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The Current State of Russian Port Infrastructure, Shipbuilding Industry and Logistics: Challenges and Prospects of Russian-Korean cooperation

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The relevance of international cooperation

- The Arctic Zone of Russia (AZRF) plays a vital role in country's development
- Its economic model is based on the extraction of oil and gas. Up to 85% of all Russian natural gas and around 15% of crude oil is extracted and/or refined here
- The demand for relatively cheap energy sources is on the increase in the light of the most recent events in the Middle East
- Mutual benefits for Russia and several Asian countries – including ROK – lay the foundation for fruitful cooperation



The Yamalmax-class LNG carriers are
of South Korean origin.



A brief overview of the bilateral interaction

Early 2010's: Korean
shipbuilding corporations
are heavily involved in the
launch of crucial Yamal
LNG plant in the Arctic

2022-2023: the Chinese
activity in the Russian
Arctic is on the increase

2013 – ROK joins the
Arctic Council as an
observer, becoming
another Asian country to
obtain such status

Late 2025-2026: *some
prospects for continued
cooperation?*



The Arctic Governance: two approaches

- Russia: views the NSR as a “national transport artery” (Federal Law No. 132-2012) despite parts of the route being located in EEZ (UNCLOS).
Aiming to exercise sovereignty in this sub-region of the Arctic due to the crucial importance of the Arctic to the whole federation as well as possessing the largest Arctic ocean coastline.
Moscow has never denounced the UNCLOS despite the respective attempts in the parliament;
- Republic of Korea: the approach seems to be similar to that of China, India and some other non-Arctic states.
The Arctic is likely to be perceived as “*the Global Commons*” hence the coastal states must provide free access to the Arctic Ocean outside their internal waters.



The Russian Arctic Shipbuilding Industry & The Ports

- Russia is a leader in the construction of ocean-going nuclear icebreakers
- The country is experiencing a shortage of non-nuclear port icebreakers
- At the end of 2025, production of ice-class gas carriers (similar to the Yamalmax type) was launched, currently in “pilot” mode
- However, the pace of construction is insufficient to implement state policy in the Arctic
- Shipyards are heavily loaded, but their performance can be assessed
- Port development is characterized by near-zero growth in dry docks for large vessels
- A severe shortage of Arctic cargo vessels (approximately 70 units) persists
- Accelerated modernization of port infrastructure is required



Murmansk, key port of the Russian Arctic



The energy market of 2026: the meaning for bilateral interaction

- Russian LNG is up to 4 times cheaper than the American counterpart. That makes it instrumental for Korean domestic pricing control and import diversification
- The turbulence in the Strait of Hormuz stressed the weakness of the Middle Eastern energy exports (especially LNG from Qatar)
- The Asian markets of 2026 turned out to be extremely volatile
- The NSR as a completely safe and almost risk-free alternative





The Russian Arctic-related shipbuilding: state of development

Enterprise	Product	Purpose	Built	Planned
Zvezda shipyard	Alexey Kosygin-class LNG carrier (Arc7)	Arctic LNG-2 plant Export	1 (2025)	2 (2026)
The Baltyisky Zavod plant	Icebreakers, project 22220	Escort along the NSR	5 (2026)	7 (out of 10 - expected)
Zvezda shipyard	The lead icebreaker of Project 10510 "Lider"	Year-round Escort along the NSR	0	3 (by 2030)
Vyborg Shipbuilding Plant	Project 21900 icebreakers	Auxiliary vessels for infrastructure operations	5 (2016)	2 (0 built)



The South Korea and the Russian Arctic

- A leader in the construction of high-ice-class vessels (Arc7 and above)
- Yamalmax-class gas carriers – developed by Hanwha Ocean (formerly Daewoo Marine)
- As of early 2026, three major Korean shipyards – Hyundai Heavy Industries, Hanwha Ocean, and Samsung Heavy Industries – have a combined order for more than 200 gas carriers.
- South Korea produces up to 70% of the world's supply of vessels of this class.



What are the current orders for South Korean shipyards?

- Evergreen, Taiwan: 14 container vessels
- Unnamed American company: 4 LNG carriers
- Swedish government: order for a PC-4 class icebreaker (likely for operations in the Baltic Sea).
Estimated project completion date: 2029
- **Thus, South Korean shipyards are indeed overloaded and would be able to fulfill orders only under more favorable political conditions.**



A render of Hyundai's project for Swedish government



The sanctions as an obstacle

- Since 2022 the US and the EU announced several sanction packages directly or indirectly aimed at the energy complex of the Russian Arctic and the regional stakeholder
- Seoul joined sanctions against Russian **financial sector**, including the SWIFT-related decisions
- **BUT:**
Little to no pressure on the energy sector (basis of the Russian Arctic economy);
LNG imports may still be present
- However, as the colleagues have already mentioned traffic (freight), insurance and several other aspects of navigation demonstrate **extreme vulnerability to the actions of the third parties**



The Chinese factor: does it *really* matter?

