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The Northern Sea Route: Strategic, Political and Economic Dimensions

- Dimensions of the Northern Sea Route -

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ABSTRACT

The overall situation in the Arctic has possibly entered a new stage. Unclear prospects for ice melting tempo and drop in hydrocarbon prices objectively slow down the aspirations of all actors and give Arctic the time for a necessary break. Northern Sea Route is critically important for Russia strategically, it is vital for maintaining livelihoods of two million Russians living and working in the North. No economic enterprise in Russian Arctic sector will be successful without maritime transportation support. Complex additional efforts are needed to create a safe and profitable maritime transit system in the Arctic connecting Europe with North–Eastern Asia. The Eastern sector of the Northern Sea Route is less developed and more challenging but providing attractive prospects for domestic and foreign business. A step by step approach, selection of optimal projects best suiting investors, authorities and local communities would be an appropriate way to start profitable business projects there.

Keywords: Northern Sea Route, Polar navigation, Northern Delivery, icebreakers

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1. Introduction

Since the turn of the centuries the Arctic has been attracting a lot of attention from politicians, transnational corporations, military and media all over the world. Judging from the flow of information from various sources devoted to Extreme North, one can think that Arctic affairs have become a matter of exceptional importance for the world, even that the very existence of a mankind depends on it.

Certainly, it is an exaggeration. The Arctic is just another region of the Earth rich with various kinds of resources but, at the same time which is very difficult for exploration. However, a number of objective and important factors justify this excessive attention to remote Polar Circle areas. Rapid melting of Arctic ice is probably the main contributing tendency.

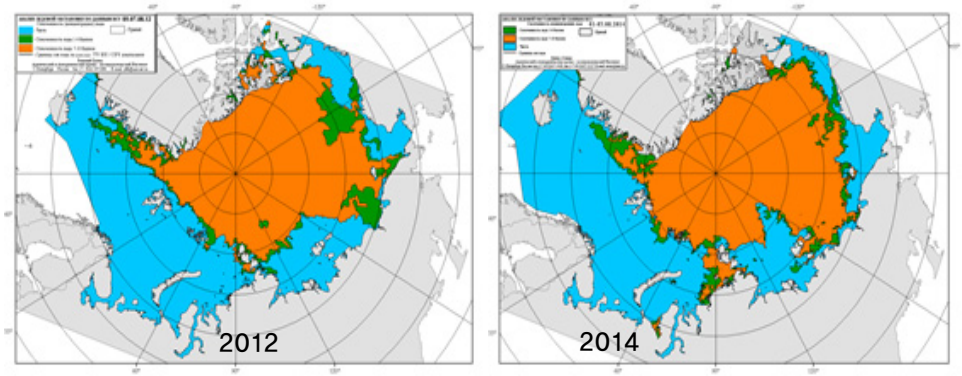
Russia and Republic of Korea are among the most active actors in Arctic domain, though their reasoning and priorities are different. But, both nations have managed not to confront each other in even the minor issues concerning the Arctic so far. It is remarkable in itself taking into account serious 'undercover' battles and sometimes harsh language in public addresses at various international events like Arctic Council, etc. And now it is time for the next step – to establish practical cooperation and collaboration in the Arctic where we can effectively complement each other for mutual benefit.

What is the overall assessment of the situation around the Arctic and outlook for its further developments? Is it possible or feasible to create a commercial maritime transit system based on the Northern Sea Route (NSR)? Where and how the Korean industrial and technological power can be applied most efficiently to promote economic developments in various sectors of Russian Arctic? The goal of this paper is to address these challenging topics, at least partly, basing on the view from Russian 'Side of the Lake'. For practical reasons the research geographical framework will be limited to Russian Arctic sector and adjacent territories and seas of North-Eastern Asia.

2. Overall situation in the Arctic

To begin with, two principal economic aspects of the overall Arctic situation have to be evaluated: climate changes paving the way for ice-free polar navigation and situation with oil and gas prices. Both aspects are interdependent and critical for Arctic economic prospects. Tremendous hydrocarbon deposits attract powerful energy corporations all over the world. Maritime transport is the only means capable of providing all kinds of support for constructing and operating industrial facilities in the Extreme North. Additionally, transit cargo delivery by ships from North-Eastern Asia to Europe and backwards has recently become an attractive and profitable option for many economies in Asia-Pacific.

