INTEGRATED TRANSPORT INFRASTRUCTURE AND CROSS-BORDER FACILITATION STUDY FOR THE TRANS-GTR TRANSPORT CORRIDORS

INDIVIDUAL COUNTRY REPORT

JAPAN

Greater Tumen Initiative

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Japan individual country report is prepared as part of GTI “Integrated Transport Infrastructure and Cross-Border Facilitation Study for the Trans-GTR Transport Corridors“ by Mr. Hirofumi Arai, Economic Research Institute for Northeast Asia (ERINA).

The Study has been carried out to assess general situation, bottlenecks and traffic potential of the transportation corridors in Northeast Asia and in the Greater Tumen Region in 2012 in accordance with the decisions GTI Consultative Commission and GTI Transport Board (2010-2011). The set of Study reports consists of five individual country reports: China, Mongolia, ROK, Russia and Japan; and Regional Summary report. The Study results and conclusions served as basis for development of joint agenda in transport cooperation by GTI.

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Abbreviations

APEC – Asia Pacific Economic Cooperation
APR – Asia Pacific Region
BAF – Bunker Adjustment Factor
BCP – Border Cross Point
B/L – Bill of Lading
CHC – Container Handling Charge
CMR – Convention on the Contract for the International Carriage of Goods by Road
COTIF – Convention concerning International Carriage by Rail
DPRK – Democratic People's Republic of Korea
ERINA – Economic Research Institute for Northeast Asia
FESCO – Far-Eastern Shipping Company
FY – Fiscal Year (from April to March next year in Japan)
GDP – Gross Domestic Product
GTI – Greater Tumen Initiative
GTI TB – Greater Tumen Initiative Transport Board
GTR – Greater Tumen Region
ISO – International Organization for Standardization
JBIC – Japan Bank for International Cooperation
JR – Japan Railways (Group)
JTSL – Japan Trans-Siberia Line
LCC – Low-cost carriers
LNG – liquefied natural gas
METI – Ministry of Economy, Trade and Industry (Japan)
MLIT – Ministry of Land, Infrastructure, Transport and Tourism (Japan)
MOL – Mitsui O.S.K. Lines
NEA – Northeast Asia
ODA – Official Development Assistance
PPP – Public Private Partnership
PRC – People's Republic of China
ROK – Republic of Korea
RO-RO – Roll-on Roll-off (cargo handling)
TRADP – Tumen River Area Development Programme
TEU – Twenty-foot Equivalent Unit
STS – Ship-to-Shore Crane
UNCTAD – United Nations Conference on Trade and Development
UNDP – United Nations Development Programme

1 Background

1.1 Objectives and Context of the Study

1.1.1 Objectives

The objectives of the study are:

1) to explore freight and passenger flow directions, volumes, and modal structure between Japan and the GTR;

2) to examine the state of infrastructure and transport related regulations to identify bottlenecks in Japan;

3) to provide transport forecast considering existing development plans and policies;

4) to reveal key challenges for the trans-GTR transport corridors activation and development; and

5) to develop recommendations for a transport and cross-border facilitation strategy and an action plan for Japan.

1.1.2 Context of the study

Geographically Japan is located beyond the sea, and none of the trans-GTR corridors run through its territory. At the same time, any sea routes from the GTR ports or the “exits” of the corridors should be regard as essential extensions of the corridors. Without effective connections with marine transport the corridors can not realize its expected function. Discussing marine segments, their first destinations are Japan and ROK. Therefore, connectivity with Japan is among the key criteria to ensure positive development of the trans-GTR corridors. This is the reason why the survey contains the country report of Japan.

From Japan’s point of view, the GTR, except for the coastal area of ROK, has not been a focus of attention in the context of global economic activities. While Japan has developed economic ties with Asian countries for a few decades, emphasis have been placed to ROK, Taiwan, Hong Kong, the coastal area of PRC and Southeast Asia. Despite the geographical proximity business activities of Japanese private sector are miserably small in the GTR. In addition, the Japanese government still hesitates to join in the GTI.

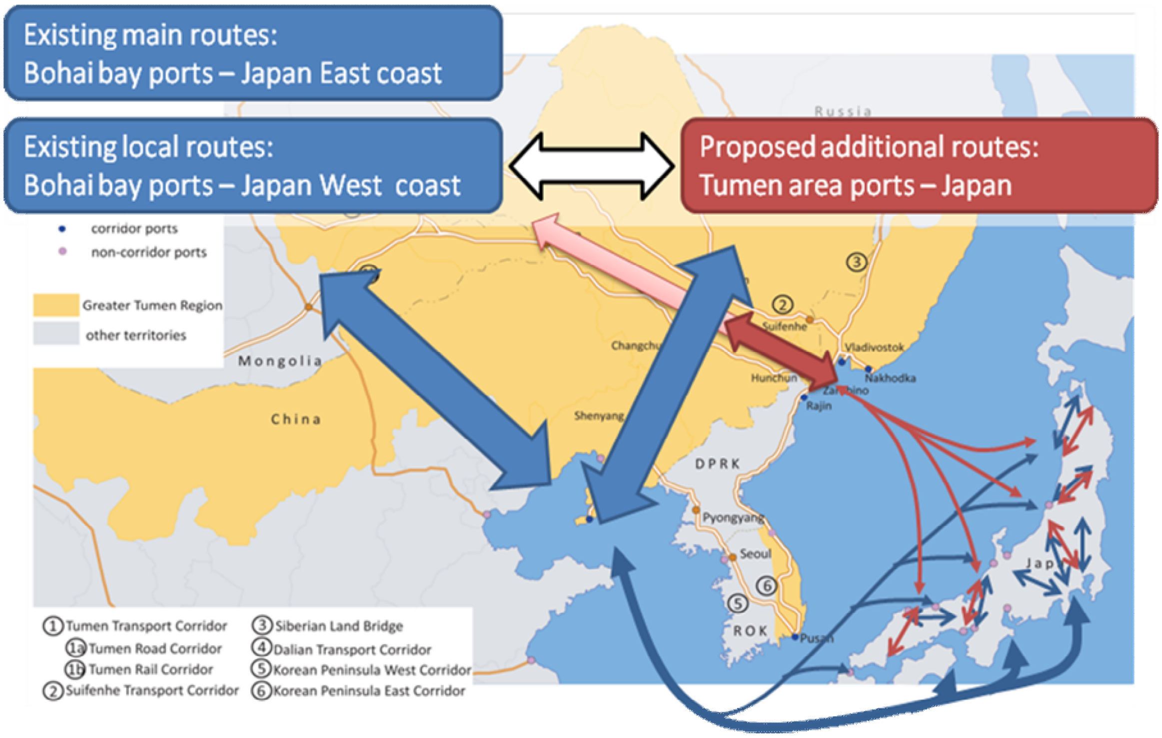
Nevertheless, the developments and well-functioning of corridors should have substantial impacts to Japan. Impacts might be different depending on where you are and what you do. The most significant impacts might be observed in the west coast of Japan. Currently, major portions of freights are transported between Bohai bay ports of China and Pacific coast ports in Japan, as the bold red arrows show in the diagram (Figure 1.1.2-1). And smaller portions of freights use port of the west coast of Japan. However, promoting the proposed corridors, namely the Tumen and Suifenhe corridors, the structure would be changed. Eastern Mongolia and Heilongjiang and Jilin provinces will be connected to Japan via ports in Primorye region (Primorsky Territory) of Russia.

The same diagram suggests the reason why local societies along the west coast of Japan attach importance to cooperation and economic development of Northeast Asia. They want to attract certain part of freight flows that are currently transported through the Pacific ports. It is quite rational desire, considering geographical situation. A cargo vessel from the Primorye (Primorsky Territory) ports, like Zarubino and Vladivostok, will arrive at any port of Japanese west coast within 2 days at maximum, performing a voyage of around 500 nautical miles. Thus, the west coast ports have a geographic advantage to the Pacific coast ports.

In short, the west coast people, both in public sector and business, want to change the above-mentioned cargo flow structure, even though they understand that it may not be a completely fundamental change, but a modification to the existing structure at first. In this regard, they share anticipation and interests with the GTI members and participants in the transportation sector activities, in particular.

Even though there have been ferry routes and passenger boats across the sea, majority of tourists travelling between Japan and the continent uses air transport. As the airport transport system develops on different principles other than the “corridor” development, this country report examines very little about air transport, and consequently, passenger traffic.

Figure 1.1.2-1: Trans-GTR corridors and Japan



Source: consultant

Considering the above-mentioned situations, the report emphasizes marine cargo transport with attentions to west coast ports, as well as the basic reviews on the countries current situations, as follows:

1) Review of the macroeconomic situation of Japan;

2) Due diligence review of transport between Japan and the GTR;

3) Future development potential of traffic;

4) Measures and invest programme to improve the transport environment;

5) Recommendations for national action plan of Japan and GTI transport strategy.

1.2 Macroeconomic Review

Japan is a long, narrow chain of islands (Hokkaido, Honshu, Shikoku, and Kyushu and thousands of adjacent smaller islands) stretching 3,300 kilometres north to south. The total area is 377 thousand square kilometres. The population was 128 million in 2010, and has declined since then.

Table 1.1.2-1: Population of Japan (Thousand)

	1995	2000	2005	2010	2011
Population	125,570	126,926	127,768	128,057	127,799

Source: Ministry of Internal Affairs and Communications

Since 1990's Japan has suffered deflation and low economic growth. Average nominal GDP growth rate from 2000 to 2010 is negative (-0.4%) and real growth rate during the same period is merely 0.9% (Table 1.1.2-2). Some economists argue that it is another "lost decade" of Japan. In terms of absolute volume of nominal GDP Japan was surpassed by People's Republic of China in 2010 and made Japan become the third largest economy in the world.

Table 1.1.2-2: GDP Growth Rate (%, YoY)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Nominal	1.0	-0.8	-1.3	-0.1	1.0	0.0	0.6	1.2	-2.3	-6.0	2.3

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real	2.3	0.4	0.3	1.7	2.4	1.3	1.7	2.2	-1.0	-5.5	4.4

Source: Cabinet Office of Japan

One of the specific features of the Japanese economy during this period is the profound deflation. Therefore, the nominal GDP growth rate has been lower than the real one over the period. Under the pressure of severe price competition, manufactures have struggled to reduce costs of every single step of their supply chains. One solution to reducing production costs is to move their manufacturing capacities abroad, in particular to neighbouring China where labour costs are less expensive. Production of processed materials and precise parts, however, still remains in Japan. Manufacturing companies pay tremendous efforts to optimize their supply chains, which have been becoming more sophisticated and complicated. Therefore, it is becoming more important to streamline logistic chains in order to reduce transport costs as well as inventory costs.

Table 1.1.2-3 shows that despite low economic growth, Japan's trade turnover has grown steadily except for the sharp decline in 2009. Trade with China, ROK and Russia in particular has grown rapidly.

Table 1.1.2-3: Trade Turnover with NEA countries

	World		PRC		ROK	
	Export	Import	Export	Import	Export	Import
Unit	Billion Yen	Billion Yen	Billion Yen	Billion Yen	Billion Yen	Billion Yen
2000	51,654	40,938	3,274	5,941	3,309	2,205
2001	48,979	42,416	3,764	7,027	3,072	2,088
2002	52,109	42,228	4,980	7,728	3,572	1,937
2003	54,548	44,362	6,635	8,731	4,022	2,071
2004	61,170	49,217	7,994	10,199	4,785	2,383
2005	65,657	56,949	8,837	11,975	5,146	2,695
2006	75,246	67,344	10,794	13,784	5,849	3,178
2007	83,931	73,136	12,839	15,035	6,384	3,210
2008	81,018	78,955	12,950	14,830	6,168	3,052
2009	54,171	51,499	10,236	11,436	4,410	2,051
2010	67,400	60,765	13,086	13,413	5,460	2,504
2011	65,546	68,111	12,902	14,642	5,269	3,170

	RUSSIA		MONGOLIA		DPRK	
	Export	Import	Export	Import	Export	Import
Unit	Million Yen	Million Yen	Million Yen	Million Yen	Million Yen	Million Yen
2000	61,404	493,791	3,069	1,039	22,279	27,695
2001	87,020	468,419	4,546	1,309	129,510	27,398
2002	118,162	409,815	3,864	927	16,548	29,402
2003	203,995	490,216	5,216	793	10,609	20,195
2004	337,268	617,302	8,004	892	9,579	17,741
2005	495,313	682,715	8,099	722	6,883	14,536
2006	821,361	774,446	12,350	978	5,083	9,032
2007	1,265,417	1,241,510	18,103	1,906	1,071	0
2008	1,714,282	1,389,310	23,838	3,753	793	0
2009	306,514	825,505	9,937	678	262	0
2010	702,745	1,412,030	13,971	2,009	0	0
2011	940,651	1,513,889	25,689	1,405	0	0

Source: Ministry of Finance "Trade statistics"

The change in trade structure reflects the dynamics of trade in terms of physical volume of trade goods shipped by marine transport. The volume of imports has stayed at the same level for the decade (Table 1.1.2-4), while import in value increased 1.7 times more during the same period. The gap expressed in value and volume might be explained by the rise of natural resource prices in the international markets, the depreciation of Yen (until 2008) and the shift of import from low value-added resources to higher value-added products.

Table 1.1.2-4: Trade Cargo Transported by Ocean (thousand ton)

	Export	Import	Total
2000	203,244	934,157	1,137,401
2001	200,197	916,088	1,116,285
2002	223,664	903,327	1,126,991
2003	229,747	949,292	1,179,039
2004	249,360	962,674	1,212,034
2005	260,664	965,659	1,226,323
2006	284,812	971,655	1,256,467
2007	303,832	987,723	1,291,555
2008	309,776	987,678	1,297,454
2009	244,692	847,092	1,091,785
2010	282,348	949,953	1,232,301

Source: Port statistics, Ministry of Land, Infrastructure, Transport and Tourism of Japan

2 Due Diligence Review of Transport between Japan and the GTR Region

2.1 Traffic Review

2.1.1 Domestic Traffic

- General View

Domestic Japanese freight traffic has shown a steady declining trend for the last several years (Table 2.1.1-1 and Table 2.1.1-2). It can be explained by the shift in the industrial structure for preference of higher value-added light products and service industries, the effort to optimize logistics and supply chain, the shift of production capacities to overseas, low economic growth and others.

Motor vehicle transport is dominant in Japan, both in terms of tonnage carried and freight turnover. Among the various transportation modes, motor transport has its own strengths in door-to-door deliveries and just-in-time logistics with smaller volume of products.

Along with motor transport, coastal shipping plays a significant role in terms of turnover. Obviously it is suitable for long-distance transport and heavy cargo. Table 2.1.1-3 shows that the average distance of cargo carried by coastwise vessels is about 500 kilometres. The table also illustrates that average distances have been getting longer for the decade.

Table 2.1.1-1 Domestic Freight Volume (Thousand ton)

	Total	Motor Vehicles		Railways		Coastwise Vessels		Aviation	
FY			Share		Share		Share		Share
2001	6,157,977	5,578,227	90.6	58,668	1.0	520,067	8.4	1,015	0.0
2002	5,894,331	5,339,487	90.6	56,592	1.0	497,251	8.4	1,001	0.0
2003	5,734,255	5,234,076	91.3	53,602	0.9	445,544	7.8	1,033	0.0
2004	5,569,413	5,075,877	91.1	52,219	0.9	440,252	7.9	1,065	0.0
2005	5,445,574	4,965,874	91.2	52,473	1.0	426,145	7.8	1,082	0.0
2006	5,430,940	4,961,325	91.4	51,872	1.0	416,644	7.7	1,099	0.0
2007	5,394,228	4,932,539	91.4	50,850	0.9	409,694	7.6	1,145	0.0
2008	5,144,322	4,718,318	91.7	46,225	0.9	378,705	7.4	1,074	0.0
2009	4,830,481	4,454,028	92.2	43,251	0.9	332,175	6.9	1,027	0.0
2010*	4,993,509	4,582,124	91.8	43,647	0.9	366,734	7.3	1,004	0.0

* From FY 2010 on "Survey on Motor Vehicle Transport" changed its methodology and data is not continuous to the previous series. The figure of “Motor Vehicles” for FY 2010 doesn't include freight carried in Tohoku and Hokkaido areas in March, 2011, due to the great earthquake in the region.

Source: MLIT

Table 2.1.1-2 Domestic Freight Turnover (Million ton-kilometres)

	Total	Motor Vehicles		Railways		Coastwise Vessels		Aviation	
FY			Share		Share		Share		Share
2001	580,710	313,072	53.9	22,193	3.8	244,451	42.1	994	0.2
2002	570,732	312,028	54.7	22,131	3.9	235,582	41.3	991	0.2
2003	563,874	321,862	57.1	22,794	4.0	218,191	38.7	1,027	0.2
2004	569,999	327,632	57.5	22,476	3.9	218,833	38.4	1,058	0.2
2005	570,443	334,979	58.7	22,813	4.0	211,576	37.1	1,075	0.2
2006	578,669	346,534	59.9	23,192	4.0	207,849	35.9	1,094	0.2
2007	582,241	354,800	60.9	23,334	4.0	202,962	34.9	1,145	0.2
2008	557,613	346,420	62.1	22,256	4.0	187,859	33.7	1,078	0.2
2009	523,587	334,667	63.9	20,562	3.9	167,315	32.0	1,043	0.2
2010*	446,407	245,079	54.9	20,398	4.6	179,898	40.3	1,032	0.2

* From FY 2010 on "Survey on Motor Vehicle Transport" changed its methodology and data is not continuous to the previous series. The figure of “Motor Vehicles” for FY 2010 doesn't include freight carried in Tohoku and Hokkaido areas in March, 2011, due to the great earthquake in the region.

Source: MLIT

Table 2.1.1-3 Average ton-kilometres carried per tonnage (Kilometres)

	Motor Vehicles	Railways	Coastwise Vessels	Aviation
2001	56.1	561.4	470.0	979.0
2002	58.4	572.3	473.8	989.9
2003	61.5	600.9	489.7	993.8
2004	64.5	605.2	497.1	993.8
2005	67.5	613.1	496.5	995.6
2006	69.8	632.0	498.9	995.6
2007	71.9	643.5	495.4	1,000.5
2008	73.4	672.2	496.1	1,004.5
2009	75.4	661.4	503.7	1,015.1
2010	55.4	657.0	490.5	1,028.4

* From FY 2010 on "Survey on Motor Vehicle Transport" changed its methodology and data is not continuous to the previous series. The figure of “Motor Vehicles” for FY 2010 doesn't include freight carried in Tohoku and Hokkaido areas in March, 2011, due to the great earthquake in the region.

Source: MLIT

➢ Motor Vehicle Transport

Japanese legislative system stipulates those who engage in motor vehicle transport business to obtain an approval from the authority. The approval is not required, if a company or a person carries their own cargo by private trucks. The “Survey on Motor Vehicle Transport” conducted by MLIT each year aggregates the freight carried by the approved truck transport companies and those carried by private trucks.

Table 2.1.1-4 shows that the motor vehicle freight turnover had been increased until 2008. It also describes that average distance had been increased, even though it still significantly shorter than the other modes.

Comparing the business and private transport, business trucks carry majority of freight. The average distance for private transport suggests that the private trucks are used primarily for transport within a city. Hypothetically, cargo owners tend to carry their cargo within the city, while they use truck business companies for long distance inter-city transport.

Table 2.1.1-4 Motor Vehicle Transport Freight Turnover

Fiscal Year	Total		For Business*		For Private*	
	Turnover	Average Distance	Turnover	Average Distance	Turnover	Average Distance
	Million tkm	km	Million tkm	km	Million tkm	km
2001	313,072	56.1	259,771	89.6	53,301	19.9
2002	312,028	58.4	262,305	92.7	49,723	19.8
2003	321,862	61.5	274,364	96.5	47,498	19.9
2004	327,632	64.5	282,151	99.6	45,481	20.3
2005	334,979	67.5	290,773	101.7	44,206	21.0
2006	346,534	69.8	302,182	104.2	44,352	21.5
2007	354,800	71.9	310,185	105.9	44,615	22.3
2008	346,420	73.4	302,816	107.8	43,604	22.8
2009	334,667	75.4	293,227	109.2	41,440	23.5
2010**	254,078	55.4	223,434	71.6	30,645	21.0

* “For Business” refers to the freight transported by approved transport business company. “For Private” refers to the freight that cargo owners carry by their own (private) trucks.

** From FY 2010 on "Survey on Motor Vehicle Transport" changed its methodology and data is not continuous to the previous series. The figure of “Motor Vehicles” for FY 2010 doesn't include freight carried in Tohoku and Hokkaido areas in March, 2011, due to the great earthquake in the region.

Source: MLIT

➢ Railway Transport

The Japan Freight Railway Company, a freight specialized company of the JR group, is the dominant player in the railway freight transport market in Japan (Table 2.1.1-5). While the total freight amount has increased slowly, freight transported without containers has declined. Containerization ratio reached to 91% in 2009.

Table 2.1.1-5 Railway Freight Turnover (million tkm)

Fiscal Year	Total	including JR		
		Total	Containers	Others
2001	22,193	21,907	18,831	3,076
2002	22,131	21,860	18,817	3,043
2003	22,794	22,565	19,740	2,825
2004	22,476	22,264	19,506	2,758
2005	22,813	22,601	19,947	2,654
2006	23,192	22,985	20,597	2,388
2007	23,334	23,140	20,871	2,269
2008	22,256	22,081	20,150	1,931
2009	20,562	20,404	18,537	1,868

Source: MLIT

Although the company is expanding container cargo transport, it doesn't mean it plays significant role in international trade. The company employs an original container standard. The 12 ft container or "JR container" is much smaller than the ISO containers (Table 2.1.1-6). They are circulated exclusively within the Japanese territory, except for very limited commercial use to ROK and some recent experimental shipments to China and Russia.

Table 2.1.1-6 Specifications of the standard JR container

Inside Measurement (mm)	L 3,642 x W 2,275 x H 2,252
Capacity (volume, cubic meter)	18.7
Capacity (weight, kg)	5,000

Source: http://www.jrfreight.co.jp/transport/container/index.html

Reasons why the ISO containers are transported by semi-trailer, not by railways, are;

1) No Japanese port has direct railway access to its container terminals,

2) Truck transportation is suitable for door-to-door delivery,

3) There are small diameter tunnels that are not allow the high-cube ('9.6) containers to go through.

Recently, however, rail transport is re-evaluated in the context of reducing CO2 emissions. As explained later, there are several attempts to increase usage of railways in ISO container transport.

2.1.2 International Traffic

In this section international freight traffic and passenger traffic are reviewed.

- Ocean Freight Traffic by Country

MLIT conducts a nation-wide survey called "Survey on Port and Harbour," or "Kowan Chosa" in Japanese, annually. The results are published as a fundamental statistics of port activities. It contains number of vessels calling the ports, numbers of passengers and volume of freight. The survey is organized as reports submitted by the captain of a ship to the port management body are aggregated by them for each port, then at the national level by MLIT.

The survey form contains such items as port of destination/origin, port of the final unloading/the first loading, type of cargo (container, on-chassis or the others), classification of commodity and volume. Thus, if the export goods are transported to port A in country B with a transhipment at port C in country D, port A is reported as the port of the final unloading, while port C as the port of destination. The statistics submitted to MLIT, however, doesn't keep the port-specifying information, as MLIT requires to aggregate figures by country. Consequently, the national statistics identifies only country B as the country of final unloading, as well as country D as the port of destination.

Table 2.1.2-1 summarizes ocean freight volume to/from the Northeast Asian countries as the final unloading/the first loading countries. Mongolia is not presented because it is an inland country without any sea ports. Most of freight traffic to/from Mongolia should be counted inclusively as a part of freight to/from PRC, which provides the shortest way to sea.

