upon the influence of various parties on the petroleum development in the Barents Sea. First of all, we discussed about the proponents and opponents of petroleum operation in the Barents Sea, notably with regard to the cooperative petroleum development of trans-boundary resources in the PDZ.

Professor Gudmestad mentioned that local politicians of the northern regions support such developments. Mr. Moe also argued that the regional stakeholders in the Northern Norway, especially along the Finnmark coast, are in favor of offshore petroleum projects, as far as such activity provides new job opportunities for locals. He claims that in addition to them oil companies and the present government are proponents of petroleum development in the High North. With regard to the opponents of such initiatives, professor Gudmestad commented that there are many of them, particularly those *«who are not used to work for their income but are*

fed by those who work», while Mr. Moe marked the environmentalists, who are questioning the wisdom of Arctic petroleum exploration based on ecological and economical considerations. Plus, they have a significant support in the Norwegian parliament.

Then we moved on to the assessment of the roles of state and private companies in the Barents Sea petroleum development. During the discussion I wondered whether which of them should have more responsibility in the realization of cooperative project. While professor Gudmestad argued that: *«the state should have a hand on the work»*, Mr. Moe noted that a number of issues must be negotiated by governments - rather specific matters as initiating unitization process, as well as more major ones, such as industrial and transportation issues, - however other questions, including resources division issues and the technical details of field development, should be addressed by companies. The state is responsible for providing the framework of conditions, which already exists in this case to some extent. Yet he emphasized that there are no state companies in both countries, even Russia's and Norway's biggest majors – Rosneft and Statoil, respectively, - are not *state* companies. As far as various companies – Russian and Norwegian, as well as the foreign ones - are involved in the petroleum activity on the both sides of the delimitation line, they will agree on the development issues.

Mr. Moe mentioned that there are different situations in two addressed areas, and the Lofoten islands have a special significance for the fisheries along the coast, therefore the issue of restrictions was essential there. Despite there are some arguments with regard to the Barents Sea on this matter, the fisheries there are not concentrated in the same way as in Lofoten. Therefore he expressed doubt concerning the imposition of extensive prohibitions on the petroleum activity in the Barents Sea, although noticed that it depends on how strong the political support in terms of encouraging petroleum development will be. However Professor Gudmestad assumed that such ban may be possibly imposed in the ice drift zone of the sea.

Subsequently we moved to the discussing of existing controversy in the positions of local inhabitants, that is, what is prevailing – a willingness to meet new job opportunities associated with petroleum activity in the region, or environmental concerns triggered by potential industrial accident risks? As far as petroleum operations in Norway are conducted on the continental shelf, that kind of ecological considerations are especially topical. Professor Gudmestad said that the local politicians are more interested in new job opportunities.

Mr. Moe mentioned that despite there are some environmental concerns among local inhabitants, they are not that big.

In the framework of the conversation with Mr. Moe I touched upon the additional question, namely which transportation options are the most relevant for potential petroleum delivery from the Barents Sea. First, the expert distinguished two scenarios – of oil or natural gas discovery in the addressed zone. In case of the former scenario, there will be probably no substantial problems with crude delivery, as far as oil can be loaded and then transported by tankers. The latter scenario is less simple.

Mr. Moe discussed that if the produced gas is to be transported via pipelines, there are currently two the most likely options for consideration: to deliver energy commodities through existing developed pipeline network system in the southern part of the NCS, or through the Nord Stream pipeline crossing the Baltic Sea, whereby Russian gas supplies are exported to Germany and other European countries. Mr. Moe presumed that the former option may be a good idea for Russia as well, because it would further integrate the country in the European gas market, thus providing a new channel for the Russian natural gas. Political considerations are also crucial – how would Russia look at the idea to export its energy resources via foreign transport system? An alternative solution - to transport produced natural gas on LNG tankers after its liquefaction on the plant nearby the operation area. However, the expert assumed that in case of a large gas discovery in the Barents Sea, the arguments towards pipeline network extension on the NCS would be stronger. In any case the viability of all potential solutions depends on the costs, so investment scenarios should be elaborated.

The last but not the least point, which was discussed within the framework of this interview block, was devoted to the political influence on the Russian-Norwegian relationships – specifically in the High North region, and the experts' viewpoints regarding potential outcomes of such contradicting policy, when two countries are aimed to cooperate in the Arctic, while interacting in the sanctions and counter-sanctions conditions. None of the informants could make any predictions regarding the time duration of the current complex situation between Russia and Norway. Professor Gudmestad argued that Norway must follow the NATO requirements as a member country of the organization. Mr. Moe mentioned that the course of events depends on the situation in Ukraine and Russia's policy in Ukraine. At the same time it was noted that the regime of sanctions is concerning only the offshore technology transfer and petroleum cooperation in the High North region, while in other

projects, including those ones realized on the offshore, are still valid. A vivid example of such partnership is operations conducted by Rosneft and Statoil in the Okhotsk Sea.

Unitization procedures

And the last part of the interview was devoted to the perspectives of unitization agreement conclusion between Norway and Russia and the effectiveness of such agreement.

Mr. Moe highly rated the unitization principle. He reminded that Russia has experience in the cross-boundary projects implementation in the Caspian Sea, however it was realized through establishing joint ventures, which is less efficient option than a unitization agreement. As concerns the latter type of agreement, he said that: *“it can be difficult to realize, but the idea that you develop a field as one and appoint one operator without creating artificial joint ventures is the best way of securing a good development”*. Professor Gudmestad was confident that unitization principles would work well for the Barents Sea and referred to the Norwegian experience in successful conclusion of unitization agreements with the United Kingdom.

Continuing our discussion, I wondered whether the above-mentioned Norwegian-British cases could be duplicated for the Barents Sea. Mr. Moe stated that the existing practical experience could be useful for the Barents Sea. As he said: *“I would not use word «duplicate», but rather to apply experience to find practical solutions. It is important to remember the principle – one unified development and one operator*. Despite Mr. Moe also recognized the probability of complications’ emergence due to the different systems in two states, he expressed confidence that the successful agreement conclusion is not impossible.

Before working on this research I attended a lecture delivered by Mr. Moe, which was devoted to the issues of unitization process. Then he mentioned the notion “simplified unitization”, so I wondered in which cases this approach could be implemented. He answered that the so-called “simplified unitization” may be used if the addressed trans-boundary reservoir is very unbalanced - for instance in case 80-90% of the field is located on one side. Then an option to sell the smaller part to the counterpart can be reviewed.

4.1.2. Russian researchers

Expert: Anatoly Zolotukhin

Place of residence and work: Moscow, Russia

Professional sphere: Oil, gas and offshore industry. Arctic petroleum technologies. Engineering education.

Professional background: Professor Zolotukhin has been working in petroleum sphere for almost 50 years, he is a Member of the Russian Academy of Natural Sciences. Besides his professional career in Russia, he also has experience of working in Norway, USA and Nigeria. Professor Zolotukhin worked in Statoil during 10 years and was a full professor at University of Stavanger during 9 years, where he continued giving lectures as a visiting professor since 1999. Last year he became Emeritus professor of the University of Stavanger. Currently he holds position of professor in Gubkin Russian State University of Oil and Gas in Moscow and of Chaired professor at The Northern Arctic Federal University in Arkhangelsk, as well as delivers lectures in many universities and companies around the world. Professor Zolotukhin is internationally acknowledged expert in the oil and gas sphere, especially in the Arctic technologies.

Current position: Research Director at Arctic Institute of Petroleum Technologies, Counsellor to the rectorat of Gubkin University.

Prospects of petroleum industry in the High North

When we started our discussion from the question, which regards to the reasons of the current recession in the oil and gas market, professor Zolotukhin corrected me and noticed that there is no price fall nowadays, and what we actually witness today is a stabilization in the market. These changes are mainly caused by uncoordinated action of petroleum producers at the international level, however there is no way to control such a process, because, as the expert says, “given that such cyclic price changes happen on a global scale and that some countries do not want to joint the coordination process, it is almost impossible to coordinate behavior of all parties in the world”. As far as the level of state production control is different in oil and gas exporting countries, the market is getting oversupplied rapidly by new volumes of crude, what in turn leads to the price decrease. Nevertheless, the demand on oil is increasing,

for instance, in Europe, where the rate of fuel consumption has risen due to the abnormally low winter temperatures.

With regard to the “end of petroleum era”, professor Zolotukhin noted that such kind of forecasts are made regularly, however majors still continue elaborating strategies for the decades to come, even though they declare about the evidences of a global shift towards renewables. As concerns renewables, he reminded that a completely new paradigm regarding the petroleum origin is emerging nowadays. For example, there are strong evidences proving that the oil can be generated in the Earth’s mantle, or it may even be a renewable source of energy. In addition, we should not forget about enormous potential of gas hydrates.

