Future Transit Transport and Infrastructure on the NSR

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1.Russian Government's Transport Strategy and NSR Development

- The NSR is included in the priority plan of the transport strategy of Russia until 2030
- After reviewing the Arctic social and economic program and Russia's transport strategies, Russia is currently trying to develop NSR as one of the transit routes to supply Arctic oil and gas resource to the world.
- According to Russia Arctic Zone Development and National Security Strategy 2020, one of the main development plans is the transit infrastructure renovation of the Arctic shelf areas to diversify the major supply routes of Russian hydrocarbon to world markets.

Russian Transport Strategy till 2030

- **Russian Transport Strategy till 2020**
  : Followings will be implemented to develop effective transport infrastructures

  1. Building of Icebreakers
     - 3 Universal atomic icebreakers(RS Icebreaker 9 A2, 60MW)
     - Building of new icebreakers to replace old icebreakers is essential to ensure safe navigation on the NSR

  2. Construction of new port and transshipment facilities

     a. Sabetta port
        - Cargo throughput: 30.7 Mil ton(LNG: 25, Gas condensate: 2.2, Oil:3.5)

     b. Murmansk port
        - Construction of transport hub, distribution center and port terminal till 2020

- **Russian Transport Strategy during 2021-2030**
  - Modernization of port construction in Dikson, Tiksi, Pevek for bunkering, ship repair, etc
  - Exploration of seabed along the transport route of hydrocarbon resources
  - Construction of container port(70 mil) and deep sea port for transshipment of coal & mineral resources

Source: IAL, Youngsan University, Final Report on 'Sustainable Use of NSR, funded by Ministry of Oceans and Fisheries, Dec 2015

Russia's major activities regarding NSR

- **The main purpose of Russian government in the Russian Artic Sea is**
  - to develop oil/gas field in the Gulf of Ob and transport hydrocarbon to Europe and Asia-Pacific markets.
- **With President Putin's order, the Ministry for Development of Russian Far East developed**
  - An NSR Economic and Financial model, completed by the Analytical Center for the Russian government.
- **The Russian government is hoping for foreign investment in the NSR infrastructure development. In the midst of sanctions from the West, bilateral cooperation between Russia and China is active.**
  - Russia has agreed on a MOU with China's National Development and Reform Commission regarding NSR development in December 2015.

Source: IAL, Youngsan University, Final Report on 'Sustainable Use of NSR, funded by Ministry of Oceans and Fisheries, Dec 2015

Russian Government's Recent Trends for NSR Infra

1. Arctic Transport Line (Mr. Pegin)
   - Murmansk <-> Petropavlovsk-Kamchatski
2. Icebreaking Shuttle container shipping
   - Drafted byThe Analytical Center for Russian Government(1,7 bilU$)
   - Russian Far East Development, Russian government's analysis center, 1.7 billion US$
3. Single Operator – Ovoronlogistika (Military logistics)
   - Focused on Arkhangelsk, increase of military logistics along with the increase of military bases in Arctic
   - Mainly military logistics for Arctic area but is expected to expand
   - Higher possibility of cargo transshipment of Murmansk port and Arkhangelsk port
   - Strengthen international exchange for attracting future transit cargo
   - the President gave instructions for the formation of a transport system that would guarantee Arctic sea routes would be economically viable.(Defense Minister Sergey Shoigu, July,27, 2016)
   - A consortium including Oboronlogistika, Sovfracht and FESCO has been tasked with developing a unified tariff policy for transport services.
4. Northern Latitutional Transport Corridor
   - Transport route including NSR, Murmansk and Barents Sea
   - NSR is a specific passage that cannot encompass all transport networks on the Russian Arctic seas.

2. Practicability of Future Transit transport through NSR

1. Future Prospect by reputable research institute

- NSR Cargo traffic data (G.P. Luzin Institute for Economic Studies of KSC, RAS, Apatity, 2015)
- Transit transportation volume (CNIIMF 2014)

2. Review about the Key Transport Infrastructure, making future NSR transit transport possible

1) Icebreaking capability to ensure safety of NSR shipping

- 3 new universal Icebreakers will replace existing 4 main atomic icebreakers
- Icebreaking capability of 3 new universal icebreakers hardly cover the demand, necessary for future transit transport

2) Ice class vessel

- Building of new large ice class vessel with economic feasibility will depend on market condition on the NSR