Table 2.1.2-1 Freight Flows to/from NEA by country (ton)

	2006	2007	2008	2009	2010
Export	**77,834,900**	**84,540,201**	**83,805,286**	**79,800,099**	**83,667,255**
ROK	29,301,149	32,211,937	29,037,608	27,596,520	30,133,403
DPRK	139,285	18,846	8,320	2,102	2,098
PRC	43,157,600	46,222,472	47,340,040	50,792,664	50,657,664
Russia	5,236,866	6,086,946	7,419,318	1,408,813	2,874,090
Import	**135,252,215**	**135,156,350**	**128,397,874**	**114,554,746**	**143,175,162**
ROK	26,823,450	24,398,303	24,677,815	20,518,696	25,666,821
DPRK	311,196	4,747	151,816	0	3,954
PRC	89,573,021	85,660,652	81,437,604	68,181,316	78,099,323
Russia	18,544,548	25,092,648	22,130,639	25,854,734	39,405,064

Source: MLIT "Kowan Chosa (Survey on Port and Harbour)"

The year of 2009 observed a decline both in export and import, which is explained by the world financial crisis. The largest partner is PRC. While freight shipped to China has demonstrated increasing trends, inbound freight to Japan shows negative dynamics. Dynamics of ROK are relatively insignificant than the other countries. With regard to the export to Russia, a change of customs tariff on used car affected very much in 2009, declining the number of exported used car almost ten folds compared to 2008. Expansion of import from Russia was caused by completion of the East Siberia – Pacific Ocean crude oil pipeline and a LNG plant on the Sakhalin Island. The former enable to export crude oil extracted in Siberia region to Japan. Although trade with DPRK has been restricted recent years and no trade was fixed in the trade statistics (Table 1.1.2-3), freight turnovers were recorded. In fact, two records in the dataset were proved as incorrect while double-checking the data. Therefore, there might be other incorrect records that should be counted for other countries, not for DPRK. In any case, the volume is too small to distort overall structure at the regional scale.

- Estimates by Region

Even though Table 2.1.2-1 gives an overview of freight traffic with Northeast Asian region, it is not sufficient for detailed analysis of freight flow with the GTR. This section tries to estimate freight volume for Mongolia, Northeast China and Russian Far East.

Assuming that transit freight with third countries other than Mongolia are small enough, the freights are divided into parts of PRC and Mongolia proportionally by a ratio of trade of Japan with each country in terms of value for each year (Table 2.1.2-2 and Table 2.1.2-3). Also freight volumes to/from the 3 Northeastern provinces (Liaoning, Jilin and Heilongjiang) are estimates, calculated by the share of these provinces in the PRC's trade with Japan in 2010.

Table 2.1.2-2 Estimated Freight to PRC and Mongolia

	Unit	2006	2007	2008	2009	2010
Japan-PRC Freight (O)	ton	43,157,600	46,222,472	47,340,040	50,792,664	50,657,664
Japan-PRC trade (A)	Million Yen	10,794	12,839	12,950	10,236	13,086
Japan-Mongolia trade (B)	Million Yen	12	18	24	10	14
Mongolia/PRC ratio (C)= (B)/((A)+(B))		0.00114	0.00141	0.00184	0.00097	0.00107
Northeast provinces ratio*(D)		0.050	0.050	0.050	0.050	0.050
Final destinations						
Mongolia (E)=(O)*(C)	**ton**	**49,326**	**65,080**	**86,984**	**49,264**	**54,029**
PRC (F)=(O)-(E)	**ton**	**43,108,274**	**46,157,392**	**47,253,056**	**50,743,400**	**50,603,635**
incl. Northeast provinces (F)*(D)	**ton**	**2,155,414**	**2,307,870**	**2,362,653**	**2,537,170**	**2,530,182**

* Proportion of Liaoning, Jilin and Heilongjiang provinces in the PRC's trade with Japan in 2010. (Source: ZHU, Yonghao "Trade and Investment Relations between the Three Provinces of China's Northeast and Japan (in Japanese)", ERINA REPORT no.106, 2012)

Table 2.1.2-3 Estimated Freight from PRC and Mongolia

	Unit	2006	2007	2008	2009	2010
PRC-Japan Freight (O)	ton	89,573,021	85,660,652	81,437,604	68,181,316	78,099,323
PRC-Japan Trade (A)	Million Yen	13,784	15,035	14,830	11,436	13,413
Japan-Mongolia Trade (B)	Million Yen	1	2	4	1	2
Mongolia/PRC ratio (C)= (B)/((A)+(B))		0.00007	0.00013	0.00025	0.00006	0.00015
Northeast provinces ratio* (D)		0.088	0.088	0.088	0.088	0.088
Origins						
Mongolia (E)=(O)*(C)	**ton**	**6,353**	**10,856**	**20,602**	**4,044**	**11,698**
PRC (F)=(O)-(E)	**ton**	**89,566,668**	**85,649,796**	**81,417,002**	**68,177,272**	**78,087,625**
incl. Northeast provinces (F)*(D)	**ton**	**7,881,867**	**7,537,182**	**7,164,696**	**5,999,600**	**6,871,711**

* Proportion of Liaoning, Jilin and Heilongjiang provinces in the PRC's trade with Japan in 2010. (Source: ZHU, Yonghao "Trade and Investment Relations between the Three Provinces of China's Northeast and Japan (in Japanese)", ERINA REPORT no.106, 2012)

An assumption in estimation of regional distribution of Russia is that trading goods between Russian Far East and Japan are carried either by direct shipping or transhipment at PRC or ROK. Freights transhipped at other countries in Asia, Europe etc. are assumed as trades with European Russia. Due to the rough assumptions, the terms of Far East and European Russia should be interpreted as eastern and western territories of Russia without strict definition of their border. The result is presented in Table 2.1.2-4, which suggests that majority of the bilateral trade may be attributed to the eastern Russia.

Table 2.1.2-4 Freight Volume Transported to/from Russian ports (ton)

	2006	2007	2008	2009	2010
Japan-Russia					
"Far East"	5,118,060	5,910,235	7,100,932	1,266,189	2,441,286
"Europe"	118,806	176,711	318,386	108,711	432,804
Total	5,236,866	6,086,946	7,419,318	1,374,900	2,874,090
Russia-Japan					
"Far East"	18,504,022	24,841,006	21,990,876	25,666,728	39,214,749
"Europe"	40,526	251,642	139,763	188,006	190,315
Total	18,544,548	25,092,648	22,130,639	25,854,734	39,405,064

Source: MLIT "Kowan Chosa (Survey on Port and Harbour)"

As a result of the estimates, freight flows to/from GTR is summarized as Table 2.1.2-5.

Table 2.1.2-5 Freight Flows to/from GTR (ton)

	2006	**2007**	**2008**	**2009**	**2010**
Export	**36,763,234**	**40,513,968**	**38,596,497**	**31,451,245**	**35,160,998**
ROK	29,301,149	32,211,937	29,037,608	27,596,520	30,133,403
DPRK	139,285	18,846	8,320	2,102	2,098
Northeast China	2,155,414	2,307,870	2,362,653	2,537,170	2,530,182
Mongolia	49,326	65,080	86,984	49,264	54,029
Russian Far East	5,118,060	5,910,235	7,100,932	1,266,189	2,441,286
Import	**53,526,888**	**56,792,094**	**54,005,805**	**52,189,068**	**71,768,933**
ROK	26,823,450	24,398,303	24,677,815	20,518,696	25,666,821
DPRK	311,196	4,747	151,816	0	3,954
Northeast China	7,881,867	7,537,182	7,164,696	5,999,600	6,871,711
Mongolia	6,353	10,856	20,602	4,044	11,698
Russian Far East	18,504,022	24,841,006	21,990,876	25,666,728	39,214,749

Source: Consultant

- Estimated Freight Flow to/from Northeast China (port-to-port statistics)

As mentioned before, the statistics on freight published by MLIT identify destinations and origins by country, not by port. Meanwhile, some port management bodies or local governments disclose break-down data by port. Although some statistics don't cover all ports but only major ports, like top 10 destinations/origins, they help to investigate certain topics.

In this section the consultant tries to estimate freight volume between Japan and Northeast China. For this purpose, statistics of 10 major ports are used. 7 of them are located in the central Pacific area and the other 3 are located on the west coast (Table 2.1.2-6). They altogether cover three quarter of Japan's freight flow to/from PRC, with 69.5% in export and 77.7% in import. Therefore, one can expect to obtain a general outline of the freight flow analysing their statistics.

Table 2.1.2-6 Freight Volume of Selected Major Ports to/from PRC (2010, ton)

	Export	**Import**	**Total**
Chiba	1,980,700	1,235,730	3,216,430
Tokyo	4,450,082	11,915,073	16,365,155

	Export	Import	Total
Yokohama	9,583,431	9,770,240	19,353,671
Kawasaki	1,418,548	531,050	1,949,598
Nagoya	6,793,800	10,408,852	17,202,652
Osaka	2,717,768	13,141,609	15,859,377
Kobe	4,429,393	5,445,145	9,874,538
Pacific majors	31,373,722	52,447,699	83,821,421
Niigata	251,523	976,163	1,227,686
Kitakyushu	1,586,038	2,747,820	4,333,858
Hakata	2,049,275	3,156,171	5,205,446
West coast majors	3,886,836	6,880,154	10,766,990
Total	**35,260,558**	**59,327,853**	**94,588,411**
Japan total	**50,714,880**	**76,342,778**	**127,057,658**
(Share)	69.5%	77.7%	74.4%

Source: Statistical data of each port

For the purpose of estimation, 3 Liaoning ports of Dalian, Yingkou and Dandong are selected regarding that they represent the Northeastern China. The Table 2.1.2-7 suggests that total amount of export freight from the selected ports to Northeastern China may have been approximately 1.6 million ton in 2010, considering unreported data. Assuming the same proportion (around 5% of total export to PRC) for all ports of Japan together, an estimated export freight volume can be calculated as 2.5 million ton.

Table 2.1.2-7 Export from Selected Ports to Northeast China (2010, ton)

	PRC	Dalian	Yingkou	Dandong	Sub-total	(%)
Chiba	1,980,700	30,343	7,315	7,903	45,561	2.30%
Tokyo	4,450,082	218,244	30	n.a	218,274	4.90%
Yokohama	7,999,847	289,181	6,888	n.a	296,069	3.70%
Kawasaki	1,418,548	4,787	1,966	n.a	6,753	0.48%
Nagoya	6,262,758	435,290	n.a	n.a	435,290	6.95%
Osaka	2,717,212	104,076	n.a	n.a	104,076	3.83%
Kobe	4,429,393	232,432	0	0	232,432	5.25%
Pacific Coast	29,258,540	1,314,353	-	-	1,338,455	4.57%
Niigata	372,478	12,289	366	0	12,655	3.40%
Kitakyushu	1,586,038	89,545	0	0	89,545	5.65%
Hakata	2,007,232	121,721	n.a	n.a	121,721	6.06%
West Coast	3,965,748	223,555	-	-	223,921	5.65%
Sub total	33,224,288	1,537,908	-	-	1,562,376	4.70%

* “n.a.” refers to either absence of traffic at all or insignificant figures neglected in publication.

Source: Statistical data of each port

In case of import from Northeast China, the share is assumed at around 8%, and an estimated volume reaches to 6.1 million (Table 2.1.2-8).

Table 2.1.2-8 Import of Selected Ports from Northeast China (2010, ton)

	PRC	Dalian	Yingkou	Dandong	Sub-total	(%)
Chiba	1,235,730	511,401	73,623	27,637	612,661	49.58%
Tokyo	11,915,073	949,796	17,228	n.a	967,024	8.12%
Yokohama	8,141,726	506,418	8,299	n.a	514,717	6.32%
Kawasaki	531,050	29,561	n.a	n.a	29,561	5.57%
Nagoya	10,371,688	757,905	n.a	n.a	757,905	7.31%

	PRC	Dalian	Yingkou	Dandong	Sub-total	(%)
Osaka	13,140,592	866,280	n.a	n.a	866,280	6.59%
Kobe	5,396,130	431,260	0	0	431,260	7.99%
Pacific Coast	49,496,259	3,541,220			3,566,747	7.21%
Niigata	1,381,602	234,244	3,460	0	237,704	17.20%
Kitakyushu	2,747,820	228,199	35,217	2,500	265,916	9.68%
Hakata	3,302,259	347,032	1,985	n.a	349,017	10.57%
West Coast	7,431,681	809,475			852,637	11.47%
Sub total	56,927,940	4,350,695			4,419,384	7.76%

* “n.a.” refers to either absence of traffic at all or insignificant figures neglected in publication.

Source: Statistical data of each port

- International Container Freight

Figure 2.1.2-1: Japan’s 5 Largest Container Ports

Source: Consultant

There were 63 ports handling international ISO containers in Japan in 2010. A non-profit organization of Port and Harbour Modernization Promotion Council of Japan publishes a statistics on numbers of international container handling at the ports, aggregating statistics gathered from each port authorities-local governments. A shortcoming of the statistics is that it doesn’t contain breakdown data by country of origin/destination.

The five largest container handling ports are Tokyo, Yokohama, Nagoya, Osaka and Kobe, where annual throughput is around 2 million TEU or higher (Figure 2.1.2-1, Table 2.1.2-9).

Table 2.1.2-9 Container Handled in the 5 Largest Ports (TEU incl. empty)

	Tokyo	Yokohama	Nagoya	Osaka	Kobe	Others	Total
2001	2,535,841	2,245,939	1,736,089	1,502,995	1,802,012	2,549,853	12,372,729
2002	2,712,348	2,300,984	1,789,644	1,496,907	1,747,937	2,728,160	12,775,980
2003	3,074,794	2,408,471	1,929,864	1,609,611	1,765,419	3,024,086	13,812,245
2004	3,358,257	2,606,516	2,155,416	1,725,568	1,850,646	3,349,748	15,046,151
2005	3,592,319	2,726,591	2,307,155	1,802,309	1,884,660	3,451,143	15,764,177
2006	3,695,852	2,973,742	2,512,797	1,906,058	1,984,680	3,551,190	16,624,319
2007	3,718,536	3,181,322	2,638,452	1,972,685	2,018,983	3,632,837	17,162,815
2008	3,727,302	3,203,871	2,630,524	1,950,008	2,040,285	3,605,427	17,157,417
2009	3,381,498	2,555,236	2,051,769	1,843,069	1,772,904	3,152,088	14,756,564
2010	3,816,104	2,975,273	2,394,630	1,980,021	2,017,957	3,669,515	16,853,500

Source: Port and Harbour Modernization Promotion Council of Japan

There are 13 ports located on the west coast of Honshu Island and north Kyushu Island where container vessels call regularly (from Akita in north to Hakata in south, Figure 2.1.2-2). Among them the Ports of Hakata and Kitakyushu, which are on the north Kyushu inland, are the largest, handling 541 thousands TEU and 331 thousand TEU in 2010, respectively. The largest on the west coast of Honshu Island is Niigata Port.

Figure 2.1.2-2: Container Handling Ports of the Japan's West Coast

Source: Consultant

Table 2.1.2-10: Container Handled in the West Coast Ports (TEU, loaded only, 2010)

Rank in Japan	Port	TEU (Loaded only)
6	Hakata	541,343
8	Kitakyushu	330,536
12	Niigata	120,512
16	Shimonoseki	55,256
20	Fushiki-Toyama	47,407
21	Akita	34,196
22	Kanazawa	32,353
34	Sakai	17,774
35	Naoetsu	17,360
37	Tsuruga	15,319
50	Sakata	5,486
53	Maizuru	4,103
59	Hamada	2,216

Source: Port and Harbour Modernization Promotion Council of Japan

- International Passenger Flows

There are no single statistics that cover entire passenger flows between Japan and the GTI countries, not to mention the GTR area. Each of the following data lacks some part of passenger information. Nevertheless they can help us to understand general trends and patterns of passenger flows.

PRC and ROK are the two largest countries of origin that send visitors to Japan (Table 2.1.2-11). The number of visitors from ROK has doubled in the first decade of this century, despite a sharp decline in 2009 caused by the world financial crisis. The number of visitors from PRC has demonstrated dynamic growth for the decade. Even in 2009, it continued to grow. Surpassing Taiwan, China became the second largest origin country of foreign visitors to Japan in 2009. The number of Russian citizens visiting Japan has also increased.

Table 2.1.2-11 Number of Entries and Exits of Citizens of Foreign Nationalities

	Entry				Exit			
	PRC	ROK	DPRK	Russia	PRC	ROK	DPRK	Russia
2001	444,441	1,342,987	13,246	33,772	394,293	1,337,268	12,734	33,120
2002	527,796	1,472,096	15,576	36,693	485,285	1,466,038	15,427	35,807
2003	537,700	1,621,903	8,899	43,738	494,242	1,618,402	8,807	43,173
2004	741,659	1,774,872	9,988	56,253	709,426	1,763,776	10,231	55,623
2005	780,924	2,008,418	10,686	62,969	736,164	1,999,906	10,616	62,686
2006	980,424	2,370,163	8,815	60,795	937,924	2,353,965	8,777	61,308
2007	1,140,419	2,845,556	7,185	64,615	1,095,299	2,833,854	7,169	64,020
2008	1,212,329	2,625,377	6,967	67,114	1,167,901	2,632,170	6,966	67,238
2009	1,236,250	1,835,377	5,792	48,044	1,208,593	1,822,454	5,786	48,008
2010	1,661,222	2,686,867	4,446	54,704	1,651,304	2,684,623	4,457	54,434

Unit: person

Source: Ministry of Justice of Japan "Immigration Control Statistics"

A significant portion of foreign visitors used air transport and only a small number took ferry or passenger boats (Refer to Appendix 10.) Hakata port is the main entrance for boat passengers from ROK, where 211,000 Koreans entered and 213,000 exited in 2010. Hakata and Busan are connected by high-speed passenger boats and ferries. Another entrance is Shimonoseki Port, which has a long history of ferry service to Busan. Hakata port is a marine entrance for Chinese visitors as well. Its number is, however, much smaller and accounts for about 50,000 visitors in 2010.

Table 2.1.2-12 presents the number of air flight passengers to PRC and ROK. Japanese passengers to both PRC and ROK were 2.5 million in 2010. Table 2.1.2-13 suggests that Japanese airline companies carry a minority of passengers, considering that figures represented are passengers of both ends while those in Table 2.1.2-12 are one-way.

Table 2.1.2-12 Air Flight Passengers by Destination (2010)

	2007	2008	2009	2010
PRC	4,095,078	3,584,211	3,840,954	4,210,180
Japanese passengers	2,777,629	2,199,025	2,411,058	2,580,332
Foreign passengers	1,042,987	1,149,886	1,163,868	1,455,599
Transit passengers	274,462	235,300	266,028	174,249
ROK	4,680,178	4,726,474	4,699,896	5,136,454
Japanese passengers	1,981,100	2,310,428	2,643,710	2,545,372
Foreign passengers	2,440,494	2,145,648	1,712,614	2,332,526
Transit passengers	258,584	270,398	343,572	258,556

*Estimate based on sample inquiry. One-way from Japan only.

Source: MLIT, "Kokusai Koku Ryokaku Dotai Chosa (International Air Passenger Flow Survey) 2010"

Table 2.1.2-13 Air Flight Passengers Carried by Japanese Airline to/from PRC and ROK

	2006	2007	2008	2009	2010
PRC	3,099,410	3,391,890	3,088,199	3,054,716	3,242,460
ROK	2,128,671	2,399,288	2,367,708	2,294,727	1,984,502

Note: Passengers carried by Japanese airline companies only.

Source: MLIT, "Koku yuso tokei nenpo (Air Transport Statistics Annual)"

2.2 Infrastructure capacity review

2.2.1 Shipping lines capacity

The GTR is connected with Japan, ROK and other APR countries by marine transport. Focusing on the west coast Japan, this section reviews regular shipping services. Even though tramper services also play significant roles in transportation, in particular bulk and liquid cargo, their capacity is not argued in this section, because their services are elastic enough to meet the demands, once freight volume is specified. Thus, regular shipping services for general public users are the main topics of the section. Meanwhile, focuses are put on the shipping lines that transport container freights.

Reviewed shipping lines are as follows;

- Japan Trans-Siberia Line (JTSL)
- Sinokor Line
- Busan Transhipment services
- DBS Cruise Ferry
- Niigata Zarubino Line

Shipping routes between Japan and Bohai Bay ports (Dalian, Yingkou, Dandong, etc) are excluded from the scope of review, because there is highly-developed market competition and it seems that shipping companies are always ready to increase their capacity responding to demand growth.

➢ Japan Trans-Siberia Line (JTSL)

MOL, a Japanese shipping company, and FESCO, a Russian shipping company, jointly provide regular container transport services. There are “direct” and “transhipment” routes.

The former route operates a container vessel “VEGA DAVOS (698 TEU)” to call Japanese ports of Yokohama, Nagoya, Kobe, Kitakyushu (Moji), Toyama and Russian ports of Vostochny and Vladivostok once in every two weeks (Figure 2.2.1-1). The ultimate annual capacity of the shipping line can be calculated as a product of the vessel’s capacity and number of voyages, while neglecting factors of weather conditions, needs of technical maintenance, dead capacity caused through container inventory and so on. Assuming that the vessel would perform 26 voyages per year, the capacity of this route is approximately 18,000 TEU for one way,

Figure 2.2.1-1 JTSL Direct Service

Source: Consultant

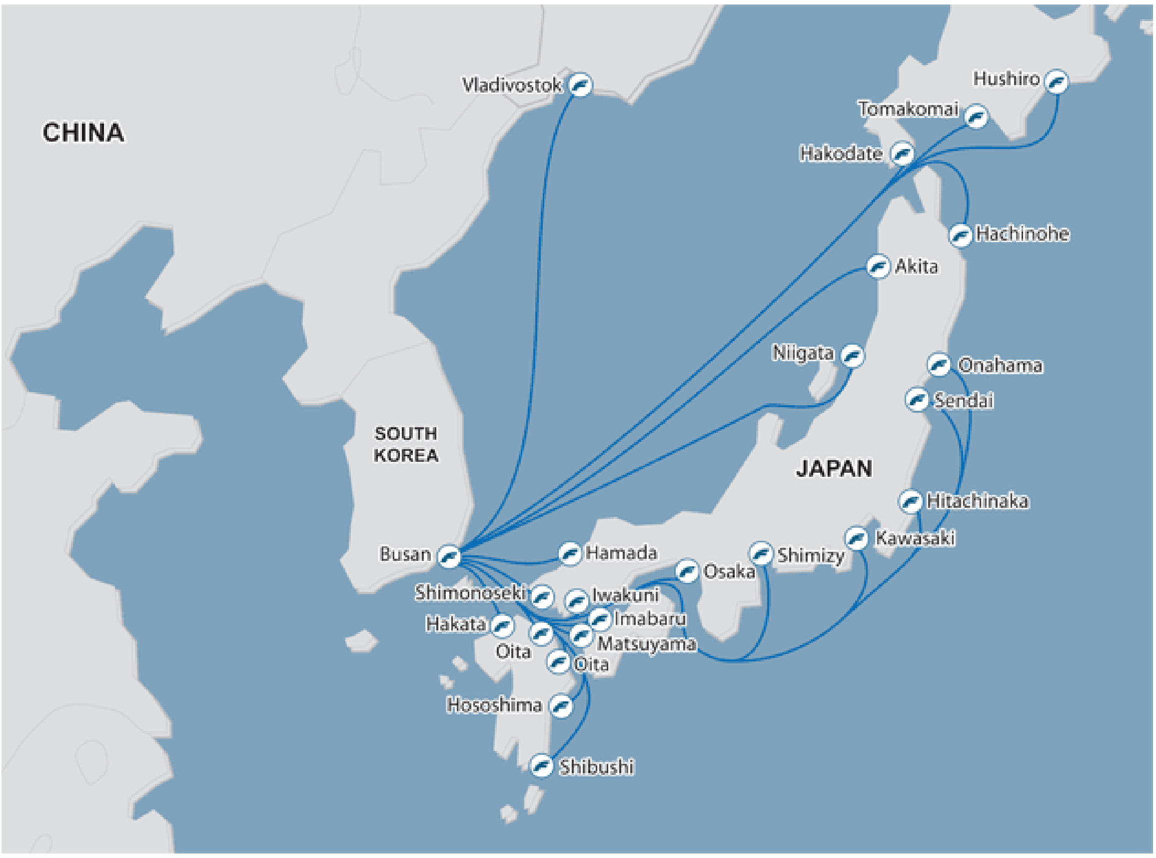
Along with the direct shipping, the companies offer a transport service with transhipment at Busan port. There are existing shipping routes operated by themselves and partner shipping companies between Japan and Busan, as well as, between Busan and Russian ports of Vladivostok and Vostochny. Connecting them at Busan, they enable to transport containers between Japan and Russia. Thus, the companies improve service quality in terms of frequency. Before they started the transhipment service, many shippers-clients had claimed that the direct service of calling the ports once two weeks didn't satisfy their needs. In addition, the transhipment widens the geographic coverage in the Japanese side, collaborating with shipping companies working in the market of Japan – Busan container transportation (Figure 2.2.1-2).

