

railway sections were completed⁴.

UNESCAP makes efforts to promote and improve the corridors in Northeast and Central Asia through the project "Operationalization of international intermodal transport corridors in North-East and Central Asia"⁵. The project aims at assisting to the member countries in prioritisation of international transport corridors for development and facilitating in establishment of multilateral mechanisms for their operationalization.

Similarly, the objective of the GTI Corridors Study is to "foster the development of a reliable, cost-effective and efficient integrated transport network in the GTR through planning and facilitating the activation and development of international transport corridors in the region"⁶. The objective determined the direction of research: analysis of current traffic along the corridors, review of major infrastructural and non physical constraints, projections of future traffic along the corridors and recommendations on removing the bottlenecks identified and on promotion of the transportation corridors. The main outcomes of the project thus are the detailed analysis of the current state of the NEA transport corridors and draft Regional Transport Strategy and Action Plan with list of projects and measures to develop and promote the integrated, functional network of transportation corridors successfully serving for export, import and transit in the Northeast Asia.

Geographically, the research focus was on the Greater Tumen Region (GTR), region under the cooperation mandate of GTI: China's Northeast, East of Mongolia, East of ROK and Primorsky Territory of Russia (Figure 1). To ensure relevancy and reliability of the Study results, the overall coverage was extended to include the sea segments of the corridors with western ports of Japan and exit points of the corridors outside the GTR.

The transport corridors studied are the selected ones from Northeast Asia Transport Corridors Vision presented in 2001⁷. Six of the nine developed corridors were included into the analysis (Figure 1): Siberian Land Bridge, Suifenhe Corridor, Tumen Corridor, Dalian Corridor, Korean East and Korean West Corridors. To fully reflect the current and future needs of the region, modifications were made to the routing of the Tumen Transport Corridor. At its' west end, the corridor has two branches, one to Trans-Siberian Railway via Ereentsav - Solovievsk, one to trans-Mongolia

railway. Based on the development plans for railway network in Mongolia, railway and road segments are different at Mongolian territory.

The conformity of research depth and breath to the objective and project scope was ensured by joint team work of 6 outstanding transportation experts from China, Mongolia, Japan, ROK, Russia and Canada⁸. Experts from Northeast Asia contributed by producing detailed individual country reports on the relevant corridors' segments. International expert contributed analysis of experience in corridors development in other regions (Greater Mekong Subregion, Central Asia Regional Economic Cooperation, Maputo Development Corridor, Indonesia Malaysia Thailand - Growth Triangle, etc) as well as by summary of the findings into the regional report⁹.

Based on the regional report, the following project conclusions are drawn in regards the limitations and constraint to the traffic along the NEA corridors, prospects for the corridors development and the development road map.

Limitations and constraints for the traffic along the corridors are caused by both problems in their hard and soft infrastructure.

Physical constraints exist at all elements of the transportation corridors: missing road/rail links, break-of-gauges, missing bridges, sections with poor conditions or congested, insufficient BCPs capacities, lack of inland container and inland clearance depots, handling areas and facilities.

1. Along the Tumen Corridor, East-West rail link from Chinese border to trans-Mongolian railway is missing, while the link to Trans-Siberian Railway from Choibalsan requires upgrade. Therefore the whole corridor for moving Mongolian coal to the wide NEA market does not exist. Farther to the East, the rail link Hunchun-Makhalino is still non-operational impeding the potential transit traffic through Zarubino port and making the Tumen Corridor (Primorye-2 in Russian) non-functional. BCP at Arxan/Sumber (Nomrog) at China-Mongolia border has not been open, BCP Kraskino at Russian side of China-Russia border requires capacity increase.

Road section of the Tumen Corridor in Mongolia is in poor condition, basically, there is no road at the

⁴ Brief: Transport Sector // CAREC official web-site. <http://www.carecprogram.org/uploads/docs/CAREC-Sector-Briefs/CAREC-Brief-Transport-Sector.pdf>. Accessed 25 February 2013.