3) Key port on the NSR

- Sabetta port, Murmansk, others

4) SAR

5) Hydrographic information and meteorological information

Cargo traffic on the NSR (Mil ton) :

	Real cargo traffic			Pessimistic Scenario			Optimistic Scenario		
	2012	2013	2014	2020	2025	2030	2020	2025	2030
Western sector	2.8	2.9	3.7	12.1	21.6	19.6	14.7	36.8	34.9
Oil export									
obbay4E	0.7	1.0	1.5	1.0	1.5	1.5	1.5	2.0	3.0
Sabetta port			0.3	0.3	0.6	0.6	0.3	1.2	1.2
Novy port				3.0	5.0	3.0	5.0	8.0	5.0
LNG Export									
Sabetta port				6.0	6.5	6.5	6.0	13.0	13.0
Harasabey					6.0	6.0		10.5	10.5
Northern	0.8	0.8	0.7	0.7	0.8	0.8	0.8	0.9	1.0
Dudinka	1.2	1.1	1.2	1.1	1.2	1.2	1.1	1.2	1.2
Eastern sector	0.5	0.7	0.9	6.1	16.2	16.4	6.5	27.8	28.2
LNG export									
Sabetta port				5.0	10.0	10.0	5.0	20.0	20.0
Harasabey					5.0	5.0		6.0	6.0
Northern	0.2	0.3	0.3	0.5	0.5	0.6	0.7	0.8	1.0
Cabotage	0.3	0.4	0.6	0.6	0.7	0.8	0.8	1.0	0.2
transit	1.3	1.1	0.2	1.5	2.0	3.0	2.0	4.0	8.0
Total	4.6	4.7	4.8	19.7	39.8	39.0	23.2	68.6	71.1

Source : G.P. Luzin Institute for Economic Studies of KSC, RAS, Apatity, Russia, 2015

Development Prospect of Maritime Transport System in Russian Arctic Region (Source: CNIIMF, 2014)

- **Russian Arctic Maritime Transport System needs to guarantee**
  - 65 mil tons of annual cargo traffic till 2020
  - 100 mil tons till 2030
  - According to Russia Arctic Zone, Siberia and Far East Development program
- **Estimated demand of ice class vessel in Arctic Maritime Transport System till 2020:**
  - Oil tanker : 40 vessels (40-70 & 80-100 thousand dwt)
  - LNG Carrier : 150-200 thousand m3
  - Dry Bulk carrier : 10-25 thousand
  - containership : 3~5 (40-70 thousand dwt)
- **According to analysis of Mintrans, cargo traffic on the NSR till 2020 will be 28.8mil ton**
  - Sabetta port-15 mil tons
  - Transit – 15 mil tons
  - Cargo traffic till 2040 will be increased to 50-80 mil tons

Atomic Icebreaking Fleet

Atomic icebreakers of "Arktika" type:
Propulsion Capacity – 54 MW
Water displacement – 23000 t
Draught – 11,0 m
Icebreaking capability – 2,25 m

Fleet:
i/b "Yamal" – **28.10.1992**
i/b "50 Let Pobedy" – **23.03.2007**

Atomic Icebreakers of "Taimyr" type:
Propulsion capacity – 35 MW
Water displacement 21000 t
Draught – 8,1 m
Icebreaking Capability – 1,7 m

Fleet:
i/b "Taimyr" – **30.06.1989**
i/b "Yaygach" – **25.07.1990**

Universal Atomic Icebreaker Project 22220 (IB60)
Propulsion Capacity– 60 MW
Water displacement 33530 / 25 540 t
Draught – 10,5 / 8,5 m
Icebreaking capability – 2,9 м

Fleet:
1st IB60 – **31.12.2017**
2nd IB60 – **25.12.2019**
3rd IB60 – **25.12.2020**

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Evaluation on the Use of Russian Atomic Icebreakers in the Medium Term

- Icebreaking capability for transit transport through NSR can be insufficient for the medium and long term

Наименование	Год ввода	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Таймыр	1989											
Вайгач	1990											
Ямал	1992											
50 лет Победы	2007											
Ввод в строй универсальных атомных ледоколов												
1-й ЛК-60	2018											
2-й ЛК-60	2020											
3-й ЛК-60	2021											

- Период эксплуатации действующих линейных ледоколов
- Период эксплуатации мелкосидящих ледоколов
- Период эксплуатации новых универсальных ледоколов

Source: Rosatomflot, Oct 2016

Practicability of Future Transit Transport through NSR

1. Oil price ? (Possibility of fuel cost rise?)

2. Available icebreaking capability for ensuring safe transit transport through NSR

- Rosatomflot's participation in Arctic hydrocarbon development projects
  - Yamal LNG 016.5 mil ton (2014-2040)
  - Novy port Oil deposit 8.5 mil ton (2014-2035)
  - Norilsk Nickel 1.3 mil ton (1975-2040)
  - Arctic LNG 16.5 mil ton (2022-2045)
- Assistance to Arctic cruise, defense logistics
- Available capability for Int'l transit transport is enough ?