FESCO put container vessels of "KAPITAN AFANASYEV (1,748TEU)" and "SCIO SUN (1,752TEU) into the shipping routes of Vladivostok - Busan and Vostochny – Busan respectively. Weekly 52 voyages per year enable to transport 182,000 TEU annually. It is the maximum capacity of the service in this section of the routes. In fact, however, they carry certain amount of bilateral trade goods between Russia and ROK, as well as those transhipped at Busan to/from third countries. The bilateral trade between Russia and Japan seems to occupy a minor portion of the total cargo carried by the two vessels, even though it is difficult to identify exact freight volumes by direction. Then, it is even more difficult, or practically impossible, to identify the capacities for each direction, because the vessels don't have any physical systems or mechanisms discriminating containers in terms of their origins and destinations.

The same can be said to the section between Busan and Japan. The situation is more complicated, because there is even more variety of vessels depending on ports to serve. One key factor in the context of the report is that the overall capacity between Busan and Japan is quite large, which enable us to assume that the capacity in the section between Russia (Primorye) and Busan determines the total capacity of the transhipment service.

The consultant would suggest a simple assumption that 10% of the maximum capacity of the Russia – Busan segment would be the capacity of the transhipment service. Considering the purpose of the report to attain an elementary overall understanding on the situations, it may not be justified to investigate further details of the capacity issues employing more complicated assumptions. In this case, the combined capacity would reach to 36,000 TEU including the direct service's capacity.

Figure 2.2.1-2 JTSL Transhipment Service



* The direct service ports also have the transhipment service, although they are not presented in the map.

Source: FESCO (http://www.fesco.ru/clients/container/line/jtsl/) 2012.10.28

- Sinokor Line

A Korean shipping company, Sinokor Merchant Marine, has developed regular container transport network in East Asia. After years of experience in transporting container freight between Japan and the Far-East Russia with transhipment at Busan, it started a non-transhipment service between Japan and Vladivostok in August 2012. The calling ports include 4 west coast ports of Akita, Niigata, Naoetsu and Toyama (Figure 2.2.1-3). Departing the last port of Toyama, container vessels directed to Vladivostok via Busan. Standard transport time between the Japanese ports and Vladivostok is 5-7 days both in export and import.

The advantages of the new shipping line are less transport time, secured transport time and less risk of damages. First, total transport time is reduced by eliminating transhipment operations and waiting time for connection. Second, there is no risk of time loss at Busan, which sometimes observed in case of transhipment services. If the connecting vessel is overbooked, containers are stored at container terminals of Busan until the next available vessel will pick them up. The new service is able to avoid this kind of waste time. Third, elimination of trans-loading operations for transhipment reduces risk of physical damage of carried goods from shocks. Thus, the 4 west coast ports gained certain advantages with regard to container transport to Russian Far-East, comparing to the other Japanese port where the shipping company continues to offer the Busan transhipment service.

Two container vessels of “SINOKOR TOKYO (834 TEU)” and “GOLDEN WING (656TEU)” are put into operation. As the rotation along the route takes two weeks, the operation of the two vessels enables to call each port once a week. If the both vessels perform 26 voyages per year the annual total capacity is 38,740 TEU. There is, however, the same problem as the case of the JTSL transhipment service. The capacity is not dedicated for the bilateral trade between Russia and Japan only.

Just for simplification, the same assumption of 10 percent might be employed in this case as well. Thus, the annual capacity is suggested to be about 4,000 TEU.

Figure 2.2.1-3 Sinokor Line

Source: Consultant

- Busan Transhipment Services

Many other shipping companies also offer container transport services with transhipment at Busan Port. Among them are American President Lines (APL), CK Line, Dong Young, Hyundai Merchant Marine (HMM), Korea Marine Transport (KMTC), Maersk etc. Some of them operate both routes of between Japan and Busan, as well as, between Busan and Vladivostok/Vostochny. The others operate only one segment and use their partners' shipping services in the other segment to organize the connecting transport.

Identification of the capacity is more difficult than the cases that reviewed above, because some services use the segments of transcontinental trunk lines or intra-Asian multidestination lines, which uses large-scale vessels. In addition, some shipping companies charter slots of the other companies' vessels. Due to these difficulties, quantitative estimate of capacity can not be conducted.

- DBS Cruise Ferry

A unique ferry route is operated by a Korean shipping company of DBS Cruise Ferry. A ferry boat "Eastern Dream (130TEU)" connects Sakai and Vladivostok in 2 days via Donghae (ROK) weekly. In terms of container, the annual capacity is 6,760 TEU of 52 voyages. As are the cases of the above-mentioned other shipping routes, the entire capacity is not able to offer for the through freight between Vladivostok and Sakai. Tottori Prefecture government officials suggested that there are much amount of cargo in the Vladivostok –

Donghae segment and very little available capacity. A conservative figure of 300 TEU might be taken a possible rough estimate.

Punctuality, as well as short transit time, is among advantages of the ferry route. The nature of regular ferry requires the shipping company to keep the announced schedule, particularly for passengers' conveniences. In words of Sakai port officials, overnight delays occur just a few times per year. Another specific feature is RO-RO cargo handling. It doesn't need heavy duty containers crane for loading/unloading of containers in one hand. On the other hand, it enables to transport non-containerized general cargo, which provides local SME with opportunities to ship their small lot trading goods at proper costs.

Tottori prefecture supports this route as it should promote the port and local economy of Sakai-minato city and Tottori prefecture. The prefecture, together with local municipalities, provides subsidies to the shipping company. The maximum amount of subsidy is 1.5 million yen (approx. 20 thousands USD) for each call to Sakai port.

Figure 2.2.1-4 DBS Cruise Ferry

Source: Consultant

➢ Niigata-Zarubino line

There is another unique transportation route connecting Niigata and Zarubino. Its most remarkable feature is that it targets to deal with trade cargo between Japan and Northeast China through a gate city of Hunchun, Jilin Province. Multimodal transport is arranged for shippers, issuing a multimodal B/L, or so-called thru-B/L, covering land transport between Zarubino and Hunchun.

It is an ad-hoc on-demand service so far. A general cargo vessel of “Teddy Bear”, which usually runs between Nakhodka and Niigata, Naoetsu and some other Japanese ports according to shippers’ requests, is arranged to call Zarubino when needed. The route was opened in summer 2011 by a Japanese shipping company of Iino Koun, and then, from August 2012, a Russian transport company of “Primoravtotrans” operates the route.

According to a promotion material of Niigata prefecture, “Teddy Bear” is capable to transport 65 TEU of containers. Assuming that there are no technical constraints mentioned below and it performs a voyage (one-way) in three days, the annual capacity could reach almost 4,000 TEU during 61 voyages in a year.

In practice, however, there are several constrains. The vessel is rather small and hardly keeps schedules under severe weather conditions. Meanwhile, lack of a heavy-load STS crane at Zarubino port makes container operation at the port significantly time-consuming, which should affect shipping schedule when freight turnover will grow.

The technical constraint of loading/unloading operation is a significant problem even under the current minimum volume of freight. In fact, 40 feet containers as well as full-loaded 20 feet containers are not able to be handled in the port. A possible solution is to change the ship to a RO-RO ship, which doesn’t need cranes. Despite sincere efforts of related organizations, a suitable vessel has not been found so far. Another solution is to install one or more cranes at the berth, which requires more investment and time to realize. Once they will be installed, however, opportunity to develop shipping routes will be broadened.

Figure 2.2.1-5 Niigata-Zarubino Line

Source: Consultant

➢ Wrap-up comments

There are several types of shipping routes between the ports of Primorye and Japan, including its west coast. According to the rough estimation argued above, there is certain amount of capacity as shown in Table 2.2.1-1. It seems that the current capacity meets the current demands in terms of volume. One problem is quality of services in terms of transportation time, frequency, punctuality, cargo damage risks, as well as costs. This issue is argued later in the section reviewing time and cost factors.

Table 2.2.1-1: Estimated Capacity of Shipping Routes

	Capacity (TEU/year)	Comments
JTSL Direct	18,000	
JTSL Transhipment	18,000	About 10% of Russia – Busan segment capacity
Sinokor	4,000	About 10% of Russia – Busan segment capacity
DBS Cruise Ferry	300	About 5% of total capacity
Niigata - Zarubino	4,000	

Source: Consultant

Another potential problem is uncertainty in capability to meet future demand growth, even though one can expect that there will always be some shipping companies ready to launch new shipping lines or increase existing capacity, when new trade flows will come into reality.

2.2.2 Ports

Japan relies on marine transport to move the majority of the goods essential for its inhabitants' daily lives, and about 99.7% of all goods involved in foreign trade pass through Japan's ports and harbours. Marine transport accounts for 38.7% of all domestic cargo distribution on a ton-kilometre basis.

There are about a thousand ports across the country (Table 2.2.2-1). Until March 31, 2011, there were 23 "Designated Major Ports" in Japan. They are then divided into two categories; Strategic International Ports and Core International Ports. The Strategic International Ports are ports in Tokyo, Yokohama, Kawasaki, Osaka and Kobe. The Japanese government is going to develop them as international container traffic hubs in east and west Japan. There are 5 Core International Ports along the west coast; Niigata, Fushiki-Toyama, Shimonoseki, Kitakyushu and Hakata, from north to south (Figure 2.2.2-1)

Table 2.2.2-1: Number of Ports by Category (as of April 2012)

Category	Number
Strategic International Ports	5
Core International Ports	18
Major port	103
Local ports	809
(incl. port of refuge)	(35)
Article 56 ports	61
Total	996

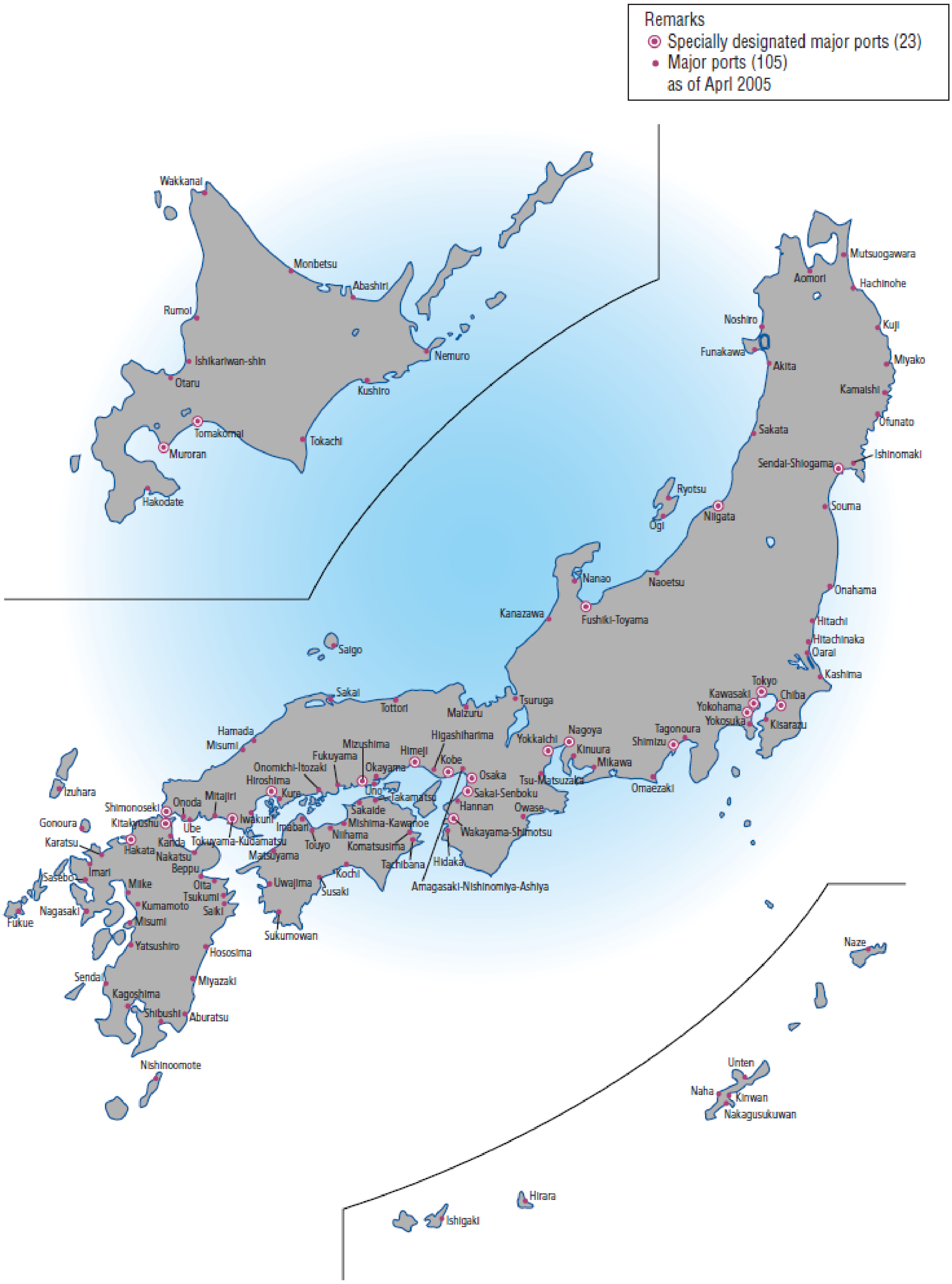
Notes:

Harbours of refuge: The main purpose of these harbours is to allow small vessels to anchor during heavy windstorms or rainstorms. Established by government decree, they are not intended for the loading and unloading of cargo or passengers.

Article 56 Ports: These ports have been decreed by the prefectural governor as marine districts without any district boundaries, in order to ensure the absolute minimum necessary regulation, and have been set aside for use as ports in the future.

Source: MILT

Figure 2.2.2-1: Location of Major Ports (as of April 2005)



Source: MILT

As mentioned above, there are 13 ports that accommodate regular container shipping services along the west coast of Honshu (the main) Island and north of Kyushu Island. Because of their geographic position, they can be regarded as principal candidates for target ports of the Trans-GTR corridors. Therefore, outlines of their infrastructure development are summarized as follows;

➢ Port of Akita

Akita Port is located in Akita City, Akita Prefecture. There are 26 public berths with depth of 4.5 to 13 meters, and 11 private berths.

Container loading is conducted at the O'hama and Gaiko terminals. The port handled 49,264TEU (incl. empty containers) in 2010.

Table 2.2.2-2: Outline of Container Terminals at Akita Port

	Gaiko	O'hama
Depth (m)	-13	-10
Length (m)	270	185
Area (sq. m)	19,200	38,900
STS crane type	Container handling gantry	Tire-mounted mobile crane
Number of Cranes	2	1

Source: International Transportation Handbook 2012 (in Japanese)" Ocean Commerce Ltd. Tokyo, 2011 and other sources.

➢ Port of Sakata

Sakata Port is located in Sakata City, Yamagata Prefecture.

Container loading is done at the multipurpose international terminal. The port handled 7,202 TEU (incl. empty containers) in 2010.

Table 2.2.2-3: Outline of Container Terminal of Sakata Port

Depth (m)	-13
Length (m)	280
Area (sq. m)	42,500
STS crane type	Container handling gantry
Number of Cranes	2

Source: International Transportation Handbook 2012 (in Japanese)" Ocean Commerce Ltd. Tokyo, 2011 and other sources.

➢ Port of Niigata

Niigata Port is divided into the West Port and the East Port. The historical West Port is located in Niigata City, and the East Port sits astride Niigata City and the town of Seiro.

The container terminal is located in the East Port. The port handled 162,641TEU in 2010. Construction on Berth No. 4 of the terminal was started in 2009 as a response to the rapid increase in container cargo. Use began on a 120m section of this berth in 2010, but as of June 2012 the full 250m berth is now being used as originally planned. Also, the overhaul of the container yard inside the terminal is advancing, and it will have the ability to handle 224,000TEU annually. However, the number of cargo handled in 2011 was 204,960TEU so there will not be much excess capacity. Therefore Niigata Prefecture is examining other ways to expand its terminal.

Table 2.2.2-4: Outline of Container Terminal of Niigata Port

Berth	No.2	No.3	No.4
Depth (m)	-10	-12(-14)	-12(-14)
Length (m)	185	350	120(250)
Area (sq. m)	274,880		
STS crane type	Container handling gantry	Container handling gantry	
Number of Cranes	1	2	

Note：Numbers in parenthesis are planed capacity.

Source: International Transportation Handbook 2012 (in Japanese)" Ocean Commerce Ltd. Tokyo, 2011 and other sources.

➢ Port of Naoetsu

Naoetsu Port located in Joetsu City is the second largest port in Niigata prefecture.

Container loading is performed at Berth No.4 of the East Wharf. In 2010 it handled 23,338TEU.

Table 2.2.2-5: Outline of Container Terminal of Naoetsu Port

Depth (m)	-10
Length (m)	200
Area (sq. m)	53,000
STS crane type	Container handling gantry
Number of Cranes	1

Source: International Transportation Handbook 2012 (in Japanese)" Ocean Commerce Ltd. Tokyo, 2011 and other sources.

➢ Port of Fushiki-Toyama

Fushiki-Toyama Port is located in Toyama Prefecture. The port is divided amongst three areas: the Fushiki District, the Toyama District, and the Shinminato District.

Container loading/unloading operation is carried out at the multipurpose international terminal in the Shinminato District. As a response to the increase in container amounts, 2010 saw an additional gantry crane while there are two gantry cranes currently in operation. The port handled 64,266 TEU in 2010.

Table 2.2.2-6: Outline of Container Terminal of Fushiki-Toyama Port

Depth (m)	-12(-14)
Length (m)	333
Area (sq. m)	104,000
STS crane type	Container handling gantry
Number of Cranes	2

Note：Numbers in parenthesis are projected

Source: International Transportation Handbook 2012 (in Japanese)" Ocean Commerce Ltd. Tokyo, 2011 and other sources.

➢ Port of Kanazawa

Kanazawa Port is located in Kanazawa City, Ishikawa Prefecture.

Container loading is performed at Gokuden Wharf. It is a general purpose wharf so other items besides containers, such as steel, are also dealt with at this location. The port handled 40,299TEU in 2010. As a response to the increase in container amounts, the port authority is proceeding with the installation of a transfer crane in the terminal that is expected to be completed sometime in 2012. Handling capacity will increase up to 56,900TEU annually.

Table 2.2.2-7: Outline of Container Terminal of Kanazawa Port

Depth (m)	-10
Length (m)	540
Area (sq. m)	-
STS crane type	Container handling gantry
Number of Cranes	1

Source: International Transportation Handbook 2012 (in Japanese)" Ocean Commerce Ltd. Tokyo, 2011 and other sources.

➢ Port of Tsuruga

Tsuruga Port is located in Tsuruga City, Fukui Prefecture.

Container loading is mostly being conducted at the multipurpose international terminal in the Maruyama-South District. The remaining container carried by RO-RO boats is handled in the Kawasaki-Matsue District. The port handled 18,973TEU in total for 2010.

Table 2.2.2-8: Outline of Container Terminals of Tsuruga Port

	Maruyama-South	Kawasaki-Matsue
Depth (m)	-14	-10
Length (m)	280	370
Area (sq. m)	52,000	N.A
STS crane type	Container handling gantry	None
Number of Cranes	1	None

Source: International Transportation Handbook 2012 (in Japanese)" Ocean Commerce Ltd. Tokyo, 2011 and other sources.

- Port of Maizuru

Maizuru Port is located in Maizuru City, Kyoto Prefecture. Most domestic cargo is handled at the East Port while international cargo is mainly handled at the West Port.

Container loading is performed at International Berth No.1 located at the East wharf. The port handled 5,645TEU in 2010.

Table 2.2.2-9: Outline of Container Terminal of Maizuru Port

Depth (m)	-14
Length (m)	280
Area (sq. m)	59,000
STS crane type	Container handling gantry
Number of Cranes	1

Source: International Transportation Handbook 2012 (in Japanese)" Ocean Commerce Ltd. Tokyo, 2011 and other sources.

- Port of Sakai

Sakai Port is located in Sakai City, Tottori Prefecture, but as it is close to Shimane Prefecture it is managed by the Port Authority Association established jointly by Tottori and Shimane Prefectures.

Container loading is done mostly at the international container terminal. In addition, DBS Ferry Cruise, a Korean shipping company, has been conducting a regular ferry service from Sakai Port - Donghae (ROK) - Vladivostok since July 2009. Containers are also handled at this ferry terminal. The port handled 25,757TEU in total for 2010.

Table 2.2.2-10: Outline of (Container) Terminals of Sakai Port

	Int'l Container Terminal	Int'l Ferry Terminal
Depth (m)	-13(-14)	
Length (m)	280	
Area (sq. m)	54,400	N.A
STS crane type	Container handling gantry	None
Number of Cranes	1	None

Note：Numbers in parenthesis are projected
Source: International Transportation Handbook 2012 (in Japanese)" Ocean Commerce Ltd. Tokyo, 2011 and other sources.

- Port of Hamada

Hamada Port is located in Hamada City, Shimane Prefecture.

Container loading is performed at the Fukui No.4 wharf. The port handled 3,233 TEU in 2010.

Table 2.2.2-11: Outline of Container Terminal of Hamada Port

Depth (m)	-7.5
Length (m)	130
Area (sq. m)	16,000
STS crane type	Multipurpose
Number of Cranes	1

Note：Numbers in parenthesis are projected

Source: International Transportation Handbook 2012 (in Japanese)" Ocean Commerce Ltd. Tokyo, 2011 and other sources.

- Port of Shimonoseki

Shimonoseki Port is located in Shimonoseki City, Yamaguchi Prefecture. It faces the Kanmon Straight that lies between Honshu and Kyushu Islands.

The port has 2 container terminals; the Hananocho Wharf and the Shinko (new port) Wharf. In addition, its unique characteristic is its position as Japan`s largest commuter ferry terminal. There are two regular services to South Korea and another two routes to China, resulting in 13 ferries each week. Hosoe Wharf, where the international regular ferries moor, has an area of 170,000 square meters. In total there are five berths which include two berths that each have a depth of 10m (total length 370m), two berths that each have a depth of 7.5m (total length 260m), and the remaining berth that is 5.5m in depth (total length 213m). The port handled 82,436 TEU carried by container vessels and ferries in 2010.

Table 2.2.2-12: Outline of Container Terminals of Shimonoseki Port

	Hananocho Wharf	Shinko (new port) Wharf
Depth (m)	-10	-12
Length (m)	370	300
Area (sq. m)	45,000	72,000
STS crane type	Container handling gantry	Multipurpose jib crane
Number of Cranes	1	1

Note：Numbers in parenthesis are projected

Source: International Transportation Handbook 2012 (in Japanese)" Ocean Commerce Ltd. Tokyo, 2011 and other sources.

- Port of Kitakyushu

Kitakyushu Port is located in Kitakyushu City, Fukuoka Prefecture at the northernmost tip of Kyushu Island.

The port has three terminals. The newest Hibiki container terminal, which is equipped with 15 meter depth berths and long-reach cranes, can accommodate large-size container vessels. The port handled 405,804 TEU in 2020.

Table 2.2.2-13: Outline of Container Terminals of Kita Kyushu Port

	Tachiura No.1 CT	Tachiura No.2 CT	Hibiki CT	
Number of Berths	2	3	2	2
Depth (m)	-12	-10	-15	-10
Total length (m)	620	555	700	340
Area (sq. m)	161,500	161,547	385,100	
STS crane type	Container handling gantry	Container handling gantry	Container handling gantry	
Number of Cranes	4	3	3	

Source: International Transportation Handbook 2012 (in Japanese)" Ocean Commerce Ltd. Tokyo, 2011 and other sources.

➢ Port of Hakata

Hakata Port is located in Fukuoka City, Fukuoka Prefecture.