Fig. 1. Arctic ice situation (1st decade of August)



Source: Arctic & Antarctic Research Institute, Russia

The Arctic ice was steadily melting for two decades (*Rothrock at al., 2008*), and melting tempo in ocean areas adjacent to Siberia coast was much higher than in Canadian sector[1]. It is said that ice-free navigation via the NSR waterways became possible for three consecutive months in 2012. But, the ice situation in Laptev, East Siberian and Chukchi Seas became more complicated in 2013 and further deteriorated in 2014-2015 (see Fig.1). The real problem is that scientists today do not have a reliable model of climate changes on the Earth in general and in the Arctic in particular. This issue is sometimes over politicized and the anthropogenic impact on the process of global climate changes (*Corell, 2011*) tends to be exaggerated. In fact, natural factors, especially volcanic activity like the 2010 eruptions of Eyjafjallajökull in Iceland produce major quantities of greenhouse gas combined with massive ash outburst. Moreover, due to the insufficient number of research and monitoring sites in Polar Region several highly interesting natural phenomena influencing global climate are insufficiently explored. Among them, Lena River Estuary which is considered to be a primary natural Ozone generator in the Northern Hemisphere. As a result, over optimistic views regarding a possibility of 'soon and risk-free' unlimited shipping in the Arctic (*Ha YS, Seo JS, 2014*) may eventually lead to serious consequences.

Empiric experiences of Russian Arctic skippers who worked there since 1950's contradict the hypothesis of a steady ice melting tendency. They insist that what we see now is a cyclic natural process. And, that with proper preparation and adequate support it is possible to organize a full scale commercial shipping via the NSR without waiting for the totally ice free routes. While it is not a valid scientific explanation it would be imprudent to ignore the empiric knowledge of this kind. Historically, the first attempt to start commercial transit operations with foreign ships via the NSR dates back to the late 1960's. No satellite data was available for seafarers at that time, but the NSR operated as a well-tuned mechanism with more than 100 Soviet ships at sea in high season (*Pazovsky, 2001*). Unfortunately, this idea was rejected for pure political reasons. Soviet leadership decided not to compete with 'ideologically friendly' Egypt who was recovering from the 1967 war with Israel and

1) Canada is mentioned because it controls the North Western Passage – a natural competitor for NSR.

badly needed a flow of foreign currency for Suez transit.

The collapse of hydrocarbon prices that took place in 2014 may paradoxically contribute to stabilization of the situation around the Arctic. Cost of oil and gas extracted on the Arctic shelf was significantly higher than in traditional areas even in the "fat" years for oilers. Investing huge financial and material resources in the development of new hydrocarbon deposits in the basin of the Arctic Ocean becomes unprofitable or losing today, especially in a protracted global economic crisis.

Both tendencies will have a sobering effect on Arctic actors urging them to behave in a more rational way. All parties can realistically assess their economic interests, priorities and capacity for its implementation. Accordingly, the Arctic gets time for the required timeout. Otherwise the hastiness in the Great Arctic Race sometimes driven by 'not-to-be-late' maxim could well lead to serious consequences in security and environment protection fields.

3. Western sanctions and Russian Arctic enterprises

The permanently changing political and economic situation in the world adds uncertainties to the prospects of wide scale Arctic exploration. Western sanctions imposed on Russia in 2014 (*Amos, 2014*) pretended to hit the capacity to drill hydrocarbon deposits on Arctic shelf. Instead, it will hit major low temperature seabed drilling and ocean engineering equipment designers and manufacturers abroad since potential Russian orders from government supported companies covered most of this market. They will hardly get new contracts from pragmatic transnational energy corporations until hydrocarbon prices dynamics confidently reverse.

As for Russia, the already explored hydrocarbon deposits in the coastal regions of the Arctic Ocean are capable to fill the needs of the industry and foreign importers at least till 2030 (*Simoniya, 2013*). Northern Yamal Peninsula gas fields are of special importance[2]. They are located in limited area close to the coast where the largest Russian seaport in the Arctic, Sabetta is in the final stage of construction. The building of Sabetta port complex has started in 2012 in the framework of the "Yamal LNG" project. Planned freight turnover of Sabetta seaport should reach 17 million tons per year after completion of the new terminal in 2017; it should increase to 30 million tons by 2020 and, eventually reach up to 70 million tons per year by 2030-2035 (*Maritime Journal, 2015*). Important to notice is that the export LNG deliveries from Sabetta seaport will take place regardless of the season both to Europe and Asia-Pacific. It will be delivered mostly by DSME built 'NOVATEK' class LNG carriers which is a perfect example of Russian – Korean economic cooperation.