- “Alarmism” by Korean experts
- The US support the narrative of “strategic competition”
- A matter of “substitution?”
- Russia is capable of “**separating the responsibilities**” as in 2026 China possesses **little to no** industrial capacity in terms of Arctic-class vessels
- I believe the exchange formula “resources to tech” **works perfectly fine** in the case of hypothetical Russian-South Korean cooperation





Digital support of the logistics: the obstacles

- Insufficient (near-zero) implementation of 5G mobile communications, essential for industry, smart logistics infrastructure, uninterrupted navigation, etc.
- The conflict between "smart import substitution" and "digital sovereignty" in state planning complicates the import of technologies from partner countries
- Many solutions are spreading locally or regionally. An example is Gazprom Neft's KAPITAN system
- Disparity in digital development between regions and the digital divide: Murmansk leads the way
- Relevant space technologies are being implemented at an insufficient pace



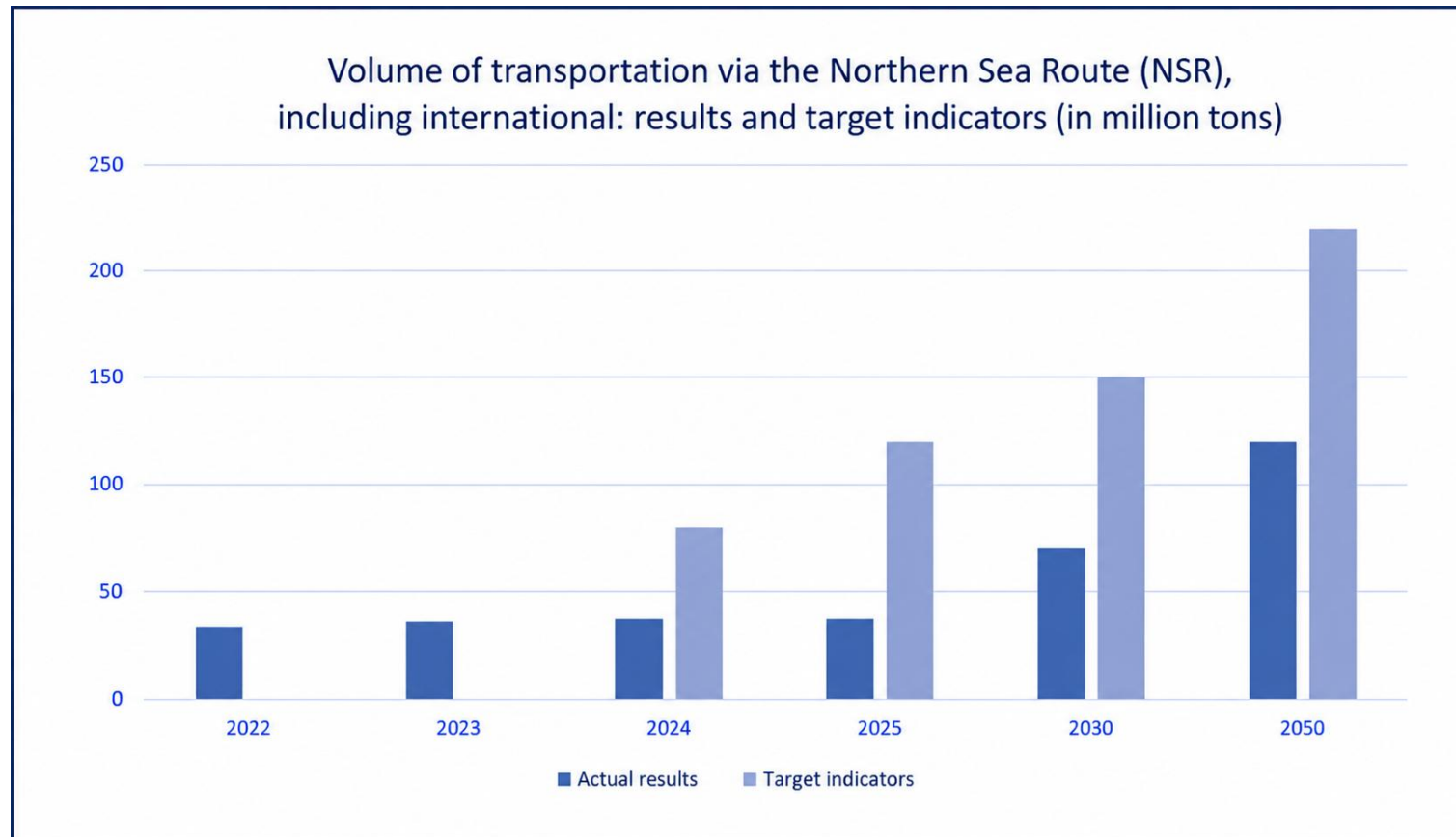


Space technologies in the Russian Arctic in the context of logistics, digitalization, and international cooperation

- According to the aforementioned statement, sustainable Arctic navigation requires significant polar navigation capabilities. **Such capabilities are to a great extent defined by advanced digital solutions**
- Russian tech: The NSR Unified Navigational System (Rosatom State Corporation): automated traffic control, issuing transit permits for foreign vessels, and much more.
The KAPITAN system (Gazprom Neft): preventing tanker accidents using predictive AI algorithms. Reducing logistics costs for offshore oil exports by 12%.
The Rassvet low-orbit satellite system (Bureau 1440): a Starlink analogue for the Arctic. Capable of providing high-speed Internet connection to all northern regions.
Meteorological monitoring and ice conditions – Kondor-FKA satellites (Roscosmos) etc.
All the solutions can be defined as very locally used.
- Possible South Korean tech: Smart M2M Chain or KULS for tracking cargo and documentation exchange. **Merging would likely requires adapting the systems for the Arctic conditions**



The commercial feasibility: an uncertainty?





Conclusion

- The cooperation can be evaluated as mutually beneficial from purely economic point of view
- The key obstacles are:
 - The risk of secondary sanctions
 - The high load of the respective South Korean vessels in both short- and medium-term perspective
 - The underdeveloped port infrastructure of the AZRF
- The other challenges include:
 - The differences in the approach to the Arctic Governance
 - The Chinese activity as viewed by Seoul
 - The slow speed of the implementation of the digital solutions in the Russian Arctic
- **However, the supply and demand of the energy sources as well as the Korean proficiency in the Arctic shipbuilding can be considered the core element of the renewed cooperation.**