When we moved on to the perspectives of the Arctic energy resources development, professor Zolotukhin noticed: *“Currently it is not the best time for oil and gas production in the High North, but in a longer perspective there resources will be developed anyway. In so doing it is important to keep in mind that no changes can be made just at once, time is required”*. The expert underlined that around 2/3 part of the Russia’s territory is a permafrost area, so the development of onshore and offshore territories will continue, and not only petroleum exploration and production, but also development of infrastructure, the border protection, fishery, the Northern Sea Route, education and other spheres. However, he also warned that such active involvement in the region must be incremental and responsible; it is extremely important to engage researchers first in order to avoid distractive consequences for the exceptionally sensitive environment of the High North.

Then we discussed the most promising areas for oil and gas development in the Arctic. Professor Zolotukhin expressed confidence that the Barents Sea is the most favorable zone for petroleum activity thanks to its relatively close proximity to Europe and limited ice-coverage. The Pechora Sea was also described as promising one, but also as more challenging. The other offshore zones of the RCS located in the eastward direction along the coastline, namely the Kara, the Laptev and the East-Siberian Seas, were expressed as extremely challenging in terms of access and offshore operations. Yet the Chuchi and the Bering Seas are associated with more or less comfortable conditions, while the Sakhalin area is also complex due to the seismic activity, often heavy ice and a very sensitive ecosystem in the region. The Kara Sea was underlined by professor Zolotukhin as the most prospective area for petroleum development based on the estimated hydrocarbon potential; despite this zone is underdeveloped yet, it is believed to hold substantial reserves.

Climate policy

As concerns the hypotheses of the global warming origins, professor Zolotukhin said: “*I do not believe that climate change has antropogenic origin but I am convinced that human beings must minimize their impact of the Nature or, simply clean the territory after their activity*”. Then he reminds that some scientists argue that the global warming and the global freezing are following each other periodically. That being said, the expert underlines that the greenhouse gas effect is mostly notable in the Arctic, so this region is especially affected by the climate change

Strategy of Norwegian-Russian interaction in the Barents Sea

We began this interview block from the discussion of the implications of the Murmansk Treaty. Professor Zolotukhin considers that this Treaty is an achievement, because two countries have finally resolved the dispute, discussions on which lasted more than 40 years. The expert points to the important fact that “*together with the Murmansk Treaty Russia and Norway had concluded 26 various agreements in the spheres of culture, language, petroleum resources, weather and fish monitoring in the sea, etc.*”, so there have been a regular bilateral cooperation between countries in various spheres.

Professor Zolotukhin mentioned that, despite there were dissatisfied parties in both countries, whose arguments are generally based on the considerations that the Treaty was concluded in unfair way and thus undermines fish and petroleum potential of each country, their number is small in comparison with the overwhelming majority of the stakeholders, who welcomed this solution. He underlines that there were opponents of the agreement in both countries. As regards the perspectives of oil and gas activity in the delineated zone, professor Zolotukhin is convinced that the further petroleum cooperation in the PDZ will start in the future, although it is barely possible now due to existing sanctions and counter-sanctions regime between Norway and Russia.

On the question regarding the level of interest of Russia and Norway in development of trans-boundary resources in the PDZ of the Barents Sea, professor Zolotukhin responded that the Murmansk Treaty would not have been signed, if one country has been less interested than another. Both countries are willing to develop petroleum resources in the Barents Sea. However, the expert considers that for this moment it could be more topical for Norway, as far as the Norwegian part of the delineated zone is more accessible and favorable for offshore

operations than the Russian area of the PDZ, plus the Norwegian oil and gas industry is currently moving northwards due to the depletion of the traditional energy resource base of the country. Meanwhile, the Russian petroleum sector is more focused on the onshore fields development, however the offshore Arctic assets will be also eventually realized, and then the Norwegian advanced technologies including those, which are destined for operations in ice conditions, may be successfully implemented on the cooperative Russian-Norwegian projects on the RCS.

When we touched upon the potential challenges of Russian-Norwegian cooperation, professor Zolotukhin emphasized that the current chilling in relationships between the states is the main challenge. However, he also noticed that the environment on a Russian-Norwegian medium-size business level is still favorable and friendly. It is also very important to keep developing educational programmes and initiatives between two countries in order to support good relations and friendly environment among young people.

Stakeholders' role in the Barents Sea

While discussing the role of stakeholders, professor Zolotukhin argued that the proponents of cooperative petroleum development in the region are probably motivated by some stereotypes and prejudice. Of course, the environmental approach must be careful. He also emphasized that the indigenous people of the northern regions of Russia and Norway should be involved in the development process. One of his comments regarding the differing visions of local inhabitants and people reclaiming these areas for the further development was: *“We should adopt the paradigm of people, who have inhabited this area for thousand of years. The problem is that we consider this territory as an environment, which only surrounds us, so we can leave it in case of a failure. Meanwhile indigenous peoples consider themselves as an integral part of this environment, therefore they treat the nature more carefully”*. Professor Zolotukhin claims that it is important to intensify knowledge and expertise exchange with indigenous people, as well as to build a mutual trust and prove that a sustainable, save and efficient development of resources in the High North can cause good results for everyone. With regard to the existing paradigm of the indigenous people, he mentions that: *“Mentality is changing very slowly, hence, through education and communication we have a chance to get a synergy of mutual knowledge and experience”*.

As concerns the governmental and corporate involvement in the petroleum development, professor Zolotukhin claimed that both sectors should play a more considerable role. He especially emphasized a necessity to give more opportunities to small business. Then the expert referred to Adam Smith and reminded that for creating favorable conditions for growth and prosperity in the society there must be a balance between *state, business and civil society*. All these major stakeholders should function properly and contribute in the common wellbeing.

When we moved on the Lofoten area case, professor Zolotukhin said that he agrees to the authorities' decision to impose ban on petroleum activity, "*because until efficient and safe technologies are suggested, which could ensure non-distractive oil and gas exploitation in the region, no steps should be taken there*". The expert noticed that a project on development of Snohvit gas field in Hammerfest could be an example of a successful dialogue between the industry and the local community. When Statoil expressed a willingness to produce gas applying existing offshore technologies, the fishermen from the northern coastline argued strongly against this initiative, as long as, according to them, these technologies were not able to provide the necessary level of safety for fish stocks. That is why the company had to present a new plan for the field development, which could meet the requirements of local inhabitants. Once this technical proposal had been agreed by the stakeholders, the production was effectively launched. In addition, the local people were ensured that besides the present generation of workers, their children would also have a chance to be employed by [petroleum producing] companies.

With regard to the positions of the northern regions inhabitants concerning petroleum activity, professor Zolotukhin replied that although both environmental considerations and new jobs opportunities are important for locals, the highest priority is given to nature preservation, because "*one can live in relatively poor or rich financial conditions depending on the income, but still can live, while if the environment is destroyed, there is no opportunity to stay at this land any more*".

Within the discussion of the last question of the block, namely the perspectives of economical cooperation in the current political environment, professor Zolotukhin mentioned that it is difficult to make any predictions on this matter, however he assumed that the existing tension will probably not last long despite the existing controversies between the countries. The

expert emphasizes that there is no alternative to a dialogue, so rapprochement should start soon.

Unitization procedures

Professor Zolotukhin considers that the unitization agreement is a good solution and it can facilitate the efficient field development by joint efforts. The expert states that: *«A unitization agreement would allow to create a synergy of opportunities, thus each party will get more in case of collaboration».*

4.1.3. Norwegian practitioners

Expert: *Bengt Lie Hansen*

Place of residence and work: *Oslo, Norway.*

Professional sphere: *Oil and gas business.*

Professional background: *Mr. Lie Hansen has been working in the industry for more than 38 years. He held a wide range of leading positions in Norsk Hydro, including a Senior Vice-President and a Head of the company's operations in Russia. Before that he served as a Vice-President of the German private oil company Deminex. Mr. Lie Hansen was also a President of Statoil Russia and a Head of Shtokman project in Russia. Apart from the above mentioned, he has held a number of leading positions in plenty of Norwegian oil and gas companies in his career. Mr. Lie Hansen is also a Visiting Professor at the High North Centre for Business and Governance at Bodø Graduate School.*

Current position: *Executive Chairman of BLH Energyconsulting.*

Prospects of petroleum industry in the High North

When we started our discussion about the current unfavorable price environment in petroleum market, Mr. Lie Hansen mentioned that far as the oil and gas business has a cyclical manner, the changes in oil prices are happening regularly. As an experienced industry representative, he also noted that he has witnessed five or six similar oil price fall and rise in his career. That being said, despite the current challenging conditions in the petroleum sphere, he considers that: “*we are now at the bottom of the cycle*”. Mr. Lie Hansen emphasized a strong correlation between oil prices and the development costs, hence, as long as prices are on a low level, the costs have to be accordingly decreased, what is vividly witnessed in the projects on the NCS «*where the break-even price for the Johan Castberg field was around \$80 three years back, and by now it has come down up to \$30*». The expert does not express concern regarding the petroleum industry perspectives, as far as oil and gas will be demanded energy for many years to come. He expects to see a substantial industry growth in Norway and Russia in coming 30-40 years.

