THE 30th IAPH
WORLD PORTS CONFERENCE
7 - 12 May 2017
Bali Nusa Dua Convention Center, Bali - Indonesia

Activation of Intermodal Transport Route among Korea, China and Russia

Eun-soo Kim & Soo-yong Shin

- Senior Researcher/Korea Maritime Institute

Session IV: Maritime Transport Network and Port Innovation

Outline

- Introduction
- Comparison of current and new international logistics routes for Heilongjiang Region
- Estimation of cargo volumes for new emerging route
- SWOT for new emerging route
- Suggestion for vitalization of new emerging route

1. Introduction

Why so much attention on this region?

The New Eastern Policy, Far East Development, and Economic Prosperity

The Promotion of Ports and Special Economic Zone

The Economic Activation, the guarantee of easy route (the entrance and exit to a port) for imports and exports

To prepare the strategical business opportunity, energy, logistics, national security

Government Agency

The Strategy of the One Belt and One Road, the Economic promotion of the Northeastern Region, the east entrance and exit to a port in the Northeastern Region

Getting a business chance, the Initiative of Eurasia, enhancing the prestige of Port of Busan as an international hub port

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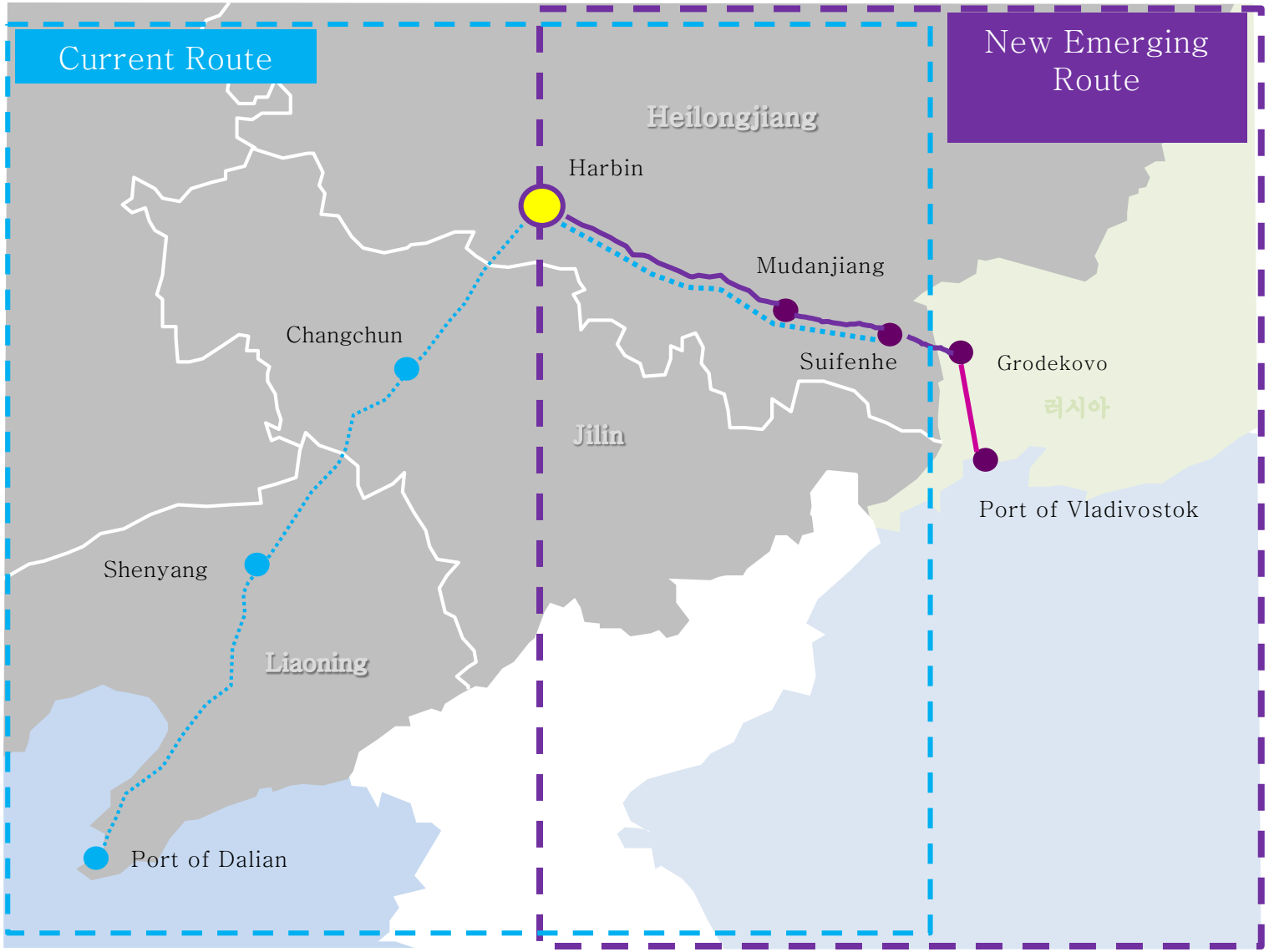
Scope of presentation



