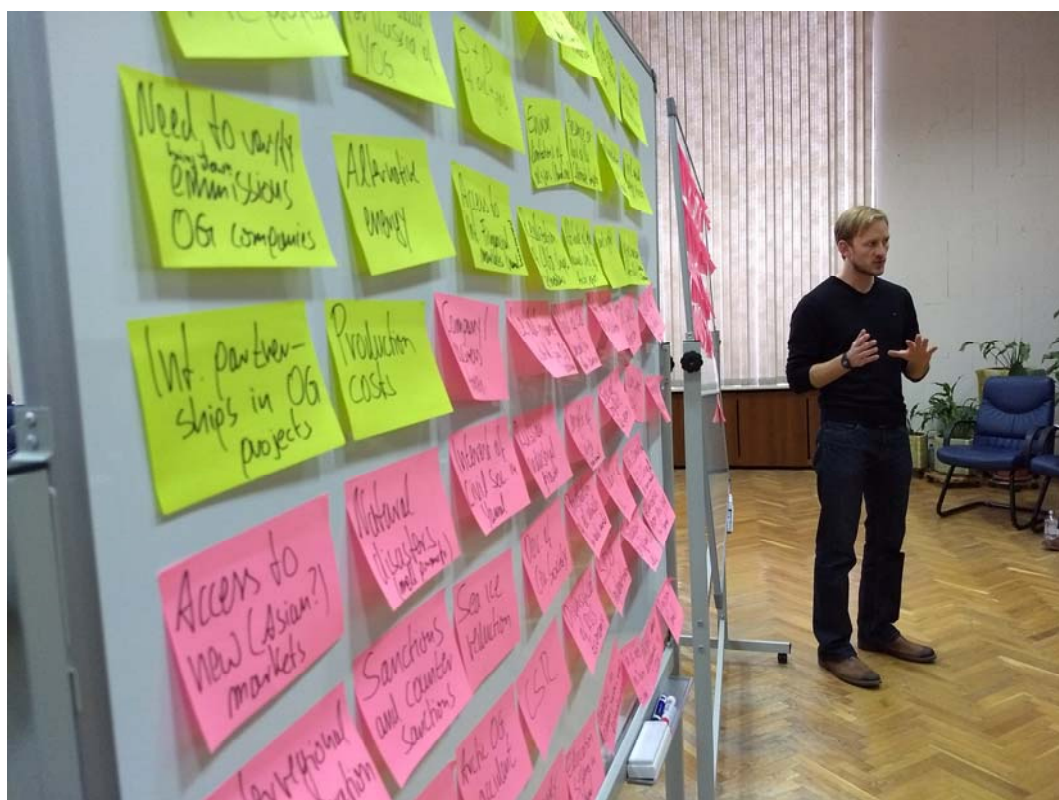


Arctic Stakeholder Map

Stakeholder groups involved in Yamal oil and gas development

Blue-Action Case Study Nr. 5



Picture 1 Scenario expert Johannes Gabriel from Foresight Intelligence guides workshop participants through the multitude of factors influencing the future of the Yamal-Nenets Autonomous Okrug by 2040.

Blue-Action: Arctic Impact on Weather and Climate is a Research and Innovation action (RIA) funded by the Horizon 2020 Work programme topics addressed: BG-10-2016 Impact of Arctic changes on the weather and climate of the Northern Hemisphere. Start date: 1 December 2016. End date: 1 March 2021.



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Summary for publication

The series of the Yamal 2040 Scenario Workshops is a part of the international research project “Blue-Action – Arctic Impact on Weather and Climate” funded through the European Union’s Horizon 2020 Programme. This project aims to evaluate the impact of a changing Arctic on northern hemisphere weather and climate. Blue-Action brings together 120 experts from over 40 organizations in 17 countries most of whom are climate scientists dealing with improvement of existing and development of new techniques that will enable robust and reliable forecasting of weather and hazardous climate events in the Arctic and over the northern hemisphere.

However, Blue-Action is not limited to natural science’ goals alone. As a final result, the project aims to improve the safety and wellbeing of people in the Arctic and across the northern hemisphere by reducing risks associated with a changing climate and Arctic operations like resource exploitation, and to support evidence-based decision-making by policymakers worldwide. To achieve this, Blue-Action takes a transdisciplinary approach, bridging scientific understandings of Arctic climate, weather and risk management research with key rights- and stakeholder knowledge. This is being done within the project’s Work Package 5 “Developing and Valuing Climate Services”, which consists of a set of case studies that bring scientists together with stakeholders to co-develop products that “translate” the model outputs and improved modelling skill developed in other work packages into societal- and sector-relevant products.

Our case study in the Blue-Action project develops a study of the impact of the Arctic changes on resource development in the Russian Arctic with the goal of improving stakeholders’ capacity to adapt to these changes. The Yamal 2040 Scenario Workshop series is at the core of the case study.

The work carried out in this deliverable is a desk study producing a map of stakeholder groups involved in oil and gas development on the Yamal-Nenets Autonomous Okrug (YNAO). This study is part of the preparatory work for the scenario exercise conducted in cooperation with various stakeholder groups active in or affected by oil and gas development in YNAO.

Work carried out

As a part of Work Package 5, the Institute for Advanced Sustainability Studies (IASS) in cooperation with Primakov National Institute of World Economy and International Relations of the Russian Academy of Science (IMEMO) and Foresight Intelligence (FI) develop a study of the impact of the Arctic changes on resource development in the Russian Arctic with the goal of improving stakeholders' capacity to adapt to these changes. The Yamal 2040 Scenario Workshop series is at the core of the case study.

The work carried out in this deliverable is a desk study producing a map of stakeholder groups involved in oil and gas development on the Yamal-Nenets Autonomous Okrug (YNAO). This study is part of the preparatory work for the scenario exercise conducted in cooperation with various stakeholder groups active in or affected by oil and gas development in YNAO.



Picture 2 The Yamal region is marked in red in the map

The oil- and gas-rich Yamal-Nenets Autonomous Okrug (YNAO) is a highly relevant case to explore current and future interactions of Arctic and global change and the resource development sector. According to the Russian State Commission on Arctic Development, 36 of 56 priority resource extraction projects in the Russian Arctic are developed or planned to be developed in the Yamal-Nenets Okrug. Most important of them are the Yamal LNG project, and the Bovanenkovo and Novoportovskoye oil and gas condensate field developments.