Mr. Lie Hansen recognized a huge hydrocarbon potential of the Arctic region, however he noticed that the viability of these resources development highly depends on the cost level. He said: “*The cost level is very high due to the lack of infrastructure and long distance to the market. It especially regards the ice-infested areas, where the costs will be enormous*”. The

expert mentioned Shtokman project in the Barents Sea as an example of huge gas field, which is currently not developed due to high costs and the the present price environment in the natural gas market.

With regard to the promising areas for petroleum exploration and production in the Arctic, Mr. Lie Hansen underlined that *“I think we have to be very specific regarding the Arctic, because it has a wide range of challenges”*. For example, the conditions on the Norwegian part of the Barents Sea are comparable with the North Sea conditions, which is quite favorable region for petroleum operation; however, if we go northwards, to the ice-covered areas, where the environment is more challenging, it is questionable whether these resources can be produced in a profitable way. As concerns the Norwegian part of the Barents Sea, the licenses were granted in the 23rd bidding round and there are some promising prospects, so the expert expects discoveries in this region, as well as on the Russia side, however the viability there also depends very much on the cost level. Mr. Lie Hansen was quite skeptical regarding the Kara and Laptev Sea due to the questionable viability of resources development in these areas, although there are no doubts concerning a huge hydrocarbon potential of the region.

Climate policy

Mr. Lie Hansen considers that CO₂ emissions, as well as the cyclic natural changes, cause the global warming. As concerns the Paris Climate Agreement, the expert argues that it is important for the world and a step forward. He also emphasizes the role of oil companies in finding a common solution. The expert does not expect any dramatic changes in the climate policy agenda, although underlines the importance of the present global cooperation on shaping an effective policy aimed at decreasing negative consequences of CO₂ emissions.

Strategy of Norwegian-Russian interaction in the Barents Sea

With regard to the Murmansk Treaty and its implications, Mr. Lie Hansen considers that it is very important that Norway and Russia could come to an agreement on cooperation principles in the High North and signed the Treaty. The limits in the Barents Sea are defined and there is a vast area for petroleum operation now. Moreover, there is another positive outcome of the achieved agreement on the disputed area in the Barents Sea – the neighboring and other

international companies are actively getting involved in the oil and gas projects now on the both sides of the borderline, that is, Russian companies Rosneft and Lukoil are participating in offshore projects on the Norwegian part, while Norwegian Statoil is involved in the development of the Perseevsky field in the northernmost part of the Russian delineated zone in the sea, although the last mentioned cooperation is currently frozen due to Western sanctions imposed on the Russian offshore industry.

As concerns the petroleum activity of two countries in the addressed region, the expert considers that Russia is strongly interested in the Arctic exploration, particularly in the new delineated area. Nevertheless, he assumes that there will be a parallel exploration activity on the both parts of the PDZ, however, the results of it are uncertain and it will take years clear up the situation.

When we touched upon the primary tasks, which countries will have to solve in case of initiating cooperative petroleum project, Mr. Lie Hansen noted that it should be defined how the potential trans-boundary reservoir will be splitted between parties. *“The technical people have to agree on the geological and seismic data in order to get the best technical understanding of the reservoir”*, - he says. Development plan should be is approved and negotiations will take time. Nevertheless, the expert is optimistic that it will be accomplished in a professional manner.

Stakeholders' role in the Barents Sea

On the question regarding the proponents and opponents of petroleum activity in the Barents Sea region, Mr. Lie Hansen commented that in Norway oil companies and state authorities are in favor of such development, as well as local communities, who are interested in getting ripple effects of such activity. He assumes that the same situation is in Russia. Meanwhile, the environmentalists are against of oil and gas activity because of the CO₂ emissions. There are also several parties in the parliament arguing against further petroleum production on the NCS, in spite of the fact that Norway is one of the most environment friendly oil and gas producer in the world.

As regard the state and corporate participation in petroleum activity in the region, the expert argues that the operation should be conducted by Norwegian and Russian companies, which

have necessary competence and experience in such issues. For instance, despite the governmental involvement in Statoil, it is still run as a private company.

Mr. Lie Hansen expressed doubt in ban imposition on the petroleum activity in the Barents Sea as it was done in the Lofoten area. As for the position of Northern Norway's citizens on the matter of petroleum development in the region, the expert underlined the existing disappointment in the limited scope of ripple effects triggered by the current activity, so they would like to see even more job opportunities.

With regard to the existing limitations on the Russian offshore petroleum industry, the expert expects that it will continue until the sanctions are there, however he states that the longstanding cooperation between Russian and Norwegian companies in the past rests a hope to move forward.

Unitization procedures

Mr. Lie Hansen claimed that the unitization agreement is the most efficient legal way of trans-boundary petroleum development in the Barents Sea. That being said, he referred to the previous cases of partnership on cross-border resources development, particularly on the British-Norwegian cooperation on the Frigg and Statfjord fields' development. He also believes that such project can be realized between Norway and Russia in the Barents Sea based on the existing experience.

Mr. Lie Hansen does not think that any special regime should be established for each field and underlines that: *“We need to have a common understanding of the valid principle, which implies a common interest in recovering most of the reservoir”*.

4.1.4. Russian practitioners

Expert: *Olga Buch*

Place of residence and work: *Murmansk, Russia*

Professional sphere: *Supply for Arctic projects.*

Professional background: *Professor Buch is a Doctor of Economics, she worked for more than 15 years in Murmansk State Technical University. Professor Buch has more than 10 years of experience in supply industry and has been a Director General of NPO “Association “Murmanshelf” since 2013.*

Current position: *Director General of NPO “Association “Murmanshelf”*

Expert: *Andrey Krivorotov, Ph.D.*

Place of residence and work: *Moscow, Russia*

Professional sphere: *Natural gas industry.*

Professional background: *Mr. Krivorotov has been engaged in oil and gas journalism and business since 1997. Prior to that he spent four and a half years on the diplomatic service in Norway - in the Soviet Consulate in Spitzbergen (from 1988 to 1990) and in the Soviet (then Russian) Embassy in Oslo (from 1990 to 1992), - and has been to Norway numerous times ever since. Mr. Krivorotov has been working in Gazprom since 2003 and in Shtokman Development AG since 2008. Mr. Krivorotov also occasionally lectures in MGIMO University. In 2004, he defended a Ph.D. thesis in MGIMO on the Norwegian and Russian regional economic policies in the High North. He co-authored the chapters on Political Relations and B2B Cooperation in the joint book by MGIMO and University Nord in 2015.*

Current position: *Advisor to the CEO and Secretary of the Board of Directors of Shtokman Development AG. Advisor to CEO of Gazprom.*

Note: *All the following answers and comments reflect the personal expert opinion of Mr. Krivorotov and DO NOT REPRESENT the official position of Gazprom or Shtokman Development AG on the discussed topics.*

Prospects of petroleum industry in the High North

We traditionally started the interview from discussing of the origins of the current price changes on the global crude market and the perspectives of oil and gas industry. Professor Buch mentioned that the present price fluctuations are expressed by the cyclic changes, and there is no fit alternative to the existing energy resources today. Mr. Krivorotov stated that, according to the forecasts made by a number of authoritative organizations, the energy demand and, accordingly, petroleum production will increase in decades to come. Nevertheless, he recognizes the ongoing changes in the global energy industry, such as the rapid development of renewables.

When we moved to the prospects of the Arctic, I mentioned the data provided by the US Geological Survey concerning the hydrocarbon potential of the region. Nevertheless, Mr. Krivorotov noticed that these estimates regard the *undiscovered* energy resources of the Arctic, however, many observers, especially politicians and mass media sources, omitted this word in the appraisal and vested immediately many hopes in the region. But there is a huge difference between estimates and the actual drilling results. The expert questioned a possibility of large-scale developments in the region in the years to come, given the current pertaining low oil prices and the imposed sanctions. However, he emphasized: “*we have to bear in mind that global Arctic varies a lot in terms of climate conditions, proximity to the market and availability of necessary technologies. There is a great difference between, for example, the Barents Sea, the Laptev Sea and the Chukchi Sea*». Professor Buch noticed that the realization of projects in the Arctic is associated with high cost, so this, in addition to some other factors, is slowing the resource development process down. That being said, she has also underlined that besides oil and gas, the High North is rich for other natural resources.