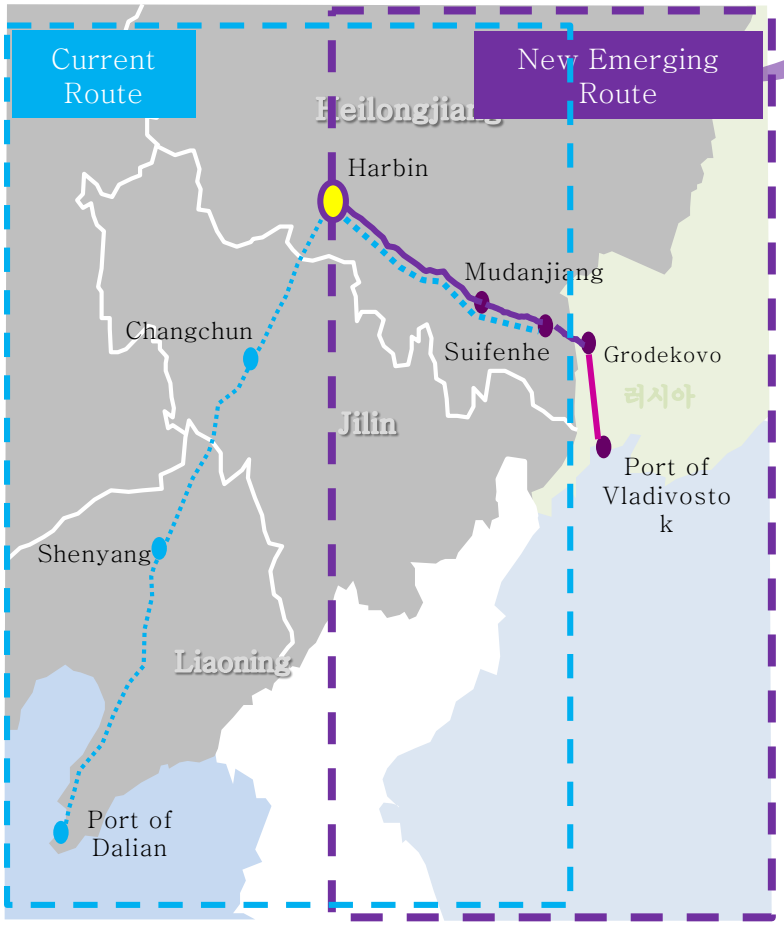
Scope of presentation(cont.)

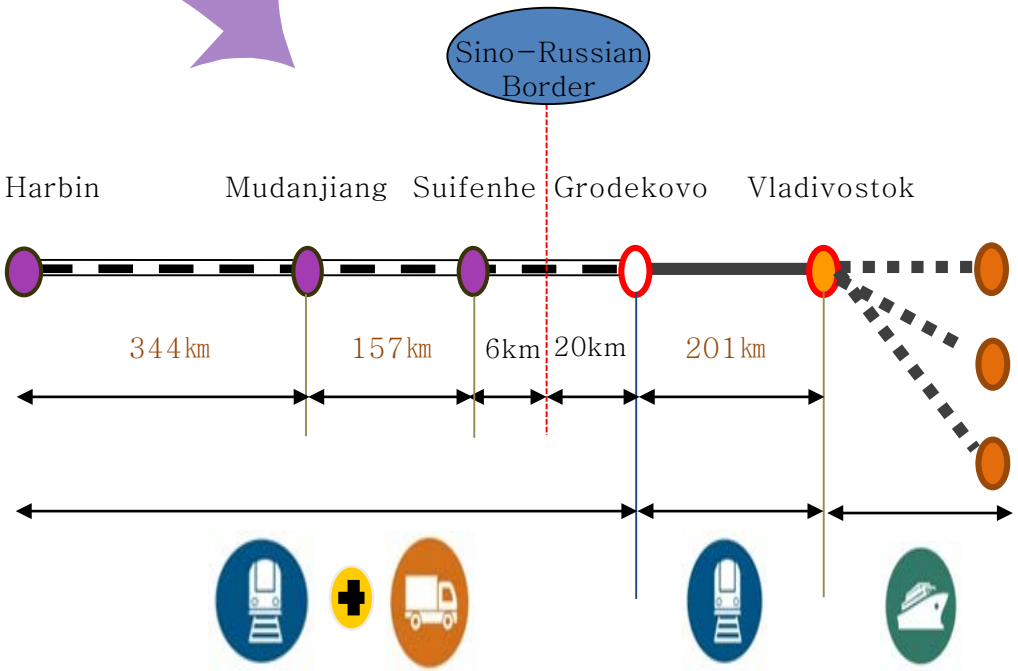
	Description
1 **Region**	• Focus on the international logistics for Heilongjiang Sheng (黑龙江省)
2 **Route (nodes)**	• Heilongjiang (N. China) ~ Port of Dalian (N. China) ~ Port of China and overseas ports (including Busan) • Heilongjiang (N. China) ~ Port of Vladivostok (F.E. Russia) ~ Port of China and overseas ports (including Busan)
3 **Modes**	• Trucking • Railway transport • Sea transport
4 **Item**	• Container logistics

2. Comparison of current and new international logistics routes for Heilongjiang region

International container logistics route

- Comparison of inland logistics
  - Current route : Port of Dalian
  - Newly emerging route : Port of Vladivostok/Vostochiny

