ARCTIC
TERRITORY OF DIALOGUE

INTERNATIONAL
ARCTIC FORUM

ST. PETERSBURG • RUSSIA • 2019

OUTCOMES OF THE 'ARCTIC: TERRITORY OF DIALOGUE' INTERNATIONAL ARCTIC FORUM 2019

ROSCONGRESS
Building Trust

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THE INTERNATIONAL ARCTIC FORUM 2019 IN FIGURES

The Forum
was attended by

>3,600

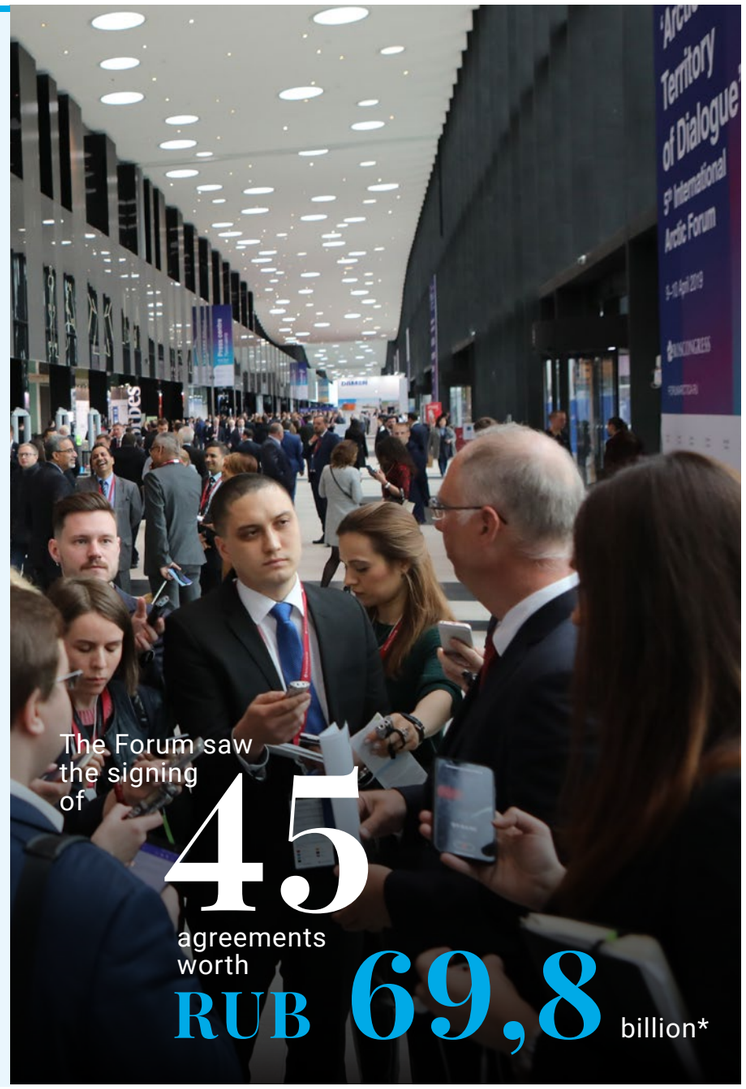
representatives of the political, scientific, and business communities and leading media outlets from Russia and around the world

The Forum was covered by

845

media representatives from **16** countries:

Russia, Canada, China, Estonia, Finland, France, Germany, Italy, Japan, Norway, Slovakia, Spain, Sweden, the United Kingdom, Vietnam, and the United States



COUNTRIES REPRESENTED

52 countries

Largest delegations:

- Norway
- China
- Finland
- Sweden
- USA
- Denmark
- Iceland
- Canada
- Japan

The ‘Arctic: Territory of Dialogue’ 5th International Arctic Forum was held on 9–10 April 2019 in St. Petersburg under the theme ‘The Arctic. An Ocean of Opportunity’. The Forum agenda was devoted to discussions on the comprehensive socioeconomic development of Arctic territories and the development of mechanisms for the discovery and effective exploitation of the region's resource potential.

“I am pleased to note that this Forum, which has now become a regular event, enjoys broad public support. Its noble goals unite expert and research communities, as well as prominent politicians and businesspeople from different countries – those who, in their official capacity or at the bidding of their heart, are involved in the important work of promoting the harmonious development of the Arctic and the preservation of its unique nature and the distinctive cultural traditions of the local peoples,”

said President of the Russian Federation Vladimir Putin in his welcome address to Forum participants.

INVESTING IN THE ARCTIC: A NEW APPROACH

The Arctic is full of potential for investment.

"According to preliminary estimates, we have about 13 billion tonnes of oil and 95 trillion cubic metres of natural gas. They represent colossal planetary reserves," said Vladimir Putin, President of the Russian Federation.

Experts estimate that the Arctic is home to 13% of the world's undiscovered oil reserves and approximately 30% of the world's undiscovered natural gas reserves. A significant portion thereof is located within Russian territory.

The significance of these reserves is growing with global demand for hydrocarbons, especially for natural gas.

As Minister of Energy of the Russian Federation Alexander Novak noted during the Forum, the rate of global gas consumption is growing by about 1.6% annually, which is the highest rate of energy consumption in the world. By 2035, the share of natural gas in the global energy mix will reach 26%, compared to 23% today. Meanwhile, LNG's share of the gas trade is expected to reach 51% by 2025, and 70% by 2040. As such, Russia is poised to take up 30–40% of the global LNG market.