Hydrocarbons of the YNAO are exported to 21 countries of the European Union and the export geography of the Yamal oil and gas is planned to be expanded to Asia in the near future. In early December 2017, a new generation LNG tanker, the *Christophe de Margerie*, conducted the first Yamal LNG shipment from to Asia. Oil and gas projects of the YNAO are developed with participation of a wide range of international stakeholders, primarily from extractive industry, shipping, and technology development sectors. Their activity is closely monitored by Russian and international environmental NGOs. On the local level there are more than half a million people living in the Yamal-Nenets AO, including Indigenous peoples who feel first-hand both positive and negative consequences of resource development.

Harsh climate and weather conditions of the Russian North are among the main challenges for the development of Yamal projects. The fact that these conditions are rapidly changing makes the task even more complicated. But climate change is not the only driver and challenge. The future of Yamal oil and gas is a complex issue afflicted with many uncertainties. Examples for such uncertainties are global

supply and demand trends for energy resources (including oil price trends), progress in energy efficiency and market share of renewable energy sources, the macroeconomic situation in Russia and specifically the future of Russian energy policy, the geopolitical situation in the Arctic and in other regions, development of climate policies to tackle global warming and its consequences (like the implementation of the Paris Agreement), and regional and national regulations for resource development, transportation and environmental protection.

The Yamal 2040 scenario workshops enhance capacity of stakeholders to understand and deal with these interacting uncertainties and to make informed and future-oriented decisions. At the core of the preparation for the workshop series is the production of a **stakeholder map** outlining all relevant stakeholder groups engaged in and affected by oil and gas development in the YNAO.

Main results achieved

Introduction: Oil and gas development in the Yamal-Nenets Autonomous Okrug

The Yamal-Nenets Autonomous Okrug (YNAO) is at the core of petroleum development in Arctic Russia [1]. It is one of the largest federation subjects of Russia and has an area of 770.000 km². YNAO is situated on the northern part of the West Siberian plain and is washed by the Kara Sea from the north. Half of the territory of the Orkug is located north of the Arctic Circle.

Today, YNAO produces more than 80% of Russia's natural gas [2]. Oil and gas condensate are also extracted in YNAO but in less meaningful volumes. The region hosts a number of ambitious and complex petroleum investment projects with worldwide export plans. One of the most prominent examples is the "Yamal LNG project", a joint venture of Russian Novatek, French Total, and Chinese CNCP and Silk Road Fund. The first shipment of liquefied natural gas (LNG) from the project was announced on 8 December 2017 [3]. The project will be producing 16.5 million tons per year (MTPA) of LNG and up to 1.2 MTPA of gas condensate, which is destined for Asian-Pacific and European markets, mostly transported via ship. Yamal LNG is thus supposed to boost shipping along the Northern Sea Route. For this purpose, a new multifunctional port was constructed in Sabetta as a part of the project.

Bovanenkovo, another important project in the YNAO, is developed by Gazprom. Gas extracted from the Bovanenkovskoe field which is the largest field in the YNAO, is transported to Russian and European markets via pipelines specially constructed for this purpose. Bovanenkovo started production in 2012 and is expected to contribute 20 percent of total Russian gas production already by 2020 [1].

The Novy Port project operated by Gazprom Neft utilizes the resources of the Novoportovskoe field, which is one of the biggest oil and gas reserves of the Yamal Peninsula. The project involves complex and unique extraction and transshipment technologies, which enable transportation of Yamal oil to European consumers via the Northern Sea route. The Novoportovskoe field was discovered already in 1964 but it was not developed until recently because of the complexity of its geological structure and absence of transport infrastructure. The Novy Port project illustrates the general trend in the Russian petroleum industry: more or less easily accessible oil and gas fields are maturing, and Russian companies with the support of the Russian government have started to develop more complicated fields in the Russian Arctic. This includes prospects onshore but also increasingly offshore, i.e. tapping the vast continental shelf off the Russian coast with it immense opportunities and challenges.

Licenses for developing hydrocarbon deposits of the Kara Sea are acquired by the Russian energy giants Gazprom and Rosneft. Both of them have started exploration works in the area. In 2014, Rosneft in cooperation with ExxonMobil drilled the exploration well "University-1" in the Kara Sea and found oil of high quality. However, due to Western sanctions against Russia, ExxonMobil had to leave the Russian Arctic together with funding and technology support, slowing down Rosneft's plans for the Kara Sea.

Overall, the oil and gas industry plays a crucial role for the economy of the YNAO and transformed it into one of the richest regions in Russia. Resource extraction accounts for more than 88% of Yamal's industrial business [2]. Interesting enough, YNAO is one of two sub-regions in the Russian North that have had population growth in the post-Soviet period, whereas all other have been experiencing population decline. The reason for the demographic gain of YNAO is its growing economy from gas extraction [4].

The Stakeholder Map

The stakeholder map can be found in **Annex** to this document.

Here below we provide a detailed analysis of the major stakeholders listed in the map.

Stakeholder groups engaged in YNAO oil and gas development

The development of oil and gas in the YNAO comprises a large variety of stakeholders, i.e. people and organizations who are either involved in different stages of the Yamal oil and gas business, have an influence on it, or are affected by it. Indigenous peoples are often called rights-holders instead of stakeholders, because they have explicit rights to the land where they have been living for centuries.

The stakeholder map of Yamal oil and gas (see Annex) includes stakeholder groups from within the region itself, Russia generally, as well as from outside the country. They belong to various spatial scales: federal and local authorities, international organizations and regional institutions, as well as Arctic and non-Arctic players. Stakeholder groups also have different legal status, spanning for example state and non-state actors. Generally, Yamal oil and gas development involves a large number of stakeholder groups with complex interrelationships. The latter is not part of this stakeholder map and cannot be sufficiently dealt with in this context. The map in the Annex identifies the main stakeholder groups and individual stakeholders therein.



Picture 3 Stakeholders at the first workshop, Moscow December 2017. Photo courtesy of Kathrin Stephen.

Oil and gas companies

As of 2017, there are 36 companies extracting gas in a total of 93 gas fields in the YNAO. The largest share of extracted gas (75%) is accounted for by Gazprom's and its subsidiaries. Novatek's subsidiaries extract about 15% of the total amount of gas in the YNAO. Yamal oil was extracted by 22 companies in 66 oil fields in 2017. The biggest developers are subsidiaries of Gazprom Neft, Rosneft, and Novatek. 28 gas condensate fields of the YNAO are developed by 22 companies. The biggest share of gas condensate in the YNAO is extracted by subsidiaries of Gazprom (45%) and Novatek (43%) [5].