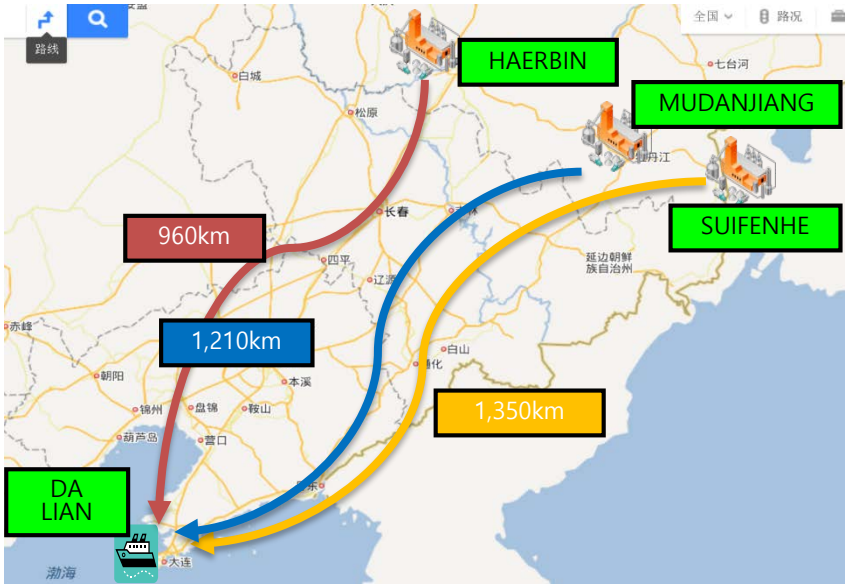




International container logistics route(cont.)

- The inland logistics of **Current Route**

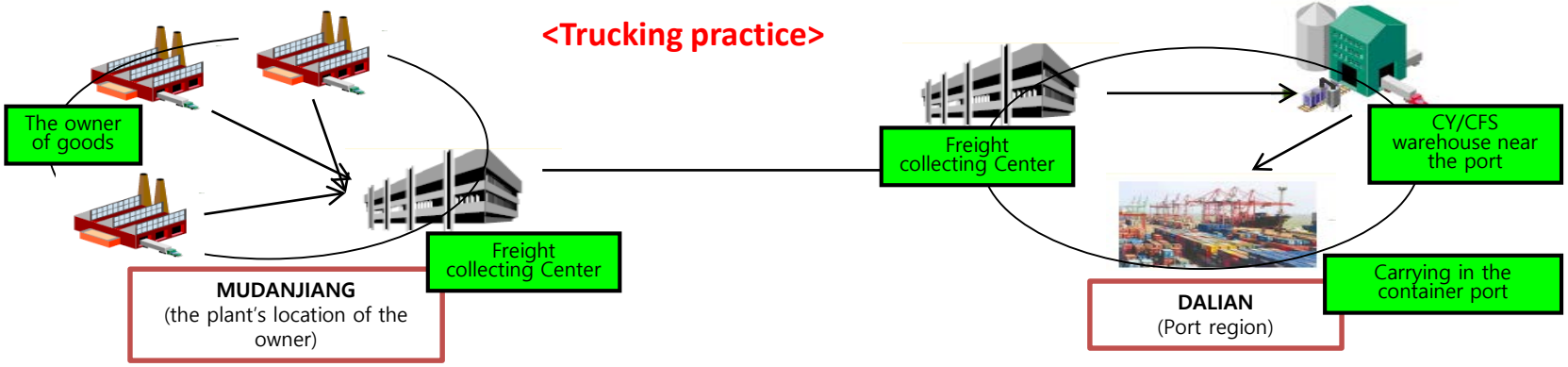
<Inland trucking>



<Inland rail transportation>

적재지	하역지	거리	시간
SUIFENHE	DALIAN PORT	1,443km	7days
HAERBIN		958km	5days
MUDANJIANG		1,300km	7days

<Trucking practice>



☆ In case of relatively massive freights, the plant of the owner → directly transport to CFS

International container logistics route – DISTANCE

- Comparison of **Distance** in **Inland** section (Current vs. New routes)

Origin	Transportation method	Current Route	New Route (trucking base)					Difference (km)
		Port of Dalian basis (km)	Port of Vladivostok basis (km)					
			MUDANJIANG	SUIFENHE	GRODEKOVO	VLADIVOSTOK	Total	
HAERBIN	Trucking	960	344	157	26	201	728	252
	Rail	958						250
MUDANJIANG	Trucking	**1,210**	-	157	26	201	384	**846**
	Rail	1,300						936
SUIFENHE	Trucking	**1,350**	-	-	26	201	227	**1,143**
	Rail	1,443						1,236

- Comparison of **Distance** in **Ocean** transportation section (Ports of **Dalian** and **Vladivostok**)
  - In case of export to the West Coast ports of U. S., it is possible to reduce the maritime transportation time about **60 hours (900 miles)** via the **port of Vladivostok** (new route)

Logistics cost comparison

- The basis of **Suifenhe/Mudanjiang/Harbin** (example of S company)
  - Since it is **test project**, export logistics **cost of new route** is at competitive **disadvantage** than that of current route
  - Possible to hold cost competitiveness when project moves to the level of stabilization and invigoration in future