The Arctic is already Russia's primary source of gas.

"Today, Russia produces 725 billion cubic metres, of which 83% is produced in the Arctic zone. That gas is competitive, despite the fact that it is produced in the Arctic, because of the low cost of production and very good quality of natural resources," said Alexander Novak.

Globally significant projects include the Yamal liquefied natural gas production complex and the Bovanenkovsk and Kharasaveysk gas fields.

Chairman of the Management Board and Member of the Board of Directors of NOVATEK Leonid Mikhelson told International Arctic Forum 2019 participants that his company is currently implementing a new project, Arctic LNG-2, that boasts a higher capacity than the Yamal LNG project. A number of major contracts related to this project have already been signed, including one making French energy corporation Total a shareholder. By the end of the International Arctic Forum, agreements were also signed with the Chinese companies CNODC and CNOOC. Negotiations are in progress with partners from the Persian Gulf, Japan, and South Korea.

> *"The Arctic is <...> a risk zone, but those risks are manageable; it is a zone of efficient, predictable economic affairs."*
>
> Maxim Akimov, Deputy Prime Minister of the Russian Federation

The Arctic accounts for about **6%** of Russia's GDP and **11%** of investments in fixed assets

The Arctic is home to **13%** of the world's undiscovered oil reserves and **30%** of undiscovered natural gas reserves

83% of Russian gas comes from the Arctic zone

The Arctic accounts for approximately 6% of Russia's GDP, and 11% of investments in fixed assets.

"The Arctic is <...> a risk zone, but those risks are manageable; it is a zone of efficient, predictable economic affairs," said Maxim Akimov, Deputy Prime Minister of the Russian Federation.

The development of Arctic fields acts as a driver for the development of Russia's economy as a whole.

"According to our estimates, LNG projects will provide work for about 800 Russian enterprises and create about 80,000 jobs all over Russia," said Leonid Mikhelson.

OBJECTIVE:

Comprehensive support of projects in the Arctic region

There are a number of macroeconomic problems that are barriers to harnessing the economic potential of the Arctic. The foremost of these is the significant cost of operations, which is related to increased spending on transporting fuel, materials, and equipment; the cost of labour; accelerated technological depreciation; the need to compensate for ecological risks; and underdeveloped infrastructure.

Forum participants also noted the lack of technologies for Arctic geological exploration and dependence on foreign suppliers of goods and services. This problem is becoming increasingly significant due to sanctions.

"Nobody yet possesses the technology needed to develop deposits located in water bodies which are largely under ice. <...> State support for the programme to build drilling capacity is not tangible, due to the fact that it is completely non-existent," said Mikhail Grigoryev, Director and co-owner of GECON Geological Consulting Centre.

"Exploration of hydrocarbons and equipment for shelf development: we must attain independence here by 2021, given the pressure on our energy companies from the sanctions," said Oleg Ryazantsev, Deputy Minister of Industry and Trade of the Russian Federation.

According to representatives of major companies involved in developing the Arctic region, efforts must soon be focused on attracting investment to address the following issues:

- Creating and implementing government support for developing domestic drilling capacities.
- Developing domestic software for LNG plants (currently, 80% of software is foreign) based on government procurement.
- Localizing the production of seismic equipment in Russia.
- Improving financing mechanisms for fundamental and applied research in the Arctic, taking into account sustainable development principles.

Experts from the SKOLKOVO Moscow School of Management predict that LNG projects could see