Several foreign companies are involved in hydrocarbon extraction in the YNAO. Among them, there are – as mentioned above – Total and CNCP who participate in the Yamal LNG project. German Wintershall is involved in two Yamal projects (Yuzhnorusskoe oil field and Achimgaz) partnering with Gazprom. Novatek also agreed to cooperate with Marubeni Corporation (Japan) in the new huge Arctic LNG 2 project, which is also located in the YNAO and is planned to start production in 2025. As Novatek is looking for further partners and investors for this project, more foreign companies may get involved in YNAO petroleum industry.

Oilfield service companies

Oil and gas service companies are contractors of oil and gas producers and provide them with technologies, equipment, and services necessary to construct wells and produce oil and gas. A large number of service companies are involved in petroleum business in the YNAO. Among them, there are Russian independent service companies (Geotech, Ru-Energy Group), service companies that belong to oil and gas companies (RN Burenie, Gazpromneft-Nefteservice), state service companies (Rosgeologia),

and foreign service companies. In the YNAO, foreign service companies are represented primarily by the “Big Four”: Schlumberger, Halliburton, Weatherford, and Baker Hughes. The sanctions imposed on Russia in response to the Crimea and Ukraine crisis prohibited delivery of western technologies and equipment for Russian offshore and Arctic projects involving oil. On the one hand, this halted development of offshore projects as mentioned above. On the other hand, as it is often underlined in Russia, it might give more opportunities for development of Russian domestic petroleum services and pave the way for new players. To give an example for the latter, in 2017 Gazprom started exploration drilling in the Kara Sea with the help of Nanhai VIII, a Chinese company owned by China Oilfield Services Limited (COSL).

Financial institutions

Introduction of economic sanctions against Russia as well as the fall in oil prices in 2014 made it harder for Russian oil and gas producers to attract international funding crucial for the complicated and capital intensive projects in the YNAO. These new circumstances made Russian companies turn to Asia and search for funding there. The Chinese Silk Road fund, the Exim Bank of China, and the Chinese Development Bank have already given loans for YNAO projects owned by Novatek. As of 2017, the company also tries to get Japanese banks involved [6]. Russian banks (Sberbank of Russia, Gazprombank) and the Russian National Wealth Fund also granted credits for Yamal oil and gas projects.

Insurance companies

The Arctic petroleum business is intertwined with a large number of risks and uncertainties due to the vulnerability of the Arctic ecosystems, a volatile oil price, and geopolitical tensions. Insurance companies offer the opportunity for oil and gas producers to reduce such financial risks at least to some degree. Without them, it would be impossible for oil and gas companies to get loans for their YNAO projects. Russian insurance companies Sogaz, Surgutneftegaz, and the Russian Agency for Export Credit and Investment Insurance provide insurance coverage for Yamal oil and gas projects. Among foreign companies involved in the insurance of these projects are the Swedish export credit agency EKN, the German export credit agency Euler Hermes, the French export credit agency COFACE, and China Insurance Investment Ltd.

Transportation companies

Transportation logistics is another challenging factor of petroleum development in such a remote region like the YNAO. Shipping companies are an important stakeholder group, as they operate vessels that ship oil and LNG out from the YNAO and deliver necessary equipment for construction and functioning of Yamal petroleum projects. The most relevant Russian shipping companies involved in Yamal petroleum business are Sovcomflot, Murmansk Shipping Company, and Rosatomflot. The latter is a state company providing icebreaker assistance for shipping along the Northern Sea Route. Canadian Teekay LNG, Greek Dynagas, and Japanese Mitsui OSK lines have long-term contracts with Yamal LNG and operate tankers that will deliver LNG from the Yamal peninsula to western and Asian markets.

With respect to pipelines, there are two main players in the YNAO as well as in the whole of Russia: Transneft, which is a state monopoly operating oil pipelines, and Gazprom, which is constructing and operating gas pipelines.

Goods necessary for petroleum production are also delivered to the YNAO via railroads. However, their network is not widely developed due to unfavourable conditions for railroads like permafrost and boggiess. In order to facilitate its Yamal projects, Gazprom constructed the Obskaya-Bovanenkovo railroad. There are also plans to construct a new railroad called “Northern Latitudinal Railway” (Severnyy

Shirotny Khod) with the goal to link the western and the eastern parts of the YNAO and to increase accessibility of Yamal oil and gas fields. Russian Railways and Yamal authorities are in charge of this project.

Authorities

Yamal oil and gas is owned by the Russian state and is subject of joint jurisdiction of the Russian federal government and the government of the YNAO. Management of hydrocarbon resources in the region, respective legislation, the licensing regime, control over security and environmental safety of petroleum industry, adoption of Arctic, energy, tax, and credit policies, and regulation of activity of natural monopolies is under jurisdiction of numerous authorities on both levels:

- Federal level: President of Russia, Russian Ministry of Energy, Russian Ministry of Natural Resources and Environmental Protection, Russian Ministry of Economic Development, Russian Ministry of Finance, Russian Ministry of Industry and Trade, Russian Ministry of Transport, Russian Ministry of Civil Defence, Emergencies and Mitigation of Natural Disasters, Russian state commission for Arctic development, Federal Security Service, Committee on Natural Resources, Environment and Ecology of the State Duma
- Regional level: Governor of YNAO, Department of Economic Development of YNAO, Department of International Relations of YNAO, Department of Natural Resources, Forestry, and Development of oil and gas industry of YNAO, Department of Transport of YNAO, Department of Issues of Indigenous Peoples of YNAO, Committee of industry, natural resources and environment protection of YNAO of the legislative Assembly of YNAO.

Given the fact that the biggest business players in the YNAO (Rosneft, Gazprom, and Transneft) are also state controlled, one can conclude that the Russian state is the most important player in oil and gas development of the YNAO.

Intergovernmental organizations

Oil and gas development in the YNAO is indirectly affected by activities of a number of intergovernmental organizations. One of the most prominent examples is the Arctic Council, which is the leading intergovernmental forum promoting cooperation between Arctic states and Arctic indigenous communities. Russia is a member state of the Arctic Council, and the organization succeeded in maintaining cooperation with Russia in times of overall deterioration of relations between Russia and the West. The Arctic Council does not have legal authority, however, it provides a forum for negotiations of legally binding agreements. Among such agreements is, for instance, the “Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic”, which was finalised in 2013.

Several agencies of the United Nations concern to various extents issues of hydrocarbon development in the Arctic. Among them are the International Maritime Organization (which regulates shipping and recently adopted the International Code for Ships Operating in Polar Waters (or short Polar Code)), the United Nations Environment Programme (which coordinates environmental activities of the UN), and the United Nations Permanent Forum on Indigenous Issues (which coordinates matters relating to the concerns and rights of the world's indigenous peoples).

