

Project Number: TA-6370 (REG)  
September, 2008-May, 2009

## Harmonizing Border Development of Zamyn-Uud & Erlianhaote

# **Development of Regional Cooperation Programs for Mongolia and the People's Republic of China**

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For Asian Development Bank

## ABBREVIATIONS/ACRONYMS

Administration of Quality Supervision, Inspection and Quarantine	AQSIQ
Asian Development Bank	ADB
Asian Highway Number 3	AH3
Central Asia Regional Economic Cooperation	CAREC
Closer Economic Partnership Agreement	CEPA
China International Freight Forwarders Association	CIFA
China Inspection and Quarantine	CIQ
Construction and Public Utilities Support Center	CPUSC
China Road and Transport Association	CRTA
Cargo Transfer Terminal	CTT
Economic Policy Reform & Competitiveness Project	EPRC
Electronic Data Interchange	EDI
Gross Domestic Product	GDP
Government of Mongolia	GOM
Foreign Direct Investment	FDI
Forty Foot Equivalent Unit Containers	FEU
Free Economic Zone	FEZ
International Federation of Freight Forwarders Association	FIATA
Inner Mongolia Autonomous Region	IMAR
Inner Mongolia Logistics Association	IMLA
International Monetary Fund	IMF
International Trade Promotion Center	ITPC
Japan International Cooperation Agency	JICA
Memorandum of Understanding	MOU
Millennium Challenge Account	MCA
Mongolian Administration for Standardization & Metrology	MASM
Mongolian Freight Forwarders Association	MFFA
Mongolian National Committee on Trade & Transport Facilitation	MCTTF
Mongolian Railway	MTZ
Mongolian Transport and Urban Development	MTUD
Mongolian Tugrug	MNT
Multilateral Investment Guarantee Agency	MIGA
North American Free Trade Agreement	NAFTA
Public Urban Service Organization	PUSO
Socialist Countries Carriage of Goods by Rail 1949	SMGS
Special Economic Zone	SEZ
State Standards and Inspection Agency	SSIA
Transports Internationaux Routiers	TIR
Twenty Foot Equivalent Unit Container	TEU
Ulaan Baatar Master Plan Strategy	UBMPS
Ulaan Baatar Railway Joint Stock Company	UBTZ
United Nations Commission on Trade and Development	UNCTAD
United Nations Economic Commission for Europe	UNECE

## TABLE OF CONTENTS

	<i>Page</i>
EXECUTIVE SUMMARY.....	1
CHAPTER I INTRODUCTION.....	4
CHAPTER II CROSS BORDER TRADE .....	5
CHAPTER III REVIEW OF EXISTING STRATEGIES.....	15
CHAPTER IV TRADE LOGISTICS INFRASTRUCTURE CONSTRAINTS.. .....	19
CHAPTER V TRADE LOGISTICS INSTITUTIONAL CONSTRAINTS.....	24
CHAPTER VI BORDER DEVELOPMENT PLANNING HARMONIZATION.....	34
CHAPTER VII ASSESSMENT OF ZAMYN-UUD SPECIAL ECONOMIC ZONE...37	
CHAPTER VIII CONCEPT INVESTMENT PROJECTS AND CAPACITY BUILDING.....	41
<b>APPENDIX A “TRANSIT MONGOLIA”-ERLIAN COORDINATION</b>	
<b>APPENDIX B MAJOR MINERAL RESOURCES IN MONGOLIA</b>	
<b>APPENDIX C HAILAR-MANZHOU LI &amp; BAOTOU EXAMPLES</b>	
<b>APPENDIX D MONGOLIAN CONSTRUCTION INDUSTRY ISSUES</b>	
<b>APPENDIX E UBTZ TRANSHIPMENT #1 OPTION #3</b>	
<b>APPENDIX F ULAANBAATAR LOGISTICS TERMINALS</b>	
<b>APPENDIX G FEZ: EXAMPLE OF A NEW INDUSTRY</b>	
<b>APPENDIX H JOINT WEBSITE PROJECT</b>	
<b>APPENDIX I GENERATOR SETS PROJECT</b>	
<b>REFERENCES .....</b>	<b>65</b>

## Executive Summary

The outstanding challenges facing the border crossing between Zamyn-Uud and Erlian are to narrow the gaps in trade logistics and urban infrastructure development as well as in the associated trade processes. The unevenness of development is contributing to delays which are to the detriment of the growth in regional trade. As delays occur, higher trade-related transaction costs worsen the opportunity to handle increasing volumes of trade and there is less incentive for investments from the region and from foreign interests.

The situation can improve through an institutional mechanism of greater collaboration and partnership whereby both Erlian and Zamyn-Uud can discuss problems, share information on projects, finance and training and harmonize infrastructure and processes. The international financial crisis brought on a decrease in trade volumes, especially imports and transit trade through Mongolia, which reinforces the need for regional cooperation and integration. Now, there is the opportunity to establish a joint border development commission to resolve border issues, categorically and systematically. A partnership can form among the local governments, businesses and donor institutions to enable Zamyn-Uud to catch up with Erlian and for both border towns to benefit mutually and evenly from the imports, exports and transit trade that will increase in the millions if not tens of millions of metric tons once the financial crisis eases.

This report presents the facts in trade growth, the lack of well defined cross border collaboration on trade logistics and urban infrastructure strategies as well as the operational and institutional constraints at the border and throughout the trade corridor from Tianjin to Ulaanbaatar. The report makes recommendations for short term actions to improve Zamyn-Uud border operations and introduces projects to be implemented as soon as possible such as the joint border development mechanism for consistent and concrete collaboration. The report and the comments from the April 14<sup>th</sup> joint dissemination workshop have the following findings:

- That except for the current international financial crisis, border trade was increasing and grew at an annualized average growth rate of 26 percent from 2004-2007.
- That the Zamyn-Uud transshipment facilities and their lack of infrastructure can not sustain the demands of future growth which were over 16 percent from 2003 to October, 2008.
- That border development strategies need harmonization between Zamyn-Uud with their “Transit Mongolia” and Erlian with their trade logistics plans for new road, rail, logistics, cold chain and processing facilities.
- That Zamyn-Uud’s operational inefficiencies in transshipment, Customs, standards, accreditation and inspections are severely undermining trade flows and much can be gained from collaboration among the agencies and with Erlian.

- That bilateral and multilateral agreements or lack thereof are hindering international trade at the border in the areas of: rail, truck crossings, data exchanges, corridor management and the Free Economic Zone.
- That Zamyn-Uud's urban infrastructure can only benefit from closer and regular collaboration with Erlian in areas of power and water services.
- That a joint border development commission is the institutional mechanism to meet with all stakeholders and form working groups or committees to solve all border infrastructure problems on a regular and continuing basis.

The report recommends that a border town partnership be formed by an official entity such as a joint border development commission as soon as possible. Within the organization there be well defined working groups based on the host of border issues and comprised of business and government officials with Asian Development Bank oversight. Priority projects among the physical infrastructure, operational and institutional improvements are:

- **Intermodal and Logistics Facilities**  
Short term improvements to the existing structures, roads and yards in Zamyn-Uud by repairs and expansions are recommended as long term facility designs and construction are decided.
- **Choyr-Zamyn-Uud Third Regional Road Development Project**  
The effectiveness of the border crossing and the function of the entire corridor from Tianjin to Ulaanbaatar depend on a well paved and maintained road for truck cargo as a reliable alternative to railway freight transport. There is a 432 kilometer section to be completed and in 2009 \$24 million from ADB and the IMF were allocated for the 61.8 km section between well No. 62 and Zamyn-Uud.
- **Power and Water Supply**  
Jointly, meet to discuss power and water planning in Erlian and determine how to assist Zamyn-Uud. Erlian is developing at a fast pace for an expected increase in population and therefore is constructing new sources of power from coal, wind and solar. Erlian's water supply will not meet demand and new wells are to be made near Qiharigetü. Use the existing China-Mongolia Border Water Resources Committee to determine how ADB can assist.
- **Joint Website**  
Trade and transport representatives from Mongolia, China and Russia agree to design, build, operate and maintain a joint website in four languages.
- **Single Electronic Window (SEW)**  
The time and cost savings of cross border electronic exchange of business transaction data are realized by a single platform connecting all interested entities. There needs to be leadership at the Mongolian prime minister level to resolve differences among the agencies and to agree with the People's Republic of China counterparts in order to move the project forward to completion and operation.
- **Zamyn-Uud Operational Improvements**  
The inefficiencies of manual loading from trucks to rail wagons are not cost-effective, hazardous to handle and will deepen the problems associated with

- delays as trade volumes increase. Introduce mechanical equipment and practices based on international supply chain principles and have Erlian equipment suppliers partner with Zamyn-Uud operators for the following project components: pallets; fork lifts; conveyors; rail boards; generator sets for refrigeration; and software for truck border registration and scheduling.
- **Joint Border Development Commission**  
The Mongolia National Committee on Trade and Transport Facilitation and several Erlian government and business entities are those suggested to form a joint border development commission. All chapters in this report define the purpose of more joint cooperation between Zamyn-Uud and Erlian for the even development of modern trade logistics, intermodal and urban resources connectivity. Currently, there is not an established and unified mechanism to work on all the problems one by one and simultaneously and to harmonize the master plans on both sides of the border.
  - **Customs, Inspections, Accreditation, and Standards**  
The flow of products across the borders are impeded by paper documents, lack of agreement between Zamyn-Uud and Erlian from the Mongolia Agency of Standards and Metrology (MASM) and the PR China, Administration of Quality Standards, Inspection and Quarantine (AQSIQ) on standards, laboratory accreditation and testing. It is necessary to act immediately to renew the 2005 memorandum of understanding (MOU) between Mongolia and PR China over the international accreditation of the Erlian laboratory. Furthermore, it is recommended by the MASM to connect the electronic network of Chinese Customs, supervisory and certification bodies so as to eliminate overlapping testing and facilitate trade. Lastly, the MASM suggests starting a standards, information, enquiry and training center for the implementation of the SEW.
  - **Capacity and Institution Building**  
An important working group or committee within the joint border development commission is for capacity and institution building. Both border trading and transport communities as well as major stakeholders throughout the corridor can jointly participate in study tours to learn: logistics and intermodal operations; best practices in Free Economic Zones (FEZ); Customs and Inspections (Mongolian Customs Modernization Project, Shanghai training, Joint Border Control Processing Pilot Project); and learn about investment promotion, public private partnerships, and private capital opportunities. Suggested site visits are : Tianjin Port, Binhai New Area; Hailar-Manzhouli; and the U.S.-Canada border crossings at the Cascade Gateway in Washington state.

There are surmountable challenges confronting not only the border towns of Zamyn-Uud and Erlian, but of regional and national stakeholders involved with international trade. Regional cooperation and integration will be achieved under ADB guidance to the benefit of both border towns by forming a collaborative organization in the form of a joint border development commission with working groups based on outstanding development issues. As a result, trade volumes will be better managed, urban development will spread more evenly across the border to Zamyn-Uud and investments will follow to spur further growth.

## Chapter I Introduction

International trade is increasing between international inland ports of Zamyn-Uud, Mongolia and Erlianhaote, Inner Mongolia Autonomous Region (IMAR), China with ten year forecasts for continued growth. As a result, there are stresses on the trade logistics infrastructure which are not serving the demand from the construction, mining, animal products and agriculture sectors of the regional border economies. There are also current and potential demand in transit trade (bulk) and intermodal (container) traffic (rail, road, ocean, air) to and from Russia, Eurasia and overseas markets.