Because of its establishment in 1997, Hakata Port has a short history as a container port compared to others. While this may be so, recent years have seen a substantial increase in container cargo and the port has become the 6th largest port in Japan in terms of number of containers handled.

Hakata port has two modern container terminals; Kashii Park Port CT and Island City CT. The former was opened in 1997. The latter started its operation at berth No.1 in 2003 and has been expanding its capacity since. It is equipped with advanced energy saving technologies and ICT. In addition to the regular container services, Hakata Port has a ferry route to Pusan and a RO-RO boat service to Shanghai. The “Shanghai Super Express Service” by the RO-RO ship can connect Hakata Port with Shanghai in only 28 hours, which gives it the characteristic of being faster than the usual container route and cheaper than air delivery.

Table 2.2.2-14: Outline of Container Terminals of Hakata Port

	Kashii Park Port CT	Island City CT
Number of Berths	2	2
Depth (m)	-13	-14 & -15
Length (m)	600	680
Area (sq. m)	223,195	284,000
STS crane type	Container handling gantry	Container handling gantry
Number of Cranes	4	5

Source: International Transportation Handbook 2012 (in Japanese)” Ocean Commerce Ltd. Tokyo, 2011 and other sources.

➢ Total container handling capacity of the west coast ports

The most of Japanese port management bodies do not announce its handling capacity. Therefore, the consultant would suggest simplified estimates considering number of berths and cranes, as presented in Table 2.2.2-15. Under this assumption, the total annual capacity is calculated as approximately 2.7 million TEU.

Table 2.2.2-15: Container Terminals Capacity Estimates

Ports	Estimated Annual Capacity
Kitakyushu, Hakata	1,000,000 TEU
Niigata	200,000 TEU
Akita, Fushiki-Toyama, Shimonoseki	100,000 TEU
Sakata	50,000 TEU
Naoetsu, Kanazawa, Tsuruga, Maizuru, Sakai, Hamada	30,000 TEU

Source: Consultant

2.2.3 Road network

Road network in Japan has been developed very rapidly since 1970’s. Total length of public road in Japan accounted for 1.2 million km as of April 2009. Public roads are classified into 4 categories according to the Road Act (Table 2.2.3-1).

Table 2.2.3-1 Types of Public Road in Japan

	Managing Body	Funding Body	Length in operation (km)
National Expressways	MLIT	Expressway	7,642

		Managing Body	Funding Body	Length in operation (km)
			companies *	
Ordinary National Highways	Specified Sections (Ministerial Highways)	MLIT	MLIT	22,874
	Non-specified Sections (Subsidized Highways)	Prefecture (Designated City)	MLIT, Prefecture (Designated City)	31,916
Prefectural Roads		Prefecture (Designated City)	Prefecture (Designated City)	129,377
Municipal Roads		Municipality	Municipality	1,016,058

* Some sections of expressway are constructed by funding of MLIT or prefecture (designated city) in accordance with the national plan for expressway construction.

Source: Various materials of MLIT

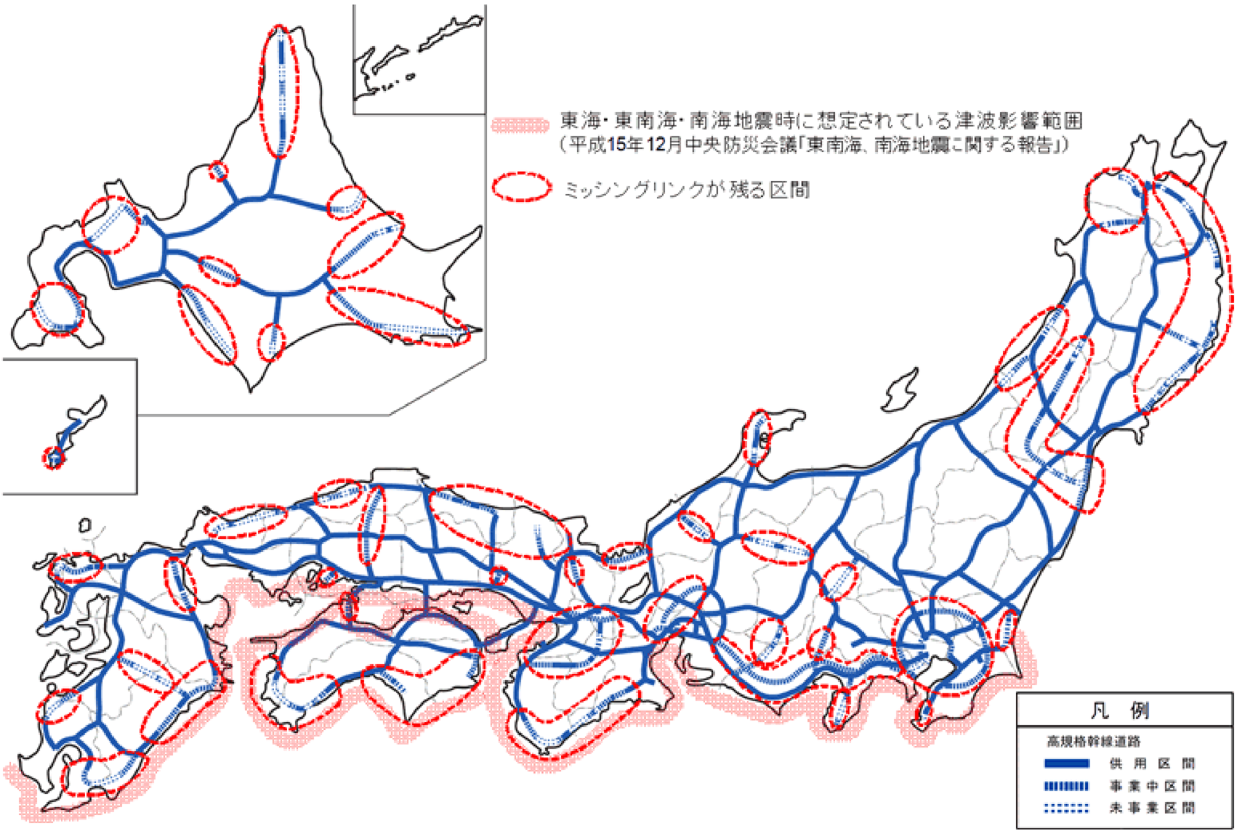
Japanese government is developing a national network of “Arterial high-standard highways”, which comprises of the entire national expressways network and parts of the national highways. Total length of planed expressways is 11,520km, of which 7,642 km are in operation and about 1,800 km are under construction (including the stage of designing). The remaining some 2,000km are to be developed in future. MLIT has a plan of development of Ordinary national motorways, which compose parts of the Arterial high-standard highways network, and at the same time, parts of ordinary national highways in terms of legal status in accordance with the Road Act. Total planed length of the Ordinary national motor ways is 2,480km. Although the network connects metropolitan areas and major cities across the country, there are still many missing links along the route connecting local cities and the substitutional route for great disasters (Figure 2.2.3-1).

Designed maximum speed of the expressways is 100km/h in most sections or 80km/h in some sections. They are designed as 4 lanes road or more, while some sections have been put into operation as 2 lanes road for the time being.

For the purpose of facilitating international business and trade, MLIT is running projects of improvement of road accesses to major ports and airports and also elimination of physical bottlenecks for ISO container transport. MLIT has selected 71 major ports and airports that should have quick accesses to the expressways. As a result of development of access roads, 51 of the selected ports and airports can be reached from the nearest expressway interchanges in 10 minutes as of March 2009.

As technical standard of road structure had developed earlier than implementation of the ISO containers, even expressways and highways have many sections where full load containers and/or high-cube containers are not allowed to be transported. Shippers should divide their freight into smaller packages or take a detour, which burden additional costs. To improve the situation, in 2008 MLIT designated the trunk road network with total length of 29 thousands km that should enable to transport the ISO containers by semi-trailer trucks with 44 ton weight and 4.1m high. There were 47 sections (560km) of bottlenecks at that time and MLIT has continued to eliminate these bottlenecks.

Figure 2.2.3-1 Arterial High-standard Highways



* Sections of missing links are identified by the circles of red dotted line. The orange colour indicates possible tsunami disaster areas.

Source: MLIT

2.2.4 Rail network

In 1987, the government privatized the Japanese National Railways and split it up into six regional passenger rail companies and one national freight service company. The total operational length of the six JR passenger companies was 20,010.6 km as of March 2007. In addition to the JR companies, there were 92 private, 40 semigovernmental (third sector), and 11 public regional passenger railway operators in Japan, as of July 2007.

Japan Freight Railway Company is one of the 7 companies established as a result of the national railway reform in 1987 and the only company specializing in freight. It doesn't own railway infrastructure, except for some sections with total length of 44.8km, and operates freight trains utilizing railway networks owned by the 6 regional passenger companies or the other JR group companies.

The company covers the whole territory of Japan and the total length of its operation is over 8,000km (

Table 2.2.4-1 and Figure 2.2.4-1).

Table 2.2.4-1 Outline of Japan Freight Railway Company

Number of Lines			77
Operation Length (km)			8,337.50
Number of Stations			253
Number of Trains			581 / day
Train-kilometres			about 219,000 km / day
Volume of Annual Traffic in 2009			Total Tonnage: 31,050
(Tonnage: thousands of ton / Ton-km: millions of ton-km)			Total Ton-km: 20,400
Cars	Locomotives	Electric	490
		Diesel	227

<table>
<tr><td rowspan="4"></td><td colspan="2">Electric Multiple Units</td><td>42</td></tr>
<tr><td rowspan="3">Freight Wagons</td><td>JR for Containers</td><td>8,033</td></tr>
<tr><td>JR for Others</td><td>533</td></tr>
<tr><td>Private</td><td>2,588</td></tr>
<tr><td rowspan="2">12ft Containers</td><td colspan="2">JR’s ownership</td><td>62,592 units</td></tr>
<tr><td colspan="2">Private</td><td>18,730 units</td></tr>
<tr><td colspan="2" rowspan="2">Loading Equipments</td><td>Top Lifters</td><td>72 units</td></tr>
<tr><td>Fork-Lifts</td><td>440 units</td></tr>
</table>

As of April 1, 2010

Source: http://www.jrfreight.co.jp/english/corporate/overview.html

Figure 2.2.4-1 Network of Japan Freight Railway Company

Source: http://www.jrfreight.co.jp/english/corporate/service.html

2.3 Performance Review of Non-physical Infrastructure

2.3.1 Supporting the legal environment of transport movements (international treaties and agreements, domestic regulations, institutional impact)

- Legal environment for transport business

In the field of international marine transport business, Japan utilizes the “Act on International Carriage of Goods by Sea”, which conforms to the “Hague Visby Rules”. Consequently, Japan’s export and import goods by sea shall be carried under the “Hague Visby Rules”. In other word, the legal environment is harmonized with international rules and practices.

Domestic land transportation business is regulated under several laws, like the “Road Transportation Act”, “Act on Service of Cargo Transportation by Automobiles”, “Railway Business Act”, “Port Transport Business Act” and others. Those who want to do their business in any of these fields should obtain respective license or approval, or should notify their respective authority in accordance to each of the Acts.

Japan has not joined the Convention on the Contract for the International Carriage of Goods by Road (CMR) and the Convention concerning International Carriage by Rail (COTIF). The main reason is the geographic situation of the country, which doesn’t have any land surface (road and railway) connections with neighbouring countries. Taking this into account, one can understand that there are no significant problems in business practices even without the conventions.

The “Cargo Forwarder Service Act” is applicable to both domestic and international forwarding services that employ actual carriers’ rail/truck/ocean/port transportation services to fulfil transportation contracts with clients (shippers). In practice, multimodal transport service can be understood as an advanced form of the forwarding services. Many of major Japanese forwarders provide international multimodal transport services. From this viewpoint, it can be said that the law governs multimodal transport business in Japan.

Meanwhile, because the draft international convention on multimodal transport proposed by UNCTAD in 1980 has not gained supports from many countries, there are no international conventions in the field. Many Japanese international forwarders employ the standardized terms and conditions of multimodal transport bill of lading developed by the Japan International Freight Forwarders Association (1993).

- Authorities executing control and management of business activities at ports and harbours

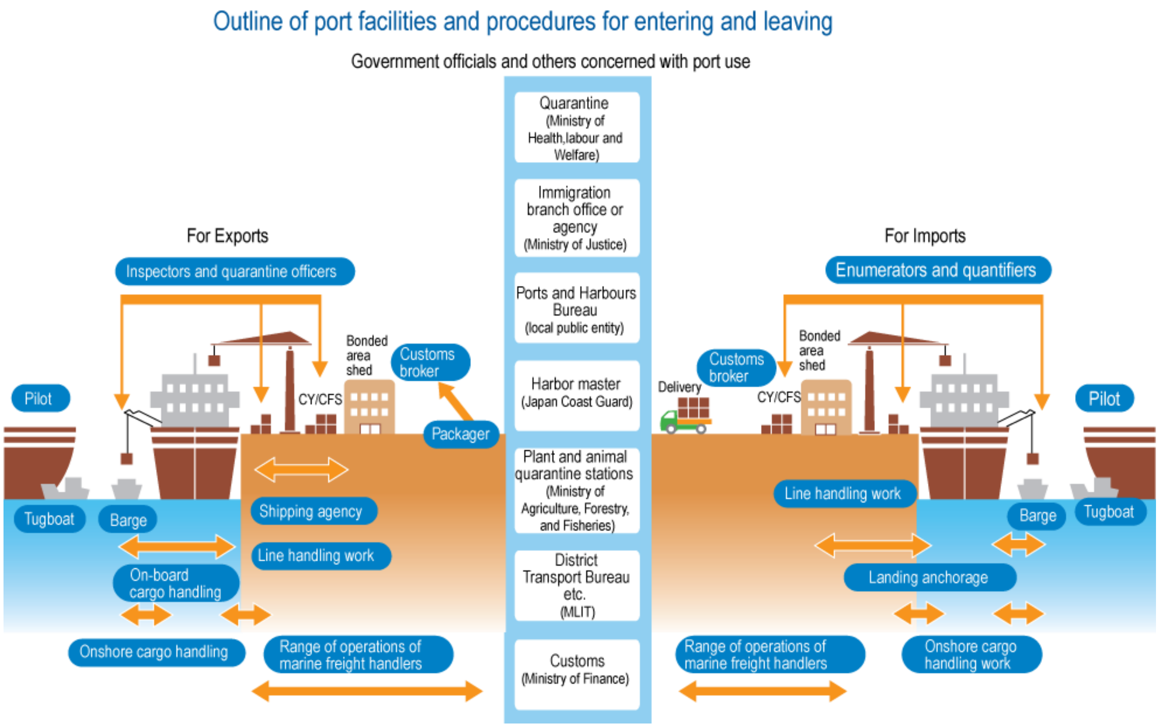
Ports are subject to a variety of activities, including maritime transport, shipping, and marine services. An interconnected network of various administrative organizations manages port-related social and economic activities (Table 2.3.1-1 and Figure 2.3.1-1). Roughly speaking, MLIT controls business activities related to transportation, while other ministries control international trades. In addition to those functions stated in the table, development and maintenance of port facilities like quay wall is responsibility of MLIT and the Port Management Body, as mentioned later.

Table 2.3.1-1: Authorities Executing Control and Management at Ports and Harbours

Activity	**Responsible government agency**	**Laws and regulations**
Navigation safety and systematic maintenance of port facilities	Port master (MLIT, Coast Guard)	Harbour Regulation Law
Regulation of port transportation, supervision (sales registration, fee forwarding, etc.)	District Transport Bureau (MLIT)	Port Transportation Business Law
Supervision of coastal warehouse industry, Supervision of maritime service industry		Warehousing Law, Marine Transportation Law
Licensing and supervision of the piloting profession		Pilotage Law
Regulation of duties, tonnage taxes, special tonnage taxes*, other assessments, levies, and bonded areas	Customs (Ministry of Finance)	Customs Law
Approval of imported and exported goods	Regional Bureau of Trade and Industry (METI)	Foreign Exchange and Foreign Trade Control Law
Inspection and quarantine of imported and exported animals	Animal Quarantine Office (Ministry of Agriculture, Forestry and Fisheries)	Livestock infectious Diseases Prevention Law
Inspection and control of imported and exported plants	Plant Quarantine Office (Ministry of Agriculture, Forestry and Fisheries)	Plant Quarantine Law
Control of Immigration and Emigration	Immigration Office (Ministry of Justice)	Immigration-Control and Refugee-Recognition Act
Port quarantine of seamen and passengers	Quarantine Office (Ministry of Health, Labour and Welfare)	Quarantine Law

Source: MLIT

Figure 2.3.1-1: Outline of Port Facilities and procedure for Entering and Leaving



Source: MLIT

➢ Laws on development and maintenance of ports and harbours

In Japan, the development and maintenance of ports and harbours is governed mainly by the following laws:

- Port and Harbour Law (MLIT),
- Law Concerning Dissolution of Port Development Authorities and Succession of Their Functions (MLIT),
- Emergency Measures Law for Port and Harbour Development (MLIT),
- other laws related to the prevention of environmental pollution (Ministry of Environment, MLIT).

The Port and Harbour Law outlines roles for the central government and the port management bodies as shown in Table 2.3.1-2. In practice, MLIT represents the central government in the field of port development and management.

Table 2.3.1-2: Roles of Central Government and Port Management Bodies

Central Government's Role in Port Management	Policy formulation for the development and administration of nationwide ports and harbours Establishment of necessary laws and regulations Providing advice and guidance on port administration and operation to port management bodies Authorizing development plans for major ports Financial assistance for port management bodies in relation to port construction projects Implementation of port construction projects (projects under the direct control of the central government) Improvement and maintenance of shipping channels outside the port area Establishment of technological standards for planning, design, and construction of ports and harbours

	Surveys and research concerning port technology
Major Roles of Port Management Bodies	Formulation of port development/management plan Construction and maintenance of port facilities Permission for and restrictions on facility use in port management districts (marine districts, land districts) Leasing and management of port facilities Setting and collecting fees for use of port facilities Establishing conditions for providing port services Land reclamation in harbour districts Environmental protection in ports and harbours Statistics collection for ports and harbours

Source: MLIT

The port management bodies function similar to so-called port authorities in various countries in general, while there are some differences in each country. In this report we use the term of port management body, as MLIT uses it. The majority of port management bodies are comprised of prefecture governments or municipal governments (Table 2.3.1-3)

Table 2.3.1-3: Number of Ports and Harbours by Port Management Bodies (As of April 2012)

	Total number	Prefectures	Municipalities	Port authorities	Partial Affairs Associations
Strategic International Ports	5	1	4	0	0
Core International Ports	18	11	4	0	3
Major ports	103	83	16	1	3
Local ports	809	505	304	0	0
(incl. harbours of refuge)	(35)	(29)	(6)	(0)	(0)
	951	522	366	0	0

Note: Partial Affairs Association is a legal entity that is established by prefectures and/or municipalities for the purpose of managing jointly respective affairs of their obligations.

Source: MLIT

MLIT, on behalf of the central government, takes a leading role in the nationwide development of ports and harbours. Meanwhile the Ministry is responsible for construction of large-scale infrastructure (waterways, anchorages, breakwaters, quay walls and port traffic facilities) for public use. It has eight Regional Development Bureaus and some 40 construction offices that execute the construction projects at major ports and harbours.

Along with MLIT, port management bodies are also responsible for the development of port and harbour infrastructure. The share of the costs to be borne by the national government and the port management body for the construction and maintenance of each type of port, business classification (national government works project/subsidy system) and facility has been calculated in detail. All construction costs for private port and harbour facilities, however, are borne by the private sector

- Customs clearance procedures (Export from Japan)

Exporters must declare to the Director-General of Customs the nature of the goods as well as the quantity, price, and any other necessary particulars. An export permit must also be obtained after the necessary physical examination.

Goods for export must be brought into the Customs area or a specially permitted place for storage. The exporter or his proxy (known as a Customs broker) prepares an export declaration describing the nature, quantity, and value, of the goods to be exported. This declaration is accompanied by invoices and other supporting documents and, if required by Japanese laws and regulations other than the Customs Law (hereinafter referred to as "other laws and regulations "), by other documents, such as permits, approvals, or licenses (e.g., exportation of strategically sensitive materials under the control of the Ministry of Economy, Trade and Industry).

The submitted export declaration is checked against invoices and other supporting documents at Customs. Document checking is conducted when a statistical classification is correctly made according to the Export Statistical Schedule, when the required permission or approval is secured with respect to pertinent goods, and when a correct application for approved excise tax exemption accompanies the goods which are to be exempted. In checking the submitted documents, Customs decides whether the goods have to be physically examined to ascertain the correctness of the classification of goods and to see whether the examinations required by laws and regulations other than the Customs Law have been completed.

In principle, Customs examinations of goods are conducted at a Customs examination zone in the Customhouse or where the goods are stored in cases where the goods cannot be brought to the Customs examination zone.

At the time of export declaration, the exporter is requested to submit two copies of the export report. One is for statistics and the other is kept at Customs for needs such as export certification.

The following documents must be submitted to Customs.

- Export Declaration (Customs form C-5010)
- Invoice
- Other documents: Certifications, permits, or approvals required by other laws and regulations.

The Customs Law is the fundamental law concerning exports. In addition, depending on the type of cargo, there are cases which require a prior permit or approval for export of the cargo before export declaration. These must be issued by the other authorities, such as the Ministry of Economy, Trade and Industry, and the Ministry of Health, Labour and Welfare, in accordance with stipulations in other laws and regulations.

According to the stipulations of these other laws and regulations, exporters of cargo, who are required to obtain permits, or approvals or pass examinations, must prove to Customs that these requirements have been met during the Customs clearance procedure, which then needs to be confirmed. Unless these requirements are proved and confirmed, Customs will not permit the cargo to be exported.

- Customs clearance procedure (import to Japan)

Any person wishing to import goods must declare them to the Director-General of Customs and obtain an import permit after necessary examination of the goods concerned. The formalities start with the lodging of an import declaration and end with issuance of an import permit after the necessary examination and payment of Customs duty and excise tax. In this way, measures are taken to ensure the fulfilment of the requirements for the control of foreign exchange and other regulations concerning the importation of goods.

The basic procedure for submitting declaration documents to Customs is explained below;

(1) Completion and Submission of Import Declarations

Declaration must be made by lodging an import (Customs duty payment) declaration describing the quantity and value of goods as well as any other required particulars.

This import declaration must be made, in general, after the goods have been taken into a Customs area or other specially designated zone. However, in the case of specific items which need the approval of the Director-General of Customs, the declaration may be made while they are aboard a ship or barge or before they are taken into a Customs area.

(2) Declarant

Import declaration must be made, in principle, by the person who is importing the goods. Usually, a Customs broker files the declaration as a proxy for importers.

(3) Documents to Be Submitted (Customs Law Article 68)

An import (Customs duty payment) declaration form (Customs form C-5020) must be prepared in triplicate and submitted to Customs with the following documents:

1. Invoice

2. Bill of lading or Air Waybill

3. The certificate of origin (where a WTO rate is applicable)

4. Generalized system of preferences, certificates of origin (Form A) (where a preferential rate is applicable)

5. Packing lists, freight accounts, insurance certificates, etc. (where deemed necessary);

6. Licenses, certificates, etc. required by laws and regulations other than the Customs Law (when the import of certain goods is restricted under such laws and regulations);

7. Detailed statement on reductions of, or exemption from Customs duty and excise tax (when such reduction or exemption is applicable to the goods);

8. Customs duty payment slips (when goods are dutiable).

Some imported goods may fall under "import restrictions" as provided by various domestic laws and regulations. In the case of restricted imports for which the importer must have a permit and approval relating to the import of goods under the Customs Law, requirements for inspection or other requisites must be met. Therefore, when goods for import require a permit and approval under laws and regulations other than the Customs Law, a certificate of application for a permit and approval under other laws and regulations must be submitted. The laws and regulations are listed in Table 2.3.1-4.