While discussing the most promising areas for petroleum development in the Arctic, Mr. Krivorotov noted that if we review the region in general, then the onshore oil and gas prospects are the most promising ones, particularly huge natural gas fields on the Yamal peninsula in Russia and also oil fields in Alaska. As regards the offshore areas, the Barents Sea is definitely the most promising zone. Especially its ice-free western part, where many of the technologies proven in the North and Norwegian Sea can be applied. That being said, the working conditions in the Barents Sea are different - for example, the Shtokman gas field area is not ice-covered, however there is a possibility of impact of icebergs impelled from the north. The expert also mentioned the prospects of the northern part of the Norwegian Sea,

which is also the High North, and the Kara Sea. However, exploration and development in the latter one is currently stalled due to the sanctions and hard ice conditions. Professor Buch assumed that the Barents Sea will be developed more rapidly than other areas in the Arctic and noticed that there are a lot of seismic and exploration works in the Arctic seas today, plus the Prirazlomnoye oil field is already produced. However, she underlined that the High North development is incremental and longstanding process, so it is difficult to predict the trajectory of the further growth.

Climate policy

Professor Buch assumed that there can be different causes of climate change, however “*these processes are much longer than a single human life, so we are barely able to find all answers now*”. As concerns the Paris Climate Agreement, Mr. Krivorotov does not think that there was any breakthrough in the global climate policy, although he recognizes that “*it was an achievement in political terms, because there was a risk that there would not be any agreement at all*”. That being said, he supposed that there is no realistic chance for more stringent climate policy rules nowadays.

Strategy of Norwegian-Russian interaction in the Barents Sea

In the next block of the interview questions we primarily concerned the Murmansk Treaty and its various implications. Mr. Krivorotov recognized that the Treaty was a big event and noticed that the delimitation line, which was charted in the result of negotiations, is one of the longest in the world at the moment. However, he mentioned his rather critical attitude towards this document. We also touched upon the position of various stakeholders on that matter, and the expert answered that he has not heard any negative comments from oil and gas industry representatives in Russia and Norway, but by contrast recognized that fisheries representatives from both countries were quite skeptical about that, since they claim to have lost vast fishing areas. That being said, he argues that Russian fishermen could get more from this Treaty. According to Mr. Krivorotov, the Treaty is even more important for fisheries than for petroleum industry, as fisheries have been and are still there (i.e. in the Barents Sea), while there is only petroleum activity of limited scope in this zone.

Then I tried to find the reasons of the low level of Norwegian-Russian cooperation on the development of trans-boundary resources in the Barents Sea and wondered why the two states still have not concluded the unitization agreement. Mr. Krivorotov explained that the reason of this is quite clear, namely because there have been no finds yet. In addition, the Murmansk Treaty, namely its Article 5 and Annex II, prescribes to start the unitization procedures in case both countries agree on that the assumed oil or gas field is *trans-boundary*. That is, if one party claims that it has discovered a new petroleum field, the other party can argue that the addressed reservoir extends across the delimitation line and shall then provide all necessary evidence to prove own statement, including notably the data received from drilling. As for potential difficulties of bilateral petroleum cooperation in the Barents Sea, Mr. Krivorotov emphasized the importance to distinguish the challenges associated with interaction between governments and between companies. Although both Russia and Norway have experience of concluding unitization agreements with respectively Kazakhstan and the UK, it is not an easy process and a special approach will be required to solve the regulative issues connected with border control, HSE standards, and fiscal regime. As concerns the partnership between companies, the situation is even less certain, as far as a lot depends on who will operate in this zone, in particular on the Norwegian side. Rosneft is a license holder in the Russian Barents Sea; the company is cooperating with Eni in the southern and central blocks and with Statoil in the northernmost block of the PDZ. Meanwhile, more companies are involved in the licenses exploration in the Norwegian part of the sea, and each block is represented by a unique group of firms. Since the field operator is in charge of negotiations with external parties on behalf of a group, cooperation between companies from two sides of the borderline can be built in various ways. With regard to the Russian and Norwegian interest in petroleum development of trans-boundary resources in the PDZ, Mr. Krivorotov assumed that both countries would like to conduct exploration and production there, however in practical terms it is more pressing for Norway.

When we discussed this issue with professor Buch and I mentioned the possible challenges in cooperation caused by different approaches in resource management in Russia and Norway, the expert noticed that there are probably no countries in the world, which have absolutely the same systems, nevertheless, it does not mean that cooperation cannot be realized.

During the discussion with professor Buch I wondered how the Russian-Norwegian partnership in supply industry is going on. The expert mentioned that there is good level of cooperation between suppliers nowadays – not only in the oil and gas sector, but also in other

spheres. Russian suppliers are engaged in petroleum activity on the Norwegian continental shelf, as well Norwegian supply companies are participating in the projects on the Russian side. With regard to the activity of Russian supply companies on the RCS, they are involved in competition not only with the rest of Russian and Norwegian players, but also with other foreign supply companies.

Then we also discussed the other areas of cooperation between Russia and Norway on the Barents Sea. Professor Buch noticed that Russian and Norwegian professionals are regularly engaged in various cooperative exercises on the sea. For example, desktop exercises, aimed at practicing of various oil spill control technologies in the sea, were arranged last October. On addition, effective ways of legal regulation of the necessary equipment cross-border transfer process in the event of accident were discussed, because in such cases any delay is unacceptable, since potential oil spill “knows no bounds”.

Since Mr. Krivorotov is an experienced professional in natural gas industry, we touched on some issues connected with gas sector and the potential gas transportation options from the Barents Sea. When I asked whether oil and natural gas have different future, the expert answered that, although both industries are closely interconnected, each of them walks its own path. Natural gas is narrower, since it is predominantly used as a fuel for energy purposes, while oil has a wider scope of application as a fuel and petrochemical crude. However Mr. Krivorotov mentions: *“The gas market is becoming more flexible than it was 10 years ago. We see big changes in both industries, such as development of shale gas and tight oil, and growing competition from renewable resources».*

In terms of transportation, oil is easier to ship – it can be loaded and transported from the place, where it is produced. As concerns the natural gas transportation variants for the Barents Sea, in Norway there are debates regarding whether to extend the existing pipeline network, or to build more LNG trains. The Nord Stream does not look a viable option due to the long distance from the Barents Sea. Mr. Krivorotov states: *«LNG gives much broader flexibility, because it can easily be rerouted and has bigger market share than 10 years ago. However it does not mean that there will be spot market only, because the industry requires heavy investments and a field operator must be sure that he will have good selling opportunities for his gas for decades to come; the spot market cannot give this kind of security».*

The expert also mentioned that the location of land bases is critical for trans-boundary offshore field development, as far as the onshore infrastructure and supply services trigger the

main economic ripple effect on the region. Therefore, in order to achieve a synergy effect of cooperation, the location of land bases in Norway and Russia should be reviewed, aiming to serve the whole Barents Sea.

Stakeholders' role in the Barents Sea

As for the proponents of oil and gas activity in the region, Mr. Krivorotov stated that oil companies, supply industry, central governments and local authorities are mostly welcoming petroleum production in the High North, notably in the Barents Sea. Local citizens of Northern Norway and North-West of Russia are also largely in favor of new offshore projects, since it implies creation of new jobs in the region. He also emphasized the interest of scientists in the increased petroleum activity, because it opens new opportunities for research and education. Traditional opponents of petroleum production in the Arctic, as well as overall, are fishermen and environmentalists. The expert emphasized that before Macondo accident the environmental activists had focused mostly on decreasing CO₂ emissions, while nowadays they are also concerned about the environmental consequences of potential industrial accident, such as oil spill during production or transportation.

When we touched upon the possibility of prohibitions' imposition on the petroleum activity in the Barents Sea alike in the Lofoten area, the expert noted that there are actually some partial restrictions for oil and gas production in some periods of the year in the sea, for example near Bear Island. Nevertheless, he emphasized that the question in Norway now is not about whether to impose new petroleum bans or not, but rather to maintain the existing one in the Lofoten and Vesterålen area.

We also discussed the relation of local communities towards petroleum activity in the northern regions. Mr. Krivorotov stated that according to his impression *“the bulk of people in Northern Norway and North-West Russia are in favor of oil and gas activity. Even fishermen can get an advantage, because oil companies build harbors and provide new navigation opportunities, increased capabilities for search and rescue operations”*.

As for the Russian-Norwegian bilateral relations in political sphere and its impact on the economic interaction between the states, particularly in the oil and gas sector, Mr. Krivorotov expressed his regret concerning the Norwegian actions caused by the political chill. He considers that it is not reasonable to undermine Norwegian-Russian relationships in the High

North region, which is not directly connected with the situation in Ukraine. However, it was noticed that after three years of decreased cooperation between the countries, the bilateral dialogue is being incrementally restored, for example Russian and Norwegian foreign affairs ministers recently met on the margins of the Arctic international forum in Arkhangelsk, for the first time in three years. The expert is convinced that Russian-Norwegian cooperation in the Barents Sea, joint development of resources and environment protection are especially important for the two countries, because while for the rest of the world this area represents just a resource base, we are responsible for a sustainable development of the region for the sake of our future generations. Professor Buch noted that with regard to the Russian-Norwegian interaction in the middle-size business, the environment is staying favorable and friendly – in supply industry the cooperation has even strengthened. She assumed that even if the existing political disagreements have some influence, they do not decrease a willingness to work.