Trade-related transaction costs are measured by not only physical infrastructure of rail, road and logistics facilities, but in terms of trade facilitation delays from unproductive operations and systems that cause a loss of business for both regional economies. The World Bank proved in a 2006 report, “Trading on Time” that physical infrastructure accounts for 25% and trade facilitation for 75% of trade-related transaction costs and delays.<sup>1</sup> Furthermore, there is the Asian Development Bank, Transport and Trade Facilitation Strategy and Action Plan of which Corridor 4a and 4b, of 6 Corridors of Central Asia Regional Economic Cooperation (CAREC), dedicates investments and technical assistance to Mongolia’s main transport and trade route to balance infrastructure, technology, and management needs. The content of this report will contribute to devising projects for the CAREC Corridor 4b and harmonizing trade logistics.<sup>2</sup>

The Zamyn-Uud-Erlianhaote (Erlian) low logistics performance is similar to challenges in other China border crossings as well as in those of developed economies. At present, there are joint border cooperation programs and agreements underway in: northeast Inner Mongolia at the Manzhouli-Russia crossing as well as in Xinjiang-Kazakhstan; Shenzhen-Hong Kong; among the countries of Southeast Asia (ASEAN); and between the United States and Canada wherein trade amounts to US \$1.2 billion per day. However, the drastic unevenness of development between Zamyn-Uud and Erlian in trade logistics infrastructure and in urban resources requires joint programs by the phased intervention of the Asian Development Bank to the benefit of the regional economies in Mongolia and Inner Mongolia, China.

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<sup>1</sup> “Trading on Time,” Doing Business Report, Djankov, Freund, Pham, World Bank, 2006.

<sup>2</sup>The Seventh Ministerial Conference on CAREC, November 19-21, 2008 in Baku, Azerbaijan produced a report for consideration: *Implementation Action Plan for the Transport and Trade Facilitation Strategy*. The Action Plan focuses on the development of six CAREC corridors identified in the Strategy, which will facilitate transport and trade within and through the region and provide important links among the world’s rapidly growing markets. ADB’s Mongolia investment and technical assistance of Corridor 4b is for five projects over several years of rail, road, logistics, airport and Zamyn-Uud Free Trade Zone from the Russia north border to the south border with the PR China at Erlian. Corridor 4a is for project development of the western Mongolia north-south corridor connecting Russia at Ulaanbaishint and the PR China at Yarant via Hovd.

This study determined that there are numerous opportunities for the border towns to measurably improve their trade logistics physical infrastructure, their trade flow processes along with the connectivity of urban planning and construction. The formal establishment of a joint border development commission with clear meeting dates, agendas and goals will contribute to reducing the trade-related transaction costs (and time) and harmonizing border development projects to unlock the full potential of both developing economies.

Each problem facing the growing border trade has concrete solutions as framed by three questions: How to develop regional cooperation programs between Zamyn-Uud and Erlian? How will the cooperation programs contribute to regional integration? How can the private sector participate in the growing trade with the necessary trade logistics infrastructure and facilitating programs?

The outline of this report is the following: Chapter II reviews and analyzes the data on cross-border trade on macroeconomic statistics and microeconomic data on market demand; Chapter III reviews and identifies gaps from previous reports on trade logistics strategies and makes recommendations; Chapter IV Trade Logistics Infrastructure Constraints; Chapter V Trade Logistics Institutional Constraints; Chapter VI Border Development Planning Harmonization; Chapter VII Assessment of Zamyn-Uud Special Economic Zone with recommendations; Chapter VIII List of Concept Investment Projects and Capacity Building with financing recommendation.

## Methodology

The research for this report was over a ten weeks in Ulaan Baatar and Zamyn-Uud, Mongolia and to Erlian, Inner Mongolia, China to meet with government officials, business traders and logistics service providers. Each of the three sectors answered specific questions targeted at each sector and they provided detailed strategies and data in order to seek cooperation programs. Meetings held in Hohhot, Inner Mongolia and in Beijing provided more details to implement cooperation programs in the near term. In total, 96 meetings took place which provided a rich source of information at the macro and micro economic levels to examine the trade, transport and logistics problems at the borders and throughout the Corridor 4b down to the port of Tianjin, China so that projects and technical assistance can be implemented.

## **Chapter II Cross Border Trade**

### **Macroeconomic**

Recent years of border trade increases by volume, value and commodities demonstrate the need for joint programs in order to spread the development evenly between Erlian and Zamyn-Uud. The trade and economic data is also useful in determining the size and scale of constructing new logistics centers (bulk, value add, processing, packaging); warehouse space and handling equipment, especially for underdeveloped Zamyn-Uud. However, the facilities' immediate short-term



improvements and expansion need to consider the changing function of the transshipments from the impact of:

- (1) Manual to mechanical operations;
- (2) Consolidation and containerization of general break bulk cargo (cement, perishables);
- (3) Refrigeration and “cold chain;”
- (4) Completion of the Zamy-Uud-Ulaanbaatar road (Asian Highway 3)<sup>3</sup>
- (5) China accession the Transports Internationaux Routiers (TIR) Convention;
- (6) Bilateral truck border crossing agreements

All of the modern operational activities will determine the design and construction of the trade logistics infrastructure on both sides of the border and are recommended to be constructed cooperatively, based on international value (supply) chain best practices.

**Table 1: Erlian Value of International Trade**

	Annual Increase (%)							Average Annual Increase (%)
	2004	2005	2006	2007	2004-2005	2005-2006	2006-2007	
<b>Total of Export and Import (USD.mil)</b>	3721.706	4876.25	5960.82	7735.885	31.02%	22.24%	29.78%	27.62%
Hohhot	455.996	1067.82	739.87	936.621	134.17%	-30.71%	26.59%	27.12%
<b>Erlian</b>	437.826	508.44	779.17	878.949	16.13%	53.25%	12.81%	<b>26.15%</b>
<b>Manzhouli</b>	1313.862	1386.9	1916.13	2436.838	5.56%	38.16%	27.17%	22.86%
<b>Export</b>	1354.465	1773.62	2140.5	2944.394	30.95%	20.69%	37.56%	29.54%
Hohhot	267.308	597.11	458.03	633.222	123.38%	-23.29%	38.25%	33.31%
<b>Erlian</b>	55.562	61.13	87.56	129.907	10.02%	43.24%	48.36%	<b>32.72%</b>
<b>Manzhouli</b>	73.126	54.56	69.97	117.941	-25.39%	28.24%	68.56%	17.27%
<b>Import</b>	2367.241	3102.63	3820.32	4791.491	31.07%	23.13%	25.42%	26.50%
Hohhot	188.687	470.71	281.84	303.399	149.47%	-40.12%	7.65%	17.15%
<b>Erlian</b>	382.263	519.31	691.61	749.042	35.85%	33.18%	8.30%	<b>25.14%</b>
<b>Manzhouli</b>	1240.737	1332.32	1846.16	2318.898	7.38%	38.57%	25.61%	23.18%

Source: China Customs Statistical Yearbook, 2007 (2008 data to be published: fall 2009)

The value of international trade crossing the Erlian border by road and rail from 2004 to 2007 grew at an annualized average growth rate of 26.15% from US \$437.8

<sup>3</sup> The Asian Highway Network 3 (AH3) is a main road artery from Tianjin port, China through Erlian-Zamyn-Uud via Ulaanbaatar connecting to east-west AH32 to Ulan-Ute, Russia connecting to east-west AH6. The Asian Highway network has 141,000 kilometers of standardized roadways through 32 Asian countries and connecting to Europe. The Asian Highway Project is one of the United Nations Economic and Social Commission for Asia and the Pacific’s main land transport infrastructure projects

million to US \$878.9 million. The composition of the border trade is for exports by outdated 45 ton Russian-Soviet Union era trucks of building materials (70% by USAID estimates) of primarily cement (50%) transshipped in Zamyn-Uud onto rail wagons for Ulaanbaatar from the Erlian cement processing factories. There are also consumer goods exports sourced from all over China of food (20%, USAID) such as fruits, vegetables and increasing volumes of USA sourced chicken. The remaining 10% by USAID estimates are of raw materials and 3% of which are high value goods such as clothing and electronic items. There are also a growing number of export shipments by the block trains of containerized manufactured goods destined mostly to Russia and Europe. Namely, the “Mongolian Vector” since 2002 from Beijing/Hohhot, IMAR to Frankfurt, Germany and the Asia-Pacific-Europe Trade Plan since 2007 from Shenzhen, Guangdong, PRC to Poland and the Czech Republic. The total transport times are 10-15 days less than ocean vessels from Tianjin to Bremerhaven with growing demand.

Exports grew at a higher percentage from 2004-07, but are of a much lower value than the imports by 33.3% exports to 25.1% imports and a 2007 total value of US \$129.9 million exports and US \$749 million of imports. The imports are of bulk raw materials by rail which make the rail gauge change process in Erlian. Mongolia is a source for (see Appendix B) bulk minerals imports (coal, iron ore, copper concentrates, oil) and Russia for the timber, primarily. The Erlian Bureau of Commerce estimates that 90% of the material imported to Erlian is destined for other parts of China of which Erenhot adds value in the processing of the timber into wood parts for furniture makers in China as well as processing of minerals and animal products. Ten percent of the material imported is destined for Tianjin seaport for export to other countries.

**Table 2: Imported Goods by Mode, 2003-July, 2008**

<b>Imported Goods (10,000 tons)</b>			
<b>Year</b>	<b>Railway</b>	<b>Road</b>	<b>Total</b>
2003	410.0	6.4	416.4
2004	567.6	8.8	576.4
2005	615.6	11.7	627.3
2006	535.3	12.5	547.8
2007	411.6	16.2	427.8
2008			
1 - 7	229.61	15.5	245.11
Jan - July			

Source: Huadian Erlianhot Road Port Project, Feasibility Study, 9/2008

**Table 3: Exported Bulk 2008, January-September**

<b>Number</b>	<b>Name</b>	<b>Unit</b>	<b>Export Country</b>	<b>Export volume</b>	<b>Year-on-Year Increase or Decrease %</b>	<b>Amount of Exports 10,000 USD</b>	<b>Year-on-Year Increase or Decrease %</b>
1	Electronic product	Tai	Mongolia; Russia	73400	97.80	11340	94.60
2	Building	10,000ton	Mongolia;	78	76.00	7100	81

3	materials Carbon positive pole	10,000ton	Russia Russia	10.25	94.13	6745	234.31
4	refinery coke	10,000ton	Russia	4.48	-69.23	1858	-25.66
5	Agricultural byproducts	10,000ton	Mongolia;	10.10	14.30	1630	15.10

Source: "The Trends of Erenhot Commerce," Commerce Bureau, #69, October 28, 2008, page 8.

The Manzhouli dry port data in Table 1 is useful to determine the size of facilities needed at the Zamyn-Uud-Erlian border-crossing. Manzhouli faces the same problems as a growing international trade port in northeastern IMAR and is overcoming difficulties with a new highway and a nearby Cargo Transfer Terminal (CTT) 90 kilometers east of the border crossing in Hailar, Hulunbeir. (World Bank US \$100 million Hailar-Manzhouli Highway and Trade Corridor Project, 2005-2010) At present, Erlian's trade is only 36% of Manzhouli's, yet has a similar composition of commodities and growth pattern. Manzhouli's trade grew 22.8% from 2004-2007 and the 2007 value of exports is only 5% of imports, US \$117.9 million to US \$2.3 billion, respectively, yet Erlian exports are growing faster than in Manzhouli and in 2007 are higher in value. This report provides details of the Hailar CTT trade logistics facility and the Baotou Inland Container Depot in Appendix C for demonstration effect, especially for Zamyn-Uud.

### Erlian Economy

**Table 4: Overview 1996-2007**

Year	GDP		Total Fiscal of Local		Disposable Per capita RMB	Income Per capita RMB
	10000RMB	%(growth per year)	10000RMB	%(growth per year)		
1996	10888		2749		4171	
2000	30150	29	6500	24	6800	13
2001	39327	30.4	8810	35.5	7532	10.8
2002	63000	60.2	11000	24.9	10107	34.2
2003	85050	35.0	12883	17.1	10367	2.6
2004	120000	41.1	16419	27.4	12071	16.4
2005	151070	25.9	19063	16.1	13838	14.6
2006	191103	26.50	27183	42.6	14509	4.8
2007	255013	33.4	41460	52.5	15818	9.0

Source: Erlian Transport Bureau 2008

From 1996-2007, Erlian's economy grew at an annualized average growth rate of 41.4%. The gross domestic product (GDP) increased from US \$16 million in 1996 to US \$375 million in 2007. The disposable income per capita for Erlian residents also increased from US \$613 in 1996 to US \$2,326 in 2007 for about a 26% increase.