'NOVATEK' class LNG carriers are capable of breaking 2.1 m thick ice and operate at -50° Centigrade. However they still need icebreaker support for the winter, at least at several problem spots along the NSR, like Kara Gates, Dmitry Laptev or Sannikov Straits. To provide it 'NOVATEK' has signed a multi - year contract with 'ATOMFLOT', the only acting operator of Russian nuclear icebreakers.

2) Prospected gas deposits exceed 11 trillion tons; it stocks 'fat' natural gas with high percentage of gas condensate.

4. Icebreakers: still a magic wand for Polar navigation

The above subparagraph is important for better understanding the current economic situation and prospects for the NSR waterways.

First, round-the-year transit navigation is technically possible, but it demands the usage of high ice class ships and advanced system of ice monitoring and icebreaker support. Accordingly, the cost price for cargo transit will be much higher comparing to conventional commercial ships using standard shipping lines.

Secondly, Russian icebreaker fleet today is far from its optimal condition to maintain reliable support along the NSR waterways. Currently, 'ATOMFLOT' operates four nuclear powered icebreakers while 'Rosmorport' operates or charters six conventional icebreakers capable of conducting line escort operations in the Arctic waters. Service life for most of the fleet assets expires by 2018-2019 (diesel) and 2025 (nuclear powered) if a decision for costly SLEP repair is not taken. To replace the aging ships, three nuclear and three diesel powered icebreakers are in different stages of construction. There are plans for a more ambitious icebreaker construction program including 200.000 hp Super Icebreakers, but it looks unrealistic in present economic situation.

Basing on these estimations, regular transit shipping by the NSR will be limited by number of passing ships and period of navigation unless the ice melting tempo dramatically increases. Mobilization of foreign icebreakers to assist commercial shipping in high season will not have any sizeable effect for simple reason - neither the ships, nor their crews are prepared to conduct routine line operations like ice channel escort of large commercial vessels. Even the newest and technologically sophisticated Korean 'Araon' is good at research support, save and rescue missions but her performance as a line icebreaker does not match the industry standards.

5. NSR: current state and challenges

Next, about the current state of the NSR as a major transit route. Russia is sometimes accused that it wants to monopolize and militarize its Arctic sector, to impose domestic rules for all navigational and economic activities there (*Stratfor, 2015*). This issue needs clarification to avoid unnecessary suspicions and potential confrontation.

True, Russian Arctic efforts in the last five years look impressive but, they are still incomparable to the level of activities in the Soviet period. There is a simple explanation why the Arctic has always been of special importance to Russians.

Economically, it is a primary source of export goods since the Novgorod the Great Republic (X – XV centuries). Actually, only the list of principal export commodities has changed from ancient days with hydrocarbons replacing timber and whale-oil.

Strategically, the Northern Direction is a shortest way to attack Russia, the continental power, from the sea. It happened many times in the past with Nazi naval operations in Barents and Kara Seas in 1941-1942 being the latest and most

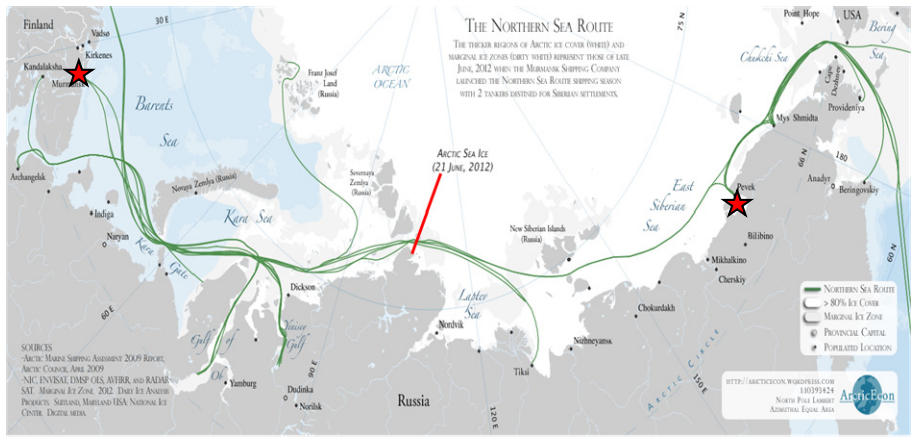
threatening example. Ironically, Russians and Germans closely cooperated in the Arctic before the war. Data and experience obtained by Nazi at that time let them conduct effective interdict operations against the Northern convoys and attack seaports, communications and economic facilities. It is a historical memory not to be easily forgotten. Strategic importance of the Arctic in the days of Cold War and afterwards has increased. This region will become a primary theater of war in any potential military conflict of high intensity.