Unitization procedures

Mr. Krivorotov considers that the existing Russian and Norwegian experience of cross-border field development can be very useful in the Barents Sea case. Russia realizes such a projects in cooperation with Kazakhstan and now has an opportunity to obtain practical competence of trans-boundary field development through unitization procedures. However, he does not think that this, or the existing British-Norwegian experience of concluding unitization agreement can be simply duplicated, as there is another case in the Barents Sea. The expert is also questioning a possibility of a “simplified unitization” realization, that is, selling of the smaller part of the field by one country to another. Mr. Krivorotov supposed that there could be two scenarios: first – one country discovers a field on the own part of the PDZ, while the other country does not lay claims to it or does not provide convincing evidence to prove that the reservoir belongs to it as well. In this case the field will be developed unilaterally. The second scenario implies that one party discovers a field and the other party proves that it is trans-boundary. In this case unitization procedures are to be initiated as stipulated in the Murmansk Treaty.

5. Analytical part

The last part of the thesis work is devoted to the analysis of the empirical data gathered within the research. The description of the discussions with experts was represented in the previous chapter, so in the analytical part we will try to emphasize the main trends in the Russian and Norwegian understanding of the processes in the High North and in the Barents Sea in particular. The primary data collected within the framework of the research, namely the answers and comments of Norwegian and Russian professionals on the discussed questions, will be presented in a brief manner in order to get a general idea of the expressed opinions. As far as the representatives of two spheres – academia and industry – took part in the research conversations, the comparative analysis of their viewpoints will be introduced separately, that is, “Norwegian experts - Russian experts” and “Researchers – Practitioners”. In the last chapters we will sum up the results of the conducted analysis and will try to answer the research question of the Master thesis.

5.2. Summary total of the experts’ attitudes on the addressed topics

A huge number of questions was discussed with the experts during the interviews. Despite the general course of the conversations pursued the initial interview guide’ structure, some additional topical issues were also addressed and it was extremely important for the research development, since new information, as well as alternative views on certain matters, enlarged the understanding of the examined phenomena. Nevertheless, the primary goal of the paper is to review and analyze the attitudes through the frame of references, which was described before. As far as the interview guide included one more thematic block – prospects of Arctic resources development in the High North – it is also represented in the analytical table, since it contributes in the research by introducing the professional opinions on wide but crucial issues. The table illustrates a short representation of the research participants’ viewpoints with regard to the topics. In the following chapters these comments will be grouped and compared to each other.

Table 1.1. Summary of the discussion with professor Gudmestad

	<i>Prospects of petroleum industry in the High North</i>	<i>Climate policy</i>	<i>Strategy of Norwegian-Russian interaction in the Barents Sea</i>	<i>Stakeholders' role in the Barents Sea</i>	<i>Unitization procedures</i>
<i>Ove Tobias Gudmestad</i>	<p><i>Crude price fluctuations are natural in a “supply-demand” cycle.</i></p> <p><i>The Arctic resources will be developed.</i></p> <p><i>The Barents Sea (the ice-free part), Alaska, huge fields of the Kara Sea will be probably primarily developed.</i></p>	<p><i>Climate change is caused by antropogenic influence and regular cyclic processes.</i></p> <p><i>The Paris Agreement’s results imply an increased demand for natural gas.</i></p> <p><i>Emergence of stricter climate policy rules is questionable in the current political framework.</i></p>	<p><i>The Murmansk Treaty is a good sign for international activity, it will lead to joint projects.</i></p> <p><i>Both countries are interested in the trans-boundary resources development, but Norway has access to the necessary technology.</i></p> <p><i>Political interference from other countries may represent challenges for the Russian-Norwegian cooperation in the Barents Sea.</i></p>	<p><i>The local politicians in the northern regions support petroleum development.</i></p> <p><i>The state should have a hand on the work.</i></p> <p><i>A ban on the petroleum activity may be possibly imposed in the ice drift zone of the Barents Sea.</i></p> <p><i>Local authorities are more interested in new job opportunities.</i></p> <p><i>Norway mast follow the NATO requirements as a member country of the organization</i></p>	<p><i>The unitization principles would work well for the Barents Sea.</i></p> <p><i>The British-Norwegian experience in unitization agreements conclusion might be useful for the Barents Sea’s case.</i></p>

Table 1.2. Summary of the discussion with Mr. Moe

	<i>Prospects of petroleum industry in the High North</i>	<i>Climate policy</i>	<i>Strategy of Norwegian-Russian interaction in the Barents Sea</i>	<i>Stakeholders' role in the Barents Sea</i>	<i>Unitization procedures</i>
<i>Arild Moe</i>	<p><i>Many developments influence price environment in the crude market; the unconventional energy resources have a strong impact on price; in coming decades oil may be less enrolled than now.</i></p> <p><i>Due to uncertainties and high costs, the Arctic resources will be barely developed in short a time perspective.</i></p> <p><i>The Arctic conditions are very diverse in many terms; a field discovery's size is crucial for its further development.</i></p>	<p><i>The climate change has an antropogenic origin.</i></p> <p><i>The Paris Agreement is less stringent, but covers more countries, it is more flexible than Kyoto Protocol; the perspectives depend on the political framework and interests.</i></p> <p><i>The climate policy rules may be stricter, but it is not clear when it will happen</i></p>	<p><i>The Murmansk Treaty is a contribution to the international law; it was agreed on the median line principle with some adjustments; but it could be more comprehensive.</i></p> <p><i>Both countries are involved in the operations, but Russia might be more interested in petroleum development of the PDZ based on the available promising geological data.</i></p> <p><i>Technical, industrial, cost and transportation issues could be challenging for solving.</i></p>	<p><i>Local inhabitants, the present government and oil companies are proponents of petroleum development in the northern region; environmentalists are opponents.</i></p> <p><i>Some issues should be negotiated by governments, another ones – resolved by companies.</i></p> <p><i>There is low probability of the extensive restrictions' imposition on the petroleum activity in the Barents Sea.</i></p> <p><i>The course of events in the political relations depends on the situation in Ukraine; the sanctions are not all encompassing.</i></p>	<p><i>The unitization principle is good; a unitization agreement is more efficient than joint ventures.</i></p> <p><i>The British-Norwegian experience can be applicable in the Barents Sea, but not just duplicable.</i></p>

Table 1.3. Summary of the discussion with professor Zolotukhin

	<i>Prospects of petroleum industry in the High North</i>	<i>Climate policy</i>	<i>Strategy of Norwegian-Russian interaction in the Barents Sea</i>	<i>Stakeholders' role in the Barents Sea</i>	<i>Unitization procedures</i>
<i>Anatoly Zolotukhin</i>	<p><i>There is price stabilization on the crude market nowadays; price changes are mainly caused by uncoordinated actions of petroleum producers.</i></p> <p><i>Today it is not the best time for O&G production in the Arctic, but the resources will be developed in a longer time perspective; the development process should be incremental.</i></p> <p><i>The Barents Sea is the most promising area for petroleum development; the Pechora Sea is more challenging, but still promising; the Kara, the Laptev and the East-Siberian Seas are extremely challenging, although the Kara Sea is very rich for hydrocarbons; the Sakhalin area is seismically active zone.</i></p>	<p><i>The climate change does not have an antropogenic origin, however human beings must minimize their impact of the Nature.</i></p> <p><i>The Arctic region is especially affected by the climate change.</i></p>	<p><i>The Murmansk Treaty was an achievement; there were opponents from the both sides, however the overwhelming majority of the stakeholders supports the agreement.</i></p> <p><i>The petroleum cooperation will start in the PDZ in the future, but not now.</i></p> <p><i>The Treaty would not be signed, if one country has been less interested in the development than another, however now it could be more topical for Norway.</i></p> <p><i>The current chilling in the interstate relationships is the main challenge for cooperation.</i></p>	<p><i>The involvement of indigenous people in the development process is crucial.</i></p> <p><i>Both state and private sectors should be involved in operations; small business could have more opportunities.</i></p> <p><i>It is reasonable to ban offshore petroleum production, unless efficient and safe technologies are suggested.</i></p> <p><i>Nature preservation is more important than new job opportunities for the northern regions' inhabitants.</i></p> <p><i>The existing tensions will not probably last long.</i></p>	<p><i>Unitization agreement is a good solution, it would allow to create a synergy of opportunities.</i></p>