Port of exit / Origin		SUIFENHE		MUDANJIANG		HAERBIN	
		20'	40'HC	20'	40'HC	20'	40'HC
Port of Vladivostok/ Port of Vostochny (The New Route)	CNY(A)	7,000	11,000	8,000	12,500	8,500	13,200
	$(B)	1,077	1,692	1,231	1,923	1,308	2,031
Port of Dalian (The Current Route)	CNY(C)	6,300	9,800	5,800	8,700	5,200	7,500
	$(D)	969	1,508	892	1,338	800	1,154
Difference of CNY (C-A)		-700	-1,200	-2,200	-3,800	-3,300	-5,700
Difference of $ (D-B)		-108	-185	-338	-585	-508	-877

Note: The exchange rate: 6.5 CNY/$, 65 RUB/$

Source: S Company (2016.5).

Logistics cost comparison

- The basis of the **government of Suifenhe/Harbin**
  - cost difference of current and new routes is bigger than that of S company example
  - Although S company is closely related to government of Suifenhe city, the gap exists in cost presented by logistics company S to government of Suifenhe and research team
  - It is assumed that the gap came from size of incentive support, profit of S company, and difference of the cost calculation timing

			Inland Transport	Port area	Sea Transport	Total
Current Route (A)	**via Port of Dalian**	**(CNY)**	4,200 (Winter season 5,800)	2,300	310	6,810 (8,410)
New Route (B)	**via Port of Vostochny**		6,782	2,445	1,922	11,149
Cost Gap (B-A)			2,582 (982)	145	1612	4,339 (2,739)

Source: Government of Suifenhe city.

Results

	Description
New Logistics Route, Inland Transport cost price's competitiveness is higher	• The areas of Haerbin, Suifenhe, and Mudanjiang, which is eastern part of the Heilongjiang Province have the competitiveness of the transport cost for the new route regarding export logistics than that of the current route
New logistics route in test project, Sea Transport cost competitiveness is lower than that of the current route	• Since Far Eastern Russian route is traditionally expensive in the maritime freight rate and port charge for the owner of the goods (logistics companies), the most of the other routes' cost is higher than that of Port of Dalian as the starting point
When new route is activated, the chance of getting competitiveness of total logistics cost will be achieved	• Through the multi-dimensional cooperate of the logistics companies, shippers, port authorities, customs, and Korean – Chinese – Russian governments, the competitiveness of new route's cost could be achieved than that of current route • However, risk factors for ensuring profits of logistics companies, port authorities, and shippers as well as the volatility of maritime rate and the change of the demand and supply of logistics exist

3. Estimation of cargo volumes for new emerging route

Container throughput in the port of Busan

- **From 2004 to 2015, Busan Port's container throughput increased by 4.9% annually, while transshipment dominated trend by 7.0% of growth rate**
  - In 2015, total container traffic recorded 19.47 million TEUs, among which transshipment accounted for more than 50% with 10.11 million TEUs

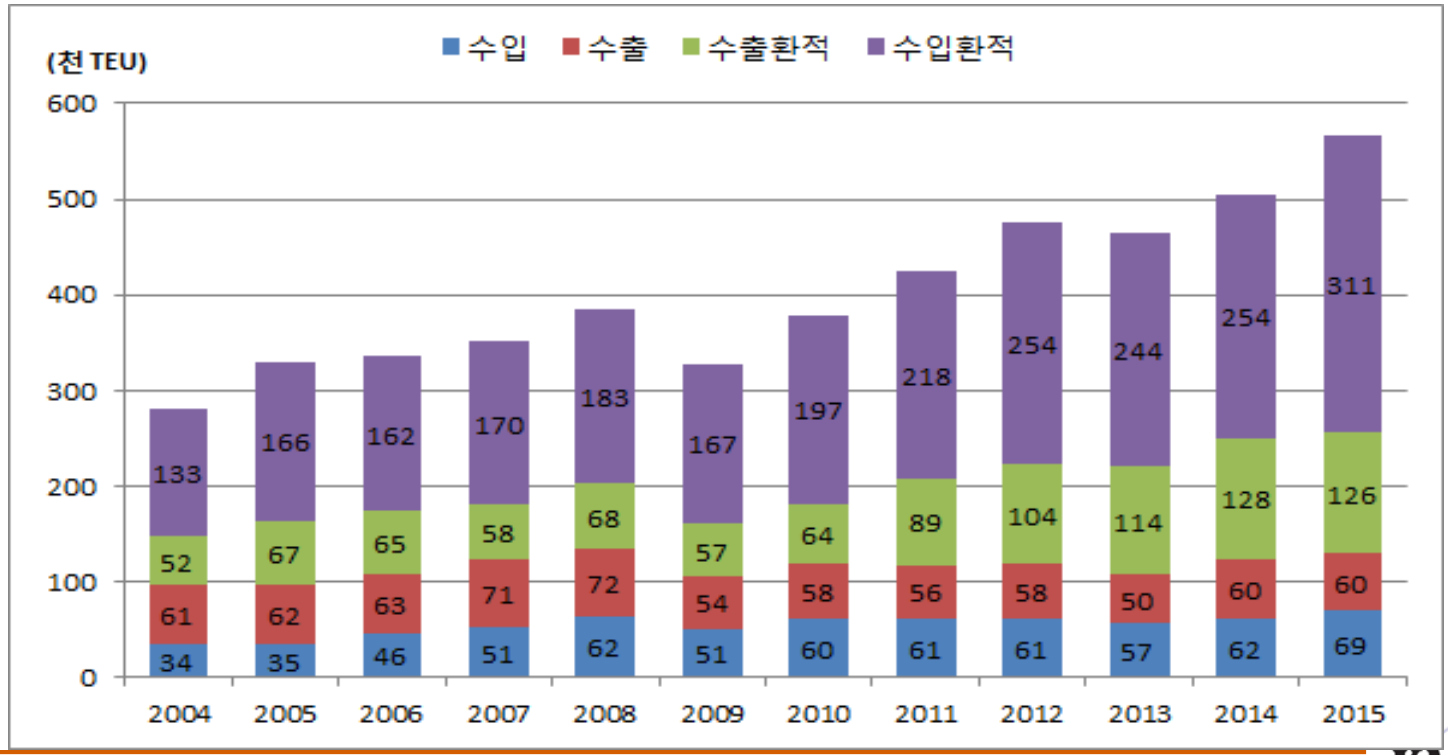
Year	Container throughput					
	Total	Import	Export	IM + EX	Transshipment	Domestic
1996	4,374,162	1,838,164	1,980,991	3,819,155	470,676	84,331
2000	6,382,737	2,483,753	2,551,162	5,034,915	1,232,306	115,516
2004	**11,491,968**	**3,286,361**	**3,308,609**	**6,594,970**	**4,791,942**	105,056
2005	11,843,151	3,309,202	3,270,036	6,579,238	5,178,798	85,115
2010	14,194,334	3,913,611	3,922,723	7,836,334	6,276,458	81,542
2013	17,686,099	4,424,105	4,509,339	8,933,444	8,748,453	4,202
2014	18,683,283	4,596,287	4,657,639	9,253,926	9,429,355	3
2015	**19,468,725**	**4,713,229**	**4,650,167**	**9,363,396**	**10,105,318**	10
Growth rate (04-15)	4.9%	3.3%	3.1%	**3.2%**	**7.0%**	-