3. Will the interest of major cargo owners regarding NSR transit transport be recovered again ?

- Decrease of uncertainty regarding NSR transit shipping ?

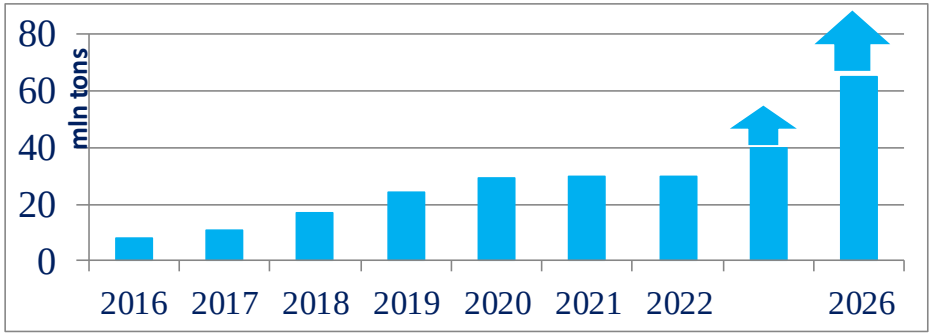
4. Does Russian government really support the NSR transit transport of foreign shippers?

- 2016 Russian cabotage volume : Over 6 mil, whereas Int'l transit:23thousand

Arctic Projects with Rosatomflot Participation

- NSR cargo flow grows with the development of Arctic hydrocarbon projects

№		Project & Operator	Project Capacity per year	Life Span	Status
1	1.1	Yamal Trade LLC, LNG tankers	16,5 mln tons LNG	2014 – 2040	contract
	1.2	Yamal LNG, Port Fleet			
2		Novoport Oil Deposit, GazpromNeft	8,5 mln tons crude oil	2014 – 2035	
3		Norilsk Nickel, p. Dudinka	1,3 mln tons nonferrous & precious metals	1975 - 2040	
4		Coal from Taimyr (VostokCoal)	10 mln tons coal	2018 – 2035	applied for i/b assistance
5		Arctic LNG-2 (NOVATEK)	16,5 mln tons LNG	2022 - 2045	feasibility study
6		Payaha Oil Deposit, Independent Oil and Gaz Co.	7,3 mln tons crude oil	2019 – 2030	



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3. Several Plans regarding NSR Transit Transport and Infra

1) Arctic Transport Line (Mr. Pegin)

- Arctic Shuttle between Murmansk and Petropavlovsk-Kamchatski
- Feeder service (Busan's Role)

2) Icebreaking Shuttle container shipping

- Drafted by Ministry for the Development of Russia Far East (1.7 bil US$)

3) Kirkenes – Adak(Dutch Harbor) (CHNL)