Table 1.4. Summary of the discussion with Mr. Lie Hansen

	<i>Prospects of petroleum industry in the High North</i>	<i>Climate policy</i>	<i>Strategy of Norwegian-Russian interaction in the Barents Sea</i>	<i>Stakeholders' role in the Barents Sea</i>	<i>Unitization procedures</i>
<i>Bengt Lie Hansen</i>	<p><i>Oil and gas business has a cyclical manner, therefore the changes in oil price level are happening regularly; there is a strong correlation between oil price and cost of development; oil and gas will stay demanded energy for the decades to come.</i></p> <p><i>A viability of the Arctic resources development very much depends on the costs.</i></p> <p><i>The Barents Sea, particularly its western part, is favorable for petroleum development, the Kara and the Laptev Seas are questionable due to uncertain viability.</i></p>	<p><i>The global warming is caused by CO₂ emissions and natural cyclic processes.</i></p> <p><i>The Paris Agreement is important for the world, it is a step forward.</i></p> <p><i>No dramatic changes in climate policy agenda are expected</i></p>	<p><i>The Murmansk Treaty is an important achievement, principles are agreed and companies can operate on the both sides of the delimitation line now.</i></p> <p><i>Russia is strongly interested in the Arctic exploration, especially in the PDZ.</i></p> <p><i>The issue of fair split of potential trans-boundary reservoir is a primary task.</i></p>	<p><i>Local communities, state authorities and oil companies are interested in petroleum development in the northern region, the environmentalists are against.</i></p> <p><i>The operations should be conducted by competent and experienced Norwegian and Russian companies.</i></p> <p><i>There is low possibility of ban on the petroleum activity in the Barents Sea.</i></p> <p><i>The limitations will stay until sanctions are in effect, but the longstanding cooperation between companies rests hope to move forward.</i></p>	<p><i>The unitization agreement is the most efficient legal way of trans-boundary petroleum resources development in the Barents Sea.</i></p> <p><i>A common understanding of a valid principle – the maximum recovery level reaching - is crucial.</i></p>

Table 1.5. Summary of the discussion with professor Buch

	<i>Prospects of petroleum industry in the High North</i>	<i>Climate policy</i>	<i>Strategy of Norwegian-Russian interaction in the Barents Sea</i>	<i>Stakeholders' role in the Barents Sea</i>	<i>Unitization procedures</i>
<i>Olga Buch</i>	<p><i>Crude price fluctuations are expressed by the cyclic changes; there is no fit alternative to the existing energy resources today.</i></p> <p><i>The realization of Arctic petroleum projects can be slowed down due to the high costs.</i></p> <p><i>The Barents Sea probably will be developed more rapidly than other areas, however it is difficult to predict the trajectory of the further growth, because the development process in the High North takes much time.</i></p>	<p><i>There may be different causes of the climate change.</i></p>	<p><i>There is a good level of the Russian-Norwegian cooperation in supply industry.</i></p> <p><i>Norwegian and Russian professionals are regularly engaged in various exercises in the Barents Sea.</i></p> <p><i>Russian-Norwegian interaction on the level of middle-size business is quite favorable and friendly</i></p>	-	-

Table 1.6. Summary of the discussion with Mr. Krivorotov

	<i>Prospects of petroleum industry in the High North</i>	<i>Climate policy</i>	<i>Strategy of Norwegian-Russian interaction in the Barents Sea</i>	<i>Stakeholders' role in the Barents Sea</i>	<i>Unitization procedures</i>
<i>Andrey Krivorotov</i>	<p><i>Petroleum demand and production will increase, however there are changes in the oil and gas industry today.</i></p> <p><i>Realisation of large-scale oil and gas projects is barely possible in the years to come due to the pertaining oil prices and the imposed sanctions; global Arctic varies a lot in terms of climate conditions, proximity to the market and availability of necessary technologies</i></p> <p><i>The onshore oil and gas prospects are the most promising in the Arctic, the most promising offshore areas are the Barents Sea, the northern part of the Norwegian Sea, the Kara Sea.</i></p>	<p><i>The Paris Agreement is a political achievement, because there could be no agreement at all.</i></p> <p><i>No breakthrough in the global climate policy agenda is expected.</i></p>	<p><i>The Murmansk Treaty was a big event, however the expert's attitude towards it is rather critical.</i></p> <p><i>The attitude of fish industry representatives concerning the Treaty was quite sceptical.</i></p> <p><i>Both countries would like to develop petroleum resources in the PDZ, however it is more topical for Norway today.</i></p> <p><i>A success of the intercompany cooperation in the PDZ of the Barents Sea depends on what companies will operate on both sides of the delimitation line; concluding of unitization agreement is not an easy process.</i></p>	<p><i>Oil companies, the state government, local authorities and scientists are supporting petroleum activity in the region, while environmentalists and fishermen are against of it.</i></p> <p><i>There are some partial restrictions for O&G production in some periods of year, but new extensive prohibitions are doubtful.</i></p> <p><i>The inhabitants of the northern regions are in favor of oil and gas activity.</i></p> <p><i>It was not reasonable to undermine the bilateral relationships in the High North region, which is not connected with Ukraine situation, however the interstate dialogue is being incrementally restored.</i></p>	<p><i>The existing Russian and Norwegian experience of cross-border field development can be very useful in the Barents Sea case.</i></p>

5.3. Comparative analysis of the researchers' and practitioners' visions

The current state of the petroleum industry and its future. The first question of the interview concerned the reasons of the current recession in the oil and gas market – do the witnessed price fluctuations imply a near “end of petroleum era”, or these processes are natural? The informants mostly adhered to the latter assumption and underlined that there is actually no price fall nowadays in crude market. The researchers mentioned that different factors influence the oil price – one of the experts emphasized a decisive role of unconventional resources impact on the global oil price, in particular the influence of shale gas and tight oil, while another researcher recognized that these fluctuations are inevitable, as far as they are mainly caused by uncoordinated actions of oil producers, hence, it is virtually impossible to control all these processes. The industry representatives also consider that there is no wonder that the oil prices fall and rise periodically, since oil and gas business is cyclical and crude prices are strongly correlated with costs of petroleum development.

The practitioners did not express concern regarding the future of oil and gas - the share of renewables in the global energy mix is increasing, but at the same time the rate of consumption is rising as well. In some discussions we also addressed the perspectives of the oil and natural gas utilization in separate way. There were few doubts regarding that oil will stay a key crude for petrochemical industry and for transportation spheres, such as aviation, cars and maritime transportation, although the application of oil as a source of energy may be decreased due to the emergence of more stringent climate policy restrictions. The industry professionals, as well as the researchers, were quite skeptical about the probable “end of petroleum era”, however one scientist assumed that oil may be less enrolled in the decades to come than today.

As concerns the natural gas, its future looks quite bright, because its consumption is rising in relative, as well as in absolute numbers. However, gas can be transported in the original form and as LNG. This makes gas market quite flexible in terms of delivery options and regionalized in terms of price. The share of short-term contracts in gas sales is increasing, while pipeline network construction traditionally requires heavy and long payback investments.

Perspectives of oil and gas development in the Arctic region. When we further moved to the issue of the Arctic petroleum resources production, the experts mostly recognized that currently the development of the energy resources in the High North is not viable for a

number of reasons. Yet there was no consensus regarding the future of such development among researchers – while the experts from the technological sphere are quite optimistic about the Arctic petroleum perspectives, the political scientist assumed that these resource potential may never be realized due to many uncertainties, which are mostly associated with high exploration and production costs and, accordingly, with very long period of investment payback.

The practitioners also emphasized the high level of costs as one of the main reasons of slow pace of Arctic petroleum development. Yet one of the industry experts referred to the production projects realized on the NCS, where costs have been significantly decreased thanks to applying of enhanced oil recovery technics. At the same time another professional also mentioned the pertaining oil prices and imposed sanctions as essential barriers on the way towards large-scale petroleum projects realization in a short term. It is worth to note that one of the scientists underlined the necessity to develop the High North in a gradual and sustainable manner, as far as it refers not only to oil and gas resources, but to the other spheres as well.

The most promising areas for petroleum activity in the Arctic. With regard to the most perspective zones of the Arctic in terms of hydrocarbon potential and the most probable trajectory of petroleum development of the region, the respondents expressed rather similar opinions – the Barents Sea (especially its ice-free part) is the most promising area for petroleum production due to the relatively moderate climate conditions, limited ice coverage and available proximity of onshore infrastructure.

Interesting to mention, that amid all the areas the Kara Sea was distinguished as very rich for hydrocarbons by many respondents. Not only Russian majors, but also western companies expressed the interest in development of the fields there. Nevertheless, the cooperative exploration and production has been frozen due to the imposed sanctions. Some experts also questioned the viability of oil and gas production in the Kara Sea, since this area is associated with extreme climate conditions and limited accessibility.