The Organization of the Petroleum Exporting Countries (OPEC) plays an important role in the regulation of oil prices, which is one of the crucial variables for Arctic petroleum development. Russia is not a member of the organization but the country cooperates with OPEC, for instance through the recent agreement to cut the production of oil to stabilize the world petroleum market [7].

Local population

About 534.000 people live in the YNAO. Ethnic Russians constitute 60% of them, followed by Ukrainians with 9% [8]. Indigenous groups account for 8% of the Okrug's population. This includes titular Nenets, Khanty, and Selkup. As mentioned above, because of the petroleum industry and labour migration, the YNAO is one of the few regions in the Russian Arctic, which experiences population growth. 70% of the people who now live in the YNAO were born outside the region [8]. However, in the rich Okrug the wealth is distributed unequally resulting in stratification of its population. Whilst petroleum employees who moved to the YNAO enjoy high incomes and living standards, little of the money reaches tundra-dwellers [ibid]. Moreover, indigenous communities are those who are affected most by oil and gas developments. Current and planned oil and gas fields of the YNAO overlap with territories relied upon by indigenous nomads for their livelihoods (reindeer herding, hunting, fishing, gathering). In the YNAO, business, the local government, and indigenous communities undertake efforts to achieve mutual coexistence between the industry and tundra-dwellers [ibid]. Petroleum companies declare accommodation of interests of indigenous communities of the YNAO and minimization of environmental impacts on the lands where they live. One example for respective action is the compensation for lost pasture and herders' free right of passage through active extraction fields in Gazprom's Bovanenkovo field [1]. However, there are many problems still remaining in this respect, and not every resource extraction project in the YNAO was planned and is developed with consent of the indigenous population [9, 10, 11].

Fly-in/fly-out workers

The Yamal petroleum industry provides jobs not only for residents of the Okrug. Workers from other parts of Russia and from abroad (mostly from the countries of the former USSR) come temporally to the YNAO to work in oil and gas extraction. Their shifts in harsh Arctic conditions usually last one or two months and are followed by weeks or months of time-off when workers return home. There is no official statistics on the number of fly-in/fly-out workers in Russia.

Indigenous rights NGOs

There are several non-governmental organizations (NGOs) whose activities are focused on or include defence of rights and preservation of culture of indigenous peoples of the YNAO. These are local organizations ("Yamal for its descendants", "United Yamal"), Russian (Russian Association of Indigenous Peoples of the North (RAIPON), Centre for Support of Indigenous Peoples of the North), and international NGOs (Association of World Reindeer Herders). However, in Russia the activity of indigenous rights NGOs is significantly limited by state control on both federal and regional levels [11, 12]. Faced with these limitations, indigenous NGOs have chosen different strategies to foster the protection of interests of indigenous communities of the YNAO, for example through building relations with the petroleum industry. Some of them prefer dialogue and trade-offs with the state and business, e.g. RAIPON or "Yamal to its descendants", others are more critical of oil and gas development in the YNAO and are thus less ready for compromises, e.g. "United Yamal" [13].

Environmental NGOs

Environmental NGOs perform social control over activities of oil and gas business in the YNAO. Most important actors who watch the development of oil and gas in the YNAO on a regular basis are Greenpeace Russia and WWF Russia. International offices of these NGOs deal with Arctic oil and gas in general, but also influence Yamal petroleum development indirectly through their oil and gas activities.

WWF and Greenpeace publish expert assessments of the impact of the petroleum industry on the environment of the YNAO, raise public awareness regarding existing problems, provide recommendations for improvement of the situation, participate in public hearings of planned resource extraction projects in the YNAO, and cooperate with petroleum companies on environmental protection initiatives. For example, as a result of such cooperation with WWF, Yamal LNG introduced the strategy of protection of Atlantic walruses in 2014. Offshore projects in the Kara Sea are strongly criticized by NGOs as likely unprofitable and surely dangerous for the local environment and global climate.

Media

Russian and international media reporting about the progress of Yamal oil and gas development and its impact on population and the environment play the most important role in creating public opinion about the subject. Due to the number of ambitious investment projects developed or planned to be developed in the YNAO, petroleum projects on land in the Okrug and in the Kara Sea appear quite often not only in regional but also in Russian federal and international media. Among regional media, important actors are the newspaper *Krasny Sever*, news agencies *Yamal PRO* and *Arctic info*. The Russian federal newspaper *Rossiyskaya gazeta* and business media *Vedomosti*, *Kommersant*, and *RBC* cover regularly the news and analytics about Yamal oil and gas. Yamal issues are in the focus of *The Independent Barents Observer*, which reports regularly about the region. Major events concerning oil and gas development in the YNAO also make it to the news of foreign business media like *Financial Times* or *Forbes*. There is a certain difference in coverage of the issues of Arctic oil and gas among Russian and foreign media. Russian newspapers and online media are generally more positive about petroleum development in the Russian North and in the YNAO in particular and communicate the vision of the Arctic as an economic hub for energy production [14, 15]. Western media give more attention to environmental and climate consequences of Arctic oil and gas development [15].

Scientists

Harsh and rapidly changing climate and weather conditions of the Russian North are among the main challenges for the development of Yamal energy projects. But climate change is not the only driver and challenge of oil and gas development in the region. The future of Yamal oil and gas is a complex issue afflicted with many uncertainties. Examples for such uncertainties are global supply and demand trends for energy resources (including oil price developments), the macroeconomic situation in Russia and specifically the future of Russian energy policy, the geopolitical situation in the Arctic and in other regions, development and implementation of climate change policies to tackle increasing temperatures, and regional and national regulations for resource development, transportation, and environmental protection.

To understand these complexities and to broaden scientific knowledge about the climatic and ecological changes in the Arctic and their interrelationship with socio-economic developments in the region and beyond is investigated by Russian (Arctic and Antarctic Research Institute, Institute of Problems of Oil and Gas, Primakov National Research Institute of World Economy and International Relations (IMEMO), Gubkin Russian State University of Oil and Gas, Krylov State Research Centre etc.) and international scientists at research institutes and universities worldwide (such as the Working Groups of the Arctic Council, Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research (AWI) (Germany), Institute for Advanced Sustainability Studies Potsdam (Germany), and the Laboratoire atmosphères, milieux, observations spatiales (LATMOS) (France)).