**Table 5: Forecast Growth**

Year	GDP		Total of Local Financial Revenues		Disposable Income Per Capita	
	10000RMB	%(growth per year)	10000RMB	%(growth per year)	RMB	%(growth per year)
2005	151070		19063		13838	
2006	191103	26.50	27183	42.6	14509	4.8
2007	255013	33.4	41460	52.5	15818	9.0
2010	560000	30.83	70000	29.71	22000	9.7
2015	1400000	20.11	200000	23.36	32000	7.8
2020	2800000	14.87	500000	20.11	42000	5.6

Source: Erlian Transport Bureau 2008

Similarly, the forecasted economy for Erlian is a 59.5% average annualized growth rate. The Erlian Transport Bureau estimates from a 2005 GDP of US \$222 million to an economy of US \$4.1 billion GDP by 2020. The disposable income per capita is estimated to grow from 2005 of US \$2,035 to about US \$16,400 in 2020 based on a population of 250,000. As a cross-border regional economy, the improvement to the trade logistics infrastructure separately and jointly with Zamyn-Uud can contribute to an even balance of economic growth and business opportunities.

### **Zamyn-Uud Economy**

Comparable data is not available for Zamyn-Uud since the population of 11,000 is only 11% of Erlian's 100,000 people. However, the Dornogobi province, of which Zamyn-Uud is a soum, has a population of 55,600 in 2007 which grew slightly from 2004 of 52,500 people. The best indicators for market growth are of Ulaanbaatar to prove multimodal trade logistics facilities' requirements in Zamyn-Uud. The United Nations Population Division, The 2007 Revision, estimates Ulaanbaatar population of 1.464 million in 2005 to grow to 2.104 million by 2030.

As stated, the main imports of construction materials and consumer goods will continue to grow as Ulaanbaatar population increases. The Japan International Cooperation Agency (JICA) report on Ulaanbaatar Urban Development Program indicated the construction industry demands by the 40,000 Housing Units Program by 2009 and a total housing demand estimated at 348,000 units by 2030 or roughly 9% growth per year in the construction industry. Inflation of 30% in 2008 and 7% devaluation of the Mongolian currency as well as difficulties for residents to finance their homes all contribute to slowing the forecasts. Nevertheless, the growth in imports of construction materials, and consumer goods justify the short and long term multimodal trade logistics infrastructure improvements in Zamyn-Uud and moreover in Ulaanbaatar. Chapter V Trade Logistics Institutional Constraints will examine the Ulaanbaatar logistics situation.

**Table 6: Forecast Growth**

	<b>Mongolia National</b>	<b>Ulaanbaatar city</b>	<b>Perspectives and Assumptions</b>
<b>2008-2010</b>	8.3%	7.0%	Economic development scenario prepared by the IMF Staff Report 2006 is applied to this period. GDP growth rates will record 7% in 2008 and 2009, and increase to 11% due to starting operation at new mining site (OyuTolgoi) in 2010. However, the impact of national economic development on GRDP of Ulaanbaatar will be limited, and it will follow the recent growth rates (7%). That is why the average growth rate of Ulaanbaatar is lower than the average growth rate of Mongolia.
<b>2011-2015</b>	7.0%	7.5%	Mining industry will continue contributing to GDP growth. On the other hand, GRDP* growth rate of Ulaanbaatar will accelerate due to development of urban industries and urban economy. The growth rate of Ulaanbaatar City will get ahead of the growth rate of Mongolia.
<b>2015-2020</b>	7.0%	7.5%	GDP/GRDP growth rates will follow the same trend during 2011-2015
<b>2027-2030</b>	6.4%	6.8%	Growth rates of Mongolia and Ulaanbaatar will slow down due to decrease of population growth and mature of the economy. Growth rate of Ulaanbaatar City is still higher than the growth rate of Mongolia because of concentration of population and industries.

Source: “The Study on Master Plan Urban Development Program Ulaanbaatar (UBMPS), JICA, 7/2008, JICA Study Team. \*Gross Regional Domestic Product.

The mining industry is the essential contributor to the Mongolian economy in terms of tens of millions of tons of exports, but just as important are the imports of equipment, materials and supplies during the construction and operations phases of mines along the international trade Corridor 4b and to other mine sites (South Gobi) of Mongolia. The mining sector accounts for 12% of GDP and 60% of exports in Mongolia as well as 4% of the labor force according to the JICA UBMPS Interim Report of 2008. There are multiplier effects of new jobs and increasing incomes that result from growth in mining, construction, consumer goods and the new processing industries with direct impact on trade logistics in Zamyn-Uud and Ulaanbaatar.

These growth rates need to be adjusted in view of the current international financial crisis. Overall rail transport through Mongolia’s Corridor 4b is down 17 percent from 2008 first quarter of 3.7 million tons to 2009 of 3.1 million tons with imports from China down 51 percent from last year. Transit trade from Russia to China, which is comprised of timber for processing, is down 36 percent from 2008 first quarter. This is an opportunity for the border towns of Zamyn-Uud and Erlian to establish a joint

organization and plan together for trade logistics and urban infrastructure for the benefit of the regional economy.

**Table 7: First Quarter 2009 International Trade Data for Zamyn-Uud**

	2008	2009 Plan	2009 Actual	% Change	2009/2008 %
<b>Transported</b>	3,768.82	3,461.50	3,115.71	-10	<b>-17.3</b>
<b>Import Total</b>	377.80	375.01	239.96	-36	-36.48
<b>From China</b>	132.32		64.92		<b>-51</b>
<b>From Russia</b>	245.47		175.04		-28.69
<b>Export Total</b>	530.04	620	495.17	-20	-6.58
<b>To China</b>	440.68		459.60		104.29
<b>To Russia</b>	89.36		35.58		-60
<b>Transit Total</b>	729.96	347.50	503.94	145.02	-30.9
<b>China-Russia</b>	104.19		102.43		-1.69
<b>Russia-China</b>	625.77		401.51		<b>-36</b>

Source: Ulaanbaatar Railways in (000s of tons)

### Zamyn-Uud Trade Logistics Infrastructure

There are three transshipment facilities operating in Zamyn-Uud for the transloading of imported truck cargo to rail and two for the rail-rail transshipments from the China standard gauge of 1,435 mm. to the wide gauge of 1,524 mm used in Mongolia and Russia railways. The capacity at the facilities is insufficient to handle the increasing international trade traffic. The data from the road-rail transshipment facilities #1 and #2 from 2003 to 2007 with annualized percentage increase proves the stresses on the systems as represented by totals of rail wagons, containers and in thousands of tons and in all types of goods (local; transit of bulk and other; containerized; and heavy goods).

**Table 8: Transshipment Facilities #1 and #2 2003-October, 2008**

	2003	2004	2005	2006	2007	% Incr.	22008
<b>Wagons</b>	30733	38980	44505	55363	66096	<b>16.5</b>	60590
<b>Containers</b>	31620	44155	52289	61923	66619	<b>16</b>	54064
<b>1000 tons</b>	968.3	1161.3	1442	1836.1	2096.4	<b>16.7</b>	1995.1

Source: UBTZ LLC, Mongolia Russia joint venture, 2008

There will be continued near total reliance on the railways along the Corridor 4b from Zamyn-Uud to Ulaan Baatar until the completed phased construction of a Class I or II highway suitable for 60 tons container trucks. In 2009, the Asian Development Bank with the International Monetary Fund allocated \$24 million for an important 61.8 kilometer road segment near Zamyn-Uud for completion of the remaining 432 km road from Choyr in the Third Regional Road Project with connections to the AH-3.

### **Microeconomic: Market Demand of Shippers**

Shippers in both Ulaanbaatar and Erlian described the creaking Zamyn-Uud infrastructure incapable of handling the current growth and not possible to handle forecasted growth. The result is a loss of revenue to Mongolia needed to upgrade and expand the trade logistics infrastructure and ultimately less widespread per capital income growth. Intervention by project investment and technical assistance is needed, urgently. In this section, mining, construction industry and consumer goods traders provided some market demand data as a sampling. Special equipment and service areas need to be allocated in terms of cubic meters warehouse space in implementing short and long term trade logistics facilities in Zamyn-Uud.

### **Mongolia**

One mining company is operating near the Zamyn-Uud-Ulaanbaatar rail line and indicated that current 1-5 million ton capacity of facilities for storage and transshipment activities in Zamyn-Uud can not meet the demand where 80% is shipped to China and other orders are for India, South Korea, Turkey and the United Kingdom that will not be fulfilled. This one mining company is one of the top ten of a total number of mining firms of 45. Furthermore, the lack of mining storage facilities in Zamyn-Uud are a problem since time is spent waiting for bank letters of credit to be issued as well as waiting for the rail wagons to export. As for imports, there is needed storage space for the petroleum products from third countries.

In 2007, the mining firm experienced exports to China on the order of:

- 607, 000 tons of copper concentrates
- 130,000 tons of zinc
- 322,700 tons of coal of which 300-400,000 tons via Zamyn-Uud
- 10,000 tons of fluorspar concentrates
- 3,200 copper cathodes
- 240,000 tons of iron ore and iron concentrates

It was suggested by the former Zamyn-Uud governor to build the logistics centers with bulk storage space to facilitate the mining materials of which coal from Tavin Tolgoi will begin exporting in the near future. Hence, bulk storage areas can improve the marketing, sales and profitability of mining and other exports. The storage of the raw materials will attract buyers whereby sales prices can be better negotiated to the advantage of Mongolia suppliers. In addition, there would be opportunity to construct processing factories in an industrial area for exporting products of added value which would generate more revenue than the bulk commodities.

Furthermore, imported goods storage areas would enable Ulaanbaatar construction materials and consumer goods suppliers to negotiate bulk discounts from the Erlian suppliers and thereby reduce not only transport costs of crossing the border, but also commodity prices to the benefit of their customers and the consumers. The Erlian distributors agreed to assist in establishing such a business venture, if there are the needed facilities in a Zamyn-Uud logistics center.

In addition to the infrastructure financing, it is advised to package a working capital loan to start the logistics center activities. Lessons can be found from the World Bank financed Baotou Inland Container Depot which are found in Appendix C of this report. Also, Chapter VII will outline the working capital loan as a project concept investment for further consideration.

A mining construction equipment company indicated 47% annual growth of imported general cargo to Ulaanbaatar from third countries via Tianjin port as well as imports of heavy vehicles of 40-144 tons destined for various Mongolian mining sites. The total value of the general cargo in average annual growth from 2005 to 2008 increased by 6.8% from US \$6.2 million to US \$8.0 million and the freight charges by 13.64% from US \$257,152 to US \$428,921. The company averages 100 twenty foot equivalent unit containers (TEU) and forty equivalent unit (FEU) containers per year.

In addition, there is a specialty chemicals company in Ulaanbaatar expecting 10,000 tons per year imported or 250 FEUs. Full production of the mining sites will increase the need for chemical imports and a favorable revision of the Minerals Law is expected which will increase the probability of international trade in the mining sector. Finally, there is one animal skins processing factory for leather products that imports chemicals on the order of 20 TEUs per year from the European Union.

Another mining company in South Gobi will increase border trade from a construction phase to a production phase in the near future. The mines are determined to hold reserves of up to 35 years for 15 million tons of copper; 11 million ounces of gold and 50-100 million tons of coal of which 2-5 million tons per year are for export to China. The construction material general cargo imports (palletized products, drums and barrels of chemicals and tires) will increase from 2007 of 530 tons or 656 cubic meters.

Zamyn-Uud will need warehouse areas in terms of cubic meters for new mechanical operating activities and for planning by using pallets and containers for dry and perishable goods. One Ulaanbaatar meat importer proved the lack of refrigerated capacity of warehousing and equipment from its growing import of United States chicken. The quality of meat is diminished by deep freezing from the Erlian-Ulaanbaatar transport, therefore the need for generator sets on containers (Appendix I) for temperature control. Imports of fruits, vegetables, seafood and other meat products are growing in demand and the demand for meat exports is unmet for the lack of facilities.