자료: PORT-MIS.

Container throughput in the port of Busan

- **Since 2004, container throughput of Busan to/from Dalian ↑ by 6.6%**
  - During same period, Ex/Im traffic ↑ by 2.8%, transshipment by 8.1%
    - export transshipment Busan T/S → Dalian: 311 thousand TEUs (2015)
    - import transshipment Dalian→Busan T/S : 126 thousand TEUs (2015)

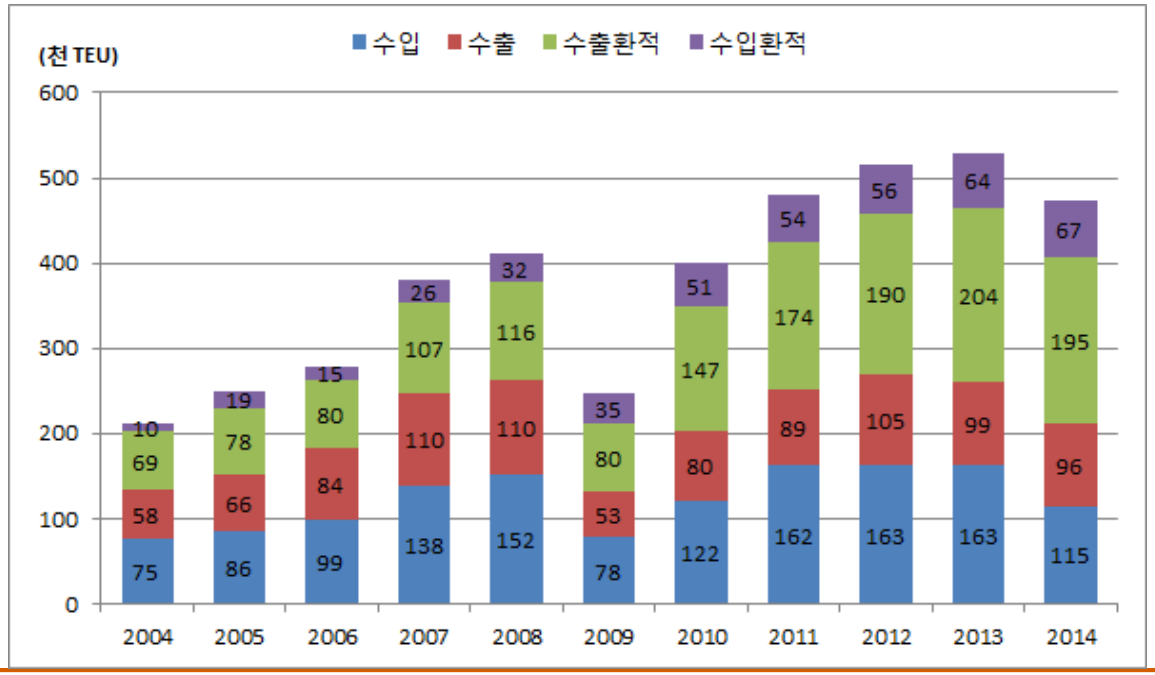
【Container throughput between Busan and Dalien (2004-2015)】