Through transdisciplinary research – a research process that engages sciences from various disciplines and societal stakeholders – scientists aim to make academic knowledge increasingly usable for political decision-making, also and increasingly within Arctic academic and policy circles. While efforts of co-

design and co-production of knowledge are generally seen as the way forward for solving daunting societal challenges of climate change and sustainable development, this also creates a tension for academia between the ideal of impartial strive for truth and the necessity of usability of research results for political and societal purposes.

Progress beyond the state of the art

No detailed account and map of stakeholder groups involved in oil and gas development in YNAO exists as to this date. This work thus provides the groundwork for any co-development work between scientists and societal stakeholder groups on (the future of) a specific region in the Arctic heavily affected by climate change, and on possible tools and means to prepare various stakeholder groups for a highly uncertain future.

Aiming for a co-development project in form of a scenario exercise on the future of Yamal oil and gas is a very ambitious project given that the region (Russian Arctic) as well as the specific case study topic (oil and gas) are highly political and societally controversial topics. The project partners are tackling these challenges through making use of well-established networks to Russian stakeholder groups and through close cooperation within the project team, consisting of research institutes from Russia and Germany and a consultancy specialising in scenario development.

Impact

How has this work contributed to the expected impacts of Blue-Action?

The stakeholder map provides the groundwork of the scenario exercise of this case study, which has at its ultimate aim to improve the capacity of various stakeholder groups to respond to the impact of climatic change. Stakeholders from business, policy makers, NGOs, and indigenous communities are invited to three scenario workshops to develop possible scenarios of oil and gas development in the Russian Arctic and translate these scenarios into support for their decision-making for the future. Scenario development as a specific form of climate service is tested in order to assess the value of this tool for stakeholders' improved decision-making capabilities in situations of high uncertainty. Since the engaged stakeholder are all new to this tool, this work improves innovation capacity of various stakeholder groups. The scenario tool further makes sure to integrate knowledge from various backgrounds (including from other work packages) and make these useful in form of improved information for policy makers, NGOs, and indigenous communities.

Impact on the business sector

Scenarios are useful tools especially also for the business sector active in the Yamal-Nenets Autonomous Okrug. Oil and gas development projects in the Arctic require high financial and technological investments and are at the same time faced with many uncertainties, not least concerning the possible development and impacts of climate change in the region coupled with uncertain economic and political developments. Scenarios are thus a helpful tool especially for businesses to plan their future activities, especially also with consideration for possible impacts on the local population and sensitive ecosystems.

Lessons learned and Links built

The stakeholder map made the project team aware of the highly complex picture of stakeholder groups engaged in and affected by oil and gas development in the YNAO. It further made the team aware of

possible links between stakeholders. Ultimately, the stakeholder map provided the basis on which to decide which stakeholder groups and specific representatives to invite to the scenario workshop series. Further, it helped to decide which climate experts to invite from other Blue-Action work packages. In order to ensure the adequate application of the climate service concept, the project team further invited a representative from Climate Service Centre German (GERICS), who are engaged in the entirety of the Blue-Action project.

Contribution to the top level objectives of Blue-Action

This deliverable contributes to the achievement of the following objectives and specific goals indicated in the Description of the Action, part B, Section 1.1: <http://blue-action.eu/index.php?id=4019>

Objective 7 Fostering the capacity of key stakeholders to adapt and respond to climate change and boosting their economic growth

Through producing a stakeholder map of all relevant stakeholder groups engaged in or affected by oil and gas development in the Yamal-Nenets Autonomous Okrug, the groundwork is laid for enabling stakeholders in this specific case study to respond to the unprecedented changes going on in this region of the Arctic. Knowing about the wide array of relevant stakeholders makes it possible to bring representatives thereof together to engage in a scenario exercise to think about possible futures of the YNAO, where processes of climate change bring about high hopes and expectations concerning the development of vast fossil fuel resources in the region. Through the exercise, stakeholders together create and learn about possible opportunities from the changing climate in the region but also emphasise the multiple risks and challenges that abound. By creating various scenarios of Yamal's possible future, stakeholders' capacity is increased to respond adequately to possible opportunities and challenges deriving from climate change in the YNAO.

Objective 8 Transferring knowledge to a wide range of interested key stakeholders

The stakeholder map provided the groundwork for the first workshop in the scenario exercise, which is at the core of the Russia oil and gas case study in Work Package 5. Climate scientists from other Blue Action Work Packages were present at the first workshop of the scenario exercise (on 7 and 8 December 2017 in Moscow, Russia), and transferred their knowledge about the changing climate in the Arctic to the other stakeholder groups represented at the workshop (NGOs, business, media, indigenous peoples). They especially also reported about the remaining uncertainties and gaps of knowledge in climate prediction and forecast models, which is data of great importance for the scenario building exercise.

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Dissemination and exploitation of Blue-Action results

Dissemination activities

Type of dissemination activity	Title	Date and Place	Estimated budget	Type of Audience	Estimated number of persons reached
Organisation of a workshop	Scenario Planning Project “Yamal Oil and Gas 2040” – Workshop Nr. 1 of 3 http://www.blue-action.eu/index.php?id=4146	Moscow, Russia, 7-8 December 2017	See form C of partner involved.	Stakeholders from NGOs, media, science, indigenous peoples, and business	Ca. 20 invited guests
Press release	Press release of 16 Jan 2018: Scientists and stakeholders anticipate alternative futures for remote Russian Arctic Region http://www.blue-action.eu/index.php?id=3903	Published on 16 Jan 2018	See form C of partner involved.	General public	400 clicks in just the first two days after publication for downloading the press release
Press release	Istorii o budushem: kak pomoch ustoychevomu razvitiyu Arktiki/ Stories about the future: how to facilitate sustainable development in the Arctic. http://plus-one.ru/blog/ecology/istorii-o-budushchem-kak-pomoch-ustoychivomu-razvitiyu-arktiki	17 August 2017, online-media “Plus One”	See form C of partner involved.	Russian speakers interested in sustainable development	
Poster	Poster “Impact on Stakeholders in a Changing Arctic - Oil and Gas Development in the Russian Arctic”. Authors: Valeeva, Vilena, Keil, Kathrin, Gabriel, Johannes, Nikitina, Elena https://zenodo.org/record/571304#.Wi_23NLia71	24-27 April 2017 Reston, Virginia (USA)	See form C of partner involved.	Arctic scientists and policy-makers	150
Participation to a	Participation to the conference “The 2017	24-27 April 2017	See form C	Arctic scientists	150