Meat imports from the Ulaanbaatar company are on the order of 150 tons per month or 5 tons per day from the USA via Tianjin and Zamyn-Uud which doubled since 2004 as consumer tastes are requiring lower costs and higher quality substitutes from beef and mutton. These volumes translate into refrigerated warehouse space in Zamyn-Uud to store 1,000 tons of meat per every 5-6 months of on-time deliveries to UB customers or roughly 3,500 cubic meters (cbm) of total space for refrigeration in Zamyn-Uud. It is suggested by the China International Freight Forwarding Association to build a



cold power station in Zamyn-Uud for import and export of perishables and for a dry and refrigerated container return system in Ulaanbaatar.

Moreover, there are exports of horsemeat and meat of 25 different types from another UB meat company. The export requirements for refrigerated outbound containers can be balanced with the import reefer containers so that demurrage charges assessed by the container lines are minimized. In total, there are 20 UB meat plant companies plus smaller companies as well as at least one Erlian meat company eager for meat trade with Mongolia once direct meat exports are approved and permitted to China markets by the PRC General Administration of Quality Supervision, Inspection and Quarantine, Import and Export Food Safety Bureau (AQSIQ).

### **Erlian**

The construction materials, processing firms and logistics service providers are the best indicators of demand on the inadequate Zamyn-Uud trade logistics infrastructure. An Erenhot iron ore processing company imports from Mongolian mines for domestic customers at a 30-40% annual growth rate. There are two iron ore mines of which one with reserves of 2.6 million tons to produce 20,000 tons per month and a 12.7 million tons mine to produce 40-50,000 tons per month. Currently, only 200,000 tons per year are imported with plans for 400,000 tons per year, but for the shortage of rail wagons. The solution is to build storage space in a new Zamyn-Uud logistics center for better pricing of the raw materials and planned rail shipments as the new rail wagons come on line.

There is a major distribution center of construction materials, mechanical equipment and fruits and vegetables just over the border in Erlian. The distributor sells 60% of all Mongolian building material orders. There is a high opportunity for a joint venture distribution center in a Zamyn-Uud logistics center. The cooperation and realization of a Zamyn-Uud distribution center, as stated in the Zamyn-Uud section above, would reduce much of the difficulties in border transport and processing fees to Mongolian traders and is advocated by the Erlian distributor as well. (Appendix D) The company provided the following data: building materials exported to Mongolia in value increased from 2005 to 2008 on an annual average growth rate of 22.7% from US \$161,764,705 to US \$367,647,058. Exports to Mongolia of fruits and vegetables increased 30% on average annually from 2005-2008 from 90,000 tons to 260,000 tons and forecasted for 280,000 tons in 2009 and 350,000 tons in 2012.

Similarly, the Erlian cement clinker with limestone resources is supplying 80% of the Mongolian market and experienced an annual value increase on average from 2006 to a forecast in 2009 of 50% by US \$5.8 million to US \$29.4 million in 2009. In 2008, 800,000 tons will ship to Mongolia and Russia wherein Russia profit margins are five times higher. The firm expects to ship 4,000 tons per day in 2009 which converts to transshipment activities, if estimating that all goes to Mongolia, of over 88- 45 ton trucks per day or 61- 65 ton rail wagons.(greater than 1 and ½ 40 wagon trains per day)

Other Erlian processing firms are of imported timber by rail from Russia of 50,000 cbms to supply furniture manufacturers in China and overseas in the Erlian Port Processing Area. One firm expects their wood processing business in 2009 to be US \$1.17 billion (8 billion RMB) and is willing to partner in Zamyun-Uud facilities.



Erlian Port Processing Area for wood

Another example of market demand for transport logistics infrastructure at the border are an animal products processing factory for wool and cashmere. The firm imports the raw materials and exports the finished products by 50 tons per year to Mongolia with 30-40% growth rates per year. Finally, the logistics service providers in the state owned enterprise (SOE) and a private firm have the willingness along with the processing firms to cooperate with Mongolia businesses, but lack the trust on account of incidents of pilfering and lack of training. The Erlian SOE logistics provider will have 20% increase in demand, if the problems of transportation in Mongolia are solved. The SOE handled 22,000 TEUs in 2006 and 12, 400 TEUs in 2008 across their 100,000 square meter border facility with plans to build temperature controlled warehouse space for 300-400 tons. The private logistics company experienced 21% annualized average increase in TEUs from 140 in 2005 to 300 in 2008 with mining imports increasing 1,500 tons per day and 10% weight increase per year.

### **Chapter III Review of Existing Strategies**

#### **Mongolia**

The Government of Mongolia (GOM) in May, 2008 adopted a National Program “Transit Mongolia” to detail their strategy of developing the international trade, transport and logistics sectors for improving economic and business growth prospects. The plan sets objectives and a clear Action Plan for implementation in two phases: 2008-2011 and

2012-2015. The National Committee on Trade and Transport Facilitation is the lead organization to implement with local governments responsible as well. The Action Plan provides a table in seven sections with subsections that describes the activities; time period to complete; financing needs and source; and the Mongolian institutions involved. There are twenty-one activities of the seventy-four in Appendix A in need of coordination with Erlian, Inner Mongolia, China. Furthermore there is a need to distribute the resolution and Action Plan to China counterparts for meaningful implementation. The documents are available in Chinese language for distribution.

One problem in need of harmonization with Erlian are manual laborers loading imported construction materials such as cement bags and boxes and bags of fruit and vegetables from trucks to rail cars in the three main Zamyn-Uud road-rail transshipment facilities. The manual transloading is a major cause of the bottleneck at the border. As a priority, the manual operation needs international standard practice by using mechanical equipment to increase output per (worker) labor hour and reduce the loading hours per wagon from 6 to 2-3 hours. Several years ago, a USA logistics company in China experienced similar unproductive manual practices and by using mechanical equipment were able to increase output per labor (worker) hour from 28 cases to 400 cases. The new leasing law in Mongolia can be applied to Erlian for leasing the necessary equipment to change the manual process to mechanical. More details are in Chapter VIII of this report.

In 2008, the United States Agency for International Development (USAID) under the Economic Policy Reform and Competitiveness Project (EPRC) completed three reports with plans for improving and building the Zamyn-Uud Customs-Inspections (Spring, 2009); the road-rail transshipment and logistics park facilities. The October report, “Zamiin Uud Gateway Logistics Park Pre-Feasibility Analysis,”<sup>4</sup> details the design and schedule for building new road-rail transshipment and logistics park facilities. There are also detailed short-term improvements to the transshipment areas and all plans are in view of completing the main road from Zamyn-Uud to Ulaanbaatar within two years.

The plans are necessary to implement as soon as possible, but need to be evaluated in consultation and cooperation in the spirit of business partnership within a joint border organization with Erlian, Inner Mongolia, China. In Erlian, timber, minerals and animal products processing companies as well as construction material suppliers all expressed interest in growing trade with Zamyn-Uud based on adequate facilities. Moreover, there are several Erlian plans for trade logistics infrastructure that need to coordinate with Zamyn-Uud plans in order to balance trade logistics development infrastructure and the trade that will flow for both imports and exports.

In addition, there are five public and private Zamyn-Uud site locations for trade logistics facilities as well as the need to connect the facilities to the Zamny-Uud Free Economic Zone (FEZ) of which Erlian also has plans to develop a FEZ with Zamyn-Uud, jointly. The locations for logistics centers and the FEZ are:

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<sup>4</sup> “Zamiin-Uud Gateway Logistics Park Pre-Feasibility Analysis,” Cochrane, Mongolia Economic Policy Reform and Competitiveness Project (EPRC), USAID, October, 2008.

Zamyn-Uud FEZ	900 hectares
UBTZ Railway LLC (joint venture)	700 hectares
Mongolian Customs General	400 hectares
MCS Holding LLC	400 hectares
E-Trans LLC (constructing now)	5 hectares
A Russia LLC	3.5 hectares

It is recommended with concurrence from the UBTZ directors to make the operational changes to the current transshipment activities and build the short-term road-rail transshipment improvements while there is cooperation with Erlian’s trade logistics infrastructure plans and while the Government Special Representative to Zamyn-Uud (Vice Minister) coordinate site selections for building longer term infrastructure. This report will describe the operational changes and short term improvements in Chapter IV under Trade Logistics Infrastructure Constraints.

### **Erlian**

In Mongolian, Erlianhot translates into colorful city which sets the tone for joint cooperation programs and within sight of the border town of the 9 square kilometers of Zamyn-Uud. The central government of China has preferential policies to support Erlian border infrastructure construction planning which are aimed at the timber processing industry and more broadly outlined by the “opening up the border cities” and the “West Development Campaign.” Erlian traders, logistics providers and government officials of the Port office; Border Economic Cooperation Area Management Commission (Border) office; and the Development and Reform office are among the 25 meetings conducted in Erlian and most have strategies and formal building plans to improve the trade logistics facilities for the double digit growth in border trade.

There is a Joint Border Control Conference, but the effectiveness of their quarterly meetings to share information and solve problems is uncertain. The Port office’s counterpart in Zamyn-Uud is Customs General Administration for trade logistics development. The Port office and the Border office are two of the many Erlian government offices that shared very formal strategic reports for Erlian border infrastructure. In 2009, there are plans to implement projects for a new border road, a road bonded port and a rail bonded port.

The Port office and Border office are implementing a government funded US \$7.35 million (50 million RMB) project for a new road crossing for cargo trucks to begin construction in May, 2009 with end of year completion. In the design stage is another logistics project plan to construct on one side of the new road a 490,000 square meter export Customs warehouse and facing on the other side a 970,000 square meter import Customs warehouse area for a total investment of US \$397 million (2.7 billion RMB). In the North border road area, the Huading Erlian Road Port Project is seeking approvals to construct an import bonded area for processing industries of the imported timber and

minerals for a total area of 895, 800 square meters and US \$40 million (298 million RMB) which will include modern facilities and services for the first phase completion by 2010. There is also an Erlian Jindi Export Bonded Warehouse project plan to capitalize on the growing border trade and with a US \$21 million (144 million RMB) investment required.

Erlian Port office and the Border office are also developing the East border rail processing area. A railway international logistics center first phase investment of US \$14.7 million (100 million RMB) will begin in May, 2009 and completed by the end of the year with later phases for a total of US \$58.8 million (400 million RMB). Also, a train center project for small and medium-sized processing enterprises will invest US \$2.9 million (20 million RMB) to start construction in May and complete by August, 2009. Finally, a business center for Mongolia and Russia has an investment of US \$11.7 million (80 million RMB) to start building in May, 2009 and complete 12 months later in 2010.

Finally, there is the new Erlian airport under construction 35 kilometers from the border crossing. The 20,000 square meter logistics space within the 1,533,180 square meter area is an excellent advantage to Zamyn-Uud for joint Free Economic Zone or light industry enterprises as well as easy access by potential investors. High value and low volume shipments of electronics for example are facilitated and will contribute to diversify the Mongolia dependence on raw materials. The US \$52.9 million (360 million RMB) airport will open for domestic flights in October, 2009 and by 2010 to international routes. “It would be in Mongolia’s interest to diversify over time, in the short and medium terms, it would be in Mongolia’s interest to increase value-added...shifting from commodity exports to exports of products and reducing transport costs, and over time developing complex export capabilities.”<sup>5</sup>

Presently, the trade logistics infrastructure of Zamyn-Uud and Erlian are continuing to develop unevenly. Erlian traders in construction materials, mining, timber animal products enterprises as well as the logistics service providers expressed a willingness to share the business as partners with Mongolian enterprises, but a lack of trust on both the government and business levels is preventing joint cooperation. The gap in development requires regular meetings with set agendas and objectives to coordinate and cooperate on infrastructure, operations and business planning. The established Joint Border Control Conference can provide a venue to harmonize Customs, inspections, accreditation of laboratories and trade logistics infrastructure. Suggestions for the structure of a Joint Border Development Commission organization are described in the Trade Logistics Institutional Constraints, Chapter V, Section C.

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<sup>5</sup> “Improving Mongolia’s Trade and Transport Linkages to Global Markets,” (Mongolia: Promoting Investment and Job Creation, An investment climate assessment and trade integration study), World Bank, Wallack, Carruthers, July, 2005.