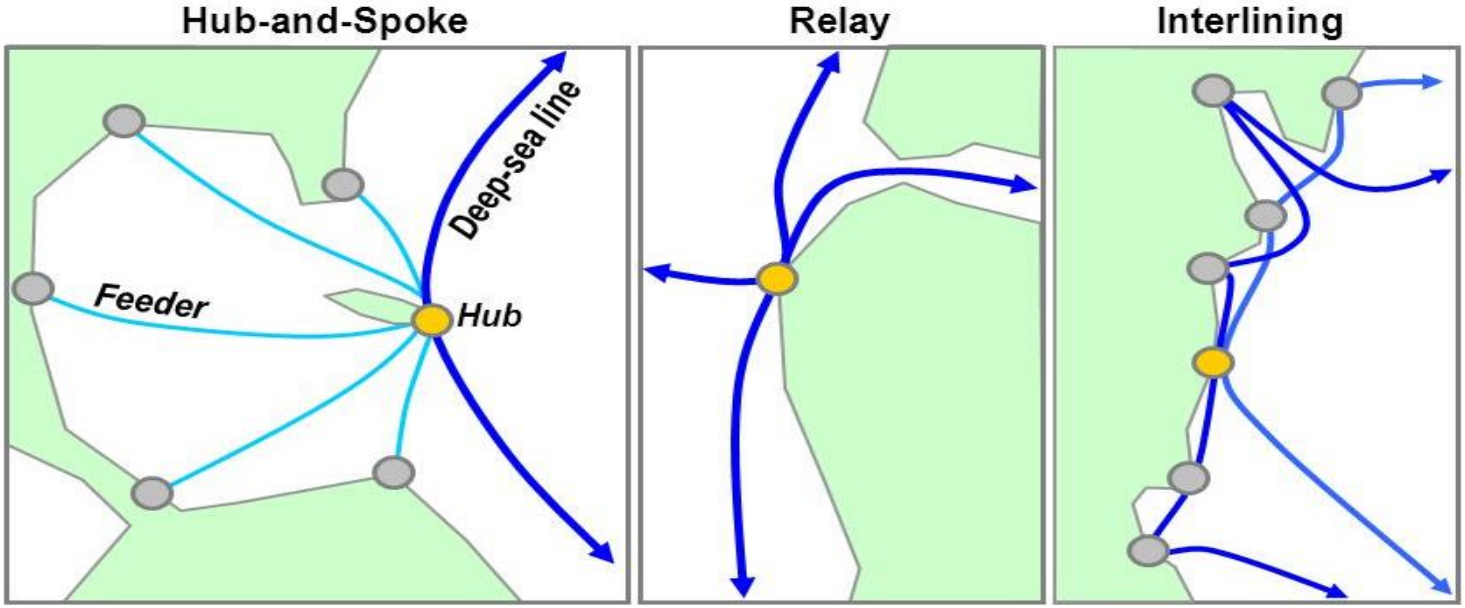
4) Japan : NSR/SCR combined transport service

Comparison of Several Arctic Shipping Plans

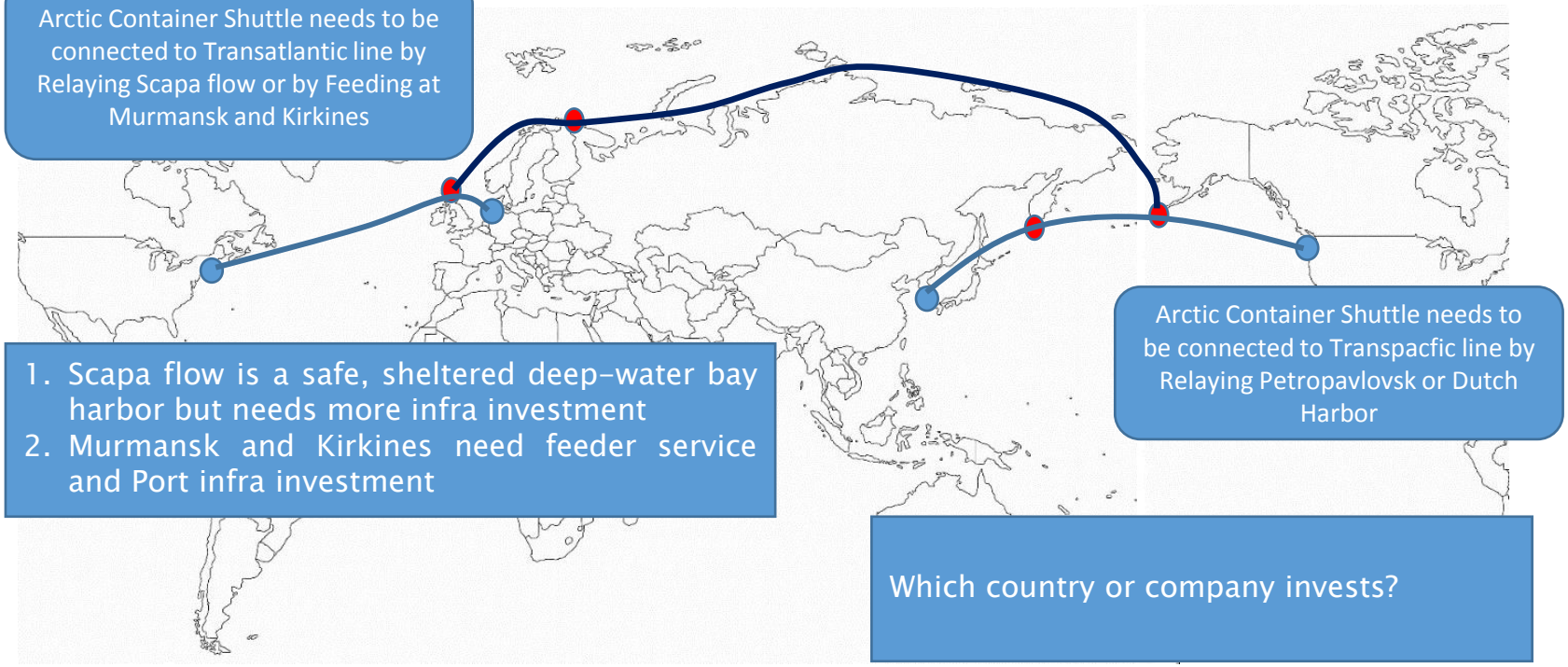
	Infra and Investment	Hub and Transport Type	Possibility
Arctic Shuttle by Pegin	Driven by Russia, Funded by Foreign	Hub & Spoke	
Arctic Shuttle Plan by Far East Development Fund		Hub & Spoke	
Kirkines-Dutch Harbor	Driven by Non-Russia	Hub & Spoke Relay	
NSR/SCR combined	Driven by Japan No need for Port infra	New Quick Service Line	Just Idea in Japan
Single Transport/logistics operator (Ovoronlogistika)	Consortium(MSC, FESCO, Sovfracht)	Single Operator	