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conference	International Conference on Arctic Science: Bringing Knowledge to Action, 24-27 April 2017, Reston, USA. Participant: Vilena Valeeva (IASS)	Reston, Virginia (USA)	of partner involved.	and policy-makers	
Poster	Payne, Mark, Keil, Kathrin, Kolstad, Erik, Ballester, Joan, Mettiainen, Ilona, Vangsbo, Peter, ... Olsen, Steffen. (2017). Translating advances in Arctic climate science to climate services across the Northern Hemisphere (Version November 2017). Zenodo. http://doi.org/10.5281/zenodo.1065467	23 November 2017	See form C of partner involved.	General public, policy makers	200
Poster	Poster presentation 3887712 Translating advances in Arctic climate science to climate services across the Northern Hemisphere at the 21-26 Jan 2018, Arctic Frontiers- Connecting the Arctic, Tromsø (NO) Presenter: Vilena Valeeva (IASS) http://www.arcticfrontiers.com/	21-26 Jan 2018, Tromsø (NO)	See form C of partner involved.	Scientific community, policy makers	200
Presentation	Payne, Mark. (2017, October). An Introduction to Climate Services, opportunities and benefits. Zenodo http://doi.org/10.5281/zenodo.1064734 2017 Arctic Circle Presenter: Mark Payne	Reykjavik, Iceland, October 13-15	See form C of partner involved.	Scientific community, policy makers	200
Poster	Poster 3885047 Blue-Action: Understanding the impact of a changing Arctic on Northern Hemisphere weather and climate, Presenter: Steffen Olsen (DMI) http://www.arcticfrontiers.com/	21-26 Jan 2018, Tromsø (NO)	See form C of partner involved.	Scientific community, policy makers	200
Poster	Poster 3887697 Improving stakeholders' capacity for adapting effectively to changing conditions: the case of oil and gas development in the Russian Arctic, Presenter: Vilena Valeeva (IASS) http://www.arcticfrontiers.com/	21-26 Jan 2018, Tromsø (NO)	See form C of partner involved.	Scientific community, policy makers	200
Publication	Dale, Thomas, Miller, Raeanne, Vangsbo, Peter, Mettiäinen, Ilona, Ballester, Joan, Kolstad, Erik, ... Nikitina, Elena. (2018, January 18). Climate Service Case Studies Booklet. Zenodo. http://doi.org/10.5281/zenodo.1154792	18 Jan 2018	See form C of partners involved.	General public, policy makers	Publication

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Participation to a conference	16-17 March 2017, Blue-Action at the Expert Meeting “Transfer to Green Economy in Russia: Designing Action Plan” organised by Russian Federation Ministry on Natural Resources and Environment; Cadaster Science and Technology Center. Event on invitation only. Blue-Action representative: Elena Nikitina (IMEMO, Russia) Report available in Zenodo: https://zenodo.org/record/439912	16-17 March 2017, Yaroslavl State Technical University, Yaroslavl, Russia	//	Scientific community and policy-makers	100
Poster	Miller, Raeanne, Payne, Mark, Keil, Kathrin, Kosltad, Erik W., Ballester, Joan, Lesser, Pamela, & Vangsbo, Peter. (2017). Translating advances in Arctic climate science to climate services across the Northern Hemisphere. Zenodo. http://doi.org/10.5281/zenodo.827081 5-9 June 2017, 3rd European Climate Change Adaptation Conference, Glasgow (UK) Presenter: Raeanne Miller	5-9 June 2017, Glasgow (UK)	See form C of partners involved.	Scientific community and policy-makers	200
Article in the press Article (in Russian, resume in English)	International Cooperation in Natural Disasters Risk Reduction in the Arctic: Adaptation to Impacts of Climate Changes. Author: Elena Nikitina. Appeared in GLOBAL AND NATIONAL STRATEGIES IN DISASTER RISK MANAGEMENT, 2017. Vereskyn A., Jdanenko I. (eds.). RF MCHS, Research institute for civil defense and emergencies, Moscow, 135p Open access via https://elibrary.ru	Appeared in 2017	//	General public, policy makers, NGOs	200

Peer reviewed articles

No peer-reviewed articles so far.

Other publications

See the dissemination table above.

Uptake by the targeted audiences

As indicated in the Description of the Action, the audience for this deliverable is for the General Public.

This is how we are going to ensure the uptake of the deliverables by the targeted audiences:

- We have disseminated the contents of this case study and deliverable to several audience types with the activities listed in the dissemination table above across Russia and Europe, in different languages. These activities have seen the active participation of all the partners in this case study not only through presentations at events, but also with press releases (in English and Russian) and articles in the Russian press to make sure to reach out for broader audiences than the scientific one.
- In addition the WP8 colleagues have helped the teams in reaching out for broader audiences using social media in particular Twitter and LinkedIn with more general publications and posts/tweets presenting all the case studies in WP5.
- The present deliverable will be deposited in Zenodo, as all the other public deliverables of this project, and we will promote it via the social media in the project.

Intellectual property rights resulting from this deliverable

Not applicable.



Arctic Stakeholder Map - Stakeholder groups involved in Yamal oil and gas development

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Annex to the Blue-Action Deliverable D5.20

We support the Blue Growth!

Visit us on: www.blue-action.eu

Follow us on Twitter: [@BG10Blueaction](https://twitter.com/BG10Blueaction)

Disclaimer: This material reflects only the author's view and the Commission is not responsible for any use that may be made of the information it contains.