Container throughput in the port of Busan

- **2004 ~ 2014, container throughput between Busan & Russian Far East ↑ by 6.3% p/a**
  - During same period, Ex/Im traffic ↑ by 4.7%, transshipment by 12.6%
    - export transshipment (Busan T/S → FE ports): 195 thousand TEUs (2014)
    - import transshipment (FE ports → Busan T/S): 67 thousand TEUs (2014)
  - In 2015, among the 3 FE ports(Vladivostok, Vostochny, Zarubino) , Vladvostok was number one port in terms of Busan T/S cargo traffic
    - Transshipment cargo between Russian FE ports and Busan Port originates from Japan and FE Asia (including China), which accounted for 83.8% (Japan 20.4%, FE Asia 63.4%)

【Container throughput between Busan and Russian Far East (2004-2014)】



Estimation of export container volumes from the Heilongjiang through the port of Dalian

- **Ex/Im (Full container) throughputs of Dalian Port in 2014 estimated to be 1.71 million TEUs and 1.57 million TEUs**
  - Estimated Ex/Im(Full container) throughput of Dalian Port(C1, C2) created by outbound/inbound throughputs(B1, B2) X ratio of international trade per year (A) Eg. C1 = B1 * A

【Container Volume of Dalian Port (2009-2015)】

Unit: 10 thousand TEUs

	Total	Domestic trade	International trade		Full (B)			Empty		Export Full Container (C1)	Import Full Container (C2)
			Through-puts	Ratio (A)	Out-bound (B1)	In-bound (B2)		Through-puts	Ratio		
2009	457.65	98.34	359.31	*79%*	162.63	121.48	284.11	173.54	38%	128	95
2010	526.25	117.43	408.82	*78%*	181.1	149.39	330.49	195.76	37%	141	116
2011	640.03	184.21	455.82	*71%*	209	167.6	376.6	263.43	41%	149	119
2012	806.42	340.21	466.21	*58%*	272.32	233.06	505.38	301.04	37%	157	135
2013	1001.49	483.74	517.75	*52%*	294.66	265.74	560.4	441.09	44%	152	137
2014	1013.23	488.26	524.97	***52%***	**330**	**303.58**	633.58	379.65	37%	**171**	**157**
2015	930.1	n.a	n.a	-	n.a	n.a	-	-	-	-	-

Source: 1. 交通运输部，「中国航运发展报告」(2010, 2011, 2012, 2013, 2014, 2015)
2. Throughput in 2015 (http://www.51zixuewang.com)

Estimation of export container volumes from the Heilongjiang through the port of Dalian

- **Ex/Im Container cargos of Heilongjiang via Dalian Port in 2014 are estimated to be by 370 thousand TEUs and 220 thousand TEUs (based on Full Con.)**
  - 96.7%* of container cargos in Northeastern 3 Provinces' external trade transit Dalian Port
  - Heilongjiang accounts for 22%* of the total Ex. cargos & 14%* of the total Im. cargos using Dalian port
  - The estimated Ex/Im container volume is created based on the assumption that there is little change of proportion since 2012, especially in terms of origin & destination of the Full container cargos

【Estimated Ex/Im Full Container volume of Heilongjiang by Region】

Destination	Export		Import	
	proportion	volume (10 thousand TEU)	proportion	volume (10 thousand TEU)
Europe (the Black Sea)	3.31%	5.66	1.33%	2.09
North/South America	4.50%	7.69	3.51%	5.52
Mediterranean	2.24%	3.83	1.04%	1.64
Middle East	0.76%	1.30	0.49%	0.77
Southeast Asia	1.50%	2.56	0.77%	1.21
Republic of Korea	2.55%	4.36	2.50%	3.93
Japan	6.91%	11.81	4.23%	6.65
Total	**21.77%**	**37.22**	**13.87%**	**21.82**

Source: KMI analysis.

Estimation of export container volumes from Heilongjiang using newly emerging route

- The estimation is created by the demand & supply sides
  1. Demand: the entire export Con. volume using Dalian, and proportions of local Ex/Im
  2. Supply: railway transport plans & capacities between Russian FE and Heilongjiang
- Demand perspective: estimation of newly emerging transport route
  - Eg: Harbin, Mudanjiang, Suifenhe, Jixi and Jiamusi in Heilongjiang's eastern region are expected to rise as the major cities in the newly emerging route

【Estimated Export Container Volume by Region in Heilongjian Provinces】

Region(s)			Export		Import	
			2013	2014	2013	2014
Total of Heilongjiang Province			100%	100%	100%	100%
Newly emerging routes (East region in the Heilongjiang)	哈 尔 滨	Harbin	10%	15%	14%	13%
	牡 丹 江	Mudanjiang	20%	24%	3%	2%
	绥 芬 河	Suifenhe	14%	17%	27%	22%
	鸡 西	Jixi	7%	4%	1%	1%
	佳 木 斯	Jiamusi	7%	11%	5%	3%
	Sub-total	-	58%	71%	49%	40%

Source: **Heilongjiang Annual Statistics; KMI Analysis**

– Ex/Im values of five cities in Heilongjiang's east region account respectively for 64.5% and 44.5%