IAL's Idea – Theoretical View

- **Connectivity to the Trunk Shipping Line**
  - It is important how smoothly NSR can be connected to the Existing Trunk Shipping Line
- **Less Infrastructure investment**
  - Relay Transshipment w/o Feeder Service can do better than Hub-Spoke



Idea on the Theoretical View



	Scapa Flow	Rotterdam
New York		3,304
New York	2,903	3,403

Busan	Petropavlovsk	Dutch Port	Seatle
Busan			4,617
Busan		2,932	4,668
Busan	1,747		4,712
Busan	1,747	1,280	4,762

4. Requirements for Future Transit Transport through NSR

1) Whether Russian Government intends to develop the NSR as an International Transit

- Political Intention
- Intention for Increasing the Cargo Traffic through the NSR eventually

2) Guarantee of Safe navigation of Large scale vessel

- Possibility of container transportation for general cargo
- Providing timely icebreaking escort service

3) Transshipment Port's Infrastructure and Facilities

Necessity for improving Port Infrastructure and Cargo handling facilities

4) Financing for Improving Transport Infrastructures on the NSR

5) Analysis of promising cargo base for NSR Transit

5. Three Asian Countries' International Transit Plan

1) China

- China's Firm Willingness for NSR Transportation related to Cold Silk road
- Strategic Energy Partnership between Russia and China
- China's Willingness for Energy Import from Russia for East-North China
- One of 'One belt One Road' Strategy
- TCR, TSR

2) Japan

- Japanese Arctic Ambassador's Comment for using NSR
- Japan will use the NSR up to 40% of cargo traffic between Japan and Europe
- Imports Yamal LNG, and has interest in Car Transportation through NSR

3) Korea

- Has interest in NSR shipping but market condition is weak.

(oil price is too low: low bunker price will be maintained for some time)

- With the restructuring of Korean maritime industry, interest in NSR is getting lower.

Conclusions

- **Need for consensus among the neighboring countries for the development of int'l transit transport infrastructure**
  - Impossible to form consensus that NSR can function as the int'l transit transport?
  - Recent trend of strengthening Arctic military strength by the Russian government, trying to maintain Russia's superiority
- **Need for cooperative financing for improvement in NSR transport infrastructure**
- **Project for mutual benefit thru political and economic cooperation among related countries**
- **Need for safe transport measures for future int'l transit transport on the NSR**
- **Cargo volume should be increased for the development of NSR transport infrastructure.**
  - Will Russian stakeholders be interested in the transit, if cargo traffic increases as a result of Russia's development for Arctic natural resources
- **Icebreaking Container Transportation on the NSR**
  - Container shipping will be possible in the near future if cargo base is enough on the NSR
  - Korean companies can't afford to take part in container shipping on the NSR

Thank you

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