Material for the Book's Web Site

Chapter 6

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Map of Mt. Baiktu in Jilin province

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The Changlingzi crossing, located within the jurisdiction of the Hunchun municipality, is 23 km from the Kraskino crossing of the RFE and 121 km away from Slavjanka, the capital city of the Khasan region. Its proximity and transport convenience to the Russian Far East (hereafter RFE) also is striking in two other regards. Changlingzi is only 46 and 63 km from the RFE ports of Posyet and Zarubino by land, respectively (see map 6.1). It has easy road access to the Trans-Siberian Railway, which reaches the station in Kraskino via a spur line. With the completion of both the road and railroad from the city of Hunchun to the Changlingzi crossing, the latter is becoming northeastern China's only well-connected border entry/exit to the RFE in the Greater Tumen Subregion (GTS) once the railroad between Changlingzi and Kraskino, currently under construction, is completed.

About 54 km east from the city center of Hunchun, the Quanhe crossing is only 36 km away from the estuary of the Tumen River at the Sea of Japan and 48 km from North Korea's Rajin port (see map 6.1). This frontier location makes Quanhe the only border crossing that is directly linked to the Rajin-Sonbong FETZ. Quanhe became an important commercial land port after it was first opened in 1937. As a grade two crossing after 1949, Quanhe facilitated trade and visits between China and North Korea until 1982 when it was temporarily closed due to the largely closed status of Hunchun and limited border flows. Upon reopening in 1995, Quanhe thrived quickly and was upgraded to a grade one crossing in 1997.

The third crucial crossing is Tumen (see table 6.4 in the book), which is Jilin province's only inland port that has both direct road and rail links with North Korea. As early as the 1930s, Tumen became an important transport hub for northeastern China with Korea and Japan. After 1949, it served as a main land port for China-North Korean trade. In recent years, the Tumen crossing has expanded its reach to become a transport and redistribution center for trade among China, North Korea, Japan, and the RFE. Connected to North Korea's border crossing by a 0.5-km-long bridge, the Tumen crossing provides rail links to both Rajin and Chongjin ports, which in turn extend wide-track rail links to Vladivostok. The Tumen-Chongjin-Sea of Japan rail land bridge, opened in 1984, shortened the shipping time to Japan's west coast considerably compared with going to and then originating from the Dalian port on China's Bohai rim and around the Korean peninsula.

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While the RFE's Posyet and Zarubino ports have received Japanese help for modernization, the obsolete Rajin-Sonbong port obtained investment and technical assistance from Hutchison International Terminals Ltd. in Hong Kong for considerable upgrading (Glain, 1996). The Hyuntong Shipping Group from Yanbian also has invested in port reconstruction at Rajin-Sonbong. Although constructing a river port at the Chinese border town of Fangchuan (see map 6.1) will allow an easy and quick shipping access to the Sea of Japan from the Tumen River, the project remains on the drawing board due to financial, political, and ecological constraints.[1]

There is also an irregular service carrying woodchips from Yanbian to Japan via Zarubino. Other more recently opened routes include passenger and cargo transportation from Hunchun through Zarubino of the RFE to the Sogcho port of South Korea and two lines for bulk cargo from Hunchun to Niigata via Zarubino and from Hunchun to Ulsan of South Korea via Rajin. That all these routes fans out from Hunchun renders the city a central hub for linked sea-land transportation in the GTS.[2]

A better access to these ports requires better cross-border road systems. A third-grade highway between Hunchun and the Shatuozi crossing has been completed. A cross-border road now links the Chinese city of Yanji and North Korea's Chongjin port through the crossing at Sanhe. Another road originates from Yanji and goes through the Shatuozi crossing to the Rajin port. A third cross-border road goes from the city of Tumen to Sonbong through the North Korean border town of Namyang (see map 6.1). The road for container-carrying trucks between the Quanhe crossing and the Rajin port also has been completed. A cross-border road for truck transportation may also be built from Hunchun through the border town of Kraskino to the RFE port of Zarubino.

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Table 6.C in the Appendix to the book shows the import/export volumes through the road border crossings for 1993 through 1996. The declined volumes from the 1993 peak mirror the contraction of border trade during that period as discussed earlier. Until the opening of the road through the Quanhe crossing in 1996, the Changlingzi and Tumen crossings handled the bulk of the through trade. While the Tumen crossing alone accounted for 73.5% and 66.7% of the total volumes in 1993 and 1994, its role as the

dominant road crossing increased further when it handled 90.7% of the border road cargo in 1995. Its share decreased to 47.2% in 1996 when the Quanhe crossing went into operation. The latter let through trucks carrying containers of South Korea- and Japan-bound exports that headed to the Rajin-Sonbong port from where the containers were shipped to Pusan or the Japanese ports on its west coast. In the opposite direction, imports from South Korea and Japan flowed through Quanhe for transshipment to other destinations in northeastern China and beyond. In 1998, these crossings saw a combined freight flow of 440,437 tons, which exceeded three of the four years between 1993-1996, and 270,864 person/time entrances and exits (Jiang, 1999). A growing proportion of these border crossers were Russian tourists from the RFE, which numbered 35,851 person/times in the first half of 2001, an increase of 78.8% from the same period of 2000.[3]