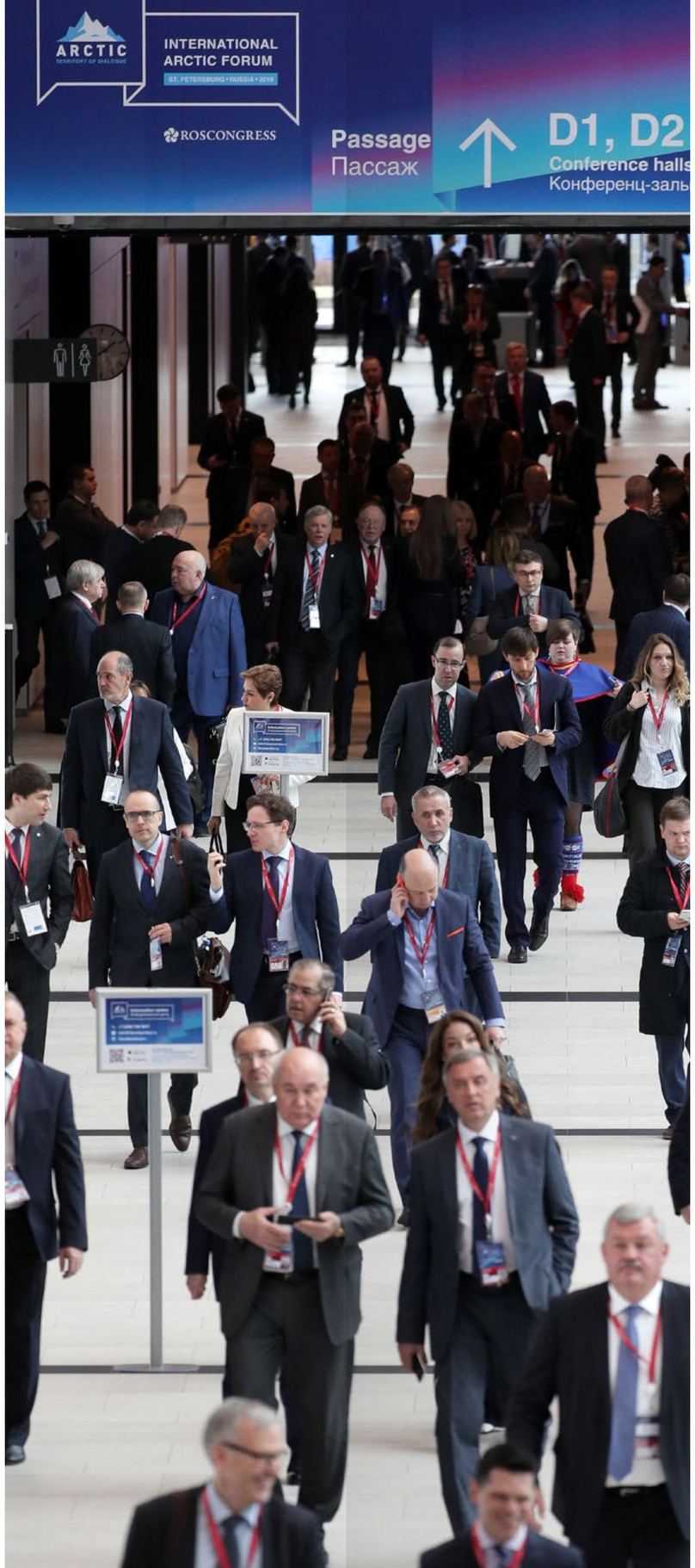
> RUB 300 billion

in additional investments before 2023. This would allow medium-tonnage LNG production capacities to increase by

5 million tonnes

LNG projects will create

> 80,000 jobs across Russia



SOLUTIONS

The Russian government is paying particular attention to the development of the Arctic region.

New government bodies have been created to manage the territory: the Arctic is part of the purview of the Ministry for the Development of the Russian Far East. *"This year we are going to draft and adopt a new strategy for the development of the Russian Arctic up to 2035,"* said Vladimir Putin, President of the Russian Federation.

President Putin has also said that all available investment support tools must be leveraged in order to increase investment in the region and launch new projects, including tools that have been used successfully in Russia's Far Eastern region development programmes. Taking the specific features of the Arctic into account, "investors should and will receive more advanced and more stable preferences," he said.

The Russian Federation has already developed government programmes in six strategic development areas related to the Arctic: aviation, shipbuilding, special technologies, navigation, oil and gas technologies, and special materials. Those involved in the implementation of innovative projects as part of these government programmes should receive support in the form of tax benefits.

The Government of the Russian Federation has already been instructed to work with the expert and business communities on drafting a special federal law regarding a dedicated system of preferences for investors in the Arctic zone. President Vladimir Putin proposed *"expand[ing] the work of Far Eastern development institutions to the Arctic as well, [and] if necessary, [expanding] the capitalization of the Far East Development Fund for selective financing of Arctic projects."*

"We will expand the work of all Far Eastern development institutions to the Arctic region. This means that we will help with land procurement, individually supervise each project, provide support when it comes to protection from inspections, and provide financing at subsidized rates," said Yury Trutnev, Deputy Prime Minister of the Russian Federation and Presidential Plenipotentiary Envoy to the Far Eastern Federal District.

Speaking at the Forum, Minister for the Development of the Russian Far East and the Arctic Alexander Kozlov highlighted that his agency offers two types of tax benefits for new projects in the Arctic zone.

- The first option confers tax benefits for 10 years for projects worth up to RUB 100 billion and for 15 years for projects worth upwards of RUB 100 billion. The corporate income tax, extractive resource production tax, property tax, and land tax would be 0%, with 7.6% insurance contributions.
- The second option involves benefits over the entire implementation period of the investment project: a 7% income tax rate (preserving regional taxes); a favourable 0.3 ratio for the extractive resource production tax; 7.6% insurance contributions; and a 0% rate for property and land taxes.

The second option is more favourable to businesses and regions, Trutnev noted.

Four groups are planned to receive these benefits: shelf hydrocarbon producers, continental hydrocarbon producers,

liquefied natural gas producers, and other projects. Separate preferential tax regimes will be developed for each of these groups.

Draft laws on investment activity support measures must be submitted for consideration to the state Duma of the Russian Federation before 1 July 2019.

Forum participants added a number of other proposals for attracting investment to Russia's Arctic zone:

- Returning the right to offer tax benefits for Arctic projects and their suppliers to the regions. Implementing an increasing depreciation coefficient for equipment for Arctic projects.
- Providing tax credits for geological exploration in the Far East and Arctic.

The combined worth of 150 prospective Arctic projects included in the Russian Ministry of Energy's list for early 2019 is almost

RUB 5 trillion

18 Advanced Special Economic Zones

have been created in the Russian Far East over three years. These programmes will be expanded to the Arctic

INFRASTRUCTURE – THE FOUNDATION FOR ARCTIC DEVELOPMENT

According to President of the Russian Federation Vladimir Putin, special attention should be paid to the development of transport and other support infrastructure in the Arctic Region: “We are well aware that this is a necessary foundation for future investment and business initiatives.”