⁵ Detailed project information available at UNESCAP web-site: <http://www.unescap.org/tdw/common/TIS/CorridorStudy/Corridor.asp>. Accessed 26 February 2013

⁶ Terms of Reference. Integrated Transport Infrastructure and Cross-Border Facilitation Study for the Trans-GTR Transport Corridors. 19 October 2011. GTI Secretariat.

⁷ *Vision for the Northeast Asia Transportation Corridors*. Northeast Asia Economic Conference Organizing Committee, Transportation Subcommittee. ERINA booklet. 2002. Available at <http://www.erin.or.jp/en/Research/db/pdf2001/01010e.pdf>. Assessed on 26 February 2013.

⁸ Project team included: International Consultant Mr. Jean-François GAUTRIN, National Consultant China Ms. Meizhen GAO, National Consultant Japan Mr. Hirofumi ARAI, National Consultant Mongolia Mr. Gotov DUGERJAV, National Consultant ROK Mr. Hee-Seung NA, National Consultant Russia Mr. Mikhail KHOLOSHA.

⁹ Total of 6 reports: Individual Country Report China, Individual Country Report Mongolia, Individual Country Report Russia, Individual Country Report ROK, Individual Country Report Japan, and Regional Summary Report.

Table 1. GTR Freight flows at BCPs and Ports¹⁰
(in thousand tons)

BCP/Port	2010			2020		
	Road/port	Rail	Total	Road/port	Rail	Total
Tumen Corridor						
Nomrog/Arxan (a)	0	0	0	10	15,200	15,210
Kraskino/Gvodezvo/Hunchun (b)	93	0	93	360	2,415	2,775
Quanhe(Hunchun)/DPRK (c)	200	0	200	360		360
Subtotal	293	0	293	730	17,615	18,345
Zarubino Port (d)	337		337	3,165		3,165
Suifenh e Corridor						
Zabaykalsk/Manzhouli (e)	403	21,358	21,761	710	30,740	31,450
Pogranichny/Suifenh e (f)	514	6,956	7,470	732	8,780	9,512
Subtotal	917	28,314	29,231	1,442	39,520	40,962
Siberian Land Bridge Corridor						
Solovievsk/Ereentsav (g)	1	37	38	4	565	569
Dalian Corridor						
Blagoveshchensk/Heihe (h)	178		178	419		419
Korea Peninsula East Corridor						
Khasan/Tumangang (i)		131	131		5,400	5,400
Grand Total	1,726	28,482	30,208	5,760	63,100	68,860
Grand Total Land Corridors	1,389	28,482	29,871	2,595	63,100	65,695

Note: numbers for Zarubino traffic are under "road"; ICRR: Individual country report Russia; ICRC: Individual country report China

(a) 15.2 million ton of coal from Mongolia (10.6 China, 2.3 ROK, 2.3 Japan);

(b) 2010: ICRR; 2020: 10% of 300,000 TEUs by road, rest by rail; 50% non containerized on corridor with 30% by road, 70% by rail;

(c) 2010: ICRR; 2020, 6% growth;

(d) 2010: ICRR; 2020: Export, Import 10% growth, transit in & out 100,000 TEU equal share

(e) 2010: ICRR for road & rail; 2020: ICRR optimistic

(f) 2010: ICRR; 2020: road 6% growth, rail export optimistic, import conservative ICRR

(g) 2010: ICRR; 2020: Export ICRR optimistic; import conservative + 0.5 million ton of Mongolian coal;

(h) 2010: ICRR; 2020: ICRR optimistic;

(i) 2010: ICRR; 2020: ICRR optimistic.

last section Tamsagbulag and the border with China at Nomrog.

Zarubino port capacity and facilities are another limitation for the corridor development with absence of specialized container terminal and equipment not suitable for heavy 20 feet containers or 40 feet containers. Port Posiet, located in the vicinity is coal dedicated port with serious constraints for expansion and unlikely to serve transit traffic along the corridors.