The experts continually underlined that the Arctic region is heterogeneous in many terms, hence, the trajectory of its development is uncertain. The Russian zone of the Arctic Ocean was described as especially diverse – there is substantial petroleum potential in a number of offshore areas, however in the eastward direction along the coastline the climate conditions are harshening and the accessibility is decreasing. Nevertheless, the Sea of Okhotsk is

promising, quite favorable for operation and is not exposed to the abovementioned sanctions, plus Rosneft and Statoil are working together there. Although one researcher noticed that this zone is exposed to seismic activity, which is also a challenging factor for field development. Another researcher underlined that a viability of petroleum project realization depends very much on the scale of a field discovery.

The Norwegian part of the Barents Sea, in particular the southwestern part, was noted by experts as a favorable for petroleum activity, hence, we can expect that this region will be extensively developed in a short time given also the current activity of Norwegian companies there. Plus, one of the Russian industry professionals reminded that the northern part of the Norwegian Sea is also considered as part of the High North, and the successful development of the Snøhvit gas field there ensures that the petroleum activity will be increased in the region. It was also noticed that despite the limited presence of ice in the Barents Sea, there is another threat for petroleum operation – icebergs impelled by northern winds.

Origins of the climate change. While touching upon the climate change issues, it is primarily important to review the causes of this change. Traditionally, researchers and observers are divided on two opposing groups: the supporters of the former group are convinced in an antropogenic nature of the current changes in climate, namely of the global warming. The latter group adherents argue that the global warming is just another phase in a constant climate change on the Earth.

With regard to the considerations on the climate policy issues within the interviews, the opinions of researchers also diverged. As far as the majority of respondents remarked that they are not climate scientists, the overview of the answers mostly represents the experts' assumptions on this matter. While researcher claimed that the global warming is caused by natural cyclic changes and another scientist supported the idea that the changes in climate are influenced by human activity, other respondents assumed that there could be different reason for this.

Implications of the Paris Agreement and its implications. As concerns the evaluation of the Paris Agreement's results and the perspectives of dramatic changes in climate policy agenda in the short term, the experts also expressed rather different views. The researchers emphasized a key role of the political environment's state in this field; as for the Paris Agreement, one of the opinions was that it implies an increased demand for natural gas in the world, while according to an alternative viewpoint, its future depends on the political

framework, although the agreement itself is an achievement, since it is rather flexible and covers many countries. The industry professionals also claim that the signing of the agreement is a big event, because, as one of the experts noticed, no agreement could be reached at all. The informants either did not assume any radical changes in the climate policy, or were reluctant to make certain forecasts on this matter.

Proponents and opponents of petroleum activity in the Barents Sea region. In the next part of the interview we discussed the role of various stakeholders in the Barents Sea development. Almost all the respondents were unanimous, while answered the questions devoted to different stakeholders' attitude towards petroleum activity in the Barents Sea.

Local authorities, the state government and oil companies were usually described as the main proponents of the petroleum activity in the northern regions. The interest of local inhabitants is mostly based on the positive ripple effects caused by oil and gas exploration and production. Industry professionals, as well as researchers, frequently referred to the Snøhvit gas field development on the NCS near Hammerfest as to a vivid example of positive influence of petroleum activity on the region.

As for the opponents of oil and gas production in the High North, the majority of respondents concurred in the opinion that environmentalists are, as a rule, against of such activity due to ecological and economical considerations. One practitioner mentioned that fishermen are also traditionally opposing the implementation of new oil and gas offshore projects because of potential threat to fisheries. However, it was noticed that fishermen might become in favor of such development, if the oil companies ensure save petroleum exploitation and develop the local infrastructure. One researcher also emphasized the importance of involvement of indigenous people in the development process in order to build mutual trust and exchange knowledge and experience.

Role of state and private sector in oil and gas operation. Despite the fact that the Russian and Norwegian oil and gas industries differ in many aspects, such as in production licenses granting, in the environmental regulation and so on, there is a thing, which is typical for the both countries – the state's involvement in the petroleum sector.

However, it does not mean that a limited number of companies work in the industry - there are a lot of private firms and majors with the government's share of assets, and it triggers the development of the sector. Therefore I found it interesting to clarify, what Norwegian and

Russian professionals think about the role of the national governments and private companies in the Barents Sea petroleum project realization.

As a rule, the informants underlined an important role of the state in the achievement of successful results in international negotiations – the Murmansk Treaty is a bright example of it, and a potential unitization agreement will be also discussed on the state level. Nevertheless, the other issues, such as technical and industrial questions, should be solved by qualified and experienced oil companies from both countries. There were also viewpoints stating that the state should be involved in operations and that it is necessary to give more opportunities to small businesses. In a nutshell, the experts of both professional spheres consider that the balanced system of state and corporate participation in the offshore petroleum projects is the most favorable approach.

Possibility of petroleum activity ban in the Barents Sea. As far as the petroleum activity near the Lofoten islands in Norway has been restricted due to the environmental concerns and potential threat to fisheries, it was interesting to hear the professional viewpoints regarding this case and the estimations of the similar ban imposition in the Barents Sea, as far as there are huge fish stocks in this area as well. One researcher assumed such possibility, namely the ban on the operation in the ice drift zone of the sea, while another expert noticed that actually there are already limitations on oil and gas production in some zones of the sea during certain periods of the year. As concerns the Lofoten islands case, one researcher supported the imposition of restrictive measures in that area, because there must be first a guarantee that the applied technologies are save and efficient in application. Nevertheless, two Norwegian experts – from industry and academia – questioned a chance of the similar ban imposition in the Barents Sea.

Priorities of the northern regions' inhabitants. Previously we discussed the attitudes towards the petroleum activity expressed by various stakeholders. In general, the local communities in the northern regions are counted as proponents of such initiatives, while the environmentalists are usually described as traditional opponents. However, of course, there are different views on this topic among the inhabitants of the northern regions, where petroleum development is going on. That is why the following question we touched on during our conversations with interview participants was – what is actually prevailing: demand for new jobs associated with petroleum activity, or environmental considerations?

The industry professionals expressed rather the same opinion – local people are strongly interested in employment. One of these experts even underlined that there is a certain disappointment connected with the existing scale of ripple effects in the northern region, so more jobs are required. At the same time there was no similar view on the matter among researchers: there was a statement that local politicians are strongly interested in new job opportunities, as well as there were assumptions that the both above-mentioned considerations happen to be. However, one of the scientists presumed that the ecological reflections are dominating, since it is still possible to live even with a limited income, while there is no more opportunity to inhabit the destroyed area.

5.4. Comparative analysis of the Norwegian and Russian experts' visions

Implications of the Murmansk Treaty. The Murmansk Treaty, which was signed by Norway and Russia in 2010 and entered to force next year, is a key event within the framework of this research, since many hopes have been rested on the petroleum development of the previously disputed zone (PDZ) in the Barents Sea. Of course, the addressed Treaty concerns not only oil and gas industry – one of the Russian experts noticed that it regards the interests of fishermen in the region to a greater degree than the oilmen, because the oil production in the PDZ has not been initiated yet, while fishermen have worked in the sea for many years and the results of the Treaty reflected on them immediately.

The Russian and Norwegian experts recognized that the Murmansk Treaty was a big and important event, because it closed the chapter of bilateral relationships, which was devoted to the longstanding period of discussions on the disputed area in the Barents Sea.

The Norwegian experts consider that the Treaty is a contribution to the international legal practice; one of the researchers stated that the Treaty was agreed on the median line principle with some adjustments. Some of the Norwegian respondents also expressed confidence that the reached agreement will lead to the joint projects realization in the Barents Sea, moreover, the companies are now able to participate in petroleum operations on the both sides of the delimitation line. However, one expert had expected that the agreement would have been more comprehensive.

The attitude towards the Treaty among the Russian professionals was not entirely equal. When we examined the stakeholders, who took the Treaty positively and negatively, the

experts recognized that there have been skeptics of this decision in both countries and the opponents usually represented fish industry. As for the reaction of the oilmen, it was rather passive. One of the Russian professionals considers that due to the Murmansk Treaty a fish industry in Russia have lost more than the Norwegian party.

Willingness to develop petroleum resources in the PDZ of the Barents Sea. As far as there has been no joint Norwegian-Russian petroleum production in the PDZ of the Barents Sea for almost six years after the Murmansk Treaty came to force, I wondered what are the reasons of that and are Russian and Norway interested in development of this region? The discussions' results turned out to be quite curious findings. Although Russian and Norwegian experts assumed that both countries are probably interested in trans-boundary resources development in the PDZ of the Barents Sea, Russian experts emphasized that such development could be more topical for Norway, because the Norwegian, that is, the south-western, part of the sea is considered to be more favorable area for petroleum operations, plus the Barents Sea's energy resources are especially important for the country now, when the traditional oil and gas reserves on the southern and central parts of the NCS are depleting. At the same time the two Norwegian experts stated that Russia is probably more interested in in the Arctic exploration, particularly in the PDZ of the Barents Sea; the available geological data indicated potentially large petroleum discoveries on the Russian side of the border. Another Norwegian professional noticed that although both countries are willing to develop this area, Norway has access to the necessary technology for it.