OBJECTIVE:

Development of the Northern Sea Route

In accordance with Presidential Executive Order ‘On National Goals and Strategic Objectives of the Russian Federation to 2024,’ the volume of cargo travelling along the Northern Sea Route (NSR) is planned to reach 80 million tonnes annually by 2024.

An increased flow of cargo along the NSR requires the advanced development of port infrastructure and maritime security.

“In order for this global transport corridor to operate at full capacity, we will develop the communication and coastal infrastructure, including port facilities, navigation, and meteorological aids, and ensure safe commercial navigation,” said President of the Russian Federation Vladimir Putin.

“We cannot afford mistakes in the Arctic and must ensure that state navigation security systems can keep up with the pace and intensity of traffic,” said Sergey Frank, Chief Executive Officer and Chairman of the Executive Board of Sovcomflot.

The development of port infrastructure must be comprehensive: ports must plan to be technologically prepared, with enough dockers, loading and unloading technology, and personnel.

80 million tonnes annually by 2024

In 2030, the navigation season in the Arctic will last

9 weeks

which is somewhat longer than under current conditions. During that time, the concentration of ice in the water will reach up to 10%, according to forecasts by the Russian International Affairs Council

SOLUTIONS

The development of port infrastructure must be comprehensive: ports must plan to be technologically prepared, with enough dockers, loading and unloading technology, and personnel.

“The infrastructure of a northern seaport must not only be focused on transit, on the passage of ships, refuelling, bunkering, and resupply. There must also be a focus on convenience, on the logistics of tried and affordable routes for the movement of goods and cargo, for both export and the mainland,” said Ruslan Davydov, First Deputy Head of the Federal Customs Service of Russia.

There is already progress in the development and modernization of port capacities.

“There are 18 ports located in the Arctic zone, 6 of which are located along the Northern Sea Route. <...> In the larger ports in Murmansk Region, in Sabetta, in Arkhangelsk, we are seeing the creation of full-scale maritime safety systems, including systems for controlling the movement of ships,” said Andrey Lavrischev, General Director of Rosmorport.

“Today, on the one hand, we are working on a new port solution – the deep-water Arkhangelsk seaport.

On the other hand, we are developing what we have. Digitalization needs to be on its way to ports today," said Igor Orlov, Governor of Arkhangelsk Region.

President Vladimir Putin invited foreign partners to join Russia in creating hub ports at the endpoints of the route in Murmansk and Petropavlovsk-Kamchatsky. He also noted that upgrades to Arctic coast harbours must also apply to river-sea traffic capabilities.

Forum participants discussed the importance of creating a long-term tariff system for cargo transport and developing solutions to reduce icebreaker escort costs.

"The icebreaker escort fee must be competitive and reasonable. The state invests in this operation in order to minimize the tariff burden on carriers and other businesses," said President Putin.

Reducing the icebreaker escort cost could help establish a flow of cargo from the opposite direction.

"Last year was the first time that container cargo shipments traversed the Northern Sea Route from the east to the west, which is a good sign," said Sergei Ivanov, Special Presidential Representative for Environmental Protection, Ecology and Transport.

It is vital that the development of Arctic resources and building of infrastructure occur in parallel. The main prerequisite for increasing the volume of cargo shipments along the Northern Sea Route to 80 million tonnes is the creation of new industries in the Arctic that would function as a sort of cargo baseline, noted Yury Trutnev, Deputy Prime Minister of the Russian Federation and Presidential Plenipotentiary Envoy to the Far Eastern Federal District.

"Projects already being implemented, especially those related to Novatek, could produce approximately 47 million tonnes. The remaining 33 million tonnes have not yet been provided for by projects ready for implementation. <...> There are a number of projects that are in one or another stage of preparation," said Trutnev.

"We will synchronize the development of port infrastructure with the implementation of infrastructure projects," said Alexander Kozlov, Minister for the Development of the Russian Far East and the Arctic.

Trutnev also noted that the Ministry for the Development of the Russian Far East, Rosatom, and the Ministry of Transport have been instructed to prepare an economic model for the development of the Northern Sea Route within the next two to three months.

OBJECTIVE:

Upgrading the fleet and building ice-class vessels

An icebreaker fleet of approximately

150 vessels

is required for the implementation of planned projects. Fifty vessels are currently in operation

SOLUTIONS

The year-round function of the NSR depends on both the construction of necessary infrastructure and a large-scale upgrade of the icebreaker fleet.

"In order to completely implement the projects, the fleet, including icebreakers, transport, and support vessels, must number about 150 vessels, 50 of which are already operational," said Yury Tsvetkov, Deputy Minister of Transport of the Russian Federation and Head of the Federal Agency for Maritime and River Transport.

"Setting up a decent transport infrastructure for Arctic exploration without a sizeable fleet is outright impossible," said Alexei Abramov, Head of the Federal Agency on Technical Regulating and Metrology (Rosstandart).

Three new nuclear icebreakers – Arktika, Sibir, and Ural – are currently being built in St. Petersburg. By 2035, Russia's Arctic fleet should include at least 13 heavy icebreakers, 9 of which will be nuclear vessels. They will also include Leader-class icebreakers.