2. Siberian Land Bridge suffers from heavy congestion of Trans-Siberian Railway at Primorsky Territory, Zabaykalsky Territory, Amurskaya Oblast.
3. Dalian corridor is ending at Heihe due to the absence of bridge over Amur river that make the link Heihe - Blagoveshchensk inadequate. Once the issue is resolved, Dalian corridor might generate new traffic between Far East of Russia and Chinese Northeast.
4. Korean East and Korean West Corridor could become functional after the road and railway

connection are fully restored between ROK and DPRK. Reconnected, DPRK railway system would require modernisation: electrification, double tracking, communication and signalling.

Non physical limitations are threefold:

1. First group of limitations manifest in non-existent or miniscule transit trade along the corridors. Situation is caused by absence of general or comprehensive transit agreements between the countries involved (GTI member countries) and aggravated by the treatment of transit by the Customs officers.
2. Restrictions for foreign road transport, mainly trucks, to enter countries.
3. Low level of adoption of electronic systems at border crossing posts along the corridors, even if countries do implement single window systems in general. Due to the remote position of the posts within the member countries, their BCPs on the trans-GTR corridors lack modern equipment.

¹⁰ Prepared by Dr J-F.Gautrin GTI Integrated Transport Infrastructure and Cross-Border Facilitation Study for the trans-GTR Transport Corridors. Regional Summary Report. 2013. P.19

Presently, the **traffic along the six corridors** is mainly domestic with a small portion of regional trade. Dalian corridor serves dominantly domestic traffic in Chinese Northeast; Siberian Land Bridge is domestic Russian corridor. Priority corridors for regional trade are Tumen and Suifenhe Corridors, the second one is currently handling the most of regional freight traffic (Table 1).

Prospects of the corridors depend on GTI member countries' advance in creating integrated, fully connected transport network and favorable regulatory environment. More missing links closed, better cross-border procedures mean higher trade volumes moving through BCPs of the six corridors.

Table 1 presents **estimates of possible freight traffic 2020** under the assumptions that custom procedures are improved through GTR, all rail and road links along the six corridors are completed, ROK and DPRK relationships allow to run freight trains along the Korean East and West corridors, transit traffic on Tran-Siberian Railways increased, container feeder ships serve trade flow between Japan - Northeast China.

Figures in the table illustrate the current situation when due to not functional railways throughout the Tumen Corridor, it is incapable to be regional trade corridor. For 2020, a scenario when the fully completed Tumen corridor carries Mongolian coal to NEA consumers and serves the container traffic between Northeast China and Japan and beyond is analysed. For Suifenhe corridor, presently the main regional corridor, preserved trade pattern and growing trade volume are assumed. Increased volume of Mongolian coal would push higher volume of transit along the Siberian Land Bridge. Forecast for Dalian corridor still does not take in consideration the construction of Amur Bridge, however, once the rail bridge will connect Heihe and Blagoveshchensk the trade volume along the corridor may grow to higher level. Progress for both Korean corridors depend on opening of DPRK railway system and progress achieved with connection between port Rajin and Primorsky Territory railways. Forecast for Korean East corridor connection to Russia is made based on the assumption of Russian coal exports to DPRK.

Both current and forecasted figures are based on the data provided by the regional consultants for the national segments of the corridors and BCPs, ports. The figures were harmonised on bilateral basis taking in consideration prospective regional flows (for instance, increased coal production in Mongolia and respective exports to Northeast

China and Japan by Tumen Corridor; by 2020 the total movement of coal by railway in Mongolia would reach 66 million ton¹¹). Nonetheless the opinions on the prospective figures differ based on experts' understanding of the possible level of improvements, timeframe needed for operationalization, etc. Zarubino port (Primorsky Territory of Russia) and estimates of its potential are the most prominent example: some experts argue that in situation of fully functional NEA transportation system and high level of custom facilitation for transit up to 30 to 40 million tons per year possible at the port in 2030¹². There is the second opinion about Korean East Corridor's Rajin - Khasan section where rail freight traffic 2020 is estimated in 8.3 million tons¹³.