Relative to the development of the within- and across-border road system, the railroad construction has been rather slow. The rail link between Tumen and Hunchun was not completed until 1996. While the Tumen-Changlingzi rail link has been established, it has not gone into operation. The construction of the cross-border railroad from Hunchun to Kraskino via Changlingzi, which began in April 1993, was completed, but not yet in use in the late 1990s (C. Chen, 1998). Despite an extensive railroad network on the North Korean side of the border, there is only one cross-border railroad that connects the Rajin port at Namyang with China's railroad system at the Tumen crossing. While North Korea's railroad system also is linked to the RFE's railroad system at Tumen Kang-Khasan, the two systems are not fully compatible due to their slightly varied gauges (Shiode, 1994). The lack of cross-border rail links puts the transport pressure on the more extensive and connected, albeit lower graded, road system.

To facilitate this growing cross-border flow of goods and people via larger-scale inter-modal transportation, the Chinese government in 2001 committed huge investment to building two new road-railroad routes—one from the border city of Suifenhe to Vladivostok and another from Mudanjiang in Heilongjiang to Chongjin. Once completed, they will improve northeastern China's access to the RFE ports of Vladivostok, Nakhodka, and Zarubino, and the North Korean ports of Rajin and Chongjin (map 6.1).[4] However, as the frontier of China's Jilin province, the Yanbian Korean Prefecture has and will continue to play a central role in providing cross-border transport links through several overland border crossings for the GTS.

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The upstream of the Tumen River forms the border between China and North Korea while the downstream forms the border between the RFE and North Korea. The Tumen River stretches over 500 km and has an annual average runoff of approximately 6,800 million tons irrigating nearly $3x10^4$ ha of the land. Seventy percent of the River's watershed exists in China's Yanbian prefecture, while about 30% is in North Korea's North Hamgyong province, with the less than one percent in the RFE's Khasan wetlands.[5] The water of the Tumen River serves as the water source for residents, industry, and agriculture in the lower reaches of the Tumen River region where the three countries meet. The Tumen River Delta, spanning over 88,000 ha of wetlands in China, North Korea, and the RFE, is critical to coastal zone management and a crucial location for migrating birds along the East Asian/Australasian flyway and for North Pacific Salmon to spawn (Hunter, 1998). This close sharing of and interdependence among the three countries and other species on the Tumen River and its surrounding ecosystems makes all the joint border areas vulnerable to any environmental problems and threats.

The recent threats to the ecosystems of the Tumen River have some historical antecedents. As early as in 1887, the Qing government issued an order to cut down the trees in the region to cultivate the land. In the 1940s, the Japanese invaders felled the trees in a looting fashion. In the 1960s, the official "grain is the machine" policy of China led to the destruction of most forests for arable land. As a result of these cumulative damages, the forest coverage in the Tumen River region consists of 71% in middle-aged and young saplings, while the mature forests account for much less. Continued industrialization and development in China and North Korea since the mid-1960s has created gradual pollution in the Tumen River basin, sending water pollutants and wastes into the estuary of the river. From the Chinese side, the main pollutants have been suspended solids and organic materials released by the production of chemical fiber, papermaking, and paper products.

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The two largest polluting sources recently were the Kaishantun Chemical Fiber Pulp Factory and the Shixian Paper Mill in Jilin province.[6] The two polluters discharged about 62 million tons per year (t/y) of untreated waste water into the Tumen River. From the North Korean side, similar pollutants have spilled into the Tumen River basin from such heavy industrial facilities as the Musan Mining Complex, the Awudi Chemical

Plant, and the Hoeryong Paper Mill. The Musan Mine, for example, deposited roughly 15 million t/y (41,000 tons/day) of tailings. The Awudi Chemical Plant alone discharged about 65 million t/y untreated waste water, which is high in phenols and other unknown substances (Hunter, 1998). Additional pollution has come from sewage discharges from the cities and towns on both sides of the Tumen River such as Yanji on the Chinese side and North Korea's Hoeryong, a heavy contributor of domestic sewage to the Tumen River (UNDP/GEF, 2002). Other sources and forms of pollution have begun to threaten the more clean portions of the RFE involved in the GTS, especially Primorskii Krai. These included poaching (mostly by Chinese border crossers), the expansion of transport infrastructure (see earlier), and untreated municipal waste from the border or port cities Zarubino, Slavyanka, Kraskino, and Proyet, and solid waste left by tourists.[7]