## Chapter IV Trade Logistics Infrastructure Constraints

There are numerous constraints to trade flows at the border crossing caused by physical infrastructure deficiencies. In order to handle the rapidly increasing trade volumes, short term improvements are necessary to serve both immediate and longer term trade. However, Zamyn-Uud infrastructure capacity constraints in facilitation, equipment and operations are only one segment along 1,750 kilometers trade corridor from Tianjin to Ulaanbaatar. Ulaanbaatar facilities and Tianjin port shipments are two other chokepoints. There is a need to examine and solve infrastructure and institutional problems throughout the Corridor 4b since efficiency of one segment impacts the other segments. The institutional issues of the trade corridor are in the next chapter of this report.

This section assesses the Zamyn-Uud border crossing systems and the road to rail; rail to rail and road to road transshipment facilities with the lack of warehouse space, connecting roads and parking yards and makes recommendations for project intervention. The most obvious constraint is the lack of rail wagons. Each train by locomotive engine pulls 40 wagons and loaded manually by truck transshipments of the imported cargo from Erlian. The shortage of wagons causes the corruption fees as well as unorganized parking of loaded, mostly illegal weight loads, of trucks throughout the Zamyn-Uud three transshipment areas.

There are sharp differences in the levels of development of trade logistics infrastructure and operational practices between Zamyn-Uud and Erlian. The most obvious differences are in the paved roads and parking areas in the Erlian logistics facilities that are seriously lacking in the Zamyn-Uud logistics areas. These differences are underscored by the recent cancellation by the Russian rail partner of the United States' \$188 million Millennium Challenge Account Mongolia Rail Project in the UBTZ rail joint venture with Mongolia. Now, there is more need for tighter cooperation at the border between Erlian and Zamyn-Uud in order to resolve the severe differences in trade logistics infrastructure and practices.

Presently, one hundred and fifty outdated 45-60 ton cargo trucks cross the border per day laden with construction materials and consumer goods to be transloaded at one of the three transshipment facilities across the desert area and operated by the Mongolia-Russia joint venture, Ulaanbaatar Railway Joint Stock Company (UBTZ). All truck loads are one by one lifted by a team of 8 laborers to each 65 ton rail wagon. There are 50 kilogram cement bags and boxes of perishable fruits and vegetables that are lifted and moved from the trucks to the rail wagons. The cement bags are broken in the trucking and unloading-loading processes which causes costly loss of cargo.

The permanent loaders work in teams of 8 per wagon for a shift of 12 hours and 48 hours off time. The time required to unload and load 60 tons (one wagon=65 tons) is approximately 2-6 hours depending on the commodity. It is estimated that fruit and vegetables loading is 2.3 hours; 50 kg cement bags are 2 hours 2 ton cement loads are 1 hour and bricks are 6 hours per wagon. There are a total of 302 workers and the monthly

wages are US \$219/worker (250,000 tugrugs) per month or about US \$11 per 20 day month or US \$1.36 per 8 hour day (US \$1=1140 MNT). The lowest wage by Mongolian law is US \$95 (108,000) per month. Contracted loaders earn US \$1.75 (2,000 MNT) per ton.

The manual process of loading is inefficient for material handling of output per labor hour whereby more than the entire labor force is required to load one 40 wagon (8 x 40 wagons=320 workers or US \$8.16/6 hours/worker x 8=US \$65.28/wagon x 40=US \$2,611.20/train) train in a 6 hour span of a 12 hour shift as well as from the poor packaging materials for cement which causes a costly loss of cargo. Benchmarking and performance measuring in terms of output per labor (worker) hour along with more accurate information for calculations will show operational inefficiencies to handle the rising volumes.

The first solution is to the packaging and loading process based on international standard practices and requested by respondents in Mongolia to implement. In 2009, the main cement supplier in Erlian will upgrade the quality of the 50 kg plastic mesh bags from the current unit cost of .95 RMB to a better quality of the same material at a fractional cost increase. Secondly, the Erlian suppliers need to cooperate with UBTZ railway joint venture company and the shippers in the Mongolia supply chain in order to make gradual and permanent changes to the operational constraints in logistics material handling.

The USAID report suggests “unitization” of cement from the 50 kg bags to 2 ton bags (currently practiced) as well as the use of 500 “brick packs” for transloading at the three Zamyun-Uud transshipment yards. The report calculates that “unitizing cargo can reduce transshipment time by trucks from 4 hours to one hour and enable complete rail wagon sets to be loaded in three hours instead of six.” The USAID report discards the palletization option, yet the use of pallets is a viable option in the scheme of upgrading whole logistics systems to international standards.

The introduction of pallets made of wood or plastic are parts of a whole logistics system practiced in advanced areas of China such as in Shenzhen and Erlian and in developed countries. The pallets fit into international operational practices of forklifts either hand or motorized (see images below); containerization; measuring units in terms of cubic meters (cbm) which are useful in logistics supply chain planning and for the designing and building of warehouse storage and yard space.



The productivity improvements are measurable by raising Zamyn-Uud transshipment manual labor output per (worker) hour from the increasing trade volumes which will offset any added costs to the supply chain from purchasing pallets and fork lifts and ultimately adding necessary value to logistics by increasing service quality. It is recommended that there be priority action to institute a cooperation program among Erlian suppliers, Customs, UBTZ and Mongolian shippers for palletization of cargo in order to reduce the congestion of loading and contribute to the designing, planning and practices of storage both in open and covered logistics facilities. Chapter VIII Concept Investment Projects and Capacity Building, 2 Operational Improvements provides more details.

A second physical bottleneck at the border is the lack of systems in Zamyn-Uud of trucks crossing the Customs area and in the transshipment station yards. The congregation and lines of trucks waiting for crossing and in the yards for transloading contributes to the corruption fee practices by yard operators which are adding costs of extra payments to the shippers from Mongolia. (see story Appendix D) Similar congestion problems occur in the United States seaports and border crossings. The seaports use a registration and scheduling system for truckers to arrive on a scheduled day and time in order to reduce congestion and alleviate the pollution. Furthermore, the physical infrastructure costs are not very high from using a computerized truck registration and scheduling information software system as opposed to building new border facilities which at present are not underway. The introduction of the information systems for logistics service providers and truckers to arrive at the border gate at a certain time will reduce current congestion, corruption fees, improve Customs processing and enable better planning in the transshipment yards of matching truck loads (cement, perishables) to available rail wagons. Chapter VIII Concept Investment Projects and Capacity Building, 2 Operational Improvements provides more details.



Drivers for Documents at Border



Trucks Waiting in Yards





Lines of Trucks on Sand Paths in Yard



Congested Border Crossing

The most important physical infrastructure constraint on the border is the lack of modern intermodal transshipment and logistics center in Zamyn-Uud. There is much time and government decision making required by the Zamyn-Uud Representative Office of Mongolia over where to build the new transshipment intermodal and logistics center facilities and by whom among the three tracts of land under consideration. The October, 2008 USAID report offers a workable plan for building the new facilities, yet the realization of the plan as scheduled is uncertain. Moreover, the plan suggests the introduction of a new entity: Logistics Park Development Corporation (LPDC) which poses an institutional challenge under the SMGS Convention concerning the International Carriage of Goods by Rail of 1949 which is abided by the current railway operator, Ulaanbaatar Railway Joint Stock Company (UBTZ). SMGS is part of Chapter V Trade Logistics Institutional Constraints.

It is a priority action to complete short term projects to the current impassable sand yards, road paths and dilapidated loading platforms to international standards for transloading from the inefficient manual operations to mechanical equipment operations and for storage warehouses. UBTZ transshipment directors have plans with budgets for improvements and expansion to the existing infrastructure on their 700 hectares of land. They are willing to consult with ADB on these plans and for immediate equipment requirements for the facilities in short term and long term projects and technical assistance towards a modern intermodal station.

The most outstanding constraint to efficiency in Zamyn-Uud station and transshipment areas is the lack of gravel or paved roads, warehouse space and standard platforms for mechanical loading. The loaded trucks reach the stations and transshipment areas by crossing 6 kilometers of sand from the main road and cross 5 kilometers of sand between station #1 and station #2 for imported cargo bound for Ulaanbaatar by transshipments onto rail wagons. It costs US \$88 (100,000 MNT) to pull the heavy trucks out of the sand which happens, daily.

Station #1 is for road to rail and for import, export and transit shipments. All traffic of transloading cement goes to a new transshipment station #3. Station #1 was built during the Soviet Union era and can handle rail to rail functions when Station #2 cranes are malfunctioning. Station #1 needs platform improvements and more capacity by 2 Kalmar container stack reachers, special chemical storage and handling equipment. Station #2 rail

to rail was built by the Japanese assistance in 1995 and has adequate equipment lift capacity to perform container transloading with a cross-dock platform between narrow and wide gauges.

The total area of Station #2 and transshipment #3 is 57,000 hectares with 80 wagons per day capacity of which only one third of the total area is used. Empty wagons from Station #2 are sent to transshipment #3 for loading from trucks bound for Ulaanbaatar and Russia. There is also a need for a gravel or paved road from the main Zamyn-Uud paved road to transshipment Station #3 by 4 kilometers and a two way road (12 meters) to Station #1.

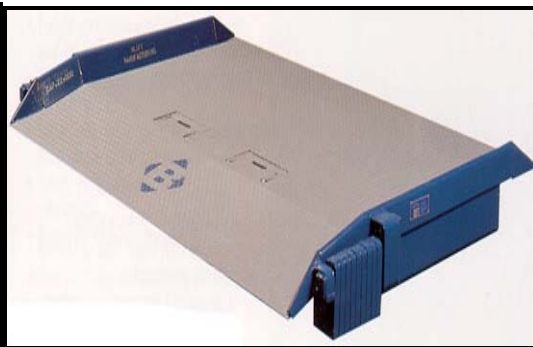


Project: Gravel/ Paved Roads and Parking

UBTZ directors of Station #1 and transshipment #3 have plans to extend and build from the existing facilities to solve the existing problems. The transshipment #3 will handle the increases in container shipments from Station #1 by making facilities' improvements which includes Customs opening a branch office in Station #3. Investment plans are to harmonize with market demand of the mining sector. One of the options for improvements to Station #1 are found in Appendix E.



Platform Repairs/Expansion  
Station #1



Rail board Platform Gap for Fork Lifts

In particular, Station #1 and transshipment #3 need warehouse space (dry and temperature controlled) and paved or gravel parking areas even if only temporary so that

loads can be stored, trucks do not idle and corruption fees are stopped when waiting for available wagons. In addition, there is a need to repair and construct platforms both for loading and covered storage with lighting 24 hours (nearby power plant) to international standards so that trucks and rail wagons are level to the platforms. The platform improvements will enable mechanical equipment to load palletized cargo. Erlian plans for railway improvements can be harmonized with Zamyn-Uud for optimal capacity planning and for construction best practices.

## **Chapter V Trade Logistics Institutional Constraints**

### **A. Agreement on International Carriage of Goods by Rail (SMGS and UBTZ)**

There is one 1949 railway agreement signed in Warsaw International Cooperation Railway Organization among the former socialist countries that needs review and modification. The SMGS Convention concerning the International Carriage of Goods by Rail is the fundamental regulatory document to manage international freight forwarding. Many public and private trade logistics respondents in Mongolia expressed deep concern over SMGS as an impediment to improving transport and trade logistics in Mongolia. China, Russia and Mongolia are regulated by SMGS for primarily the transshipment of cargo between the two different rail gauges of Europe-Russia and Mongolia-China borders. However, there are the combined effects of SMGS and the Russia-UBTZ rail joint venture with Mongolia to the detriment of the trade logistics industry.

The Mongolian railway system (Corridor 4b) is dominated by the Ulaanbaatar Railway Joint Stock Company (UBTZ), a Russia Federation-Mongolia ownership interest divided 50%-50%. Recent rail research documents in Mongolia state that the rail system moves 99 percent of the ton-kilometers of freight transport in Mongolia. The new July, 2007, Law of Mongolia in Railway Transport stipulates for more private sector participation in the railway logistics. The intent of the Law is for competition, lower prices with transparency and better service. However, the new law is limited by the SMGS agreement despite the new law's provisions to allow any logistics company to own railway equipment, wagons, locomotives or operate facilities. The Law states in Article 2.2 Legislation on railway transport, "If an international treaty to which Mongolia is a party is inconsistent with the law, then the provisions of the international treaty shall prevail."