Table 2.3.1-4 Laws and Regulations Related to Import Clearance Procedure

(1) Foreign Exchange and Foreign Trade Control Law	
(2) Laws and Regulations Related to Banned Goods	
	•Law Concerning Wildlife Protection and Hunting •Firearms and Swords Possession Control Law •Poisonous and Harmful Substance Control Law •Pharmaceutical Affairs Law •Fertilizer Control Law

	•Law Concerning Sugar Price Stabilization •Explosive Control Law •Law Concerning Screening of Chemical Substances and Regulation on their Manufacture, etc. •High Pressure Gas Safety Law
(3) Laws and Regulations Concerning Quarantine	
	•Food Sanitation Law •Plant Quarantine Law •Domestic Animal Infectious Control Law •Rabies Prevention Law
(4) Laws and Regulations Concerning Narcotics	
	•Cannabis Control Law •Stimulant Drug Control Law •Narcotics and Psychotropics Control Law •Opium Law

Source: http://www.customs.go.jp/english/summary/import.htm

- Visa (General Information)

Among the GTI countries, ROK citizens are not required to apply for a visa if they intend to have a short term (up to 90days) stay in Japan. Citizens of Mongolia, PRC and Russia should obtain a visa to enter Japan. There are several types of short stay visa, including business visa, tourist visa etc. The following is a general outline of tourist visa procedures for each country.

Visas for Mongolian tourists:

A visa applicant needs to prepare a passport, an application, a photo, a schedule and other documents (like a certification of job/occupation), amount in bank accounts, etc. When all these documents are ready, he may submit an application for visa at the Japanese embassy in Mongolia.

Normally, a visa will be issued after 3days from application. The validity of a visa is three months. The period of validity cannot be extended.

Visas for Chinese tourists:

There are 3 types of tourist visa for Chinese citizens; group, individual and “Okinawa Multiple”. In recent years, Japanese government has eased the visa system in line with expansion of mutual exchanges and promotion of inbound tourism. A prominent example is the so-called “Okinawa Multiple” visa regime as mentioned below. Chinese tourist should apply for a tourist visa up to 15 days through a travel agency in China, as explained below.

(1) Group Tourists

As a general rule, tourist visits to Japan by Chinese nationals take the form of "group tourism" based on the related laws and regulations of China.

A person who wishes to travel to Japan would participate in a tour sponsored by an accredited travel agency in China and not apply for the visa himself/herself. The travel agency in China applies for the visa based on documents submitted by the person travelling, while the travel agency in Japan would prepare documents as a guarantor for Chinese tourists. “Group tourism" is accompanied by an escort and tourists are asked not to act freely without an escort.

(2) Individual Tourists

As a response to increasing demands for more flexible tourism in small groups, visas can be issued for "individual tourists" if certain requirements are met.

The person travelling must create a travel schedule in advance, and then ask an accredited travel agency in China to make the arrangements for travel. The travel agency in China applies for the visa based on documents submitted by the person travelling and the travel agency in Japan. The applicant him/herself is not required to make the application. Individual tourists have no escort accompaniment.

(3) Okinawa multiple-entry visas (Individual Tourists)

If certain requirements are met, multiple-entry visas valid for up to 3 years can be issued to individual tourists who visit Okinawa. The stay in Japan during each visit should not exceed 90 consecutive days. The holders of Okinawa visa can visit anywhere in Japan, after he entered Okinawa in his first visit to Japan with the visa. Okinawa visas can be applied through travel agencies in China in the same manner as visas for individual tourists. Chinese travel agencies apply for the visas at one of the Japanese Embassy and Consulates-generals in China based on documents submitted by the applicants and the travel agencies in Japan.

Visas for Russian tourists:

The following is an outline of application procedures for Russian nationals who apply for a temporary visitor's visa (for a stay in Japan of up to 90 days) for the purpose of tourism with travel agency guarantee.

1. Prior to a visa application, an inviting tourist agency needs to prepare a "tourism with travel agency guarantee" document and then send it to the visa applicant.

2. The visa applicant needs to prepare a passport, two photos, two visa application forms and other necessary documents in addition to the above-mentioned document.

3. When all required documents are prepared, the visa applicant may submit the visa application to the Japanese Embassy/Consulate-General with jurisdiction over his/her place of residence.

4. The examination period is approximately one week, though it may vary depending on the details of the application.

2.3.2 Overall noted Constraints and Challenges of freight and passenger movements

- Trade control

The most significant constraint that affects freight movements between the Northeast Asian countries and Japan is a trade restriction for DPRK. It was imposed in 2006 and has been extended each year since (with some amendments). Currently, Japan enforces a ban on all exports destined for DPRK, and all imports originating in or shipped from DPRK. The renewed period for these measures is from April 14, 2012 to April 13, 2013. The details are as follows:

1.The ban on export of all goods destined for DPRK shall be extended by continuing the requirement that exporters obtain export approval from the Minister of Economy, Trade and Industry (Article 48, Paragraph 3 of the Foreign Exchange and Foreign Trade Act [hereinafter "the Act"]).

2. The ban on import of all goods originating in or shipped from DPRK shall be extended by continuing the requirement that importers obtain import approval from the Minister of Economy, Trade and Industry (Article 52 of the Act).

3. To ensure the enforcement of these restrictions, the following transactions shall be banned.

- Transactions involving buying/selling, loaning/borrowing, or giving of goods that involve the movement of the goods between third countries and DPRK (intermediate trade) (Article 25, Paragraph 6 of the Act).
- Payments of import bills for goods originating in or shipped from DPRK which are imported without import approval (Article 16, Paragraph 5 of the Act).

4. Goods exported for humanitarian purposes shall be exempt from the above restrictions.

There are no other special trade restrictions against Northeast Asian countries.

- Shipping services regulations

There is an old agreement between Japan and Russia from the Soviet era, which stipulate procedure of opening new shipping line between the two countries. It states that the name of shipping company that plans to start a new line should be notified through designated organization. They are MOL from Japanese side and FESCO from Russian side.

It is difficult to evaluate how much the agreement restricts new companies to enter the market. Some people suggest that it practically closes the door of the market, in particular for regular shipping lines of full-container vessels. One the other hand, shipping companies of the third countries like ROK are able to enter without any specific requirements. The case of DBS Cruise Ferry and the Sinokor direct services are the most outstanding examples.

- Visa requirements

Even though the visa procedures for the GTI countries have been simplified recent years, visa requirements are still the barrier for free passenger movement. Tourism business insists to reduce the requirements to properties for Chinese tourists. The governments, however, do not hurry, because it might increase illegal immigrants who stay over the period of the short visit.

2.3.3 Net Transport Costs and Time Factor

A characteristic of marine transport is its flexibility in service performance, in terms of routes, frequency, capacity, etc. In fact, there are a variety of freight transport services between Japan and GTR. This section, trying to examine costs and time factor, summarizes existing marine transport services between Japan and GTR. It should be noted that shipping companies stop, change and (re)start their businesses in specific directions or routes so frequently that the following contents may become out of date even in the nearest future.

Another difficulty is that transportation fee fluctuates dynamically, as market situations change. Also, transportation companies sometimes offer significant discounts to constant and sizeable clients. With regard to transportation fee, consequently, the figures presented in this section may not reflect the real picture.

- Japan Trans-Siberia Line (JTSL)

MOL and FESCO jointly operate this service, which include direct shipments and transhipments at Busan port.

Standard shipping time of direct route varies from 1 to 8 days (West bound) and from 4 to 12 days (East Bound) depending on origin and destination ports (

Table 2.3.3-1). The transhipment service takes longer time in general, although it depends on origin/destination. At best, one could assume that it takes approximately a week when the shipping schedules of both legs matches in the most optimistic way. On the other hand, there are some risks of accident that make containers stocked at Busan port for a few weeks due to congestions or other factors.

Table 2.3.3-1 Standard Shipping Time of JTSL Direct Service (Days)

	Yokohama	Nagoya	Kobe	Moji	Toyama
To Vostochny (West bound)	6	5	4	3	1
From Vostochny (East bound)	7	8	9	10	12
To Vladivostok (West bound)	8	7	6	5	3
From Vladivostok (East bound)	4	5	6	7	9

Source: Trans-Russia Agency Japan Co., Ltd.

According to publicized tariff applicable from August 1 to September 30, 2012, west-bound freight charge is USD 1,085 – USD 1,315 for a 20 feet dry container with non-dangerous cargo and USD 2,080 – USD 2,510 for a 40 feet container including BAF. At the same time east-bound charges are less expensive; USD 695 – USD 815 and USD 1,380 – USD 1,630 respectively. In addition, there are additional costs like THC at the both ends.

➢ Sinokor Line

According to the press release announcing the launching of non-transhipment transportation, it takes 5-7 days between Vladivostok and the Japanese west coast ports (Table 2.3.3-2). Even though it takes more times than the possible direct shipping from the west coast ports to Vladivostok without any port calls on the way, which would take just 1-2 days, its transport time is almost in same range as the JTSL direct shipping for the Pacific major ports of Yokohama, Nagoya and Kobe.

Table 2.3.3-2 Standard Shipping Time of Sinokor Direct Service (Days)

	Akita	Niigata	Naoetsu	Fushiki-Toyama
To Vladivostok (West bound)	7	6	5	5
From Vladivostok (East bound)	5	6	7	7

Source: Sinokor Seihon Co., Ltd.

➢ Busan Transhipment Services

In general, it takes more than a week from a loading port to the final destination port. Thus, in terms of time, they are not competitive than the afore-mentioned lines. Extremely hash situations were observed in spring-summer of 2012, when delays have reaches more than a few weeks in the worst cases and some shippers ought to take another more expensive direct route.

As almost all Japanese container ports have regular shipping lines to Busan, it is a practical option to use the nearest port in order to minimize the land transportation costs to a port. It means that the transhipment services may be more attractive in terms of total transportation costs for the customers-shippers located far from the ports that offer the above-mentioned direct transport services. In some ports shippers can enjoy higher frequency than the direct shipping, which is another advantage.

➢ DBS Cruise Ferry

It offers one of the fastest deliveries between Primorye (Primorsky Territory) and Japan. It takes just 2 days in both directions.

The Tottori prefecture government publicizes a standard freight tariff, while the shipping company is ready to negotiate on actual transport fee.

Table 2.3.3-3: Standard Freight Tariff of DBS Ferry (USD)

	Dry Container			Ref. Container	
	20 ft	40 ft	40 ft HC	20 ft	40 ft
From Sakai to Vladivostok	1,100	1,900	1,900	2,500	3,900
From Vladivostok to Sakai	850	1,450	1,450	2,000	3,900

Source: Tottori Prefectural Government

➢ Niigata – Zarubino Line

Transportation time varies from 2 days to 5-6 days depending on port rotation, because sometimes the vessel calls Nakhodka, Naoetsu or other ports on the way subject to clients' requests. But, even in these cases, it has competitiveness in terms of delivery speed.

As mentioned above, this line cannot accept 40 feet containers due to the limited handling capacity at Zarubino port. The through transportation fee for a 20 ft container is set around USD 1,250 including land transportation between Hunchun and Zarubino. It is a special rate for promoting of the new route, supported by subsidies from Niigata prefecture government.

➢ Overall review of the shipping routes between Japan and Primorye

While some shipping companies publicise freight tariff, actual market prices may differ from them. Table 2.3.3-4 summarizes interviews with Japanese small-scale exporters to Russia who mainly use Yokohama port. They say the fees are higher, if they use local ports. Comparing to the other intra-Asian shipping fee, like Japan – Dalian route as discussed below, the fees are much expensive.

In terms of technical criteria like transport time, frequency, punctuality and capacity, each route has its advantages and weakness, as presented in Table 2.3.3-5. In general, it should be noted that there are still much rooms for improvement in the shipping services.

Table 2.3.3-4 Freight Charges of Regular Container Services (USD)

	20 ft	40 ft
Busan Tranship	Approx. 850	Approx. 1,400
Direct	Approx. 1,300	Approx. 2,000

Source: Interviews with exporters in 2012.

Table 2.3.3-5 Technical Parameters of Shipping Routes

	Transport time	Frequency	Punctuality	Damage risk
JTSL Direct	Moderate / Worse	Worse	Moderate	Moderate
JTSL Direct (Export from Toyama)	Better	Worse	Moderate	Moderate
JTSL Transhipment	Worse	Moderate	Moderate	Worse
Sinokor Direct service	Moderate	Moderate	Moderate	Moderate
DBS Cruise Ferry	Better	Moderate	Better	Better
Niigata – Zarubino Line	Better	Worse	Worse	Moderate
Other Busan Transhipment Services	Worse	Moderate	?	Worse

Source: Consultant

Under these circumstances, exporters select a route considering the trade-off of the time and costs. One key factor is inland transportation costs in Japan. For example, one-way truckage of 20 ft container from Niigata to Tokyo/Yokohama (350-400km) may cost around USD 1,500. This is an estimate for an occasional transport and there should be substantial discounts for constant clients depending on their shipping volume. Nevertheless, shippers have strong incentives to shorten inland transportation distance.

Another factor is sensitiveness of transported items to physical shocks at the transloading operations. Highly sensitive goods tend to be transported without transhipment in order to reduce the risk of physical damage.

- Ocean freight tariff and shipping time between Japan and Dalian

Market competition in the Japan-China container transport is considerably severe. People in the forwarding companies suggested current standard transportation fee from the Japanese major port to Dalian port is around 200 USD per 20ft container. In practice, there are additional charges, like terminal handling charge, banker (fuel) surcharge and others. The total fee could be estimated roughly as 400 USD or so on. In case of import from China, they say that ocean freight fee might be almost zero or even minus, which means shipping companies collect only surcharges partially.

At the same time, transport time between Dalian and Japanese major ports is usually less than a week. Many shipping companies offer weekly or more frequent services. Meanwhile, well-developed systems of transport service ensure enough stable safe delivery of freight. Conservative shippers prefer the proved services that have been improved through years of practices dealing with various requirements from shippers.

Thus, the shipping routes between Japan and Dalian are more competitive than those between Japan and Primorye (Primorsky Territory). In addition, expensive inland transport costs make it unfeasible that Japanese Pacific coast shippers trading with Northeast China would shift their transport route to the proposed route that goes across the Japan's territory to the west coast and the across the sea to the GTI ports in Russia. The consultant sees strong needs of comprehensive measures to improve competitiveness of the Tumen and Suifenhe corridors as well as their extensions to the sea and Japan.

2.4 Physical and non-physical Constraints

2.4.1 Constraints in the marine section and Japan

Summarising the reviews of infrastructure capacity and performance constraints in the section of marine transport and Japan's inland transport are presented in Table 2.4.1-1.

Table 2.4.1-1 Constraints along the Trans-GTR corridors

	Constraint	**Importance (How much it restricts the flow)**	**Timeframe (Reflects the Urgency)**	**Mitigation measures**
1) Tumen Transport Corridor, 2) Suifenhe Transport Corridor and 3) Siberian Land Bridge				
For the section of shipping routes across the sea to the Japanese west coast				
Infrastructure				
Vessels	Inadequate vessel operating between Zarubino and Niigata	Significant	Urgent	Replacement to a larger RO-RO type vessel
Transport regulation	Regulated opportunities to start a new regular service	Less	Mid-term	Removal or amendment of the Japan-Russia Agreements of Marine Shipping
Cross-border regulation	Embargo on the trade with DPRK	Significant	Long-term	Removal of the embargo
Cost and time factors	Expensive transport fee	Significant	Urgent	Promotion & marketing to realize economy of scale
	Under-developed shipping services (directions, frequency, punctuality etc.)	Moderate	Urgent	Support to the operating companies to encourage further development
For the section of land transport across the Japanese territory (between the west coast and the Pacific coast)				
Infrastructure				
Rail	No on-dock railways	Less	Mid-term	Construction of the rail access to ports

	Constraint	Importance (How much it restricts the flow)	Timeframe (Reflects the Urgency)	Mitigation measures
	Small diameter tunnels	Less	Mid-term	Introduction of low floor wagons
Road	Limited height and axle load sections	Less	Mid-term	Reconstruction
Ports	Limited capacity of cargo handling	Less	Long-term	Construction of new berths and/or introduction of cargo handling equipments
Transport regulation	Strict regulation on usage of foreign vehicles	Less	Long-term	Realization of mutual access of trailer chassis
Cost and time factors	Expensive transport fee	Significant	Urgent	Promotion & marketing to realize economy of scale

Source: Consultant.

2.4.2 Constraints in the continental sections

As the constraints in the continental sections are thoroughly reviewed in the other country reports, the constraints presented in description in Table 2.4.2-1 are supplements to them. The two issues are revealed from interviews with Japanese shippers and forwarders, who represent external views.

In fact, the issue of the double cross-checks at the Chinese – Russian border as well as the Russian ports may not be recognized problematic, if it is reviewed from the viewpoint of each country's normal cross-border control. The respective authority should control cross-border transport according to the regulation, which actually they conduct. But, it certainly degrades competitiveness of the routes against the Dalian corridors in terms of direct and indirect costs, including costs for preparing necessary documents.

The second problem deepens the first one. Officials at the borders do not have enough experiences to deal with transit cargo going through the routes. The Japanese forwarders and shippers complained that too many documents and explanatory materials are required, when they try to ship specific goods first time. The situations become better, when they ship the same goods in the second time. But, if they want to transport other items, they have to suffer from the same problem.

Table 2.4.2-1 Constraints in the China – Russia – Sea section

	Constraint	Importance (How much it restricts the flow)	Timeframe (Reflects the Urgency)	Mitigation measures
1) Tumen Transport Corridor and 2) Suifenhe Transport Corridor				
For the section of China-Russia-Sea				
Cost and time factors	Double cross-border checks at the Chinese-Russian border and the Russian ports	Significant	Urgent	Introduction of simplified scheme for the transit cargo
	Less efficient	Moderate	Urgent	Capacity building

	Constraint	Importance (How much it restricts the flow)	Timeframe (Reflects the Urgency)	Mitigation measures
	implementation of regulations			and routinization of transit practices

3 Future Development Potential

3.1 Review of on-going/planned economic Development Projects likely to impact future traffic

3.1.1 Freight traffic related projects

There are no specific major projects that aim to increase large-scale export from Japan to the other countries, including GTR. In general, major industries like automobile manufacturing and electronics, along with their supporting industries, have been moved and are moving their production capacities abroad instead of expanding their domestic capacities. Their domestic investment targeted to improvement of production efficiency or production of higher value added, along with R&D, which usually don't contribute to increase of export volume.

On the other hand, many SME, including agricultural ones, which have engaged in the domestic business so far, are seeking new markets abroad because the domestic market is expected to shrink due to decreasing and aging national population. Considering the geographic proximity, the GTR region might be among potential targets. It is difficult, however, to identify outstanding projects in terms of export volume. Typically, a container is enough to transport exporting goods of a contract. Meanwhile, lack of capacity of contracting parties makes it difficult to grow these small scale trades rapidly under the condition of weak logistics infrastructure.

With regard to import of consumer goods, it is also difficult to identify specific large-scale projects because of the nature of consumer markets. If consumer goods industries oriented towards Japanese market will grow in the GTR, large Japanese retail companies will change their sources from Southern China and Southeast Asia.

Apart from containerized cargo, Japan is likely increase import of LNG in the near future. If the LNG plant project in the Primorye (Primorsky Territory, near Vladivostok) will be realized, millions of tons of LNG will be exported, most likely, to Japan and ROK. The LNG will not be necessarily delivered to the west coast of Japan, as major consumers (electric generating and gas utility companies) are located on the Pacific coast of Japan. Nevertheless, one can expect some portion will be delivered to the existing LNG receiving terminals in Niigata, Kitakyushu and Hakata ports and ones being constructed in Naoetsu and Kitakyushu ports.

There are some discussions on import of coal from Mongolia and import of grain from Russia. They are, however, considered as substitutions to the existing sources and there are no needs to expand capacities of importing terminals in Japan. In fact, there are no projects undergoing or announced to construct a new receiving terminal.

3.1.2 Passenger related projects

It is very difficult to identify projects that will generate passenger flows through the GTR corridors because almost all tourists to/from Japan use air transport. Passenger boat and services are less competitive than air, except for short distance services between North Kyushu area and Busan. Assuming that the situation will not change drastically, future passenger flow dynamics will be more dependent on regular flight networks than the trans-GTR corridors development. Therefore, the following paragraphs explain the general picture of future passenger growth rather than geographically specified area of the GTR.

The Japanese government promotes inbound tourism aiming at a long-term target of 30 million visitors to Japan in the future. The Japan Tourism Agency, a subsidiary of Ministry of Land, Infrastructure, Transport and Tourism, implements a project called Visit Japan Project. Their mid-term goals are 15 million visitors in 2016 and 25 million by early 2020's. While the project covers countries all over the world, China, ROK and Russia are among the 15 priority markets.

The procedure for Chinese citizens to obtain a Japanese entry visa has been simplified in recent years. For example, in order to promote tourism to Okinawa prefecture, the southernmost islands prefecture, a special regime called Okinawa multiple-entry visa was introduced in July 2011. Under this framework, multiple-entry visas valid for up to 3 years can be issued to individual tourists who stay in Okinawa more than one night during his first visit after obtaining the visa. The stay in Japan during each visit should not exceed 90 consecutive days. Okinawa multiple-entry visas can be applied through accredited travel agencies in China in the same manner as single entry visas for individual tourists. Currently there are discussions to introduce a similar scheme of the multi-entry visa for the Tohoku area where the earthquake hit in 2011 and the number of tourists decreased sharply.

3.2 Traffic and Transport Demand Forecasting

3.2.1 Freight

➢ Estimates of Freight Amounts between Japan and Northeast China

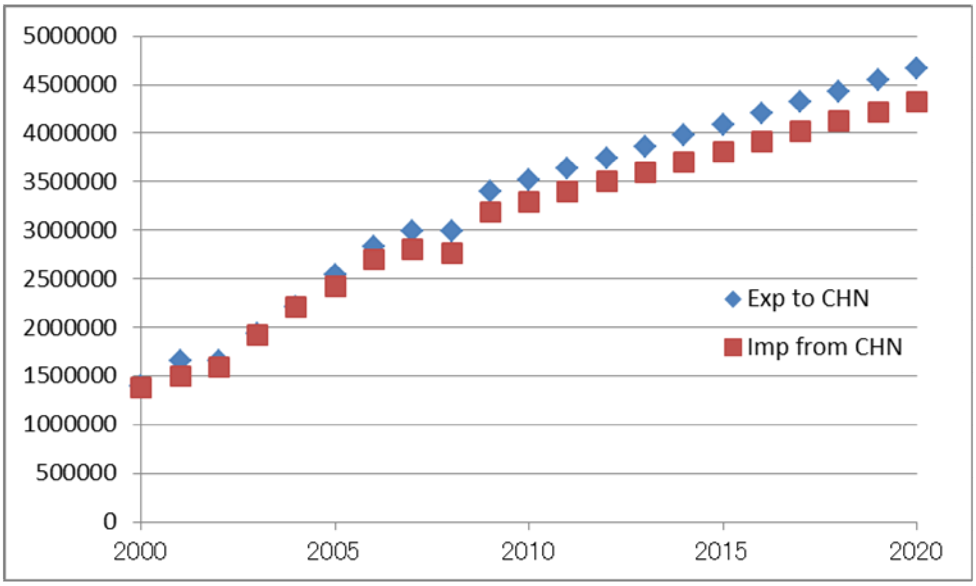
The following is an estimate of container freight turnover between Japan and Northeast China, regardless to their contents. As the trade structure by commodity for the Northeast region is likely to differ from the country's structure as a whole, estimates by commodity were not executed.

First, future estimates of container freight amounts between Japan and China are calculated. To derive an estimated formula, an assumption was that the GDP of both countries would be a determinate for the amount of freight. While we executed both single and multiple regression analyses with the container transport amounts between the years 2002-2008 (expressed in TEU, Ministry of Land, Infrastructure and Transport [statistics on ports and harbours]) as the dependent variable and the GDP of Japan and China (expressed in US dollars, World Bank Database) as the independent variables, China's GDP solely has proved as statistically significant variable at a 5% level. Therefore China`s GDP was adopted as the only independent variable and used for the estimates below.

(Japanese exports to China) = -35042478 + 1314888* LN (China GDP)
(Japanese imports from China) = -31562073 + 1188522* LN (China GDP)

As for China's future growth rate, we used the Cabinet Office (Japan) estimate of 9.1% potential growth for the years 2010-2020, as is shown in the resulting Figure 3.2.1-1 for container freight amounts between Japan and China. In the year 2020, exports to China will be 4,660,000 TEU and imports from China will become 4,330,000 TEU.