This UNDP-sponsored effort began in 1995 with a Memorandum of Understanding (MOU) on the Environment, signed by all five countries of the TRADP, outlining a plan for environmentally sound and sustainable development in the Tumen River region (Hunter, 1998). After two Regional Environment Working Group meetings in 1997, the project of Strategic Action Plan (SAP) on the Environment was officially launched with the funding and institutional support from the Global Environmental Facility (GEF) and the UNDP in June 2000. Coordinated by the United Nations Office for Project Services (UNOPS), the SAP project, nicknamed TumenNET, was to be implemented by the five participating countries (China, North Korea, South Korea, Russia, and Mongolia) through a regional partnership involving local, provincial, and national governments, grassroots communities, academic and research institutions, and environmental non-governmental organizations (NGOs). TumenNET comprises important components such as Environmental Information System (EIS), and Transboundary Diagnostic Analysis (TDA), and Regional Water Monitoring (RWM).[8] With the strong facilitation of the SAP, the three countries involved in the GTS came to agree on a set of prioritized regional policy actions to address transboundary threats to biodiversity and international water in the designated Tumen River Basin Zone (TRBZ) by 2002 (see map 6.2). These actions included 1) protecting water quality of the Tumen River through such activities as establishing a monitoring program and conducting studies on water quality; 2) exchanging know-how on waste water treatment techniques and information; and 3) establishing, enlarging and enhancing Nature Protection Areas (NPAs) to protect ecosystems and threatened species such as the Amur tiger, Far-eastern leopard, and various migratory birds (see map on this site), as well as connecting the NPAs into eco-corridors. Country-specific projects also were proposed and implemented, including building the first municipal sewage treatment plants in the North Korean border cities of Rajin-Sonbong and Hoeryong and a waste water treatment plant in the Chinese border city of Yanji (UNDP/GEF, 2002). The scale and range of proposed projects and initiatives, many of which lacked funding, were quite promising and potentially effective in solving the existing problems and perhaps preempting future threats.

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While the serious environmental threats require a multilateral response like the SAP, the latter may be inherently constrained to deal and balance with the complex relations between the equally important needs for industrialization and economic development and protection of biodiversity in light of the constituent units of the GTS and its past and present economic and political conditions. The strong clustering of heavy industries favored under the Soviet model of industrialization poses the most serious threat to transboundary biodiversity and the shared water of the Tumen River, such as coal mining and paper manufacturing in China's Jilin province and iron ore mining, steel making, and oil refining in northern North Korea. These industries, while not competitive internationally, still provide a large share of the industrial output and employment in these regions, which lack the history and new opportunities to suddenly shift to more competitive and cleaner light manufacturing for the global markets as in the GSCS. On the other hand, the rich ecosystem coupled with the natural beauty and unique landscape of the GTS provides plenty of attractions and opportunities for eco-tourism or green tourism as much cleaner and potentially profitable developmental alternatives to conventional industrialization.

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[1] Since the town of Fangchuan, which marks the end of the Chinese east most border with the RFE and North Korea, is only 15 km from the mouth of the Tumen River, it is the logical and planned location for China to (re)build a river port to restore the historical commercial shipping route to the Sea of Japan, which was ended by Japanese blockade in 1938. Although China obtained the shipping right from Russia to the Sea of Japan in the late 1980s, North Korea has not agreed to this right for the concern that it will pose competition to the existing use of its Rajin-Sonbong and Chongjin ports, which can already handle 5,000-10,000-ton ships. In addition, there are difficult natural ecological barriers to building the river port at Fangchuan. The segment of the Tumen River from the Quanhe crossing to Fangchuan is so shallow and silted up with cumulated sand that it can accommodate only 50-ton boats. Even after some dredging, the river cannot handle barges of over 100 tons. The segment of the Tumen River between Fangchuan and its mouth, sandwiched between the RFE and North Korea, is deeper and reaches eight meters deep at the river mouth, but there is considerable deposit of sand and mud from not being navigated for over 60 years. It will take major dredging to allow 2,000-4,000-ton riverboats to sail up and down. The foundational first-time dredging is estimated to amount to 6.5 million square meters of sand and mud, while the subsequent annual maintenance dredging of 1.4 million square meters of new silt is required. Although Japan has expressed an interest in dredging the Tumen River for importing the sand to be used in domestic construction, it won't solve the more difficult problems of North Korea agreeing to China's request for shipping right or coastal access and then securing the large investment for building the river port. Interview with the President of the Academy of Northeast Asian Studies at Jilin University, Changchun, Jilin province, July 28, 1999.

[2] Reported in *Renmin Ribao* (The People's Daily), overseas edition, January 2, 2002, p. 8.

[3] Reported by the China Xinhua News Agency and accessed from http://news.eastday.com on August 5, 2001.

[4] Reported in *Renmin Ribao* (The People's Daily), overseas edition, July 27, 2001, p. 2.

[5] "Tumen River TDA/SAP GEF Project: National report of the Republic of Korea," accessed from http://www.tumennet.org/project/report_korea.htm on January 30, 2003.

[6] "National Report: China," accessed from http://www.tumennet.org/project/report_korea.htm on January 30, 2003.

[7] "National Report: Russia," accessed from http://www.tumennet.org/project/report_korea.htm on January 30, 2003.

[8] From the cover page of TumenNET's Website http://www.tumennet.org/, accessed on April 22, 2003.