UBTZ is not only the carrier of goods, but involved in side businesses of freight forwarding, logistics, and insurance as a monopoly and to the detriment of private logistics businesses. UBTZ claims that it is part of SMGS and that logistics providers not part of SMGS at the border are liable for damages and losses and for the railway bill of lading. To illustrate the monopoly there is the structure of wagon fees.

It is believed that the wagon shortage problem can be resolved easily by the Russians, but that there is a fee scheme to extract more revenue from the wagons in use. One estimate is a US \$230 per wagon surcharge multiplied by a 40 wagon train by two or three trains per day is in excess of US \$13,000 profit per day with no investments made to upgrade infrastructure and service quality. Currently, the trains operate at speeds of

35km/hour against a normal speed in Russia and China of 100 km/hour. The wagon fee scheme is confirmed by Erlian timber processing enterprises and accounts for 30% of their operating costs.

There are efforts by the Mongolia State Property Committee to improve the UBTZ monopoly over the railway by negotiating with Russia railway over SMGS and UBTZ. It is recommended to:

- Actively monitor the progress of the Mongolia State Property Committee-Russia railway negotiations and the Russian \$250 million loan assistance for rail modernization since the Russia Transport Ministry recently refused the United States' Millennium Challenge Account-Mongolia Rail Project of \$188 million.
- Revise the SMGS Convention and the UBTZ joint venture to a 60%-40% Mongolia owned interest in order to increase competitiveness in logistics and thereby lower prices with more management transparency.

## **B. International Trade Corridor Agreements**

### **1. Rail and Road**

The accession to international conventions and revision to bilateral agreements will improve cross border transport based on the increasing volumes of bulk and containerized cargo. Barriers to trade will be lowered between Zamyn-Uud and Erlian by acceding to certain conventions and revising border agreements and will also result in improving trade flows and regional development. The United Nations Economic Commission for Europe (UNECE), Inland Transport Committee offers useful guidelines for both Erlian and Zamyn-Uud to find cooperation and economic benefit for rail traffic at the border.

The International Convention on the Harmonization of Frontier Control of Goods, 1982, Annex 9, September, 2008 standardizes “documents and procedures in all areas connected with the carriage of good by rail.” The eight articles of this new annex address issues with solutions and emphasis is on documentation improvements. Article 7 and 8 stipulate:

“endeavor to reduce paper documents...by using electronic systems for exchange of information...provide customs agencies in advance with information or goods arriving at the border station...and instead of other shipping documents...use the CIM/SMGS railway consignment note which at the same time can serve as a Customs document.”

There are incidents of rail cargo in Zamyn-Uud waiting for hours for translations of documents, especially for bulk. United Nations is discussing with Mongolia railways on a project to implement e-documents based on UN data standards.

It is recommended that ADB partner with the UNECE and the United Nations Commission on Trade and Development (UNCTAD) to manage projects for electronic exchange of data with Russia, Mongolia and China railway and Customs authorities. Also, determine what is required for China and Mongolia to accede to the 1982 “Harmonization Convention” and for the Trilateral Agreement with ADB and UN

facilitating. The regional trading partners will benefit from a new UNECE Handbook on best practices of border crossing with a section on infrastructure to be published in mid 2009. These recommendations are consistent with Mongolia's National Program "Transit Mongolia" Action Plan, No. 1 (1.1-1.2), "Refining the legal environment for trade, international transportation and logistics service." (Chinese translation available)

Similarly, there is a bilateral road transport agreement in need of revision. The China Road Transport Association (CRTA), Beijing found that the Ministry of Transport (Communications), PRC plans to revise the bilateral motor transport agreement in 2009. The Road Transport Agreement of 1991 is a broad framework to develop cooperation on road transport for mutual benefit of the economic and trade relations, but in practice as an international status (third country freight) border crossing, there are problems.

Chinese trucks are allowed to cross up to Zamyn-Uud and Mongolian trucks only a short distance to the main Erlian distribution center down the road from the Erlian border crossing. Recently, a truck crossing agreement occurred at the international dry port of Manzhouli, Inner Mongolia, China-Russia border crossing. At present, the Manzhouli municipal government is not releasing the document, but it is believed that trucks will be permitted for crossing between China and Russia up to 300 kilometers both ways and between China and Mongolia up to 180 kilometers both ways.

The national road transport agreements will impact the development of a necessary alternative to railways. There are the following policy considerations in the face of cross border trade volume growth:

- Eventual completion of the 432 km two lane asphalt-concrete road between Choyr and Zamyn-Uud;
- Asian Highway (AH3) road connections to alternate PRC seaports such as in the Bohai Rim (Dalian, Qingdao) or Lianyungang as well as trade routes to North East Asia and to western routes to Russia and Europe;
- Better freight forwarding service for the small and medium sized Mongolian businesses instead of carrying goods by passenger cars and by passenger rail cars across the border;
- Containerization and intermodalism;
- Mongolian use of TIR Carnets and PRC acceding to the TIR convention

In the United States, truck transport constitutes two-thirds of cargo transport in a one trillion USD per year transport and logistics industry. Border trade with Canada across the 5, 525 mile border transacts US \$1 million of services and goods every minute or US \$1.5 billion per day which equals more than US \$500 billion a year. (CAN/AM Border Trade Alliance, 2003)

The Transports Internationaux Routiers (TIR) Convention is not well understood or known by trade logistics stakeholders on both sides of the border nor by government officials in the capital cities of Mongolia and China. The State Council, PRC will decide on TIR accession after receiving a report from the Ministry of Transport and the General Administration of Customs, "The research of China's accession to the Agreement on

international convention TIR.” Immediate implementation of the TIR Convention is expected after the State Council’s decision. “Accession to the TIR Convention will do more good than harm for us and will be very beneficial to the overall opening to the outside world of road transport trade of our country.” (CRTA, Beijing, September, 2008)

China’s accession to the Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention) would result in improving conditions for developing intermodal transport and logistics services as well as boost trade across regional and international corridors. The TIR system is designed to reduce delays at border crossings by allowing transport to move from origin country to destination country for bilateral and through transit trade without Customs formalities at each border crossing. The system operates across all modes (ocean, rail) so long as one segment is by road. Benefits to the transport industry and Customs are to reduce: transport costs, documentation, security risks, inspections and to guarantee duty payments and the efficient use of Customs personnel.

China has not acceded, but is researching and acceding to the various conventions required and formed a group to review the conditions of infrastructure and policies. The group is comprised of departments involved in cross-border transportation as follows: Customs (lead), Ministry of Communications, Ministries of Foreign Affairs, Finance, Public Security, the Quality and Inspection Bureau and the China Road and Transport Association. The TIR system began in Mongolia from June, 2003, but is not operating fully because of a lack of training. Russia is also a member of the TIR Convention.<sup>6</sup>

China State Council level intervention is recommended at the Erlian-Zamyn Uud border crossing just as recently accomplished by the “China-Kazakhstan Horgos, Xinjiang Uygur Autonomous Region International Border Crossing Cooperation Center” from the Ministry of Commerce, Xinjiang province. The Center will share a border area with trade logistics bonded area and commercial formalities within 4.63 square kilometers of which the China side has 3.43 square km and the Kazakhstan side 1.2 square km. A supporting area will be constructed on the China side near the Center as an industrial base. The supporting area will be 9.73 square km and follow the Zhuhai Zone of Zhuhai-Macau Cross Border Industrial Zone for functions and administration. This model of development is advised for Erlian and Zamyn-Uud Mongolia with the same purpose,’ to promote economic development and social stability...and initiate the development and construction of the Chinese side Center as soon as possible...to start operating.” There is a need for Erlian-Zamyn-Uud joint cooperation commission to follow such a development plan.

## **2. Freight Forwarding**

There is uneven institutional development in the vital trade logistics functions of the freight forwarding associations. Both the Mongolia Freight Forwarding Association (MFFA) and the China International Freight Forwarding Association, Beijing with the Inner Mongolia Logistics Association (CIFA-IMLA) expressed a willingness to forge

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<sup>6</sup> “Inner Mongolia Autonomous Region: Trade Facilitation and Logistics Development Strategy,” TA-6058 (REG), ADB, Wallack, Wu, September, 2006.

cooperation jointly to the extent of CIFA establishing an office in Ulaanbaatar and for the necessary joint website design, construction, operation (Chapter VIII). The joint website in Chinese, Mongolian, Russian and English languages is necessary and doable by project leadership of the China International Electronic Commerce Center (Co. Ltd), Beijing for purposes of sharing information, training by FIATA programs and solving problems such as establishing a service for the small and medium sized Mongolian businesses that purchase goods in China and bring them back in large packages by passenger automobiles and rail cars.

Currently, MFFA has 80 registered freight forwarding companies with 25 fee paying and 9 large companies serve 80% of the total freight forwarding business. There are deficiencies in the MFFA that can be corrected through joint cooperation such as a useful joint website; committees organized by logistics sector: rail, cold chain, hazardous materials; and solving problems in Tianjin (Xingang) port by tracking and tracing on the website.

It is in both Mongolia's and Inner Mongolia's best interest to organize the logistics industry and the trucking industry into jointly cooperating associations to distinguish companies with logistics service offerings of end to end goods management for customers from the basic trucking companies. The institution of industry joint associations can consolidate the industries and open up more competition along market based principles for better service and lower costs and not along the oligopolistic principles of a few companies.

### **3. Data Exchanges**

Cross border data exchanges by electronic data interchange (EDI) are a normal course of business for over ten years at the US-Canada borders for efficient flow of commerce. The 1993 "Agreement between the Government of the People's Republic of China and the Government of Mongolia on Customs Mutual Assistance and Cooperation" needs to be revised as justified by the growing trade volumes Erlian and Zamyn-Uud. At present, only statistical data is shared at the border. Business data is not exchanged for reasons of inconsistent laws and regulations; lack of trust and software and hardware differences. It is necessary to overcome the differences by the following:

- Review the Customs Mutual Assistance and Cooperation Agreement, Article 3.8 related to application of computer systems and Article 7 to change to: meetings held on a regular basis as in monthly or quarterly to implement data exchange systems;
- Determine and resolve the obstacles to signing the Agreement on Electronic Foreign Trade Operations Information Exchange between member Customs Administrations of Customs Cooperation Committee, Central Asia Regional Economic Cooperation, Asian Development Bank;
- A Technical Assistance project by ADB for the Joint Border Control pilot project at the Zamyn-Uud-Erlian border crossing. To date there is no progress.

#### **4. Customs, Border Inspection, Certification, Accreditation of Laboratory**

Another cause of congestion at the border crossing is the quality certification of products system. Mongolian Customs General Administration requires import declaration documents (commercial invoices), but also there are documentation and procedures for product quality certification by the State Standards and Inspection Agency (SSIA) and the Mongolia Administration for Standardization and Metrology (MASM). The SSIA does the actual testing of the products (food) in the Ulaanbaatar laboratories and needs to coordinate with MASM over conformity certification. The imported commodities are increasing each year from China and third countries for perishables and for mining and construction industries. Another problem is that MASM and Customs need to coordinate lists of certified imported products, quantities and importers, through their databases in receiving and transmitting the data to the Zamyn-Uud station in order for importers to clear their shipments.

Another related problem is that of internationally accredited laboratories for testing products. Erlian China has a laboratory for testing under the Certification and Accreditation Administration (CAA) of the PRC and to international standards. The Beijing office of CAA informed that seldom does the Erlian laboratory refer to Beijing for testing and therefore does not cause delays to Mongolian importers.

The Erlian laboratory can perform the tests and MASM can issue conformity certification for timely importing, but the MASM chairman is not accepting CAA Erlian laboratory tests, whereas the previous chairman did accept the tests. Furthermore, there was a memorandum of understanding (MOU) in 2005 between the Beijing General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) and the MASM with SSIA to resolve the acceptance of the Erlian internationally accredited laboratory. Mongolia will accept the Erlian laboratory only if there is 100% testing. The MASM requests to connect an electronic network to China CAA/AQSIQ and to establish an MASM Standards Information, Enquiry and Training Center. (VIII. 9.)