Figure 3.2.1-1: Japan-China Sea Transport Freight Amounts (in TEU)



Source: Consultant

Next, the portion focused on China's northeast region is estimated proportionally based on its previous track record. The amount of container freight handled at Dalian port was treated as equal to the amount for China`s northeast region as a whole for the estimation, and it is assumed the number of containers handled (TEU) is proportional to the container cargo weight (in tons). According to the 2008 National Import/Export Container Freight Survey (from MLIT) the freight at Dalian port (in tons) comprises 8.41% of total Japanese container freight exported to China and 9.19% of total Japanese imports from China. These proportions are used for the resulting calculation, as shown in Table 3.2.1-1.

Table 3.2.1-1: Japan-China Sea Transport Container Freight Amount Estimates (in thousands of TEU)

	China (overall)		Northeast Region Share	Northeast Region	
Year	2015	2020		2015	2020
Exports to China	4,089	4,661	8.41%	344	392
Imports from China	3,808	4,326	9.19%	350	397

Source: Consultant

3.2.2 Passengers

It is impossible to calculate volume for future passenger flows between Japan and the GTR, partly due to lack of reliable data. None of the data mentioned above covers entire passenger flows between Japan and the GTI countries, not to mention the GTR area. Therefore, the data is not suitable for quantitative detail analysis, but is used instead as reference for basic understanding.

Nevertheless, we can assume that there won't be significant passenger flows that travel through the corridors and marine route. Currently, majority of passengers travelling between Japan and GTI countries is business tourists whose value for time is rather higher, and prefers to take air flights between the nearest airports. It can be easily assumed that, in future as well, they will not chose time consuming routes of land transport along the trans-GTR corridors and then passenger boats. One can expect drastic changes, only when the visa control will be eased significantly or eliminated totally, and/or when passenger boats will offer more competitive services than airlines. The growing LCC services, however, would only hash the competition between sea and air.

Therefore, if we think of a simple extension of current situation, possible major O/D of GTR shipping routes will be only in the closest area to the GTR ports. Consequently, the expected market will be small. A reference should be numbers of passengers Fushiki-Toyama port, where only Japan-Russia regular passenger line had been operated to Vladivostok. The highest number was recorded in 2005, when boarding passengers were 12,825 and disembarking passengers were 12,279. The period of 2005-2008 observed a strong stream of Japanese used car export to Russian Far East. Toyama was the centre of this business and a lot of Russian buyers visited Toyama by the passenger boat. The total number of passengers has fallen down to 1,392 in 2011. Taking into account the shrink of the used car business due to the Russian government's policy, it is difficult to foresee a revival of 20 thousand or more passengers in near future.

3.3 Special Issue Analysis

Aiming at promotion of new shipping routes to the Russian Far-Eastern ports, local governments of Japanese west coast implement various measures. Among those are experimental shipments of containers to/from Northeast provinces of China. In this section, we focus two examples as follows.

- Transport Experiment by Niigata Prefecture

In October 2010, Niigata Prefecture carried out multimodal container transport experiment. This transport experiment selected China`s northeast region as the point of origin for cargo. Usually, export goods from the city of Harbin in Heilongjiang Province to the port in Niigata are transported through Dalian port, which is roughly 3,000km in distance for transport. This experiment of sending cargo from Northeast China across the Russian border, through Zarubino Port and finally connecting to Niigata Port yields a shortcut that results in a 40%, or roughly 1,300km, reduction of this transport distance.

For this experiment the prefecture chose household goods as well as clothing. The household goods departed from Harbin for Jilin Province`s Hunchun City, where they were loaded into a 20-foot container. Clothing was produced and packed in Hunchun. These two 20-foot containers cleared through customs of China and Russia at the BCP, and then sent by truck to Zarubino Port. From Zarubino to Niigata, the cargo was sent by a chartered cargo ship that usually calls to Nakhodka Port. From Niigata Port, the cargo was transported to Japanese domestic destination points by the use of trains amongst other methods.

Activities such as freight transport, loading operation and inspections measured a total of 6 days. Compared to the Dalian route that takes over 10 days for work operations, the route through Zarubino Port definitely has predominance. However, these 6 days don't include waiting and other lost time. Consequently, it should be regarded as an idealistic amount of time for extremely rationalized operation and circumstance.

As far as transport costs, this particular experimental route was comparatively expensive. Compared to the Dalian route where multiple firms are in direct competition, this experimental route cost around 100,000 yen more for each 1 TEU.

The customs procedures were smooth for the most part. Yet during Zarubino to Niigata Port, one portion of the cargo still took over ten hours. The reason was because it was the first inspection for these particular goods. With continued use of the route, we expect the amount of time taken will become much less.

Several problems came to our attention when trying to construct a full-fledged distribution route, as follows:

- When preparing schedules for land and sea transport, it will be necessary to coordinate them to establish a service that has no waiting.
- It is necessary to secure enough cargo amounts that will create similar fees to the Dalian Port route and reduce land transport costs.
- It should be considered whether to improve or replace the crane at Zarubino Port, or use the RO-RO ship or ferry.
- The Chinese customs seal is invalid in Russia, and Russian customs operates with its own separate container seal. Since the Chinese seal potentially might be broken in Russia, no forwarder can guarantee the safety of the cargo and issue through B/L. It becomes problematic for shippers.

Figure 3.2.2-1 International Transport Experiment Integrated Map

Source: Niigata Prefecture Government

➢ Transport Experiment by Tottori Prefecture

In order to promote DBS Cruise Ferry Tottori Prefecture is advancing cultivation of China`s northeast market.

The shipping route is operated by DBS Cruise Ferry Company (ROK). With its operating ship called `Eastern Dream`, the ferry handles approximately 480 passengers, or around 130TEU if converted to container freight. The ferry started running in July of 2009. The Sakai Port ~ Donghae City (South Korea) ~ Vladivostok route does one complete round trip each week. From the beginning it was expected that operating the ferry with enough passengers or cargo onboard would be difficult, so both the Japan side and Korean side are finding ways to support this operating route. In Japan, Tottori Prefecture and Council of Cities of Nakaumi Area have cooperated by subsidizing the operating costs by ten percent, up to a 1,500,000yen per voyage allowance.

From its inception this program has planned for three years until June 2012. However, it was extended for another year and necessary money has been appropriated into the FY 2012 budget.

From factors such as the stabilization of ferry operations and its punctuality, the reputation of its shipping company and the amount of cargo handled has gradually increased. The amount of cargo handled at Sakai Port went from 4,320 tons in 2010 to 6,278 tons in 2011 (a 45% increase from the previous year). However, this amount only comprises 17.3% of cargo weight travelling on this sea route, and as such is a small amount.

Peculiarly, the amount of cargo from Russia is small so Tottori Prefecture anticipates cargo originating from the northeast region of China. As part of this area, they conducted trial transport experiments utilizing wooden chopstick imports from Heilongjiang Province and exhibition imports/exports from Jilin Province. They used the transit transport route that connected Vladivostok Port with Suifenhe city. In addition to the 6,500,000yen (1,300,000yen x 5 trips) allocated in the 2012 budget for conducting these trials, they also created a subsidy system to support the continued use of these routes shortly after.

4 Measures and Investment Programme proposed to improve transport movements along the corridors

4.1 Measures

4.1.1 Legal environment

In the short term, the current Japanese legal environment can properly accommodate expected freight traffic. A potential challenge might be lack of the legal base for usage of foreign vehicles for inland transportation in its territory. In that case, amendments of the Road Transportation Vehicle Act and participation in the CMR convention should be considered, which will make Japan a virtual continental country connected by roads instead of marine transport.

It should not be an urgent issue, while Japan will continue to be an island country as it is presently. It will become a serious problem when there will be much more special traffic demands that require direct transport without any transloading from one semi-trailer truck to another. Such cargo might be super-precision machines, sensitive live vegetables, fruits and fishes, all of which are fragile from shocks at lift-on/off transloading operation at ports. Currently, in order to ease the damage they usually need special treatments of packing and harnessing which burden shippers with additional costs. Direct transport without transloading will benefit this problem. On the other hand, inventory costs of trailer trucks will increase if they go beyond the sea. Therefore, the through-operation of trailers is not necessarily the most efficient solution. It requires more in-depth studies on traffic demands, their requirements to transport quality, and costs of trans-ocean trailer operation, etc.

4.1.2 Designation of “Base Ports”

In 2010, MLIT announced its intention to select several base ports on the west coast for their enhanced development. Although there are sceptical views on expected outcomes and effectiveness of the policy, its outline is reviewed in this section as below.

The main purpose of the initiative at its initial stage was to strengthen international competitiveness of the whole west coast ports, while taking the economic development of the countries on the other side of the Sea as well as clarifying the roles of each ports and promoting mutual cooperation among them, which eventually contribute to economic development of the west coast region. In the meantime, the Great East Japan Earthquake occurred in March 2011 added another purpose to build a strong distribution network against a disaster, while securing alternate function to the Pacific Ocean side ports, as well as to strengthen their own disaster prevention function.

The selection was conducted for each of the port functions specified by MLIT. In fact, there were 6 key functions or cargo items specified; namely international container port, international ferry and/or RO-RO, regular international passenger lines, international cruise, timber and finally “other cargo”. Port management bodies of the Core international ports and the Major ports, which are 26 in total, from Wakkanai in North to Nagasaki in South were eligible to submit applications, which should include future visions and measures to enhance one of the listed functions. If they consider that their port has good perspectives in handling cargo not specified in the above-mentioned function, they can choose the 6th function of “other cargo,” identifying the cargo item. MLIT allowed the port management bodies to apply jointly with other eligible ports establishing an alliance and developing a plan together.

Among the 26 eligible ports, 23 ports submitted application documents them to MLIT in 2011 summer. The screening committee established by MLIT reviewed the submitted plans and selected 5 Comprehensive base ports, 19 base ports with 28 plans and 4 base formation promotion ports (Table 4.1.2-1, Figure 4.1.2-1).

Table 4.1.2-1: “Base Ports” of the Japanese West Coast

Comprehensive base ports (5 ports)	
	Niigata, Fushiki-Toyama, Shimonoseki, Kitakyushu and Hakata

Base ports (19 ports, 28 plans)	
International containers (10 ports, 9 plans)	Hakata port, Kitakyushu and Shimonoseki ports, Niigata port, Fushiki-Toyama port, Akita port, Imari port, Sakai port, Maizuru port and Kanazawa port
International ferry and/or International RO-RO (7 ports, 6 groups)	Hakata port, Tsuruga port, Kitakyushu and Shimonoseki ports, Wakkanai port, Fushiki-Toyama port and Maizuru port
Regular international passenger lines (5 ports, 3 groups)	Hakata port, Kitakyushu and Shimonoseki ports and Nagasaki and Sasebo ports
International cruise (fixed cruise) (2 ports)	Hakata port and Nagasaki port
International cruise (hinterland tourism cruise) (5 ports, 3 groups)	Otaru, Fushiki-Toyama and Maizuru ports, Kanazawa port and Sakai port
Timber (2 ports)	Sakai port and Hamada port
LNG (3 ports, 2 groups)	Naoetsu and Niigata ports and Ishikariwan-New port
Goods for recycle (1 port)	Sakata port
Base formation promotion ports (4 ports, 4 plans)	
	Rumoi port (Timber), Noshiro port (Goods for recycle), Nanao port (Timber), Karatsu port (International Cruise (Hinterland tourism cruise)

Source: MLIT

Figure 4.1.2-1: “Base Ports” of the Japanese West Coast

Source: Consultant

As a result the all 23 ports that submitted the application were approved as Base ports or Base formation promotion ports. In fact, not all plans of all ports were endorsed. For example, Sakata port submitted two plans for “international container port” and “other cargo (goods for recycle)” and received an approval for the plan of “goods for recycle” only. In addition, the 4 Base formation promotion ports can be regarded as semi-base ports, which don’t fulfil all the criteria for the Base port but should be treated honourably, considering some other factors.

One year has passed since the result was publicized in November 2011. Any significant measures have not been observed, however, to promote the proposed plans. There are disappointed sentiments in local society that supported the MLIT’s initiatives, because MLIT has not and will not likely allocate special resources, in particular financial ones, to realize the plans that they approved.

The weak supports were predicted in advance, however. As mentioned before, all applicants won the status of Base port or semi-base port, which means that the screening process was rather mild. This fact, in turn, suggests that MLIT doesn’t have strong intention to differentiate its supports to specific ports.

After all, the west coast ports should still continue to develop and promote mainly by their own resources, while cherishing slight expect for financial and other sorts of supports from the central government in future.

4.2 Investment Programme

4.2.1 Missing infrastructure links

From practical point of view, Japan does not have any completely missing links of transport, including international container transport, as shippers and carriers are able to find an appropriate port with proper access to road network to reach not only to major metropolitan areas but also rural towns across the country.

A problem is time and costs of transportation. But, it should be attributed to business environment in general, not to infrastructure development. Another problem is network redundancy in case of natural disaster. In this regard MLIT promotes improvement measures, as mentioned in the chapter of infrastructure review.

With regard to railway transport, however, almost all Japanese ports lack direct rail access to wharfs. This is because railways have become less competitive to truck transport in recent decades in Japan and there is no strong need to have railway links to ports. As mentioned above, the share of railways in freight turnover (ton-km) occupies about 4% and its share is merely 1% in terms of freight tonnage. Only limited numbers of port-side large-scale factories working on imported raw materials still keep railway access in order to ship their products to the domestic market.

A limited number of ports, however, are located in proximity of railway freight stations, where international container can be transported at rational costs between them. Among those are the ports of Kitakyushu and Hakata. Because of their geographical location amid East Asia and the capital metropolitan area of Tokyo, costs and time for the short drayage can be compensated by benefit of express freight train, which runs more than a thousand kilometres in about 20 hours to/from Tokyo. Thus, the intermodal transport service connecting the "Shanghai Super Express" and the JR container freight train is exploring a niche market that is less expensive than aviation transport and has faster delivery than conventional container ships.

While no Japanese port has direct rail access to its container terminals, Niigata prefecture government is studying the feasibility of stretching a branch track into the container terminal at the Niigata East Port. The plan was approved by the National Transport Policy Council. Among challenges in its realization are the uncertainty of cargo owners' attitudes to the changes in transport mode and route from current motor transport to railways, physical constraints of some tunnels where high-cube container (H=9.6ft) can not go through, and limited space and capacity of the terminal in the port itself.

4.2.2 Capacity improvements of existing infrastructures

- Individual port development projects

There are several ongoing capacity improvement projects among west coast ports which will meet current demands.

The Niigata port is expanding its container terminal. A new berth (L=250m, D=-12) will be put into operation at the end of June. It is expected to reduce container ships' berth wait time drastically, which happened a recorded 100 times in 2010. The handling capacity will become 224,000TEU/year. Considering the growing container turnover, the terminal needs further expansion. The port authority is drafting a plan of reconstruction reclaiming a part of waterways and converting an existing wharf to container specialized one. It should be finalized within the Niigata government, which then needs an endorsement by the National Council of Port and Harbor before its implementation.

The Akita port has just opened a new container terminal in April 2012. Its handling capacity is now 70,000 TEU/year. The terminal area is 11.3ha, with a berth of 270m long (D=-13). There is a plan for a second stage development, expanding the capacity up to 100,000TEU/year.

- Roads

As mentioned in the chapter of infrastructure review (2.2.2), MLIT continues to improve road accesses to major ports and to eliminate bottlenecks where fully-loaded containers and/or high-cube containers can not go through. These efforts should result in reduction of transport time and costs within Japan.

5 Recommendations for National Action Plans and GTI Strategy

5.1 National Action Plans for Japan

From a viewpoint of formality, it has no sense to propose the Japanese government to take any actions within the GTI framework, as Japan is not a GTI member country. Nevertheless, the importance of Japan in development of the trans-GRT corridors justifies making policy recommendations that might be realized by the Japanese government on the non-binding voluntary base.

The proposed Japan's actions listed below have indirect nature. It is partly because the corridors don't run through its territory, and Japanese parties will be involved as beneficiaries or users of infrastructure. Another factor is that both responsible ministry of MLIT and majority of business circle are not ready to be involved in the cooperation process. They will unlikely play active roles at least in the first steps of cooperation.

- Assessments (MLIT)

The Japanese government, including MLIT, has not been engaged in the GTI programmes. MILT doesn't have basic understanding on the past developments and current situation of the trans-GTR corridors. Before MILT will get into this issue, it should assess the problems from their own viewpoint and identify critical matters, like significance of projects, stakeholders, barriers, costs and role of Japan as well as MLIT.

Needless to say that this comprehensive study should help MLIT officials understand benefits and bottlenecks of developing the corridors. Establishment of liaison with the GTI will also facilitate their better understanding. Another opportunity is the 4-party cooperation mechanism on the sea-land multi-modal transport that was established by respective ministries of China, Japan, Korea and Russian in December 2011.

No less important step is an assessment of domestic situations. In order to develop and implement policy measures, MILT should be convinced that the trans-GTR corridors will promise substantial benefits to Japan. Only local business people as well as local port authorities and local governments along the west coast have presented their interest in developing the new transport routes through the GTR. It seems, therefore, that MLIT treats the matter as something exclusively for local interests. To change the attitude, "real interests of wide range of enterprises" should be clearly presented instead of general explanation of "expected benefits." It is not an easy task, however, taking into consideration the difficulties faced within this study, for instance in forecasting future traffic.

MLIT may need almost one year to accomplish the preparatory works, including interviews to potential beneficiaries and stakeholders who are not explicitly identified.

- Liaison with the GTI, particularly GTI TB (MLIT, Local Governments)

As mentioned above, liaison with GTI will provide MLIT with an opportunity to understand the current situation at the first step. Further constant contacts will facilitate policy coordination, which is extremely important for rapid development of the corridors. Even though Japan is not a member country, MLIT officials may take part in GTI activities with an observer status or as external partners. It is quite feasible, recalling the fact that Japanese government officials had attended as observers the Consultative Commission meetings of the TRADP in its earlier stage.

Another practical issue is an active involvement of local governments in the GTI activities. In fact some Japanese prefectures have participated in several GTI meetings so far. Particularly, Niigata and Tottori prefectures have demonstrated their positive presence recent years. Among their keenest interests are developing marine transport across the sea. While they support private ventures opening new shipping lines that serve as extensions of the Suifenhe and Tumen corridors, freight traffic remains at low level. It is beyond their capacity to enhance new routes' competitiveness eliminating or reducing physical and non-physical bottlenecks along the GTR corridors. In this regard, the prefectures should explore more pragmatic cooperation with GTI TB.

- Establishment of a national platform (MLIT)

MLIT is expected to establish a national platform assembling acting and potential interested parties together.

As mentioned above, public awareness on significance and benefits of the Trans-GTR corridors is still low in Japan. The Japanese business sector has hesitated to enter this region, partly because of the less developed logistics infrastructure in the region. The number of interested people is limited, and they don't have power to change the situation.

On the other hand, the lower public awareness disturbs to expand the circle of interested parties. There should be certain number of private companies that could gain benefits from new business opportunities in the GTR but have not considered the issues due to lack of accurate understanding on the potentials of the region, including the possible improved access by the corridors. If they will become familiar with the developing corridors, they would potentially step forward to expand their business geography. Eventually they will have keener interest in the corridors' development in turn.

Government efforts are essential to break the vicious circle. First, an official announcement of positive views to the GTR corridors will raise public awareness to a great extent. More important would be to facilitate interactions between potential users and transport ventures opening new routes across the sea and along the corridors.

The platform will able to facilitate feedback and marketing. Participants-practioners could present individual bottlenecks and obstacles identified through practical business, which should contribute to further development and improvement of government policies. At the same time, mutual exchange among transportation companies and freight shippers may reveal new business niches and result in improvement of service quality.

- Public support to private initiatives (MILT/Local Government)

As are the cases of DBS Cruise Ferry and the Niigata – Zarubino - Hunchun multimodal transport, new transportation services face difficulties at the initial stage of business. There are no established markets, and shippers are conservative in choosing a transport route. Consequently, the business should be started with great uncertainty with regard to business revenue. Although local governments have extended supports to the operators, it seems that it is not enough and stronger supports from the central government are expected. It should not be a direct subsidy to each private enterprise, but might be indirect financial supports, special arrangements in legal procedures etc.

Meanwhile, the central government is not ready to extend supports, as mentioned above.

- Financing infrastructure development (JBIC)

In case that external financing will be needed, there is no denying that JBIC would support infrastructure development projects within its financial schemes. Feasibilities and justification of JBIC's involvement, however, should be examined later, only after individual project profiles will be clarified.

Table 4.2.21-1 Suggested action plans for Japan

Japan				
Measures, Programs or Projects	**Estimated Cost (USD)**	**Implementing Agency**	**Time Frame**	**Rationale**
Assessment	100,000 - 200,000	MLIT	2013	MLIT needs to get familiar with the current situation
Liaison with GTI		MLIT, Local governments	2013 - onward	Transport Board activities, open forums etc.
National Platform	100,000/year		2014 - onward	To combine stakeholders and users together
Public supports	To be determined	MLIT Tottori Pref. Niigata Pref.	To be determined	Financial supports, preferential treatments, etc.

Japan				
Measures, Programs or Projects	**Estimated Cost (USD)**	**Implementing Agency**	**Time Frame**	**Rationale**
Financing to Infrastructure	To be determined	JBIC	To be determined	Detailed studies are needed.

Source: Consultant

5.2 GTI Transport Strategy

Considering the reviews described in this report and discussions in the transportation sector of GTI for years, the consultant proposes the following for developing a GTI transport strategy.

First, GTI should forward development of transport cooperation based on 3 principles in 3 directions. The 3 principles imply “step by step approach,” “upmost efficient usage of existing infrastructure” and “harmonized development and improvement.” Meanwhile, 3 directions include “active government initiatives,” “interactions with business circle” and “promotion of strategic projects.”

5.2.1 “3 principles”

- Step by step (gradual) approach

As it is difficult to identify certain amount of explicit demands that could justify immediate large-scale infrastructure development project, we should take gradual approach. Demonstrating successful multimodal transport along the trans-GTR corridors, we can identify potential clients and motivate them to shift their freights and/or start new businesses taking advantages of the new transport routes. When enough large demands will be identified, investment to large-scale infrastructure projects will be started.

Therefore the strategy might be divided into 3 steps;

1) Immediate measures: non-physical arrangements with minimum infrastructure development;

2) Short-term measures: infrastructure developments necessary to handle targeted number of containers, which may include expansion of container handling terminals, additional transloading equipments, increase of trailers and so on;

3) Mid-long-term measures: large-scale infrastructure developments, including new ports/terminal, railways and highways for both containers and bulk cargo.

(The period of each steps and the targeted volume should be identified as a result of this survey.)

- Upmost efficient usage of existing infrastructure

In accordance with the first principles, we should consider the most efficient usage of existing infrastructure in each stage. Even though current infrastructure has limited capacity, it can deal with certain amount of containers, if all the transport processes are arranged efficiently. In fact, Dong Chun Ferry had transported more than 5,000 TEU annually in mid 2000s between Jilin province and ROK through Zarubino port, which proves potential of current infrastructure without any substantial expansions.

In other words, there are idling capacities in some segments. Therefore, efforts should be concentrated to realize the most efficient arrangement of players involved.

Needless to say, the efforts should be continued, after infrastructure development will be progressed in active manner.

- Harmonized developments and improvements

In order to avoid wasting resources infrastructure developments in each segment of the corridors should be harmonized. It requires well-coordination among authorities responsible for road, railways, ports and others, as well as among the countries.

In addition, physical infrastructure developments should be harmonized with improvements of non-physical infrastructure, like legal environments, enforcement of regulations, practical operations of freight handling, information exchange and sharing etc. In this case, number of involved parties is larger than the coordination among the infrastructure development. Consequently, the process may be more time-consuming and troublesome. But, it shouldn't become an excuse to denying coordination, as its importance is not decreased however the process is difficult.