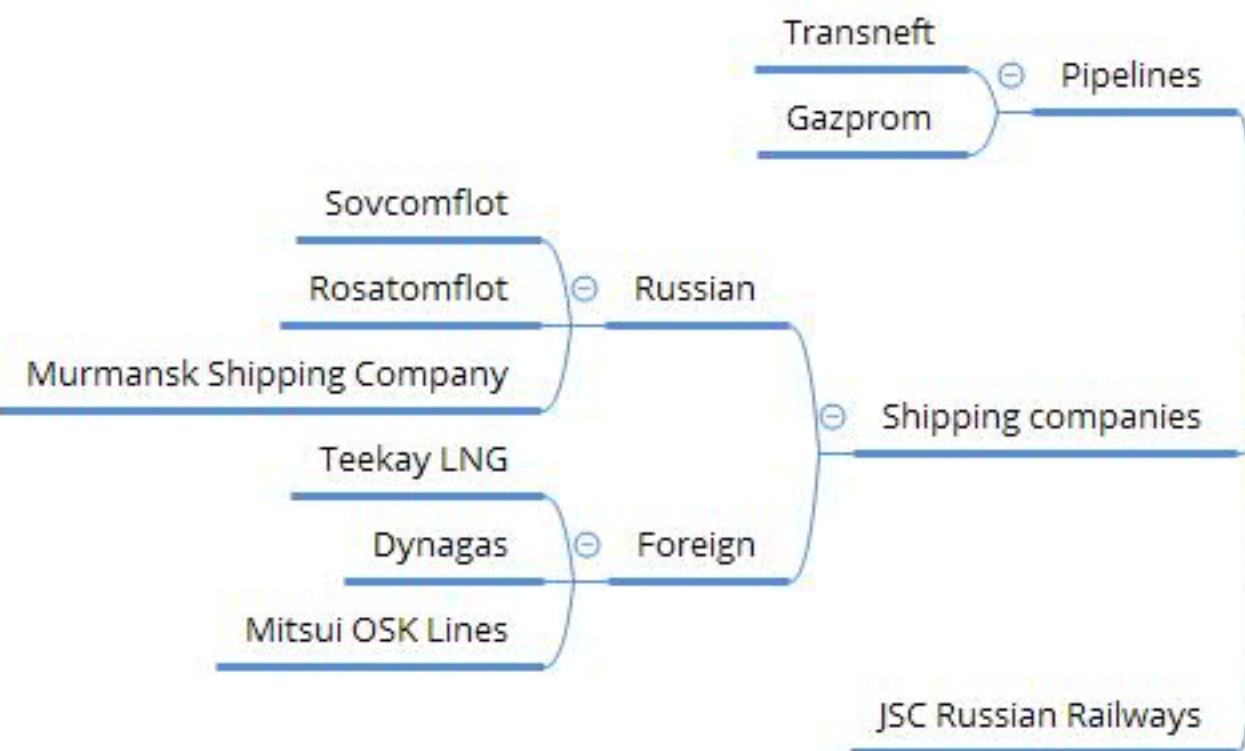
Blue-Action: Arctic Impact on Weather and Climate is a Research and Innovation action (RIA) funded by the Horizon 2020 Work programme topics addressed: BG-10-2016 Impact of Arctic changes on the weather and climate of the Northern Hemisphere. Start date: 1 December 2016. End date: 1 March 2021.



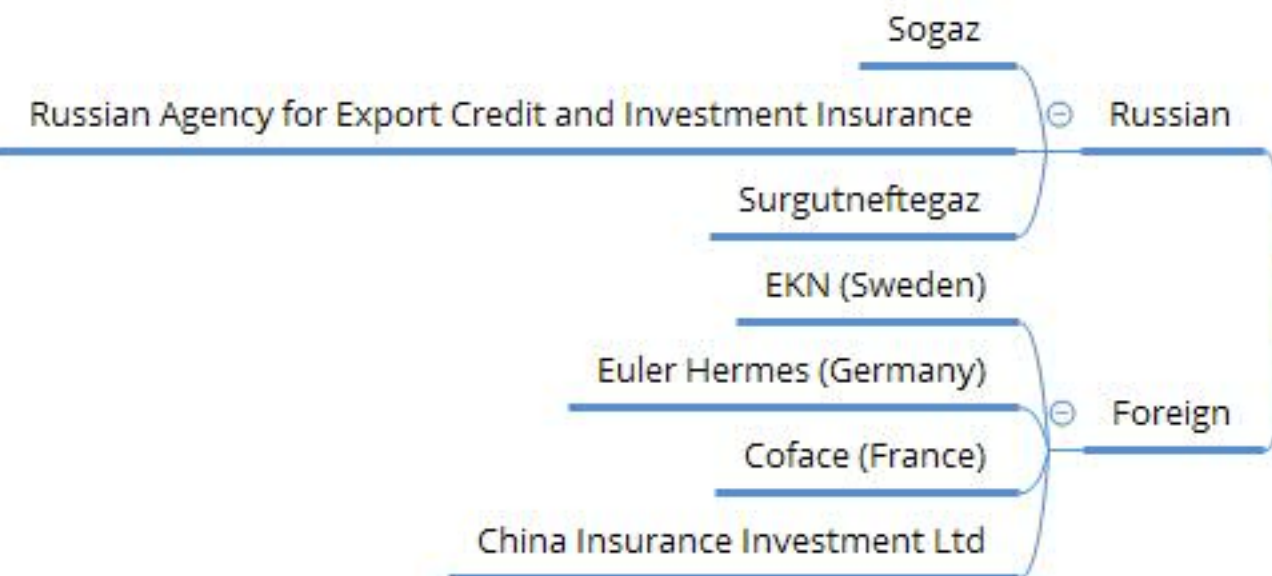
The Blue-Action project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 727852.