There are also problems with Customs export documentation for the leather tanning industry, for example. Four documents are requested by Customs in order to export leather skins: (1) phytosanitary; (2) MASM certification; (3) certificate of origin from the Chamber of Commerce; (4) SSIA certification. The time to collect the documents is 7 days and Customs will not allow exporting without all the documents. However, Chinese traders are exporting the leather skins without all the documents, illegally. In addition, the Entry-Exit Inspection and Quarantine of PRC documents are in Chinese language and need English printed on the documents. Finally, Customs is not educated in the chemicals and standards of “wet blue” calf skins on the border trade. The following recommendations are priority actions and in agreement with PRC counterparts:

- Mongolia Customs, SSIA and MASM coordinate databases and transmitting data to Zamyn-Uud station of the certificates of conformity of imported products.
- Train Zamyn-Uud Customs in the animal skins business as well as the related chemicals imported by companies and not allowing the chemicals imported by



- individuals. Secondly, improve the systems to collect and approve export documents for traders. ADB start training for the Customs Modernization Project.
- Renew the 2005: Memorandum of Understanding on Conformity Assessment between the Certification and Accreditation Administration of PRC (CCNA) and Mongolia Agency for Standardization and Metrology (MASM) with AQSIQ, PRC for approval of the Erlian testing laboratory based on international standards. Invite SSIA to participate, if possible. Secondly, organize a visit to the Erlian CNNA laboratory for the MASM chairman as suggested by the director of CCNA, Beijing.
  - Implement in English the electronic document system for the “Entry-Exit Inspection and Quarantine of PRC” (CIQ document) as used in China by the CCNA. Ask China to send Mongolia Customs an invitation to start the program (Chapter VIII, 9)
  - Organize a meeting with AQSIQ, Beijing, Import and Export Food Safety Bureau and MASM-SSIA for clear steps and timetable to approve Mongolia meat for export. Firstly, complete the access and permit procedure as recommended by AQSIQ.
  - Organize a committee to discuss electronic connection of border Customs, inspections and accreditation laboratories to remove overlaps.
  - Develop a project to establish an on-line MASM Standards, Information and Training Center or as part of SEW.

## **5. Seaport Access**

There are delays and missing containers shipments of up to 3 months in Tianjin(Xingang) Port which result in loss of business, especially to perishables, impact economic growth and future investments. Track and trace or “visibility” to all shipments by bill of lading number or mutually agreed identification number is the practice used by entering the bill of lading number into a logistics service provider’s computer system. Implementing the proposed joint website project will go far in addressing Mongolia’s problems of accessibility to the rest of the world.

China Bohai seaports (Dalian, Qingdao) offer an alternative to the congested Tianjin port terminals. The Global Framework for Transit Transport Cooperation between Land-Locked and Transit Developing Countries endorsed by the General Council of the United Nations in 1995 is a negotiating tool for Mongolia with China to open up more access to seaports. The Tianjin Binhai New Area and Dongjiang Bonded Harbor Area are possible new terminals for agreement to a special area for Mongolian containers. Mongolia seeks ADB assistance to implement their Action Plan 1.7 “Address the Chinese part with the issue of Mongolian traders obtaining access to seaports through the territory of China” under the National Program “Transit Mongolia.” While the corridor of Tianjin is much shorter, it is Mongolia’s interest not to be dependent on a single seaport of entry and exit.

### **C. International Trade Corridor Management-Models of Development**

The trade logistics impediments to growth in Zamyn-Uud are not confined to the border. The efficient flow of imports and exports are challenged in Tianjin seaport and in Ulaanbaatar logistics terminals. Joint border cooperation, formed by a Joint Border Development Commission, needs a comprehensive framework to examine and resolve problems throughout the Corridor 4. The World Bank devised the “Best Practices in Management of International Trade Corridors”<sup>7</sup> with useful application to Zamyn-Uud-Erlian cooperation programs.

The border trade logistics issues challenging Zamyn-Uud and Erlian are best resolved on national, provincial and local levels, simultaneously. There is a public and private sector aspect as well. There are various objectives among all the stakeholders involved with the international trade corridor and the challenge are formidable and difficult to control or manage. However, the common thread among all stakeholders is for the border towns to effectively construct and operate trade systems in order to attract investment, industrialize and urbanize for joint regional economic development.

The Mongolian National Committee on Trade and Transport Facilitation (NCTTF) is the organization with empowerment by the Prime Minister to form joint cooperation programs and implementation of projects with Erlian. As a corridor management organization,

“the requirement to interact with a large number of political and private sector actors does not require size, it requires flexibility. The same applies for the requirement to act across provincial and national boundaries. For the latter, working committees can be established involving senior officials involved in trade and transport to focus on the legal components, but the physical and operating components must be dealt with at the national level. The exception would be to improve performance at the border, in which case bilateral working groups can be established. Overall, the organization must have critical mass of technical and public policy personnel to be credible. This implies an organization of at least ten professionals, but not more than fifty.”<sup>8</sup>

The following Table 10 describes the activities of the NCTTF with the Government Special Representative to Zamyn-Uud with an Erlian counterpart organization comprised of the Commerce Bureau, Port Office and Border Management working, jointly. The corridor management organization can be effective in overcoming inertia and have consistency of policy that is independent of political electoral changes in Mongolia which is a frequent constraint to trade logistics project implementation.

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<sup>7</sup> “Best Practices in Management of International Trade Corridors,” Arnold, Transport Papers, TP-13, World Bank, December, 2006.

<sup>8</sup> Page 15, “Best Practices in Management of International Trade Corridors.”

**Table 9: Activities of Corridor Management**

Activity	Components Affected	Management's Role
Planning	Legal, Physical	Coordinate
Financing		
Legislating	Legal	Advocate, Direct
Regulating	Legal, Operational	Advocate, Coordinate, Direct
Operating	Operational	Direct
Monitoring Performance	Operational, Physical	Direct, Coordinate
Promoting	Operational	Direct

Priority issues for the joint trade corridor management organization are:

- (1) the coordination with ADB to complete the Regional Road Development Project of a sealed road from Choyr-Saynshand-Zamyn-Uud.
- (2) Designs to construct improvements to Ulaan Baatar's trade logistics system.
- (3) Computer system to track and trace containers from Tianjin-Ulaan Baatar to ensure on time deliveries by monitoring performance of freight forwarders, reduce corruption fees and improve the perception of the international trade corridor 4 to attract more investment to the border region. (Chapter VIII)

The Choyr-Zamyn-Uud road is a 432 kilometer two-lane asphalt-concrete road project with 7.0 meters wide pavement and 1.5 meter shoulder, and a 3.3 km four lane asphalt-concrete road with 14.0 meter wide pavement and 2.0 meter shoulder between Zamyn-Uud and the border with Erlian. This includes the 2009 ADB-IMF allocation of \$24 million to complete the 61.8 km section near Zamyn-Uud. Lower costs, shipment reliability and service quality will improve along the corridor when the road is completed. The joint trade corridor management organization can provide the project management oversight to ensure defined completion of the road by coordinating construction delays among the public and private stakeholders (Korean, Mongolian, ADB).

The current Ulaanbaatar logistics and distribution terminals are important to the Corridor 4b project and the success of the Zamyn-Uud logistics improvements. Presently, there are eight terminals operated by private logistics providers among the UBTZ main railway operator. The lack of wagons and heavy lift equipment are coupled with congested truck traffic competing with passenger traffic in Ulaanbaatar. (Appendix F Ulaanbaatar Logistics Terminals)

The MFFA and private sector are planning for a new central logistics center on a site 35 km from Ulaanbaatar city proper. Private sector cost estimates are of US \$100 million. As in Zamyn-Uud, there are short term improvements to the existing terminals such as cranes (10-50 tons bridge cranes) and information systems to match shipments with available wagons and containers and thereby reducing demurrage fees. Carriers allow 45 days for the containers to return from Ulaanbaatar to Tianjin and the freight

forwarder only 15 days for the return trip to Zamy-Uud and charges by the carrier are US \$10 per TEU and US \$20 per FEU for 5 days late and doubled each 10 days. One perishable goods (refrigerated containers) company in Ulaanbaatar paid a one time demurrage fee of US \$2,000. The trade corridor management organization can work with Erlian logistics center strategies on devising an Ulaanbaatar logistics center solution, jointly. The solution needs to include the whole corridor from Tianjin port

Developed countries and Asian developing countries have trade corridor organizations supported by national policies for improving infrastructure and economic development. In 1994, the North American Free Trade Agreement (NAFTA) opened the borders to increase flows of trade and transport by which currently, 35% of US-Canada trade of US \$81 billion annually (2003) passes through six international border crossings. Regional trade volume is growing 20% annually with 70% of goods moved by trucks.

“Sister city” relationships across borders are one form of cooperation to solve infrastructure problems jointly and attract the necessary investments to industrialize in expanding production and service capabilities. There are numerous trade corridor organizations comprised of public and private groups in Canada, the United States, and Mexico along the borders to identify joint projects and through cooperatively seeking funding. Some of them are: CAN/AM Border Trade Alliance ([www.thebta.org](http://www.thebta.org)) with 60,000 members and over one million affiliates for border management issues along the 5,525 mile border; The International Mobility & Trade Corridor Project ([www.wcog.org/imtc](http://www.wcog.org/imtc)); and North America’s Super Corridor Coalition ([www.nascocorridor.com](http://www.nascocorridor.com)).

Take the International Mobility & Trade Corridor Project (IMTC) as prime example of how two border cities come together on a regular basis to solve common infrastructure and border processing problems. Since 1997, the Cascade Gateway’s four border crossing points of road and rail, located in the Northwest corner of the United States and Canada in Washington state, U.S.A. and British Columbia, Canada, worked together to fund \$38 million for projects to improve infrastructure, operations and information technology. The local (soum), provincial (aimag) and national governments partner with businesses in well defined organizations.

There is a Steering Committee meeting monthly comprised of 30 agencies to make suggestions to the Core Group of 60 agencies that meets quarterly and makes decisions in the IMTC, and there is a General Assembly meeting annually comprised of 200 businesses, organizations and agencies that depend on the smooth flow of commerce across the border points. In 2006, almost \$17 billion (USD) in trade crossed the Cascade Gateway by truck and \$3.5 billion of trade by rail whereby it is estimated that border congestion costs trucking companies \$22 million per year at the Pacific Highway crossing alone. The Cascade Gateway coordinates and collaborates as a joint system and not as individual border crossings.

In addition to the joint border development commission it is also suggested that Mongolia and Inner Mongolia, PRC form a regional economic development department

which are useful in cities in developed economies for promoting the border for investment. The China Council for the Promotion of International Trade Inner Mongolia Regional Sub-Council along with the Mongolia National Chamber of Commerce and Industry (opening Erlian office) are working together for joint economic development and the joint website can be a catalyst to economic development. (Chapter VIII)



There are also developing country examples for border cooperation programs: Closer Economic Partnership Agreement (CEPA) of 2003 between the mainland and the Hong Kong, Special Administrative Region; Association for South East Asian Nations (ASEAN) Priority Sector for Integration of 2004, Article 10 (Logistics Services) for expediting the development of integrated transport services in ASEAN. Both the developed and developing countries are forming non-profit international trade corridor organizations with supporting national policies to improve communication between borders among all stakeholders to result in more trade and investments for economic growth.