"We were sent a government resolution to build two more universal icebreakers by 2030. A fleet capable of year-round NSR operations has to exist by then," said Alexey Likhachev, Chief Executive Officer of Rosatom State Atomic Energy Corporation. Rosatom is ready to reach beyond the goal of 80 million tonnes, towards facilitating a cargo turnover of 92.6 million tonnes by 2024, added Likhachev.

Technology producers have expressed the desire for exact government orders of necessary vessels:

"We should determine capacity ranges — what is suitable for which region. We should know if an icebreaker must be designed to also be used as a rescue ship, to clean emergency oil spills, to be used as a tugboat, to have a helicopter deck, and to contain medical facilities," said Mustafa Kashka, General Director of Atomflot.

OBJECTIVE: Comprehensive development of the transport system

Of principal importance are the connections between Arctic territories and neighbouring regions. This requires comprehensive development of the transport infrastructure.

"In the context of transport system development in the Arctic, the issue of connectivity between the regions of the Arctic, the Far East, the Urals, and Siberia assumes great importance. <...> These interconnections will fundamentally influence the rate of economic development, the comfort of living, and the effect of the projects being implemented there," said Vladislav Onishchenko, Head of the Analytical Centre for the Government of the Russian Federation.

"Only through comprehensive development of the transport infrastructure are we able to ensure habitability of the northern regions and develop the base points of the Northern Sea Route: Dikson, Khatanga, Dudinka," said Sergei Menyailo, Presidential Plenipotentiary Envoy to the Siberian Federal District.

Such a goal requires both the improvement of rail access to sea ports and the development of Arctic aviation.

"The Russian Arctic accounts for 30–40% of all domestic flights; up to 80% of Arctic flights are socially important. <...> Use of aircraft in the Arctic is aimed at ensuring safety, supporting business projects and developing territories," said Igor Kovalev, Head of the Scientific Project Research Management Complex at the Professor Zhukovsky Central Aerohydrodynamic Institute.

SOLUTIONS

The Russian Federation is currently implementing a number of large-scale projects aimed at the creation of transport infrastructure on the continental portion of the Arctic zone.

A key project is the construction of the Northern Latitudinal Railway (NLR). According to the Ministry of Transport of the Russian Federation, the NLR will significantly shorten (by up to 1,000 km) transport routes from deposits in Western Siberia's northern districts to the Baltic, White, Barents, and Kara seas. The project will also help solve the issue of congestion on the existing southern route, which connects to the Trans-Siberian Railway.

"Today regional passenger flights are not financed from the federal budget; this burden fully falls on the regional authorities. We repeatedly put forward initiatives to make an amendment to executive order 1242 and extend it to helicopters. We hope that sooner or later we will get results."
Dmitry Danilov, Deputy Director General for Civil Helicopter Sales at Russian Helicopters

A project to construct a 170 km railway between Bovanenkovo and Sabetta to serve as an extension of the NLR is under development. The creation of the Murmansk Transport Hub (MTH) involves the construction of the Lavna coal terminal, a new railway line on the western shore of the Kola Bay, and the development of the eastern shore's existing railway infrastructure.

Increases in businesses' purchasing power with regards to aviation technology and subsidies of regional flights are key to developing flights and upgrading fleets.

"Today, regional passenger flights are not financed from the federal budget; this burden fully falls on the regional authorities. We repeatedly put forward initiatives to make an amendment to executive order 1242 and extend it to helicopters. We hope that sooner or later we will get results," said Dmitry Danilov, Deputy Director General for Civil Helicopter Sales at Russian Helicopters.

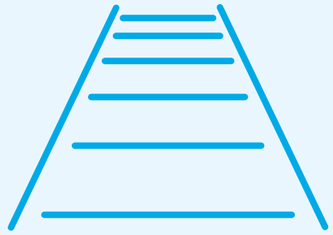
In addition, business representatives claim that regulation in the industry must be simplified, including with regards long-term certification of machines. Measures also need to be taken to encourage the use of domestically produced aircraft and components.

"We have produced fourteen L-410 aircraft; in early 2020 another 22 aircraft will be supplied to the state and civilian aviation. <...> Most production operations have been kept within the company. When we have the engineering documentation for an airframe, we can produce it under any sanctions, limitations, or breaks of relations. The key components – engines, electronics, and other important systems, including landing gears – give us confidence that production of this in-demand aircraft will continue uninterrupted," said Mikhail Peresadin, Deputy Director General of Ural Works of Civil Aviation.

Forum participants also proposed developing a roadmap for the development of a unified and balanced air transport system in the Arctic zone, which will lay the foundation for the development of new technologies and cutting-edge aircraft.

The Northern Latitudinal Railway (NLR) will shorten transport routes from deposits in Western Siberia's northern districts to the Baltic, White, Barents, and Kara seas by

1,000 km



The most important area of focus is the development of the Unified Protected Information and Telecommunication System of the Transport Complex of the Arctic Zone of the Russian Federation to facilitate navigation, the control of cargo flows, and the transport of passengers. It is meant to serve all types of transport – marine, river, air, rail, and road. According to Dmitriy Repin, Project Manager of the system, "The pilot project of this system will operate in Arkhangelsk Region."