Yamal Oil and Gas

Transportation companies



Insurance companies



Financial institutions



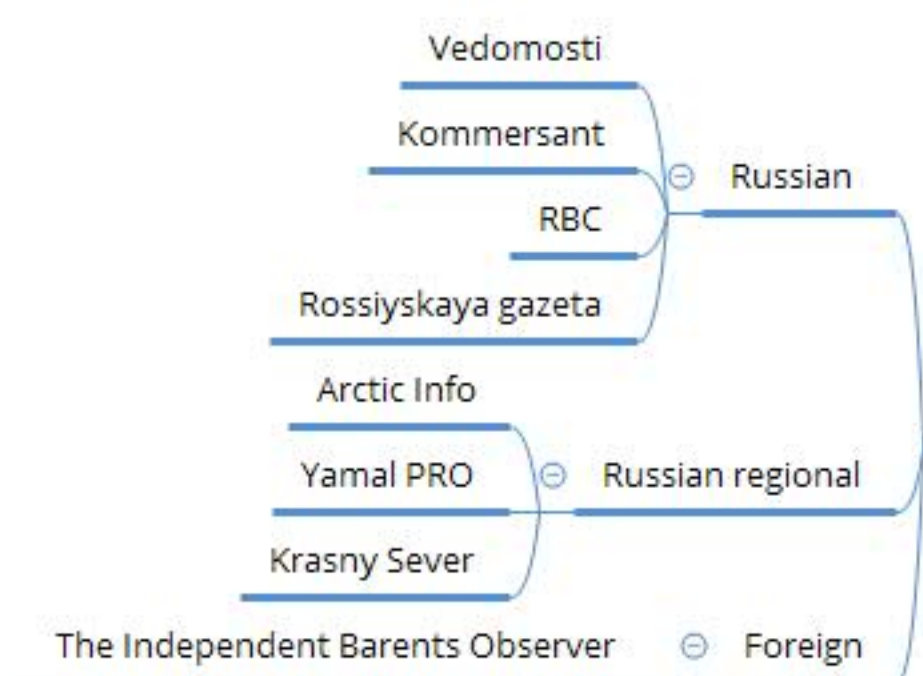
Oil and gas companies



Oil and gas service companies



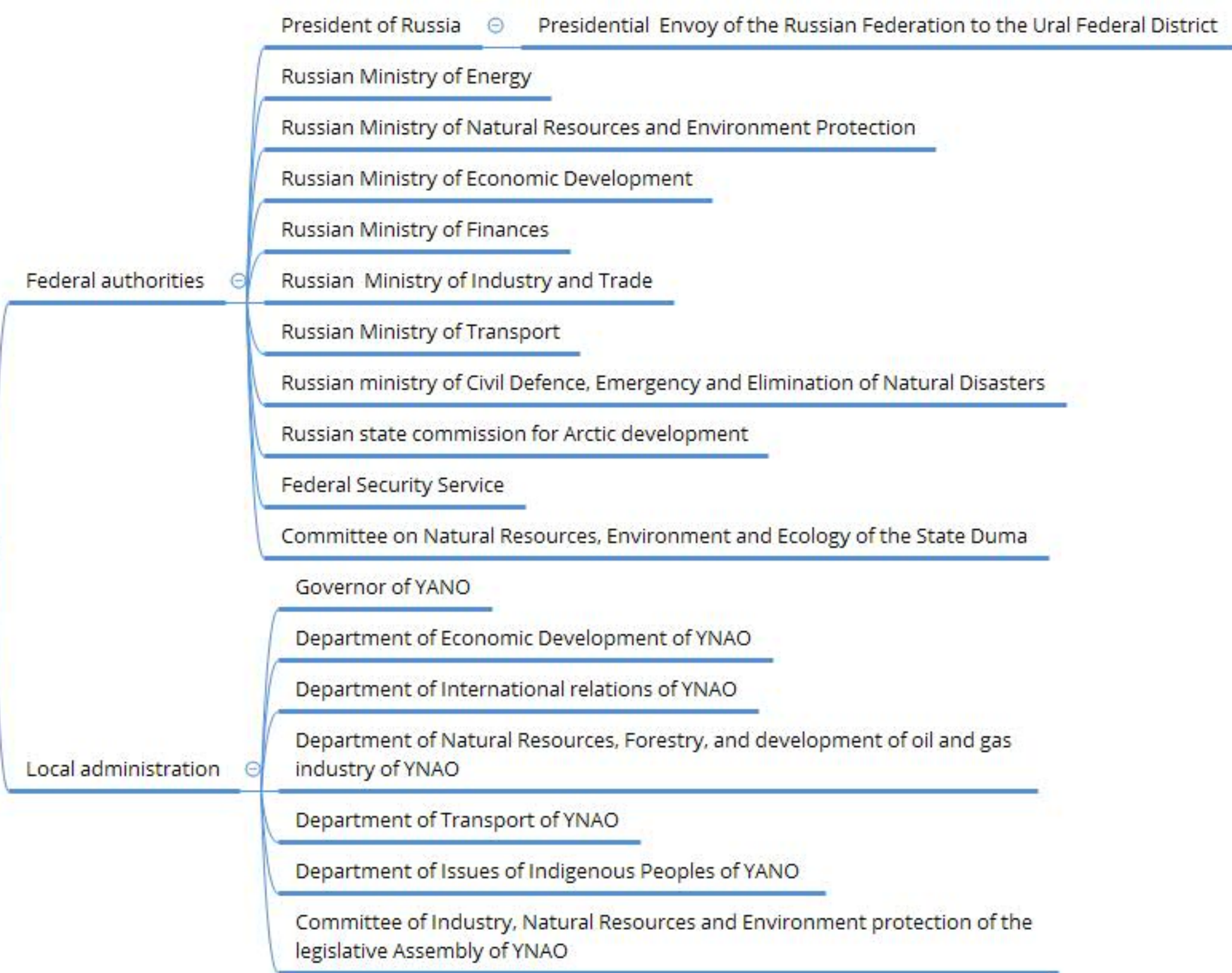
Media



Intergovernmental organizations



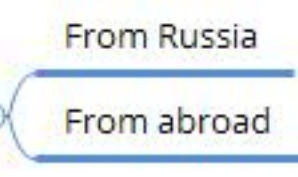
Authorities



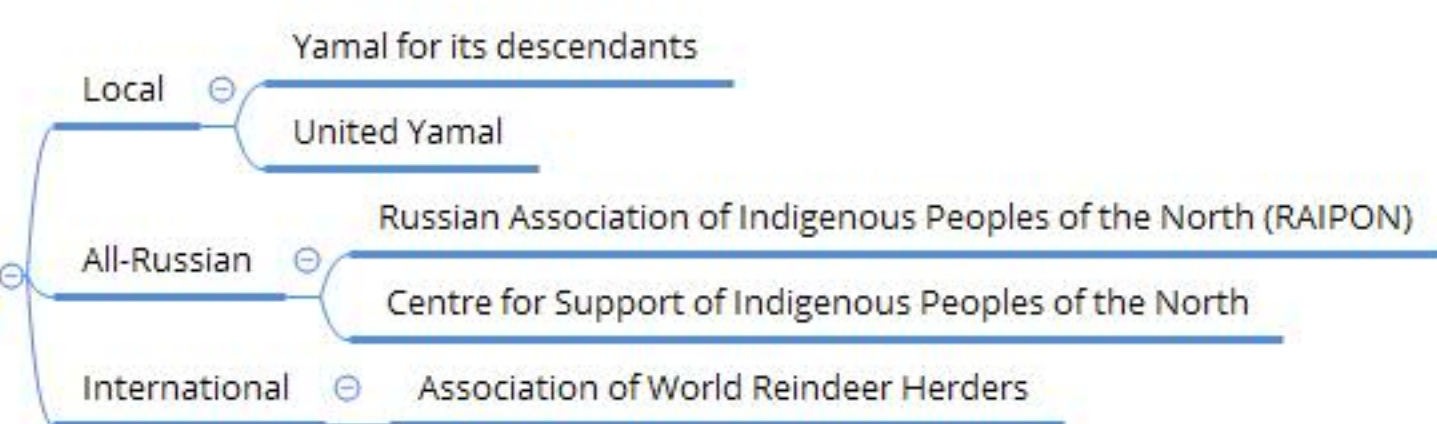
Local population



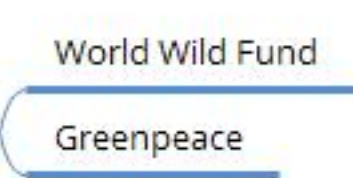
Fly in fly out workers



Indigenous rights NGOs



Environmental NGOs



Scientists