Estimation of export container volumes from Heilongjiang using newly emerging routes

- Demand side: Export volume using the newly emerging routes is estimated to be 220~260 thousand TEUs (based on 2014)
  - proportion of using the existing Dalian port will remain by 80% of the total
  - Phase 1: 10% (21,600~26,450TEUs) can be reached, and then,
  - Phase 2: max. 20% (43,200~52,900TEUs) can be reached

Destination	Export Volume (10 thousand TEU)				
	proportion	Heilongjiang	Heilongjiang Eastern region		
Europe (the Black Sea)	3.31%	5.66	3.28	~	4.02
North/South America	4.50%	7.69	4.46	~	5.46
Mediterranean	2.24%	3.83	2.22	~	2.72
Middle East	0.76%	1.30	0.75	~	0.92
Southeast Asia	1.50%	2.56	1.48	~	1.82
Republic of Korea	2.55%	4.36	2.53	~	3.10
Japan	6.91%	11.81	6.85	~	8.39
Total	**21.77%**	**37.22**	**21.59**	**~**	**26.43**

Source: KMI Analysis.

Estimation of export container volumes from Heilongjiang using newly emerging routes

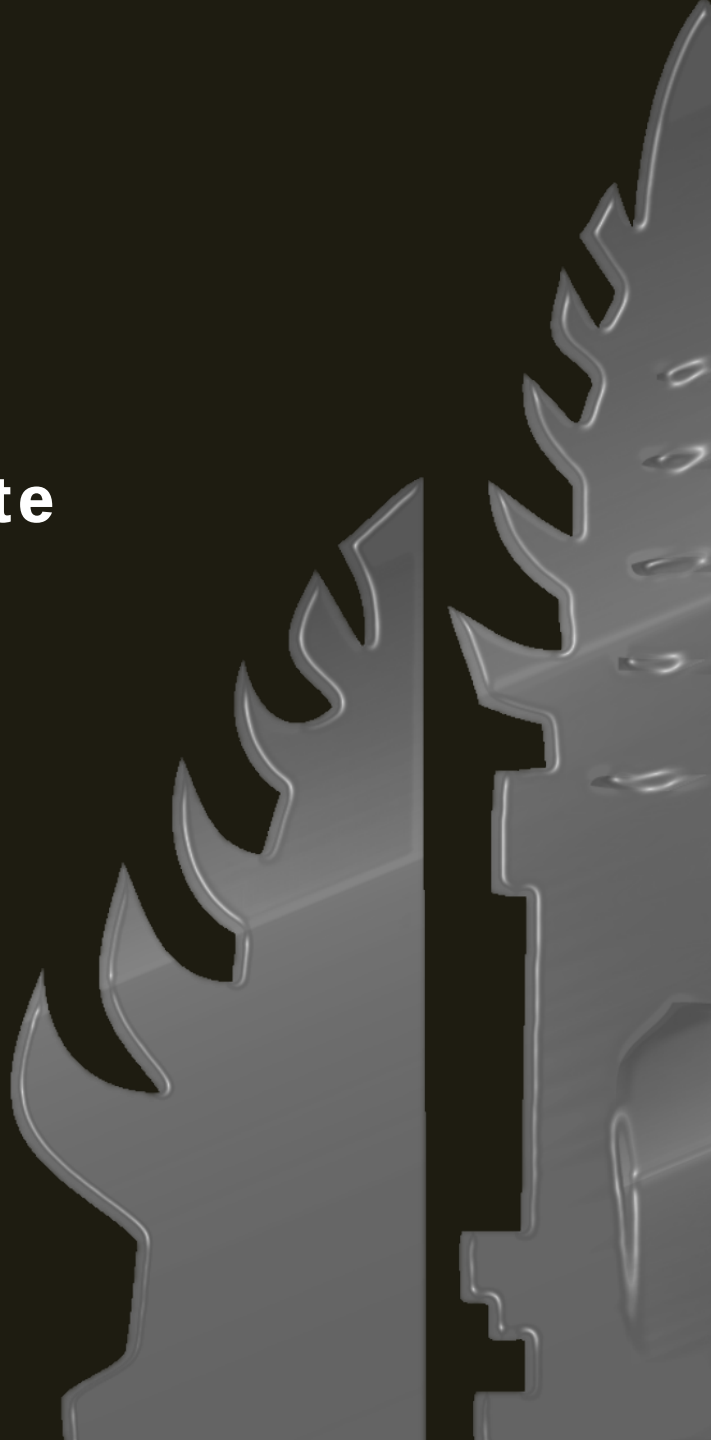
- Supply side: on the assumption that the newly emerging routes are sufficiently vitalized, and can provide five time service per week,
- Estimated container volume will be reached by 28,500~36,000 TEUs
  - Estimated based on June, 2016. * 1-2 phases (departure twice per month)
  - Existing capacity: 111~144 TEUs per Block Train (China~Russia) * 1 year = 50 weeks

Developing Phase		Loadage per Block train	departure/week		50weeks/year	Annual estimated volume		
Pilot project (Phase 1)	1-1	114~144 TEU (57~72 FEU)	0.25	(1/ month)	50	1,425	~	1,800
	1-2		0.5	(2/ month)		2,850	~	3,600
stabilization (Phase 2)	2-1		1	(1/ week)		5,700	~	7,200
	2-2		**2**	**(2/ week)**		**11,400**	~	**14,400**
vitalization (Phase 3)	3-1		3	(3/ week)		17,100	~	21,600
	3-2		4	(4/ week)		22,800	~	28,800
	3-3		5	(5/ week)		28,500	~	36,000