OBJECTIVE:

Developing energy infrastructure

A reliable energy supply is essential for regional development. Arctic states are faced with a number of overarching problems in this area, including distances from central energy grids, the use of expensive diesel fuel to generate energy, high electricity rates, and the unique way of life of indigenous peoples.

Arctic conditions require the development of accessible, reliable, and easy-to-use technologies that are capable of supplying isolated areas with electricity, despite the build-up of ice, high humidity, and critically low temperatures, all while using clean sources of energy.

SOLUTIONS

When it comes to isolated energy networks in isolated Arctic areas, the most promising options are integrating small power units that use fossil fuels; small nuclear power reactors; small mobile power units; and renewable energy technologies.

"Energy in the Arctic is very specific. There are no consumers for major power generation. It needs to be distributed in low-power capacities," said Mikhail Kovalchuk, President of the Kurchatov Institute National Research Centre.

"We studied a number of regions and came to the conclusion that the optimal energy solution would use biomass and other renewable sources of energy," said Raif Vasilov, Deputy Head of the NBICS Nature-like Technologies Complex at the Kurchatov Institute National Research Centre.

Rosatom State Atomic Energy Corporation made a significant breakthrough in this area with their creation of the world's first floating nuclear power station, the Akademik Lomonosov. It is expected to be licensed in July 2019.

"Energy in the Arctic is very specific. There are no consumers for major power generation. It needs to be distributed in low-power capacities."

Mikhail Kovalchuk, President of the Kurchatov Institute National Research Centre

ONE ARCTIC FOR THE ENTIRE WORLD

OBJECTIVE: Environmental protection

Climate change is the most important factor that needs to be considered when developing the Arctic. Global warming, caused by increases in greenhouse gas emissions (see Fig. 1), is a threat to the region's fragile ecology.

The temperature of the atmospheric surface layer in the Arctic is growing at twice the rate than in the rest of the world (see Fig. 2). This warming has decreased the extent of snow cover and the Arctic ice pack, and increased Arctic river discharge.

As the ice melts, plants and animals that had been frozen start to decompose, which increases the concentration of carbon dioxide and methane in the atmosphere and leads to further warming.

These changes do not just have a significant effect on the Arctic environment and the way of life of people living in the Arctic region – they affect the climate of the entire planet.

"Global warming and its effect on the Arctic may not only lead to an environmental and ecological disaster. Potentially, they are a security threat of global proportions," said Stefan Löfven, Prime Minister of the Kingdom of Sweden.

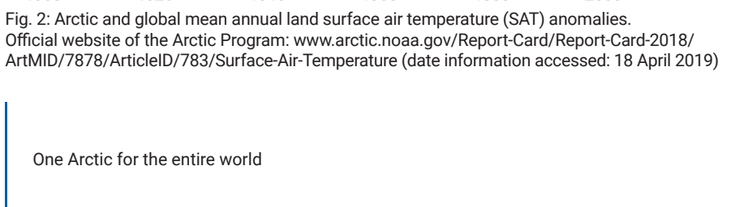


Fig. 1: CO^2 Concentrations in the atmosphere of the Arctic. Carbon Cycle Gases. Barrow Atmospheric Baseline Observatory, United States: www.esrl.noaa.gov/gmd/dv/iadv/graph.php?code=BRW&program=ccgg&type=ts (date information accessed: 18 April 2019)

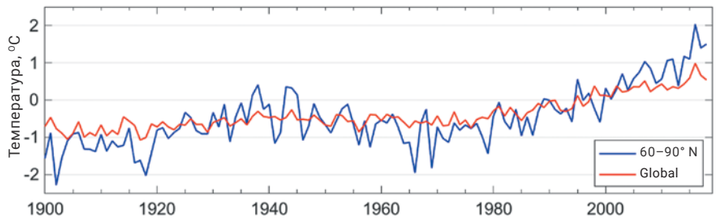


Fig. 2: Arctic and global mean annual land surface air temperature (SAT) anomalies. Official website of the Arctic Program: www.arctic.noaa.gov/Report-Card/Report-Card-2018/ArtMID/7878/ArticleID/783/Surface-Air-Temperature (date information accessed: 18 April 2019)

"The Arctic is a structure that determines the climate and the future of the Earth. Shattering it is easy, regaining it would be challenging, if not impossible," said Andrey Fursenko, Aide to the President of the Russian Federation.

Pollution, including plastic waste, also poses a significant environmental threat to the Arctic region and the World Ocean.

Forum participants were especially concerned about the lack of research on the effect of climate change on the region.

"The impact of climate on the Arctic is a serious scientific question that the whole world and experts are now facing," said Alexander Sergeev, President of the Russian Academy of Sciences.

SOLUTIONS

Arctic research needs to be stepped up and the situation in the region needs to be monitored continuously. International cooperation is the foundation to solving environmental issues.

During its chairmanship of the Arctic Council in 2021, Russia will prioritize advancing environmentally friendly and nature-inspired (biomimetic) technologies across all areas – in industry, transport, and the energy sector.

"When contemplating Arctic development, we must be clear about the kinds of technologies we are to bring there. It was with good reason that during the Forum's Youth Day we discussed the use of nature-inspired technologies that preserve natural resources," said Mikhail Kovalchuk, President of the Kurchatov Institute National Research Centre.