Domestically, regardless of its exceptional economic significance the region is inhabited by two million people whose livelihoods must be maintained, which is not a simple task (*Smirnov S.M., Tersky M.V., Pazovsky V.M., 2012*). In many places maritime transport is the only available means of communication. Hence, the NSR has naturally become a vital logistics artery in the North providing all kinds of support and services for population, military, business and scientists. And this is a principal distinction between Russia and non-Arctic nations planning to use the NSR: for Russians it is much more than simply a promising transport and logistics system.

Disproportional development of different areas is probably the most serious problem for NSR today. Historically the waters of Arctic Ocean and adjacent Eurasia coast were divided into two sectors. The Western sector close to Europe was populated, explored and developed incomparably higher than its Eastern counterpart.

This case of inherent disparities between the two sectors should be seriously considered when discussing the issues of Arctic logistics and transport system. If we assess the transit delivery of goods by NSR – be it oil or LNG flow from Yamal or Norway to North-Eastern Asia or containerized cargo bound for Europe – we must consider the NSR as a whole.

Figure 2. Waterways and sectors of the NSR



Source: Adapted from (*Smirnov,2014*)

Accordingly, fast and balanced measures should be undertaken to develop infra-structure and logistics capabilities for six principal support sub-systems in the Eastern sector of NSR – Search and Rescue, Oil Spill Response, Port Infrastructure, Navigational Aids, Icebreaker Support, Communications and Positioning.

6. Balance between maritime and river transport

There is another less visible, but equally important dimension of NSR - based Arctic logistics system - internal water communications that supplement, co-exist and sometimes replace maritime means of transportation. For vast and almost uninhabited territories of Eastern Siberia and Far East of Russia, the rivers flowing to the Arctic Ocean were historically the principal logistics arteries, both in summer and winter times when rivers were frozen. The interconnection of the two water means of communication can be best illustrated by the unique Far Eastern / Eastern Arctic logistics system called the "Northern Delivery".

It is a wide scale complex campaign to deliver all kinds of commodities to isolated coastal and island territories in the Far East and Eastern sector of Arctic financed both by federal and regional authorities. In Soviet period it usually lasted 4 – 5 months starting in July, but the preparations for it were conducted year round. The following logistic scheme was used. Commodities (everything from gasoline to fashion goods) were delivered by railway and accumulated in the seaports of Southern Primorye – Vladivostok, Nakhodka, Vostochny and Khabarovsk region – Vanino, Sovetskaya Gavan. With the start of navigation in the North all these goods were transported by ships to the port hubs – Petropavlovsk-on-Kamchatka, Magadan, Anadyr, Provideniya, Pevek, Tiksi. There the cargo was sorted, repacked and delivered to a number of smaller end points by lighters, sea / river barges, land vehicles and helicopters (*Luzin, Vasiliyev, 1998*). The exact data on the volume of cargo transported to Arctic coast and adjacent territories during the "Northern Delivery" operation may greatly vary depending on estimation methodic, Expertly it was somewhat about 1 – 1.5 million tons (military cargo excluded). At least twice this amount of cargo had to be delivered to remote provinces of the Far East. For example, Magadan Power plant alone consumes 260.000 tons of Siberian coal annually.

After the collapse of the Soviet Union the negative factors in economic, social and demographic situation in isolated territories of the Far East and Arctic coast caused a sharp decline in "Northern Delivery" scale. Due to seriously reduced cargo base the major domestic carriers like FESCO and PRISCO preferred to shift from this service to more profitable routes. As a result, greater part of the cargo is delivered to the Arctic coast by river transport today. The goods are unloaded from railway in Irkutsk region and then transported by river barges via the Lena River network to the port hub of Tiksi and to dozens of smaller river ports. This logistic chain is less versatile, more vulnerable and has a number of strict limitations on the commodities characteristics comparing to the combined maritime / river system.