An additional attention should be paid to a relatively new framework of cooperation. Respective ministries of China, Japan, ROK and Russia agreed to establish a cooperation platform to promote sea-land multimodal transport in Northeast Asia in December 2011, as Chinese official introduced at the meeting of GTI TB in Sokcho in July 2012. Its targets are quite similar to those of GTI. There for maximum interaction and information sharing between the four-party cooperation and GTI activities should be pursued avoiding duplicated measures and efforts.

5.2.2 "3 directions of activity"

- Active government initiatives

Government initiatives shall include public investment to infrastructure, improvement of legal environment and policy measures promoting the corridors. The ministries, GTI TB members, are expected to coordinate respective ministries and authorities of each country under a strong high-level political commitment.

Even though PPP may work effectively in some projects, public investments are the most important sources of infrastructure development. Meanwhile, ODA may be applicable, in particular, in case of Mongolia.

Taking into account the 3 principles, infrastructure development should be progressed in the following sequence: 1) renovation of the existing infrastructure for small scale business (plus improvements of non-physical infrastructure), 2) precise demands analysis, 3) step-by-step expansion of capacities, like additional lanes to existing roads, second track of the railways, 4) large infrastructure development, like new berths, direct railway connections to the ports etc.

Improvement of legal environment includes simplification and harmonization of regulations, their transparent and discriminative enforcement and their stability, in particular regulations related to cross-border operations.

Promoting measures shall be implemented practically in forms of the following 2 directions.

- Interactions with business circles

Forwarders and other transport-related service industries are essential components of transportation corridors. Therefore, coordinated actions are needed to accelerate the corridor development. In addition, to meet requirements of clients has fundamental importance in market competitions, which implies necessity of close interactions with trading companies.

Interactions with business circles contain several aspects, including market analysis, information dissemination or advertisements, establishment of channels and platforms of interactions.

Market analysis should be performed to identify key players and their potential and demands. The structure is two-fold. Direct users of infrastructure are forwarders and other transport industries. Identifying core companies and new ventures, it is worth examining their business models, current capacities, obstacles in their business, and requests to the governments etc. With regard to the secondary users of infrastructure or freight shippers, the most important is to evaluate volume of potential cargo flow analysing their demands. Among other important tasks are to clarify their claims to governments and forwarders and to reveal criteria for selecting transportation routes.

Positive actions from the supplier side include dissemination of current state and ongoing improvements of the corridors, which represents a kind of advertisements. Particular efforts should be directed to appealing advantages of the corridors, with reference to the revealed criteria through the analysis of shippers' behaviours.

To establishment of channels and platforms like forums should contribute to better communication among government, forwarders, shippers and other interested parties.

- Promotion of strategic projects

The key driver of the corridor development is implementation of individual action plans of each country, which are to be announced after completion of this comprehensive study.

The GTI strategic projects, however, should be promoted in a collective manner. Meanwhile, some projects might be renamed and modified. From Japan's viewpoints, the supports to the slowly developing shipping routes (Niigata – Zarubino, Sakai – Donghae – Vladivostok) are among first priorities. The supports may include financial supports to shipping companies and/or cargo shippers, preferential treaties to cargo and passengers, etc.

Promoting the strategic projects, GTI could demonstrate significance and effectiveness of the trans-GTR corridors, as well as have opportunities to get a closer look to key issues in developing corridors.

- “Collective Action Plan”

In order to convert the strategy into reality, coordinated actions are needed. Therefore, the consultant suggests to elaborate a “Collective Action Plan” along with the National Action Plans.

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Appendix 1 Population

	Total	Male	Female
2001	127,316	62,265	65,051
2002	127,486	62,295	65,190
2003	127,694	62,368	65,326
2004	127,787	62,380	65,407
2005	127,768	62,349	65,419
2006	127,770	62,330	65,440
2007	127,771	62,310	65,461
2008	127,692	62,251	65,441
2009	127,510	62,130	65,380
2010	128,057	62,328	65,730
2011	127,799	62,184	65,615

Unit: thousand

Source: Statistical Survey Department, Statistics Bureau, Ministry of Internal Affairs and Communications.

Appendix 2 Gross Domestic Products (GDP)

	Constant Prices*	Current Prices	Current Prices	Exchange Rate
	Billion yen	Billion Yen	Billion USD	
2001	476,535.1	505,543.2	4,159.86	121.529
2002	477,914.9	499,147.0	3,980.82	125.388
2003	485,968.3	498,854.8	3,199.16	155.933
2004	497,440.7	503,725.3	4,655.80	108.193
2005	503,921.0	503,903.0	4,571.88	110.218
2006	512,451.9	506,687.0	4,356.76	116.299
2007	523,685.8	512,975.2	4,356.33	117.754
2008	518,230.9	501,209.3	4,849.21	103.359
2009	489,588.4	471,138.7	5,035.15	93.57
2010	511,302.2	481,773.2	5,488.42	87.78

* Chained prices in 2005

Source: GDP in Japanese yen: Cabinet Office of Japan; Exchange Rate: International Monetary Fund "International Financial Statistics"; GDP in USD: Calculated by consultant

Appendix 3-1 Trade with NEA countries

	ROK		DPRK		PRC	
	Export	Import	Export	Import	Export	Import
1979	1,359,726,296	731,651,273	61,945,691	32,709,660	803,876,504	647,743,368
1980	1,225,050,667	681,218,129	84,946,420	40,977,411	1,140,786,728	977,794,077
1981	1,246,287,989	748,073,912	63,625,019	30,670,410	1,114,600,911	1,170,116,922
1982	1,213,902,422	808,272,300	78,071,510	37,510,497	871,722,961	1,326,521,392
1983	1,427,033,801	799,576,155	77,620,655	29,955,452	1,167,551,111	1,209,149,338
1984	1,711,424,415	1,000,951,009	60,317,360	34,299,772	1,720,802,827	1,411,270,770
1985	1,693,657,799	977,328,916	59,049,551	43,200,874	2,991,151,356	1,552,364,940
1986	1,760,684,903	886,185,438	31,039,362	29,272,806	1,666,510,571	965,838,503
1987	1,921,604,922	1,170,222,565	30,842,493	34,885,998	1,198,213,308	1,075,383,342
1988	1,977,785,123	1,514,927,772	30,593,201	41,588,737	1,213,931,260	1,264,213,819
1989	2,280,541,278	1,787,766,008	27,204,597	41,115,107	1,164,719,139	1,534,282,588
1990	2,517,998,068	1,689,565,896	25,381,712	43,296,175	883,509,615	1,729,858,399
1991	2,704,253,735	1,662,902,675	30,245,795	38,284,300	1,156,768,176	1,913,713,492
1992	2,253,298,092	1,465,878,984	28,282,862	32,675,604	1,510,321,365	2,144,776,528
1993	2,123,877,529	1,297,322,248	24,223,694	27,942,808	1,911,297,438	2,278,025,688
1994	2,489,405,739	1,379,824,763	17,400,145	32,728,663	1,913,705,255	2,811,395,199
1995	2,927,822,333	1,622,179,320	23,731,600	32,107,865	2,061,959,713	3,380,881,798
1996	3,192,333,170	1,735,328,829	24,694,659	31,702,683	2,382,363,189	4,399,676,006
1997	3,153,238,334	1,762,757,028	21,630,387	36,535,244	2,630,720,664	5,061,673,266
1998	2,004,542,479	1,577,249,772	22,782,826	28,703,607	2,620,905,420	4,844,134,624
1999	2,606,234,190	1,824,285,840	16,650,998	22,844,519	2,657,428,102	4,875,384,565
2000	3,308,751,342	2,204,702,798	22,279,274	27,695,413	3,274,447,888	5,941,358,135
2001	3,071,870,837	2,088,355,890	129,509,622	27,398,069	3,763,723,102	7,026,676,502
2002	3,572,438,503	1,936,786,939	16,548,374	29,402,126	4,979,795,581	7,727,792,563
2003	4,022,469,201	2,071,181,525	10,609,254	20,195,352	6,635,481,534	8,731,138,638
2004	4,785,101,348	2,383,405,066	9,578,790	17,740,671	7,994,233,171	10,198,963,424
2005	5,145,987,430	2,695,287,998	6,882,812	14,536,016	8,836,853,027	11,975,448,971
2006	5,848,894,531	3,178,253,144	5,082,841	9,031,900	10,793,696,067	13,784,370,438
2007	6,384,033,197	3,209,558,491	1,070,938	0	12,838,997,782	15,035,468,305
2008	6,168,285,159	3,052,017,308	792,577	0	12,949,889,116	14,830,405,945
2009	4,409,728,690	2,051,039,162	262,210	0	10,235,595,660	11,435,984,200
2010	5,460,192,548	2,503,979,070	0	0	13,085,564,799	13,412,960,198
2011	5,269,143,087	3,170,051,483	0	0	12,902,159,758	14,641,945,454

Unit: thousand yen

Source: Ministry of Finance “Trade Statistics”

Appendix 3-2 Trade with NEA countries (continued)

	Mongolia		Russian Federation	
	Export	Import	Export	Import
1979	3,197,819	256,156	535,285,895	419,128,949
1980	1,036,592	283,344	628,748,217	423,634,761
1981	145,281	832,505	713,719,094	443,745,336
1982	451,505	1,993,089	967,851,775	412,263,523
1983	652,675	472,833	669,505,137	345,661,232
1984	379,626	2,462,883	596,073,453	329,491,948
1985	473,587	1,848,716	661,266,995	339,513,376
1986	469,696	1,181,727	537,601,929	336,223,394
1987	286,339	1,918,519	371,951,772	340,768,121
1988	544,705	3,368,126	401,470,176	355,246,795
1989	1,001,135	5,278,891	422,969,834	413,275,459
1990	2,113,150	2,591,617	370,985,189	482,886,122
1991	6,231,584	2,892,257	284,986,815	447,636,066
1992	4,747,372	5,378,649	135,981,942	304,677,099
1993	2,160,172	2,918,444	166,711,750	307,201,122
1994	2,519,806	5,849,802	120,221,978	355,333,419
1995	4,001,141	8,454,587	108,156,474	444,778,609
1996	6,485,505	9,710,399	111,353,045	428,364,873
1997	4,746,702	13,292,628	122,664,890	483,128,827
1998	6,135,585	8,131,052	127,568,866	377,679,595
1999	6,476,900	1,459,782	54,691,258	428,543,280
2000	3,069,017	1,039,341	61,404,370	493,790,838
2001	4,545,833	1,308,728	87,020,386	468,418,607
2002	3,863,840	926,952	118,161,993	409,814,809
2003	5,215,875	793,228	203,995,492	490,215,731
2004	8,004,080	892,157	337,268,051	617,302,441
2005	8,099,139	722,097	495,312,658	682,715,139
2006	12,350,481	977,667	821,361,291	774,446,452
2007	18,102,507	1,905,808	1,265,416,879	1,241,510,309
2008	23,838,317	3,752,660	1,714,282,235	1,389,310,355
2009	9,937,245	678,349	306,513,758	825,505,397
2010	13,971,383	2,009,397	702,744,989	1,412,029,929
2011	25,688,741	1,404,841	940,650,568	1,513,888,956

Unit: thousand yen

Source: Ministry of Finance "Trade Statistics"

Appendix 4-1 Freight Volume Transported to Ports in PRC by commodity (ton)

Code	2006	2007	2008	2009	2010
011	8,487	5,980	42	3,568	2,560
021	23	4,478	12,491	168	20,604
022	10,699	9,348	547	1,468	2,880
023	73,799	61,627	13,465	14,675	20,890
024	23,251	19,557	276	1,961	10,057
031	43,292	48,581	34,448	30,037	34,984
041	2,715	1,081	175,473	36,154	26,879
051	34,288	39,267	28,832	67,672	46,217
061	199	532	248	47	146
071	75,830	83,780	47,248	95,936	37,186
081	458,716	421,562	378,229	373,976	389,053
091	23,071	7,863	20,554	7,965	6,695
092	147,555	117,744	205,608	226,452	539,235
101	115,659	159,938	23,184	14,786	16,058
111	1,871	6,239	6,253	5,940	4,731
112	5,672	11,998	29,513	9,990	2,091
121	232	694	499	156	223
131	2,682	2,573	6,443	1,750	177
141	6,498	1,223	6,352	98	20,538
151	96,929	169,311	77,155	50,868	39,076
161	60,428	83,075	81,009	15,358	64,601
162	70,597	68,939	91,459	85,524	58,808
171	883	1,437	26	13	
181			8	18	
191	208,847	119,382	35,817	3,020	339,305
201		41	29	44	24
211	293,825	325,967	363,916	319,573	341,127
221	164,069	75,368	66,999	642,044	167,369
222	5,340,095	5,489,405	5,475,032	5,048,319	5,831,175
231	395,396	508,998	602,833	883,219	535,045
241	467,790	551,851	499,774	486,198	693,030
251	63,172	3,918	6,595	14,913	12,042
252	1,560,085	1,939,579	2,639,624	2,370,803	3,384,466
253	38,927	45,948	39,354	47,318	123,918
254	15,869	65,243	24,945	13,952	11,258
255	2,747,710	2,998,715	3,205,640	2,773,795	3,759,368
256	178,235	198,622	95,059	74,783	112,559
261	2,501,541	2,761,479	2,976,345	2,263,145	3,619,187
262	1,156,703	1,327,173	1,120,139	823,438	988,821
263	140,991	129,473	101,726	108,407	133,221
264	98,101	56,969	58,216	59,880	88,017
265	279,939	271,251	44,570	45,201	102,718
271	26,846	23,016	25,742	19,416	17,151
281	733,401	497,759	578,880	690,793	784,690
291	113,376	89,171	88,657	101,078	152,610
301	229,469	87,019	163,689	175,671	130,554
311	1,790,404	1,813,257	1,508,374	1,747,961	1,165,177
321	744,501	1,599,647	2,903,157	1,619,313	1,422,163
322	951	25	42	547	15
323	148,510	137,854	138,632	230,945	154,131
324	539,023	483,344	676,341	580,290	475,912
331	23,396	29,271	27,906	66,877	45,039
341	57,037	56,214	69,091	49,521	72,173
351	5,270,862	5,733,836	6,250,482	7,529,354	6,144,042
361	27,817	17,277	19,791	9,943	22,316

Code	2006	2007	2008	2009	2010
371	3,678,089	4,164,630	3,239,935	4,503,074	4,381,730
381	1,453,622	1,519,045	1,172,574	1,064,573	1,338,135
391	322,899	330,101	216,751	204,871	241,434
401	528,602	526,330	484,641	344,167	385,792
411	1,328	8,180	2,192	1,526	2,368
421	217,042	191,512	71,762	78,654	85,222
422	18,997	23,591	23,521	16,585	15,739
423	856	997	1,201	348	747
424	8,863	12,153	900	477	1,277
425	47,841	49,768	2,581	2,293	1,536
431	40,714	52,836	2,726	1,809	1,651
441	417,946	466,020	313,310	265,188	171,296
442	135,201	207,547	117,855	117,295	152,668
443	115,042	163,194	142,530	111,409	104,486
444	232,637	276,305	94,564	115,204	119,155
451	215,093	242,150	263,097	152,149	275,209
461	51,272	80,129	55,016	62,384	45,527
471	289,201	425,517	92,512	82,255	133,290
481	3,459,668	3,150,827	3,359,146	5,430,329	3,260,927
491	3,754,598	3,966,614	5,352,650	7,381,366	6,493,907
501	117,055	92,174	118,710	159,126	174,999
511	262	1,141		109	133
512				26	
521	390,530	395,601	401,500	313,459	412,353
531	975,911	1,042,790	718,161	468,735	618,344
541	64,067	69,421	45,446	70,912	67,427
	43,157,600	46,222,472	47,340,040	50,792,664	50,657,664

Note: Freights to/from Mongolia are included, but negligible.

For explanation of commodity codes, refer to the appendix 8.

Source: MLIT "Kowan Chosa (Survey on Port and Harbour)"

Appendix 4-2 Freight Volume Transported from Ports in PRC by commodity (ton)

Code	2006	2007	2008	2009	2010
011	95,092	166,543	36,575	13,287	4,246
021	41,950	36,633	18,732	48,180	26,510
022	533,447	751,310	111,493	81,706	124,941
023	502,503	530,776	269,669	261,063	284,297
024	130,964	279,287	216,605	103,081	83,400
031	1,903,339	1,569,862	1,282,852	1,260,717	1,544,319
041	16,492	25,115	20,792	13,699	13,305
051	476,641	519,995	753,144	807,378	826,142
061	6,415	7,235	3,841	6,227	5,426
071	389,006	331,112	177,692	197,204	212,327
081	959,495	848,805	873,439	764,431	885,476
091	26,884	42,796	25,773	21,345	20,301
092	338,036	306,836	203,792	260,016	231,216
101	103,485	111,234	15,494	7,897	13,009
111	587,297	116,199	6,047	15,156	7,630
112	145,497	151,976	70,414	61,375	48,182
121	73,176	59,938	72,393	69,571	59,645
131	20,489,277	15,110,593	13,470,436	5,862,681	6,462,388
141	462,549	427,776	75,990	89,851	137,609
151	196,852	578,445	427,158	220,500	375,259
161	2,802,172	646,175	103,738	230,790	145,137
162	1,561,183	1,474,647	1,381,353	1,230,766	1,246,952
171	840,755	402,198	965,352	668,692	603,176
181	214,322	216,931	199,185	69,194	95,184
191	32,838	36,280	24,221	8,227	17,004
201	88,679	90,156	82,644	81,959	98,152
211	3,393,061	3,349,638	3,533,240	2,357,802	3,341,674
221	1,743,736	1,394,113	1,200,903	565,506	1,097,286
222	686,208	794,879	731,649	418,781	781,514
231	1,116,967	988,995	946,327	618,002	953,534
241	1,940,524	2,206,759	2,248,425	2,057,549	2,260,875
251	15,814	7,850	9,078	7,684	7,740
252	83,075	121,016	114,415	107,664	171,115
253	117,160	127,303	232,320	114,445	156,016
254	203,336	257,166	202,053	140,720	175,044
255	1,133,930	1,484,673	1,512,735	1,070,379	1,477,641
256	1,533,691	1,973,356	1,773,991	1,647,989	1,641,554
261	1,845,972	2,625,641	2,818,446	2,108,352	2,487,802
262	4,021,407	4,197,799	4,638,580	4,657,989	5,880,421
263	478,644	448,005	362,771	371,631	449,375
264	256,728	269,596	267,872	264,021	291,138
265	318,340	324,339	68,080	74,319	91,329
271	420,459	419,955	376,562	399,038	434,339
281	23,356	23,806	31,333	28,130	23,152
291	416,132	480,817	506,650	306,735	415,613
301	993,246	1,003,678	1,142,576	778,994	785,005
311	27,419	57,970	20,382	137,510	22,571
321	1,100,819	1,114,325	677,487	632,060	876,156
322	26	4,466	20	246	4,565
323	3,301	1,794	48,251	16,923	3,008

Code	2006	2007	2008	2009	2010
324	47,618	35,107	38,920	33,563	68,285
331	1,222,329	1,758,636	1,525,911	499,387	773,532
341	253,192	348,557	151,798	61,318	75,434
351	1,834,001	1,916,060	2,138,480	1,674,202	2,214,667
361	474,556	441,426	338,044	258,512	416,206
371	1,546,904	1,645,617	1,623,889	1,680,088	1,977,099
381	322,061	332,752	462,959	763,015	742,076
391	251,697	281,689	243,176	174,537	227,687
401	500,731	591,017	398,523	418,129	524,670
411	36,818	49,073	13,272	8,462	10,512
421	2,964,530	2,877,024	2,595,014	2,569,164	2,912,866
422	189,944	226,939	186,499	182,219	210,987
423	1,969	38,057	48,792	52,164	40,390
424	1,456	1,494	3,231	4,111	5,917
425	199,462	203,939	54,332	97,007	109,093
431	519,649	555,301	444,434	604,923	632,344
441	10,863,484	11,092,846	12,753,583	13,323,677	13,497,149
442	895,980	1,124,008	945,797	1,000,267	1,225,825
443	4,566,792	5,209,462	5,599,322	5,838,141	6,557,303
444	1,691,216	1,791,821	1,526,540	1,545,092	1,774,653
451	454,094	489,327	413,334	305,779	444,836
461	1,454,595	1,476,202	1,276,436	1,077,591	1,293,161
471	668,567	821,548	535,836	615,708	590,132
481	258,410	199,995	113,575	120,037	141,696
491	41,659	41,145	37,748	30,578	29,673
501	631,438	1,026,075	825,869	1,307,604	1,112,912
511	17,135	34,106	26,536	7,811	1,709
512			130	193	202
521	1,020,771	1,182,075	1,478,951	1,446,429	1,725,658
531	1,579,062	1,302,351	1,189,483	1,043,847	1,294,670
541	171,204	50,211	94,220	100,299	68,279
	89,573,021	85,660,652	81,437,604	68,181,316	78,099,323

Note: Freight to/from Mongolia are included, but negligible.

For explanation of commodity codes, refer to the appendix 8.

Source: MLIT "Kowan Chosa (Survey on Port and Harbour)"

Appendix 5-1 Freight Volume Transported to Ports in ROK by commodity (ton)

Code	2006	2007	2008	2009	2010
011	67	1,339	328		3,036
021	297	1,460	23		13
022	2,407	4	10,383	1,442	1,794
023	1,522	2,651	12,404	2,260	24,430
024	2,661	4,809	13,039		9,406
031	19,476	33,944	28,430	47,854	32,039
041	190	967	392	423	340
051	24,865	25,923	53,856	16,511	51,695
061	128	306	513	94	270
071	49,754	76,375	77,643	73,920	96,055
081	397,038	450,837	273,630	317,284	285,685
091	1,737	10,559	16,497	8,491	9,719
092	100,755	213,938	220,302	116,344	35,562
101	9,690	7,479	4,401	2,567	4,759
111	5	151	22	1	
112	126	264	189	133	732
121		87	160	87	128
131	22,187	9,145	302	24	2,243
141	5,149	4,325	31	5	11
151	19,591	8,290	14,953	10,448	15,020
161	464,354	644,541	405,466	259,572	380,561
162	10,413	3,424	5,639	5,877	10,744
171		2,869		41,768	115,337
181	18,150		2	1	
191	585,984	615,438	696,261	435,447	793,724
201	11	109	17	47	40
211	1,116,440	1,201,568	1,361,873	1,083,894	1,056,484
221	1,369,293	1,647,624	1,504,530	1,497,137	1,644,369
222	6,571,288	7,566,069	6,567,194	7,490,641	7,012,360
231	188,567	161,418	170,179	145,726	173,231
241	195,523	250,548	237,399	202,578	234,656
251	1,178	1,572	974	2,511	3,955
252	441,902	511,378	899,442	532,179	631,797
253	59,659	102,430	53,917	27,429	28,130
254	73,305	57,792	64,217	12,347	12,247
255	653,295	619,602	639,102	421,223	608,779
256	52,988	82,764	65,650	33,940	101,156
261	1,286,685	1,253,105	1,226,079	798,815	1,071,972
262	400,139	304,688	309,022	211,072	318,905
263	179,378	170,654	135,128	119,894	168,005
264	25,351	25,143	23,940	19,641	21,504
265	54,976	56,900	31,156	39,078	46,846
271	20,326	18,938	13,485	8,847	10,369
281	1,805,651	2,013,570	1,780,701	881,942	986,963
291	294,903	455,498	424,746	117,434	399,486
301	187,793	142,410	269,801	298,844	373,569
311	429,551	615,608	184,000	200,852	346,606
321	1,193,490	1,578,204	1,071,545	986,138	989,235
322	2,962	143		9	789
323	162,657	105,183	96,067	117,373	139,550
324	57,944	80,615	101,340	64,806	91,845
331	115,172	155,361	63,021	130,608	62,080
341	12,405	5,936	975	54,606	14,293
351	3,548,185	3,355,209	3,201,933	3,298,872	3,620,325
361	38,641	37,996	43,284	47,634	43,464

Code	2006	2007	2008	2009	2010
371	996,527	1,087,998	1,026,992	980,821	1,356,215
381	440,114	540,038	489,315	384,927	551,653
391	78,788	88,650	63,113	40,099	63,167
401	69,460	57,017	47,697	32,734	39,665
411	7,119	13,288	6,211	7,770	13,348
421	65,516	87,946	98,905	90,671	90,055
422	11,907	19,176	36,201	28,722	27,056
423	382	3,458	1,490	386	688
424	9,923	12,792	12,991	17,383	10,278
425	4,481	2,714	5,246	4,891	3,643
431	4,326	9,018	5,873	6,096	6,145
441	100,641	113,058	103,048	108,381	102,098
442	63,276	75,608	52,876	41,279	58,611
443	97,685	118,638	79,933	58,718	67,409
444	107,336	134,374	107,846	106,444	94,639
451	339,894	304,699	374,891	349,541	318,307
461	21,694	12,470	16,648	20,022	20,859
471	63,775	65,880	39,707	35,081	39,499
481	3,082,883	3,257,254	2,472,698	3,611,356	3,515,825
491	683,483	550,018	564,617	489,887	551,301
501	82,340	175,629	216,225	110,756	165,055
511	156,196	161,935	138,593	154,812	128,390
512		374			
521	128,451	134,948	161,952	158,583	157,868
531	382,344	460,317	511,985	545,761	635,198
541	21,343	22,536	22,095	20,870	25,224
622	4,759	4,672	4,645	3,655	4,641
631	302	272	232	204	253
	29,301,149	32,211,937	29,037,608	27,596,520	30,133,403

For explanation of commodity codes, refer to the appendix 8.