There needs to be support for projects aimed at taking measures to reduce environmental damage and to eliminate the adverse effects of industrial activity in the Arctic zone. In the course of the major clean-up of Arctic areas that has been ongoing since 2012, over 80,000 tonnes of waste have been removed and disposed of.

"In the coming years we will clean up six major environmental damage sites in Arkhangelsk and Murmansk regions, in the Nenets Autonomous Area, Karelia, and Yakutia as part of the Clean Country federal project. We will also clean up over 200 square kilometres in the Kola Bay area," said Vladimir Putin, President of the Russian Federation.

Transitioning ships to environmentally clean types of fuels could have a significant impact:

"We plan to reduce harmful transport emissions through the development and use of a new environmental class of hybrid vessels and by promoting a green shipping programme in the Arctic, including through the use of LNG fuel," said Dmitry Kobylkin, Minister of Natural Resources and Environment of the Russian Federation.

"Actually, shipping emissions account for only 2.2–2.5% of global emissions, so we have to bear in mind that fact. But, of course, we need solutions, and I will bring you up-to-date on some of the Finnish solutions in terms of reducing shipping emissions. The first one is a rotor sail system <...> which is installed on a vessel and can reduce fuel consumption based on wind conditions by 5 to 20% ," said Tero Vauraste, Chairman of the Arctic Economic Council and President of Mariadi Oy.

Another promising area is the transition of public energy services to biofuels and LNG.

"Year after year, we have been constructing boilers which operate on lumber waste. We do not use coal, and are halting the use of diesel fuel across large parts of

our region. In March, Arkhangelsk Region and Rostec Corporation signed an agreement to construct an LNG plant with a capacity of 120,000 tonnes per year. This work in the field of LNG will benefit a huge number of regions. <...> RUB 14 billion is being invested in total," said Lev Levit, Representative of the Governor of the Arkhangelsk Region for the Development of the Arctic.

Forum participants also underscored the importance of compliance with international climate agreements and increasing investment in the reduction of carbon dioxide.

There needs to be a system of standards for doing business in the Arctic. Business could play a significant role in this matter.

"The strategic objective is the development of a polar operations management system. <...> With peer support from Rostec State Corporation, we managed to transition from corporate standardization to cross-sectoral standards. Now we want to implement it in a machine-readable format so that the Arctic standards can keep pace with the times," said Nikita Kuprikov, Director of Polar Initiative.

"Technical committees have developed six international and fourteen national Arctic security standards. These concern, above all, a safe work environment, environmental protection, specific requirements for life support systems, evacuation and rescue of personnel, and special equipment and materials for the mining and shipment of hydrocarbon resources in the polar climate," said Tatyana Lobanova, Deputy Head of the Strategic Development Department at Gazprom.

The expansion of scientific research in the Arctic and measures to help with adapting to climate change is also necessary. Scientists spoke in favour of studying the entire complex of physical, chemical, and biological aspects of the processes occurring in the Arctic.

>80

tonnes
of waste

have been removed and disposed of since 2012 as part of a major Arctic clean-up

THE ARCTIC – TERRITORY OF LIFE

OBJECTIVE: Improving quality of life

>200,000
people
are ready to leave the Russian Arctic

The working population in Chukotka has a

1.7 times higher mortality rate

than the Russian national average. Increasing life expectancy in Arctic regions is a key government objective

>100
medical and obstetric stations
will be built in the Arctic in the near future.

Approximately

44 mobile telemedicine units

will be purchased. RUB 1 billion has been set aside for these purposes in 2019–2020

"All Arctic regions should be brought to the level of at least the national average in key socioeconomic indicators and living standards. I would like to emphasize that this task should not only be clearly defined in the new strategy of Arctic development but should also serve as a guide for the work of all federal departments and regional authorities of Russia. It is absolutely necessary to take into account the specific nature of the problems facing the indigenous minorities of the North," said President of the Russian Federation Vladimir Putin.

The Arctic region is currently falling behind in social development compared to average national figures.

"Life expectancy in all regions, except Yamal, is lower than the national average. It's 66.1 years in Chukotka, while the [presidential] decree dictates that we must reach 78 years. The mortality rate among the working population is significantly higher than average in Russia: in Chukotka – 1.7 times higher, the Republic of Karelia – 1.3 times, the Republic of Komi and Arkhangelsk Region – 1.2 times. There is a high percentage of dilapidated housing: in Yakutia it is 7 times higher than average in the country, in Yamalo-Nenets Autonomous Region – 5 times, in Arkhangelsk – 3–4 times," said Alexander Kozlov, Minister for the Development of the Russian Far East and Arctic.

The low life expectancy is due to both the harsh climate and an insufficiently developed healthcare system.

In certain regions, levels of access to a doctor are 40% below current standards. At the same time, climate change in the Arctic and global warming increase the risk of infectious diseases.

"Over 200,000 people, i.e. 10% of the current population, are ready to leave the Russian Arctic."
Nikolay Kharitonov, Chairman of the Committee for Regional Policy and Issues of the North and Far East of the State Duma of the Federal Assembly of the Russian Federation

The processes of demolishing dilapidated and hazardous housing and improving the quality of housing available in the Arctic is slowed down by the harsh climate (resulting in a short construction season) and high costs.