Potential challenges of bilateral petroleum project realization. Regarding the challenges, which Norway and Russia may possibly face in case the joint oil and gas project for cross-border field development will be initiated, the respondents expressed different opinions. The Norwegian experts argued that technical questions, primarily associated with a fair reservoir split, as well as further industrial, cost and transportation issues may be difficult to solve. Political interference from the other countries was also estimated as a potential challenge for Russian-Norwegian cooperation.

Meanwhile, the Russian professionals claimed that the present chilling in the interstate relationships is the main challenge for partnership, plus there are plenty uncertainties associated with the group of companies, which will operate on the Norwegian side of the border – while Rosneft is operating company on the Russian part of the Barents Sea (in cooperation with Eni and possibly with Statoil), there is a number of license blocks on the

Norwegian part and each of them is represented by certain group of companies. Therefore, it is unclear who will be counterparts from the both sides of the operating area in case of cross-border field discovery and further production.

Perspectives of the Norwegian-Russian relations in the context of the sanctions and counter-sanctions environment. The last but not the least point, which was discussed within the framework of the interview, was devoted to the political influence on the Russian-Norwegian relationships – specifically in the High North region, and the experts' viewpoints regarding potential outcomes of such contradicting policy, when two countries are aimed to cooperate in the Arctic, while interacting in the sanctions and counter-sanctions conditions. None of the informants could make any predictions regarding the time duration of the current complex situation between Russia and Norway.

The Norwegian experts argue that Norway must follow the NATO requirements as a member country of the organization and also that the course of events depends on the situation in Ukraine and Russia's policy in Ukraine. At the same time it was noted that the regime of sanctions is concerning only the offshore technology transfer and petroleum cooperation in the High North region, while in other projects, including those ones realized on the offshore, are still valid. A vivid example of such partnership is operations conducted by Rosneft and Statoil in the Okhotsk Sea.

The Russian professionals expressed regret concerning the Norwegian actions caused by the political cooling in the relations. Some of them argued that it was not a reasonable step to undermine Norwegian-Russian relationships in the High North region, which is not directly connected with the situation in Ukraine. However, it was noticed that after three years of decreased cooperation between countries, the bilateral dialogue is being incrementally restored, for example Russian and Norwegian foreign affairs ministers recently met on the Arctic international forum in Arkhangelsk for the first time in three years. One of the respondents is convinced that Russian-Norwegian cooperation in the Barents Sea, joint development of resources and environment protection are especially important for both countries, because while for the rest of the world this area represents just a resource base, we are responsible for sustainable development of the region for the next generations.

Yet, the Russian experts noted that with regard to the Russian-Norwegian interaction in the middle-size business, the environment is staying favorable and friendly – in supply industry the cooperation has even strengthened, as one respondent claimed.

The Russian experts also mentioned that the current unfavorable environment specifically in the oil and gas sphere has negative impact for all parties. Norway is an acknowledged world leader in developing of advanced offshore petroleum technologies and has continuously implemented them in development of the traditional hydrocarbon provinces, as well as in the Barents Sea. However, the Norwegian industry can also provide cutting-edge technologies for other northern regions, which are associated with more challenging working and climate conditions – for example, for ice-infested areas. Meanwhile, the Russian hydrocarbon potential in the Arctic is considered the biggest among all countries in the region; in addition, exceptionally harsh climate conditions and limited accessibility of the Russian Arctic seas are recognized by many researchers and industry people. Hence, the Norwegian technical solutions can be successfully realized on the Russian continental shelf, thus facilitating creation of the synergic effect. However, it cannot happen now due to the existing limitations. Therefore, as long as the cooperation and R&D are limited, there is not enough demand for the extensive supply opportunities in technology adoption.

Characterization and appliance of the unitization principles. The last part of the interview was devoted to the evaluation of the unitization principles applied in the joint development of cross-border petroleum field. As far as the implementation of the unitization procedures is prescribed in the Murmansk Treaty, it was interesting to get a characterization of such legal approach in general terms and for the Barents Sea case in particular. Almost all the experts described this solution as a good and efficient one, because it represents the most economically efficient way of trans-boundary reservoir development.

We briefly discussed the advantages and disadvantages of various types of petroleum agreements, which can be concluded between parties to produce oil and gas. In particular, we touched upon the partnerships based on creating joint ventures and through realization unitization procedures.

The Norwegian respondents expressed confidence that the unitization agreement is the best way to realize a cooperative offshore project in the most efficient way. Meanwhile, Russia conducted petroleum operation in the Caspian Sea through initiation of joint ventures together with Azerbaijan.

The Norwegian experience on development of Statfjord and Frigg fields in 1970s in cooperation with the UK was mentioned as a practical case, which could be useful in the Barents Sea.

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Appendix 1 – Interview guide (general questions)

Introduction	<ul style="list-style-type: none"> - Basic information about the interviewer. The essence and implication of the research. - Confirmation of the respondent’s anonymity (if required). - Confirmation of the interview recording (if agreed).
Information about respondent	<ul style="list-style-type: none"> - What is your nationality? - Where do you reside and permanently work? - What is your professional sphere? - How long have you been working in this area? - What is your current position?
Prospects of petroleum industry in the High North	<ul style="list-style-type: none"> - O&G industry has been suffering recession for the nearly last three years. In your opinion, this trend is a precursor of inevitable end of petroleum era, or a temporary period in a «supply-demand» cycle? - In the frame of the current price environment, development of the Arctic energy resources is mostly postponed. Will these resources ever be developed? If yes, in what time perspective? - What areas in the High North will be primarily developed?
Strategy of Norwegian-Russian interaction in the Barents Sea	<ul style="list-style-type: none"> - What implications has the Murmansk Treaty signed by Norway and Russia in 2010 on regional and global scale? - Can this agreement facilitate a further cooperative petroleum development of the Barents Sea, or will it remain only as a successful case of a bilateral dispute resolution? - Why there was no petroleum cooperation between Russia and Norway in this zone up to now? - Norway or Russia is more interested in a development of trans-boundary petroleum resources in the Barents Sea? - What are the main challenges that Norway and Russia can face in case of initiating bilateral O&G project?

<p>Stakeholders' role in the Barents Sea</p>	<ul style="list-style-type: none"> - In your opinion, which stakeholders are interested in the petroleum development of the region and try to accelerate it? - And which of them are against of that kind of initiative and slow the progress down? - Who should be responsible for this development – state or private sector? Why? - Do you believe that any oil and gas activity in the region can be banned as it is currently regulated in the Lofoten area? - Do you think that local communities in northern regions of Norway and Russia are interested in job creation associated with a new petroleum project realization in the Barents Sea, or rather concerned about potential ecological risk emanating from it? - A current sanctions and counter-sanctions regime existing in the economical relations between Norway and Russia includes imposing some limitations on the Russian offshore petroleum industry, thus suppressing O&G activity on the RCS. Meanwhile both countries aim to cooperate in the High North, particularly in the Barents Sea. How such contradictory policies can go together over a longer term?
<p>Climate policy</p>	<ul style="list-style-type: none"> - In your opinion, a global warming is caused by antropogenic influence, or is just another period in a regular cyclic climate change process on the Earth? - How do you evaluate the implications of recent Paris climate agreement for O&G industry? - Do you expect dramatic changes in a global climate policy agenda in short perspective?
<p>Unitization procedures</p>	<ul style="list-style-type: none"> - What is the most efficient legal way for petroleum development of this area? - Do you believe that unitization procedures can be successfully applied in the Barents Sea? - Do you think that the existing international legal experience in the unitization agreements' conclusion, in particular the Norwegian background, can be duplicated in this case? Or each particular case is unique, hence special approach is required?

Appendix 2 – Interview guide (additional questions)

- Could you please tell about the NPO “Association “Murmanshelf” activity?
- What is the current environment in cooperation between Russian and Norwegian suppliers?
- How else Russia and Norway are cooperating in the Barents Sea?
- Given the existing controversies between Russia and Norway in the political dimension, is the same tendency witnessed in the interactions between suppliers?
- Is future of oil and gas different?
- So the current price changes are mainly caused shale oil and gas development?
- How do you evaluate the perspectives of the Kara Sea hydrocarbon potential development?
- Which transportation options are the most relevant for potential crude delivery from the Barents Sea?
- However, Norway is increasingly applying short-term contracts in natural gas sales nowadays, isn't it?
- On the Russian-Norwegian research seminar devoted to cooperative trans-boundary resources development you mentioned the alternative way of concluding agreement - simplified unitization. In what case it may be realized?
- Is the future of oil and natural gas different?
- Do you think that stakeholders from Russia and Norway regard this treaty in the same way?
- Which petroleum transportation options can be considered for crude delivery from the Barents Sea?