Source: MLIT "Kowan Chosa (Survey on Port and Harbour)"

Appendix 5-2 Freight Volume Transported from Ports in ROK by commodity (ton)

Code	2006	2007	2008	2009	2010
011	20,558	29,461	34,409	26,767	33,365
021	528	905	1,185	983	1,370
022	827	30,256	28,399	5,709	7,664
023	43,235	31,914	56,949	65,788	64,294
024	2,212	5,923	4,973	6,393	5,062
031	123,936	105,263	90,273	82,818	109,093
041	18,891	13,657	8,028	4,065	5,834
051	276,075	280,945	215,358	180,543	176,592
061	384	1,750	650	1,190	984
071	79,793	78,012	84,320	61,118	66,885
081	431,745	404,367	412,609	374,584	398,020
091	82,767	71,520	90,487	69,468	78,424
092	514,101	446,539	422,601	341,936	311,735
101	22,680	11,867	12,832	13,723	18,525
111	98,406	31,671	876	847	4,673
112	4,432	3,941	1,264	4,530	2,684
121	34,993	28,433	18,558	16,094	11,908
131	519,016	365,824	1,725,191	1,588,209	2,177,971
141	165,692	136,453	53,899	132,980	83,994
151	171,336	238,116	203,959	72,156	71,711
161	38,406	13,049	31,849	38,732	77,417
162	62,265	55,793	60,586	44,268	94,216
171	315,399	595,303	738,992	657,585	796,176
181	1,000	62	2,829	1,458	2,395
191	666	626	1,455	475	11,129
201	72,190	98,783	28,750	35,508	53,631
211	453,970	449,858	527,519	344,858	413,455
221	602,131	451,490	468,667	248,306	444,354
222	2,138,536	2,327,528	2,247,236	1,482,248	2,147,058
231	316,929	336,298	375,678	217,907	279,114
241	483,354	546,148	627,464	395,233	695,772
251	2,072	1,048	731	920	276
252	500,658	450,437	460,236	325,027	421,721
253	96,009	36,113	26,020	2,458	4,097
254	2,661	5,966	6,644	3,175	3,248
255	305,009	338,228	466,337	216,271	321,172
256	114,886	109,274	54,947	84,314	143,665
261	677,503	645,621	620,908	397,610	498,850
262	656,985	555,197	396,370	265,208	373,377
263	96,361	85,245	141,860	79,021	66,100
264	33,060	37,597	25,771	20,184	20,273
265	54,807	52,184	21,586	16,674	18,670
271	12,035	15,474	16,960	15,843	20,121
281	811,662	778,817	694,988	602,253	432,505
291	149,350	153,827	105,560	62,047	98,734
301	193,459	182,992	184,124	118,807	142,991
311	674,027	628,596	714,992	261,617	523,660
321	6,446,211	4,144,813	3,749,273	3,814,839	4,974,609
322	296	4,857	16,828	2,398	2,380
323	74,483	64,820	107,494	51,450	64,547
324	228,182	226,073	229,373	348,863	301,278
331	92,288	99,852	171,922	79,520	28,147
341	5,441	9,714	9,211	3,346	10,368
351	1,718,148	2,202,083	1,766,628	1,662,565	1,970,725
361	160,052	140,050	202,025	153,777	173,108
371	928,523	982,644	1,025,299	852,587	1,065,580
381	264,480	204,849	194,955	277,627	260,444

Code	2006	2007	2008	2009	2010
391	218,416	181,581	135,336	87,994	113,282
401	132,057	124,865	121,573	70,396	89,926
411	54,452	32,830	32,336	102,601	41,243
421	480,256	493,223	479,946	491,643	621,039
422	193,899	215,473	241,229	264,545	374,698
423	30,928	47,536	53,153	21,684	53,135
424	1,819	6,172	435	2,088	2,966
425	126,390	67,839	42,762	36,831	50,748
431	12,239	12,278	8,647	8,338	9,559
441	359,136	284,095	248,455	187,231	309,810
442	201,561	152,198	130,150	118,163	134,985
443	527,166	523,872	358,739	319,358	329,022
444	464,694	412,171	353,502	347,129	312,659
451	183,247	195,659	189,536	142,558	199,850
461	248,997	214,734	205,808	212,743	198,105
471	140,789	159,219	93,541	117,803	157,366
481	225,429	192,051	281,175	175,247	285,162
491	30,290	39,631	43,694	31,203	46,971
501	617,377	471,664	465,002	446,178	520,835
511	1,682	386	191		235
512		110	162	202	
521	368,291	292,889	297,573	338,266	353,809
531	728,129	866,486	847,136	712,832	804,064
541	75,629	57,903	53,833	44,874	65,914
622	5,164	5,036	4,798	3,702	5,032
631	312	276	216	207	255
	26,823,450	24,398,303	24,677,815	20,518,696	25,666,821

For explanation of commodity codes, refer to the appendix 8.

Source: MLIT "Kowan Chosa (Survey on Port and Harbour)"

Appendix 6-1 Freight Volume Transported to Russian Ports by commodity (ton)

Japan-Russia	2006	2007	2008	2009	2010
011					
021	14		66	26	50
022					
023				42	
024					
031	1,980	2,137	761	5,197	1,931
041					
051	266	210	71	72	115
061					
071	3,649	33,884	99,004	34,368	56,178
081	10,219	12,169	13,856	35,803	61,649
091	6,525			2,131	5,431
092	12		2,423	36	193
101					
111					
112	5			3	
121					
131	13,650				
141					
151			70		
161	36		1		
162	1	8		3	
171					23,429
181					1
191					
201			34		
211	1,334	21	13,489	30,291	60,022
221	5,261	2,828	110	169	5,091
222	63,382	94,170	82,567	25,495	113,777
231	6,086	2,668	4,078	3,737	15,010
241	3,609	14,270	25,306	5,470	61,816
251	13	30	61	17	2
252	4,423,908	4,972,953	5,906,933	745,215	1,498,257
253	34,853	49,125	54,908	5,218	18,952
254	19,343	25,783	27,394	12,098	18,596
255	77,525	102,210	189,823	168,460	419,873
256	45,153	4,459	6,240	3,773	21,918
261	294,279	481,486	510,603	103,020	175,480
262	5,528	6,250	11,438	5,652	11,021
263	757	786	1,857	357	1,466
264	206	26	8	1	130
265	16,284	7,410	20,645	265	3,827
271	7	161	31	411	91
281	13,281	952	36,544	3,831	5,255
291	172	159	1,121	75	266
301	29,264	4,839	89,791	22,380	7,622
311		7,234			
321	3,200	15,659	11,763	3,147	5,754
322			53,930		
323					
324			41	46	23,694
331	4,000	4,000	2,000	7,220	
341	16,200	10,022	13,024	6,350	11,800
351	4,158	7,635	8,028	5,375	9,562
361		6,000	2,550		
371	14,268	13,151	21,688	13,798	30,109

Japan-Russia	2006	2007	2008	2009	2010
381	2,420	1,879	5,705	2,575	2,925
391	264	543	2,887	1,956	7,373
401	948	550	2,799	638	3,039
411	53		58		
421	2,723	2,383	5,556	3,211	4,249
422	2,572	4,406	7,316	4,410	5,670
423	15		15		
424		486	410	1,202	705
425	18	3	111	38	37
431	24	27	166	60	259
441	2,563	7,669	14,440	4,382	6,499
442	1,122	1,591	719	140	691
443	1,087	2,835	3,489	1,565	3,909
444	1,763	3,531	3,518	5,812	19,087
451	56,312	67,408	68,102	78,279	94,456
461	217	706	973	2,685	2,780
471	2,691	3,568	6,551	20,922	35,140
481	87	9,097	2,320	7,988	4,699
491	37,364	49,185	38,985	2,056	3,988
501			151	34	445
511		42,000	17,500	12,000	
512					
521	3,661	3,415	10,431	5,072	2,901
531	2,482	2,918	14,821	1,864	4,427
541	52	51	38	2,372	2,443
	5,236,866	6,086,946	7,419,318	1,408,813	2,874,090

For explanation of commodity codes, refer to the appendix 8.

Source: MLIT "Kowan Chosa (Survey on Port and Harbour)"

Appendix 6-2 Freight Volume Transported from Russian Ports by commodity (ton)

Code	2006	2007	2008	2009	2010
011		28,280	6,997	63,460	39,128
021	33			1	
022			3,300		8,993
023		6	28		
024	1,769			690	
031	2,053	1,548	1,966	1,425	2,526
041					
051	42	208	2,135	35	368
061					
071		33	72	139	
081	146,296	129,393	116,956	108,683	95,293
091	4,970,387	4,038,747	1,790,616	610,606	435,399
092	805,475	724,324	545,170	587,210	604,759
101			26	840	2,056
111	72,125	47,184	84,738	48,740	34,232
112					
121	2	25,190	25,996		13,885
131	8,997,260	11,421,766	10,317,717	8,446,964	11,210,831
141					39,978
151	7,094	86,467	70,880	5,036	9,066
161	2,133	6,836	4,887		4,165
162	16,391				
171	1,655,764	6,247,831	6,427,242	7,869,581	11,957,884
181				56,900	5,792
191				5,333	2,500
201	18,956				38
211	14,968	8,739	5,999	26,378	3,717
221	187,431	181,734	276,890	98,935	164,657
222	7,023	2,204	19,122	6,203	23,298
231	464,616	536,709	531,175	323,390	389,206
241	4,200	4,304	16,903	758	60,482
251	140				
252	10,805	17,252	5,478	279	2,878
253	180	6,620		2	
254		38	27	41	8
255	51	439	374	383	858
256	1	5	50	47	3,208
261	5,967	4,155	3,560	1,122	7,022
262	1,439	261	1	6	15
263					
264					
265	18		374	17	
271					
281	1,366	1,008	605		41
291					
301	317	1,259	144	2	28
311		313,196	176,094	289,479	526,090
321	915,295	842,412	1,361,463	612,898	1,366,429
322				6,293,197	11,920,304
323					
324					
331	7,904	16,292	27,993	31,905	127,521
341					6,655
351	51,172	62,015	65,105	194,428	26,228
361	81,284	89,226	81,404	22,241	67,804
371	1,128	3,141	805	3,899	6,653
381	60,065	75,441	75,909	48,239	84,672

Code	2006	2007	2008	2009	2010
391		25	65	28	36
401	49	371	1,749	377	134
411					
421	212	219	41	122	898
422	50	60	104	106	68
423			8	7	
424					
425					
431		680			
441	385	230	11	7	2,010
442	45	209	363	890	177
443	663	547	129	182	198
444	163	755	46	555	350
451	56	46		465	481
461	20,052	10,272	8,727	72,312	129,908
471	316	343	38	85	88
481	4,514	141,929	54,542	10,329	768
491		3,345		54	278
501	6,317	7,934	10,278	6,299	3,270
511					
512					
521	343	933	1,173	2,332	10,934
531	233	487	5,164	1,091	799
541				1	
	18,544,548	25,092,648	22,130,639	25,854,734	39,405,064

For explanation of commodity codes, refer to the appendix 8.

Source: MLIT "Kowan Chosa (Survey on Port and Harbour)"

Appendix 7-1 Freight Volume Transported to Ports in DPRK by commodity (ton)

Code	2006	2007	2008	2009	2010
011					
021					
022					
023					
024					
031	7				
041					
051	2				
061					
071					
081	25		1,364		
091					
092					
101					
111					
112					
121					
131					
141					
151					
161					
162					
171					
181					
191					
201					
211					
221			3,088		
222	5,105	1,475			2,080
231	90				
241	105				
251					
252	114,967	2,880			
253	46				
254	59				
255	32				
256	10	11,248	3,450		
261	3,571				
262	212	1,183	327		
263	21				
264	1				
265					
271					
281					
291	31				
301					
311					
321	22				
322					
323					
324					
331					
341					
351	2,458	164		2,102	
361					
371	962				18
381	7	1,883			

Code	2006	2007	2008	2009	2010
391	2				
401	317				
411					
421	124				
422	42				
423					
424					
425					
431					
441	40	3	5		
442	11				
443	171				
444	8				
451	1,999	10	51		
461	36				
471	142				
481	1,408				
491	6,318				
501	309				
511					
512					
521	192				
531	433		35		
541					
	139,285	18,846	8,320	2,102	2,098

For explanation of commodity codes, refer to the appendix 8.

Source: MLIT "Kowan Chosa (Survey on Port and Harbour)"

Appendix 7-2 Freight Volume Transported from Ports in DPRK by commodity (ton)

DPRK-Japan	2006	2007	2008	2009	2010
011					
021					
022					
023					
024					
031	219		59		
041					
051	18		143,954		
061					
071					
081	8,014				
091					
092	458				
101					
111					
112					
121					
131	207,412				2,000
141					
151	5,446		542		
161					
162	604				
171					
181					
191					
201					
211	13,477				
221	5,109		323		
222	2,180	317			
231	5,511				
241	3				
251					
252					
253					
254					
255					
256			1,518		
261					
262	374		294		
263					
264					
265					
271					
281					
291					
301	835				
311					
321	52,906	4,430			
322					
323					
324					
331			2,999		
341					
351	2,007		615		450
361	801				1,501
371					

DPRK-Japan	2006	2007	2008	2009	2010
381					
391					
401	22				
411					
421	15				
422	11				
423					
424					
425					
431					
441	236		60		
442	2				
443			59		
444	339		136		
451					3
461	4,795				
471			118		
481					
491					
501			1,080		
511					
512					
521					
531	402				
541			59		
	311,196	4,747	151,816	0	3,954

For explanation of commodity codes, refer to the appendix 8.

Source: MLIT "Kowan Chosa (Survey on Port and Harbour)"

Appendix 8 Commodity Code in the Survey on Ports and Harbours (MLIT)

Agricultural, Stock Farm and Aquatic Products	
011	Wheat
021	Rice
022	Corn
023	Beans and Peas
024	Other Cereals
031	Fresh Vegetables and Fruits
041	Raw Cotton
051	Other Agricultural Products
061	Wool
071	Meat and Livestock Products
081	Fish and Aquatic Products
Forest Products	
091	Logs
092	Lumber
101	Natural Rubber
111	Woodchips
112	Other Forest Products
121	Firewood and Charcoal
Mineral Products	
131	Coal
141	Iron Ore
151	Metalliferous Ore
161	Gravel and Sand
162	Stone
171	Crude Oil
181	Mineral Phosphate
191	Limestone
201	Raw Salt
211	Nonmetallic Minerals
Metals and Machinery	
221	Pig Iron and Steel
222	Steel Materials
231	Nonferrous Metals
241	Metallic Products
251	Railway Vehicles
252	Finished Automobile
253	Other Working Vehicles
254	Motorcycles
255	Automobile Parts
256	Other Transportation Machinery
261	Industrial Machinery
262	Electric Machinery
263	Measuring, Optical and Medical Machinery
264	Business Machinery
265	Other Machinery
Chemical Industrial Products	
271	Ceramic Ware
281	Cement
291	Glass Products
301	Ceramic Products
311	Heavy Fuel Oil

321	Petroleum Products
322	Liquefied Natural Gas
323	Liquefied Petroleum Gas
324	Other Petroleum Products
331	Coke
341	Coal Products
351	Chemicals
361	Chemical Fertilizers
371	Chemical Base Products
Light Industrial Products	
381	Paper and Pulp
391	Yarn
401	Fabrics
411	Sugar
421	Processed Foodstuffs(including Dairy Products)
422	Beverages
423	Water
424	Cigarette
425	Other Foodstuffs
Miscellaneous Industrial Products	
431	Toys
441	Clothes, Accessories and Footwear
442	Stationery, Sporting goods, and Musical Instruments
443	Furniture and Household Goods
444	Other Daily Necessities
451	Rubber Products
461	Wooden Materials
471	Other Manufacturing Industrial Products
Other Items	
481	Metal Scraps
491	Recyclable Materials
501	Animal and Vegetable Feed and Manure
511	Discarded Materials
512	Discarded Sands
521	Transportation Containers
531	Mixed Lots
Unclassifiable Goods	
541	Unclassifiable Goods

Source: MLIT "Kowan Chosa (Survey on Port and Harbour)"

Appendix 9 Ranking of Container Ports in Japan (2010)

Rank	Port	TEU (Loaded only)	Rank	Port	Freight (ton)
1	Tokyo	3,031,184	1	Yokohama	49,026,620
2	Yokohama	2,510,975	2	Nagoya	44,533,108
3	Nagoya	2,020,011	3	Tokyo	42,830,594
4	Kobe	1,742,062	4	Kobe	34,804,430
5	Osaka	1,467,729	5	Osaka	30,256,273
6	Hakata	541,343	6	Hakata	12,796,918
7	Shimizu	338,230	7	Kitakyushu	6,855,823
8	Kitakyushu	330,536	8	Shimizu	5,019,229
9	Yokkaichi	151,166	9	Yokkaichi	3,241,151
10	Tomakomai	131,480	10	Niigata	2,566,378
11	Hiroshima	124,396	11	Tomakomai	2,116,686
12	Niigata	120,512	12	Sendai	2,020,415
13	Sendai	92,510	13	Hiroshima	1,637,818
14	Mizushima	78,116	14	Mizushima	1,401,033
15	Naha	59,690	15	Shimonoseki	1,136,249
16	Shimonoseki	55,256	16	Naha	1,058,117
17	Tokuyama-Kudamatsu	54,411	17	Fushiki-Toyama	897,701
18	Fukuyama	53,630	18	Tokuyama-Kudamatsu	828,991
19	Shibushi	47,833	19	Kanazawa	665,421
20	Fushiki-Toyama	47,407	20	Hachinohe	629,488
21	Akita	34,196	21	Fukuyama	483,786
22	Kanazawa	32,353	22	Chiba	420,099
23	Mitajiri-Nakanoseki	29,274	23	Imari	403,620
24	Imari	28,335	24	Akita	390,578
25	Chiba	27,598	25	Iwakuni	380,529
26	Mishima-Kawanoe	25,488	26	Matsuyama	320,451
27	Mikawa	24,258	27	Shibushi	300,233
28	Iwakuni	23,658	28	Mishima-Kawanoe	290,099
29	Takamatsu	22,373	29	Omaezaki	286,936
30	Matsuyama	22,249	30	Kochi	270,692
31	Hachinohe	21,513	31	Mikawa	243,812
32	Ishikariwan-New	19,537	32	Naoetsu	235,299
33	O'ita	18,663	33	Mitajiri-Nakanoseki	223,287
34	Sakai	17,774	34	Sakai	216,545
35	Naoetsu	17,360	35	Tsuruga	204,066
36	Hosojima	16,345	36	Otaru	203,822
37	Tsuruga	15,319	37	Hosojima	184,404
38	Kawasaki	13,086	38	Kawasaki	166,323
39	Imabari	12,295	39	Ishikariwan-New	154,188
40	Onahama	11,881	40	Imabari	153,137
41	Sakai-Semboku	11,112	41	Onahama	152,476
42	Omaezaki	10,849	42	O'ita	136,266
43	Tokushima-Komatsujima	9,014	43	Kushiro	109,145
44	Otaru	8,938	44	Yatsushiro	101,808
45	Hitachinaka	7,689	45	Tokushima-Komatsujima	89,529
46	Kushiro	7,543	46	Hitachinaka	86,473
47	Yatsushiro	7,168	47	Kochi	80,851
48	Kochi	6,469	48	Maizuru	79,724
49	Sendai	5,999	49	Sakata	75,419
50	Sakata	5,486	50	Wakayama-Shimotsu	73,944
51	Miike	4,594	51	Muroran	57,409
52	Aburatsu	4,502	52	Sakai-Semboku	55,394
53	Maizuru	4,103	53	Aburatsu	53,208
54	Muroran	3,437	54	Sendai	46,736
55	Wakayama-Shimotsu	3,414	55	O'take	43,949
56	O'take	2,873	56	Kumamoto	41,195

Rank	Port	TEU (Loaded only)	Rank	Port	Freight (ton)
57	Nagasaki	2,713	57	Ube	36,496
58	Hakodate	2,279	58	Hamada	30,479
59	Hamada	2,216	59	Hakodate	29,202
60	Kumamoto	2,178	60	O'funato	24,650
61	Ube	2,025	61	Miike	21,512
62	O'funato	1,860	62	Nagasaki	19,888
63	Kure	315	63	Kure	3,233
Total		13,548,808	Total	Total	251,303,335

Source: Port and Harbour Modernization Promotion Council of Japan

Appendix 10 Number of Entries and Exits of Foreign National Citizens (2010)

	Entry				Exit			
	PRC	ROK	DPRK	Russia	PRC	ROK	DPRK	Russia
Shin-Chitose A.P.	31,123	88,982	45	3,531	30,074	88,997	51	3,547
Sendai A.P.	11,161	21,693	38	35	10,089	28,467	37	33
Niigata A.P.	13,348	7,218	28	5,607	12,928	8,380	27	5,249
Ibaragi A.P.	7,325	14,896	2	-	7,781	12,381	2	1
Haneda A.P.	134,697	399,097	726	672	125,426	399,956	700	628
Narita A.P.	720,177	512,856	1,563	34,958	740,861	516,281	1,626	34,735
Fujisan-Shizuoka A.P.	5,833	54,317	4	9	6,464	51,576	4	11
Chubu A.P.	115,396	102,515	378	556	114,736	100,038	364	566
Komatsu A.P.	4,025	12,549	7	14	3,451	9,837	7	11
Toyama A.P.	7,581	8,807	1	599	7,559	8,202	-	643
Kansai A.P.	407,803	536,497	1,064	2,228	396,082	516,079	1,043	2,330
Osaka	6,289	48,812	6	5	4,307	51,384	6	5
Kobe	4,618	30	1	1	7,436	1,447	2	11
Sakai	2	10,705	-	1,376	8	10,410	1	1,361
Yonago A.P.	22	6,868	9	5	108	6,506	9	9
Okayama A.P.	11,367	8,554	53	134	9,877	8,255	47	152
Hiroshima A.P.	16,764	8,290	53	93	17,507	8,003	53	92
Shimonoseki	4,139	103,116	9	7	5,428	102,748	10	3
Fukuoka A.P.	63,109	265,887	310	773	54,918	282,885	309	753
Hakata	51,837	211,165	102	46	46,866	212,555	109	149
Izuhara	2	40,816	-	-	3	24,429	1	-
Hitakatsu	1	17,745	-	-	-	33,856	-	-
Moji	13	30,444	1	-	12	29,287	1	1
Kitakyushu A.P.	144	19,139	17	5	139	20,881	18	6
Kagoshima	11,355	2,846	-	80	14,866	3,154	-	11
Kagoshima A.P.	1,880	13,389	1	3	1,810	12,734	1	5
Naha A.P.	9,854	15,367	1	32	9,906	15,145	1	16
Others	21,357	124,267	27	3,935	22,662	120,750	28	4,106
Total	1,661,222	2,686,867	4,446	54,704	1,651,304	2,684,623	4,457	54,434

Unit: person; Source: Ministry of Justice of Japan "Immigration Control Statistics"