Yana, Kolyma and Indigirka Rivers are also used in 'Northern Delivery' logistics scheme of today. Commodities are transported by smaller ocean ships to the estuaries of these rivers and reloaded to river barges there, or stored till winter when road transportation becomes available. But, this mode of transportation is risky and less reliable comparing to the usage of larger regional port hubs in Tiksi, Pevek, Anadyr and Magadan. Obsolete port infrastructure and lack of adequate dredging capacity create obstacles for entering river estuaries from the sea. Lena River Shipping Company is the only river operator in the Far East. It is limited with ship assets and has

recently become overloaded with contracts in support of 'The Strength of Siberia' gas pipeline construction (*REGNUM, 2015*). As a result, the Yakut regional government asked for 30 billion rubles as federal guarantee to local 'Northern Delivery' operators. Otherwise, the plans for cargo delivery to the North may fail in 2015.

The necessity to support expanding economic, military and research activities in the Eastern NSR sector demands resumption to a former 'Northern Delivery' scheme. However, introducing modern logistics technologies and utilizing commercial transportation for delivering state ordered cargo to the points of destination will reduce the costs and make the process more flexible and reliable. To lower the share of transportation costs in the end price of consumer commodities bound to the Arctic from present 70 – 90% to reasonable 40 – 50% should be regarded as primary and feasible objective.

7. Prospects for international cooperation

Here we see good prospects for collaboration with the North - East Asian partners. Cooperative activities can be best performed at several levels simultaneously: federal, regional, private business, NGO. For example, seaport infrastructure modernization should be conducted basing on government agencies decisions, while smaller sea and river port facilities modernization, dredging, road construction works could be more productive if done in cooperation with regional authorities of Sakha–Yakut Republic, Chukotka Autonomous District, Magadan, Kamchatka and Irkutsk Territories. Interaction with local authorities and NGOs is necessary to implement community level projects like land and water rehabilitation, metal scrap utilization[3], fish farming, aborigine culture preservation, energy saving houses and solar / wind power plants construction. Most settlements in the Eastern Arctic sector do not have access to modern communications and health care services. To solve this problem flexible 'community – business' and 'business-to-business' approaches are preferable.

Korea and other Asia – Pacific economies possess sophisticated technologies, industrial capacity and expertise needed for Arctic development. What is essential, it will not have to be charity or government sponsored programs only since many regional actors in the Russian Far East have accumulated substantial financial or natural resources. According to expert estimates, the regional / local market requirements for the above projects account for US$1.5 – 2.5 billion annually.

The list of perspective commercial projects with international participation for the Eastern NSR sector may be rather wide, with the following as priority ones:

- Easy mounting storage (warehouses) constructions capable of year-round exploitation in severe climate;
- Port modernization projects (dredging, pier strengthening, navigational aids, communications) for Pevek, Tiksi, Yana / Lena / Kolyma / Indigirka River

3) Mobile plants for 'clean' pressing or reprocessing of metal barrels are badly needed in coastal and island Arctic territories where the number of empty fuel barrels accounts for hundreds of thousands units. Ideally, such facility is accommodated in one standard 20 ft container and is fully autonomous.

estuaries and 20 – 25 smaller port facilities in Yakut and Chukotka provinces;
- Energy efficient and environmentally friendly technologies for housing, garbage reprocessing, food production, distance medicine and education.

8. Conclusions and policy implications

The overall situation in the Arctic has possibly entered a new stage. Due to unclear prospects for ice melting tempo and drop in hydrocarbon prices all Arctic states and Arctic – interested nations have got the time for a necessary break.

NSR is critically important for the success of any enterprise in Russian Arctic sector. It is strategically significant and vital for maintaining livelihoods of two million Russians living and working to the north from Polar Circle. Technically, NSR can become a basis for the international maritime transit system connecting Europe with North – Eastern Asia in the nearest future. Introducing advanced transport / logistics and management models [Jian Min Shou, 2014] as well as new ship designs can eliminate the organic shortcomings of Arctic transit and increase the navigational period to 6–8 months a year. However, complex additional efforts are needed to make it a safe and profitable business.

The Eastern sector of the NSR is more challenging but here we see the attractive prospects for domestic and foreign business. A step by step approach, selection of optimal projects best suiting investors, authorities and local communities would be an appropriate way to start doing real business there.

Finally, it would be imprudent and unreasonable for outside actors to engage in individual activities in the Arctic, without proper coordination with Russian side.

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