Source: KMI Analysis

- When fully operating (10 times/week or twice/day), the newly emerging routes will provide transport service capacity by 57,000~72,000TEUs annually

4. SWOT for new emerging route



SWOT analysis for newly emerging logistics route

Strengths

- Favorable geographical location (among others, bordering Russian Far East)
- Comparative advantage in terms of land, maritime transport distance compared with the existing routes
- Plentiful logistics resources

- largest grain production in China, and natural resources, etc

Weaknesses

- No decision-making right of shippers to shipping firms and ports
- Imbalance of In/Out Bound cargos
- Tough supply of empty containers
- High-cost structure in terms of Russian inland transport
- Inefficient clearance from Russian side

Opportunities

- Potential for additional cargo creation
- Potential for additional cost reduction
- Strong willingness to develop newly emerging route, efforts to improve clearance especially transit cargos (from China as well as Russia)

Threats

- Risk of China's engagement strategy
- Connectivity improvement of logistics environment in Dalian Port

- Increased space for railway transport and the possibility of price cut

- Competition with Hunchun-Zarubino route
- Risk of Ruble appreciation

5. Suggestion for vitalization of new emerging route

Prospect for vitalization of newly emerging route

- Activation of new logistics route is supported by Korea-China-Russia government policy

Korea: Eurasia Initiative

- SRX connecting Korea - North Korea - China – Russia
- Expand connectivity of transportation, logistics, ICT and energy networks in Eurasia
- Participation in the Rajin-Hassan logistics project and the international Tumen River development plan

China: One Belt One Road(一带一路)

- Silk road economic zone connecting China, Central Asia and Europe
- Establishment of global network through construction of large-scale infrastructure / secure new growth engine
- Open the era of one belt one road for further economic development in China

Russia: New Eastern Policy

- Development plan for relatively underdeveloped Far East of Russia
- Appoint Vladivostok port as a free port and develop as a cargo hub of three northeast China provinces as well as a gateway to Russia, as a cargo hub

Matching strategic goal

The emergence of importance of three Northeast provinces in China and Far East of Russia

1. A link between the policy of the central government between Korea-China-Russia
2. In addition to trade between China and the Korean peninsula, it plays a key role in long-term trade between Europe and the Korean peninsula.
3. Emerging as an investment destination in Northeast Asia
4. Major logistics base for China, 3 Northeast provinces, Russia, North Korea, Mongolia network (TSR, TMGR)

- **Exporters & Importers of Heilongjiang province**, the alternative logistics route development is to improve logistics → Trade expansion → development opportunities for industries
- **For logistics companies**, using the new routes have secured them opportunities in the market

→ **For new logistics routes**, different views exist between the government and companies but its long-term effects are expected positively by both parties

Suggestion for vitalization of newly emerging route

1. Increasing logistics demand

Short term

- Promoting joint marketing
  - Forums on new routes, joint brochure production, logistics forums / seminars, joint marketing, etc.
- Implementation of joint policy between Korea-China-Russia for stabilizing the new routes
  - For Heilongjiang Province export Busan Port T/S cargo

Mid and Long term

- Supporting participation of our logistics companies and shipping companies
- Securing quantity of Backhaul Busan Port T/S cargo
- Implement incentive policy to attract new T/S cargos in Busan port (2nd stage)

2. Improving logistics efficiency and infrastructure

Short term

- Improvement of supply / demand system of empty containers
- Enhancement of the efficiency of customs clearance for the border of China-Russia
- Improved clearance and service in Russian ports

Mid and Long term

- Joint project on Mudanjiang/Suifenhe ICD
- Project on road infrastructure improvement
  - Proposal and feasibility Study for AIIB related infrastructure investment project

3. Towards to healthy competition environment

Short term

- Supporting and promoting participation of the Korean shipping companies (Heilongjiang export)
- Supporting and promoting major shipping companies (Imported from Heilongjiang Province)

Mid and Long term

- Efforts to improve the monopolistic business structure of a single logistics company
  - Improvement of competition conditions by participation of multiple / multinational logistics companies

Conclusion and recommendation

Conclusion

- Some parts of China are still dead spots for export-import logistics
- Cost competitiveness secured for new routes
- Export volume of Heilongjiang province to be 30,000TEU once new route is activated
- New routes expected to contribute to economic development of Eastern part of Heilongjiang and Far East of Russia
- Activation of new route is to improve status of Busan port

Recommendation

- Need to support logistics company / shippers' participation in Korea
- Korea-China-Russia regional cooperation on new route stabilization
- Implementation of subsidies and incentive policies
- When improving the conditions of port authority business, review joint investment of new route infrastructure

Thank You

THE 30th IAPH WORLD PORTS CONFERENCE

7 - 12 May 2017, Bali Nusa Dua Convention Center, Bali - Indonesia

IAPH International Association of Ports and Harbors

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PELINDO III

PELINDO 4 Lokomotif Indonesia Timur