In order to grasp the opportunities in serving regional trade flows, the following **strategic directions**¹⁴ of transport policy cooperation under the GTI framework along with the an Action Plan and an investment programme are suggested by the Study:

1. Connectivity: "In order to achieve economic growth and sustainable development throughout the GTR, GTI member countries need to increase connectivity among each other in a spirit of ensuring "win-win" situations for all".
Action Plan and investment program propose construction of two bridges between China and Russia: Heihe-Blagoveshchensk, Tongjiang-Nizhneleninskoye.
2. Support to Transport Infrastructure Improvements: "efficient and effective transport and trade facilitation infrastructures have to be put in place along transport corridors to provide for a seamless movement of people and goods across borders". The measures are to include modernisation, increase of capacity of existing road, rail sections, ports, completing the connections to the border crossings, improvement of BCPs, creating infrastructure to facilitate custom clearance and freight logistics (Inland Container Depot, Rail Container Yard, Logistic Centre).
For instance, to reach the objectives of this strategic direction, reconstruction of Hunchun - Makhhalino railway, expansion of Zarubino port, rail and road connections in Easter Mongolia and number of other projects are suggested by the Action Plan.
3. Software Support to Transport Corridor Functioning: "Transport Corridors to function properly need, in addition to good infrastructures, to be supported by a series of effective border crossing regulations and procedures covered in part through

¹¹ GTI Integrated Transport Infrastructure and Cross-Border Facilitation Study for the trans-GTR Transport Corridors. Individual Country Report Mongolia. 2013. Prepared by Gotov Dugerjav.

¹² Survey on Zarubino Port Cargo Turnover Outlook: Summary Report. GTI, 2010, GTI Integrated Transport Infrastructure and Cross-Border Facilitation Study for the trans-GTR Transport Corridors. Individual Country Report Russia. 2013. Prepared by Mikhail Kholosha.

¹³ GTI Integrated Transport Infrastructure and Cross-Border Facilitation Study for the trans-GTR Transport Corridors. Individual Country Report ROK. 2013. Prepared by Na Hee-Seung.

¹⁴ The directions are as formulated by Dr J-F.Gautrin in the GTI Integrated Transport Infrastructure and Cross-Border Facilitation Study for the trans-GTR Transport Corridors. Regional Summary Report. 2013. P.32-34. The Draft Regional Transport Strategy is submitted to the member countries consideration and will be discussed within 2013.

inter-states agreements".

Under the direction, Action Plan includes measures for custom harmonisation, introduction of risk management, advance in introduction of the Single Window, customs treatment of transit should be covered. The direction is also addresses other impediment for transit movements - lack of regional transit agreements - by strongly recommending development of "fully operational inter-state transport and transit agreements signed by all GTI country partners".

4. Management of Transport Corridors: Success in development of transport corridors is highly dependent on a strong management structure. For trans-GTR corridors, a management structure of three layers might be recommended. "The upper layer consists in having national/regional organizations coordinating activities along corridors; the second layer consists in managing sub-corridors to ensure project implementation, with

the third level consisting of management tools for monitoring the performance of transport corridors".

5. Private Sector Involvement: private sector to be involved "as much as possible in all aspects of development of the transport corridors: project identification and planning, financing, operation, monitoring, etc."

Information gathered by the Study team and conclusions drawn show the need and justify both regional and each member country measures to develop the transport network in GTI by completing the absent segments of roads, railways, improving logistics infrastructure with inland container depots and clearance terminals, investing in ports, improving custom and other cross border regulations, etc. The results of this comprehensive, detailed and reassuring study of the trans-GTR transport corridors are to be used in coming years by GTI and its Transport Board members to shape cooperative activities to promote regional freight and passenger movements.