"We often underestimate this factor [cost of construction in the Arctic]. <...> Diesel fuel costs 21% more, piles – 78% more, cement – 83% more, and concrete pipes and plates – 50% more. If we add costs and price rises due to hardship pay, end up with costs which are 2–2.5 times higher per square metre," said Vladimir Solodov, Chairman of the Government of the Republic of Sakha (Yakutia).

The lack of a comfortable living environment, including difficulties accessing a high-quality education, has resulted in a major population drain.

"Over 200,000 people, i.e. 10% of the existing population, are ready to leave the Russian Arctic." said Nikolay Kharitonov, Chairman of the Committee for Regional Policy and Issues of the North and Far East of the State Duma of the Federal Assembly of the Russian Federation.

SOLUTIONS

The national projects are meant to serve as the primary instruments for social development in the Arctic regions. However, Forum participants proposed a number of additional mechanisms that would help improve the situation when it comes to healthcare, housing construction, and education. Most importantly, the needs and unique characteristics of each region must be taken into account in the development of these areas.

Developing the healthcare system

- The formation of a government programme for healthcare in the Arctic zone, including the increase of financing through the compulsory medical insurance system, which would be used to address the deficit of medical staff.
- Including Arctic regions in the District Doctor programme and implementing the Arctic Doctor programme in isolated settlements.
- Digitalizing healthcare and developing telemedicine systems. *"We have confirmed plans that would allow all medical organizations in each region above the level of medical and obstetric stations to get an internet connection this year. Medical and obstetric stations will be able to get connected to the internet next year. <...> More than 100 medical and obstetric stations will be built in the Arctic in the near future. Approximately 44 mobile telemedicine units will be purchased. RUB 1 billion has been set aside for these purposes in 2019–2020,"* said Evgeny Kamkin, Deputy Minister of Healthcare of the Russian Federation.
- Training healthcare and occupational health and safety specialists in Arctic conditions. According to Igor Bobrovnitskiy, Deputy Director of the Centre for Strategic Planning and Management of Biomedical Health Risks of the Ministry of Health of the Russian Federation, *"an application has been submitted to the Ministry of Education and Science to establish a new specialization: occupational and environmental medicine, which would combine the prevention of both occupational diseases and diseases caused by adverse environmental factors."*
- Implementing the concept of 'One Health' (One Health – One Arctic), which highlights the importance of paying attention to people and the environment, as well as to the health of people, animals, and plants as an interconnected system.
- Improving and developing monitoring mechanisms for factors affecting health, including the microclimate and state of the environment.
- Improving mitigation and control measures for illnesses and strengthening international cooperation in Arctic healthcare.

Building and creating a comfortable urban environment

- Forming a strategic plan for housing construction in the Arctic which takes into account the labour needed to implement projects in the region. "It is crucial to prepare a strategic development plan for the North with consideration given to the required number of people, towns and rotation villages," said Igor Shpektor, President of the Union of Cities of the Arctic Circle and Extreme North.
- Creating methodologies for creating a comfortable environment in the Arctic, taking into account its unique climate conditions. *"When it comes to improving welfare, we should make sure that the environment that we are creating is multi-functional, so that the public can use it during very long winters and very short summers,"* said Vladimir Yakushev, Minister of Construction, Housing, and Utilities of the Russian Federation.
- Developing new technical regulations for Arctic construction, taking the use of new technological and energy-efficient solutions into account, as well as increasing the stability and reliability of life support systems. This will, among other things, lower the cost of utilities and reduce environmental impact.
- Developing public-private partnerships and getting city-forming enterprises involved in creating a comfortable urban environment. *"We can only begin the construction process <...> when federal money, regional money, and money from Nornickel's city-forming enterprise is allocated,"* said Rinat Akhmetchin, Mayor of Norilsk.
- Increasing federal support for housing construction and projects to create a comfortable urban environment that take into account the Arctic's unique characteristics. *"We are going to be more insistent about adjusting and increasing funds for supporting national projects <...> in the Arctic,"* said Andrey Chibis, Acting Governor of Murmansk Region.

Developing education and science

- Creating a scientific and education centre in the Arctic. *"We have begun establishing science and education*

centres in various Russian regions; they integrate the capabilities of universities, research institutes, the business community and the real economy, <...> ensure the development of fundamental research, and will help address applied and practical tasks of developing the Arctic," said Vladimir Putin, President of the Russian Federation.

- Developing educational programmes and creating an educational infrastructure that takes into account the demands of businesses and investment projects that are being implemented or are planned to be implemented in the Arctic.

- Focusing efforts within the Arctic Council to develop joint educational standards for preparing Arctic specialists for international projects.

- Fostering partnerships between universities, research centres, and colleges specializing in Arctic issues. *"Any research in the Arctic and training of Arctic researchers should, of course, be interdisciplinary, because the time is long gone when single-discipline specialists could resolve problems without comprehensive knowledge about the region where they work,"* said Sergey Aplonov, Director of the Arctic Research Centre at St. Petersburg State University.

- Digitalizing education: creating a 'virtual university' in the form of educational online platforms that would provide access to high-quality education throughout the Russian Arctic.

- Ensuring the effectiveness of financing mechanisms for fundamental and applied scientific research, which would take the climate, social, and other unique characteristics of the Arctic and sustainable development principles into account.

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