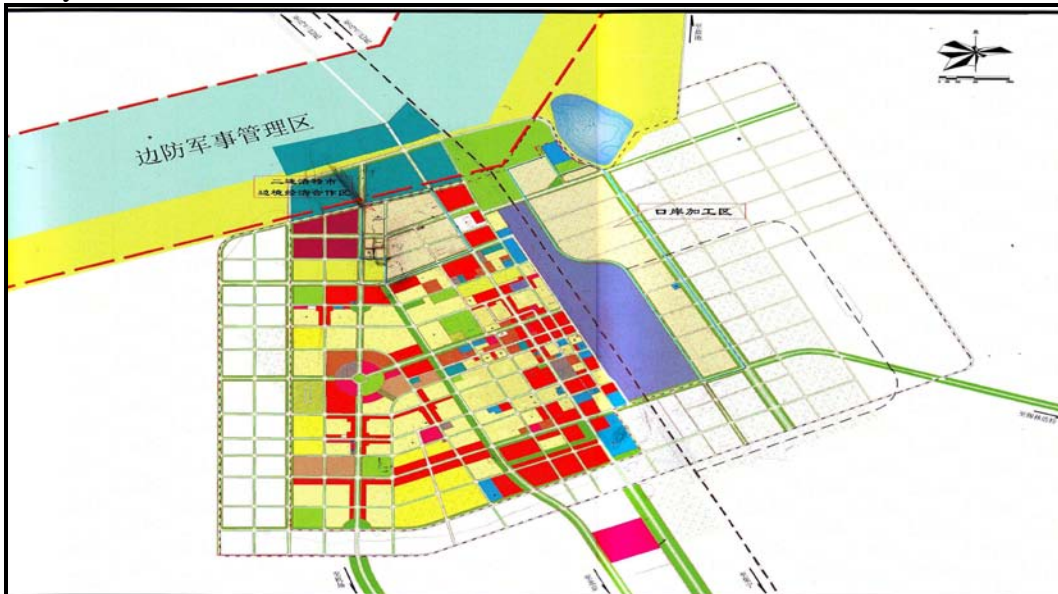
## Chapter VI Border Development Planning Harmonization

Urban development planning and construction is progressing in Erlian for logistics (road, rail, processing facilities) near the border and southwest of the border and for new residential and commercial areas southwest of the border. There are completed development areas with paved roads and drainage; water treatment plants and wind farms. Also, completed are a new privately owned logistics center and a new building materials distribution center larger than the current one used by Mongolians and located southwest of the border. Erlian's Vice Governor presented their master plan in February, 2008 to the Mongolian Ministry of Road, Transport, Construction and Urban Development (MRTCUD), Director of Urban Planning and Policy Coordination with the intention of harmonizing and supporting Zamyn-Uud's urban and logistics development.

The MRTCUD master plan for Zamyun-Uud includes infrastructure planning for logistics and warehousing (reference to the 900 hectares Free Economic Zone) to comprise two-thirds of the new construction and limitations for the remaining one third for manufacturing and industrial use. The limitation is based on the lack of water which will need direct assistance to tap the local ground well water or for a water pipe line from Erlian. There are opportunities where harmonization is requested and urgently needed, yet the current state of communicating is not established. The organization of a joint urban and logistics development committee is requested by both sides to meet on a defined schedule with clear objectives and by ADB facilitating in order to develop both border towns. The Joint Border Development Commission can serve the purpose.

Erlian Vice Governor is experienced in Mongolia relations and the MRTCUD finds his approach conducive to good joint cooperation. However, there is frustration by Erlian government officials from the Zamyun-Uud and central government making plans and not acting on them. The Mongolia inertia and the mutual lack of trust are major constraints to harmonizing urban and logistics development plans which are fueled by a change in Mongolian policy each time an election changes leadership.

The border crossing road corridors; water supply; and the Free Economic Zone are three areas where a joint border urban and logistics development committee with ADB project management oversight can work to harmonize and connect infrastructure between the two cities for improved cross border trade. Erlian will complete a new road for truck border crossing in 2009. The Erlian road designs need to be shared with Zamyun-Uud to widen their narrow passage and connected to at least a warehouse for food, construction and value add logistics services (packaging, labeling, bar coding). Zamyun-Uud identified 60 hectares of land for a warehouse.



Erlian Border Development Plans: East-processing; North-new road and FEZ

The MRTCUD determined that there are four potential wells of water in Zamyun-Uud found by JICA. (a) three wells 11-14 km away of 15 liters per second; two wells are

not potable. (b) one well is 90 km away of potable quality. The Governor of Zamyn-Uud FEZ states that water can be supplied by 9 wells from a deepness of 110-150 m. and current water consumption per day is 1350 cubic meters with expected new capacity of 1300 cubic meters per day. The shortage of reliable water limits Zamyn-Uud's plans for industrial development with manufacturing.

The Water Supply Company of Erlian and the Erlian Development and Reform Commission outlined their plans for Erlian's new water supply from 20 new water wells for 30,000m<sup>3</sup>/day near the current water source of Qihariget, 56 miles south near the new Erlian airport. Currently, the 12 wells have a capacity of 17,000m<sup>3</sup>/day for a demand of 20,000m<sup>3</sup>/day. The water is piped through polyvinyl chloride plastic (PVC) and does not have maintenance problems. In May, 2009, a different plastic material will be used to construct three pipelines of underground water supply and completed by the end of 2009. Blueprints outline the project for a cost of US \$8.9-US \$10.29 million for construction and materials and ADB is requested for technical and non-loan financing of US \$2.6 million. Erlian expects to need 100,000m<sup>3</sup>/day by 2020 for a population of 250,000. Additional funds will be needed to connect Zamyn-Uud and at present, only in case of an emergency.

An underground pipeline of water supply is possible to Zamyn-Uud. However, approval is required from the Erlian and the Government of Mongolia in a formal agreement. Once agreed, "there is not a problem to construct the pipeline from Erlian, but not for 3 years or after 2011," according to the Water Supply Company of Erlian. Moreover, there are constraints to development in Zamyn-Uud by a lack of proper pricing-payment; local-central institutional arrangements and planning. Presently, Erlian connects electricity to Zamyn-Uud, but they are not paying which is a local problem.

The Free Economic Zone (FEZ) is the third project that both border cities recognize as a main reason to connect urban resources of water and electricity, but Zamyn-Uud must demonstrate trust by first constructing their side of the logistics facilities with ADB project and technical assistance. The joint urban and logistics development committee (Joint Border Development Commission) can work to establish a national government agreement to jointly build the FEZ, if so, then "the Chinese government will connect the water, electricity and necessary urban resources to Zamyn-Uud," according to the Erlian government officials. In summary, the three projects for harmonizing and connectivity are related by the widening of the Zamyn-Uud road corridor for trucks to the new Erlian road crossing for entry and exits to a joint FEZ where the strengths of both sides can work complementarily through the FEZ. The Xinjiang, Horgos-Kazakhstan border agreement as stated earlier in this report serves as a model of development.

The World Bank, Public-Private Infrastructure Advisory Facility (PPIAF) published in June, 2007 a detailed account of Mongolia's infrastructure situation in: "Foundation for Sustainable Development: Rethinking the Delivery of Infrastructure Services in Mongolia." The main thrust of the report has relevance to successful

implementation to joint border cooperation in urban and trade logistics development as follows:

“The three major challenges to ensure that infrastructure plays a catalytic role in Mongolia’s development are more closely aligning prices with costs, improving efficiency in governance, and better planning. Without pricing reform, regressive subsidies will continue to sap resources from maintenance and expansion. Without improved efficiency and governance, the quality of service provisions will continue to decline, resources for investment will be wasted and new resources of financing will not emerge. Without better planning, the investment resources that are available will be misallocated, garnering low economic returns and lower poverty reduction.”

Currently, 90% of infrastructure investment is financed by donors and the only sources of internal funding of infrastructure are from taxes and tariffs. Zamyn-Uud-Erlian urban resources and logistics connectivity depends on workable local institutions for public and private participation of infrastructure development. The following recommendations were gleaned from the World Bank report and from ADB Mongolia Resident Representative office discussions:

- Establish an independent (transparent) and non-political regulator to set a tariff regime (water, electricity, transportation-logistics-rail);
- Public Urban Service Organization (PUSO) track costs by formal reporting so that benchmarks can be made to improve efficiency and the development of a market in Water Supply and Sanitation (WSS) as well as for electricity, transportation-rail management services;
- Introduce private sector participation after establishing an independent regulator system and PUSO reforms that are managed by the Construction and Public Utilities Support Center (CPUSC-MRTCUD);
- Establish multi-stakeholder board of directors: International Financial Institutions (IFI) partner with private sector parties, with PUSO (civil works) and Erlian urban-logistics development officials (Water Company; Reform and Development; Port Office and Border Economic Cooperation Management)
- Training of human capital in project management, civil works operations, and technology transfer from the successful wind farms in Erlian and other cities in Inner Mongolia.

## **Chapter VII Assessment of Zamyn-Uud Free Economic Zone**

The Government of Mongolia continues to pursue the development of a Zamyn-Uud Free Economic Zone (FEZ) and is in the process of completing a master plan by a



special working group under the Governor of Zamyn-Uud FEZ and the First Deputy Prime Minister for sometime in 2009. The implementation of the FEZ as a defined project has a fence and a gate in the designated area of 900 hectares (9 sq km) and 8 km from the border of Erlian.



Zamyn-Uud FEZ Gate-Fence Area

There is offsite infrastructure of 110kWt electricity transmitting line and sub-station; a water source of 17 liters per second 17 km. from Zamyn-Uud; high speed fiber-optic cable and a nearby border port with facilities. There are plans and financing for a 15 km. long security fence, shelter and control point; 10kW transmission line one km in length to the zone and a 250kW transformer substation; one km. auto road with 6 lanes in two directions from Zamyn-Uud port to the zone; border control building accommodating all subordinate departments and bureaus of the Administration of Zamyn-Uud FEZ.

The main activities envisioned for the FEZ are for industrial of light industrial and low water consuming; commercial for business services and for a tourism section. The lack of progress, underdeveloped infrastructure and small population base are the main reasons to form a joint development of the FEZ with Erlian as a regional economic commitment. Erlian officials express a willingness to cooperate on FEZ joint development.

There is a legal framework adopted in 2003 by “The Law on the Legal Status of Zamyn-Uud Free Economic Zone” for industrial, trading and tourism services as well as favorable tax exemptions. In addition, a Customs Special Zone Procedure adopted in 2008 is to “establish a Customs territory for the purposes of promoting development of certain sector, introducing advanced technology and creating favorable environment for investment.” However, there are no regulations to implement the FEZ and these laws need to be synchronized with those in Erlian for successful FEZ development.

In 2004, the USAID sponsored a report: “Assessment of Mongolia’s Free Trade Zone Program and Site Evaluation”<sup>9</sup> wherein the two major recommendations have yet to materialize to make the FEZ program successful, competitive and to international standards. Firstly, to conduct an economic cost-benefit analysis to determine the risks of loss of tax revenues from tax breaks and costs to the government to bring infrastructure to acceptable standards for operations and investors. The FEZ has to be part of a national economic development strategy with policies for urban utilities, labor (wages, productivity) and transportation (rail), and aligned with the overall urbanization and

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<sup>9</sup> “Assessment of Mongolia’s Free Trade Zone Program and Site Evaluation,” Ceron, USAID, EPRC, 2004

industrialization of Mongolia and for Zamyn-Uud. Secondly, a commercial feasibility study comprised of: (1) market assessment; (2) master planning and infrastructure requirements; (3) implementation planning; (4) business and financial modeling. Finally, the master plan of the FEZ needs to be integrated with construction of roads to the transshipment and logistics center facilities as well as in a trade corridor framework to exploit the full benefits of trade from China (Tianjin port) through the European Union where trade policies are favorable.

The advantages of a regional logistics oriented FEZ are compelling. The processing industries are expanding in Erlian with the resource base either originating from Mongolia (animal products, mining materials) or crossing its border from Russia (timber). There are also the distribution, storage, testing, packaging and assembling functions of FEZ which are supported by demand from the construction materials (70%) and consumer goods (20% fruit, vegetables, meat) as well as markets for light manufacturing that will not require high water inputs. Benefits to Mongolia will also accrue from the new Erlian airport logistics center whereby Mongolia will be able to diversify its industrial structure away from commodities to higher value and lower volume (electronics) exports.

The regional development of the FEZ is tacitly approved by business and government partners in Erlian. Forming a business and government Joint Border Development Commission is necessary to explicitly implement the FEZ for adequate commitment to objectives, financing, developing and a value proposition (marketing) which are all lacking in Zamyn-Uud. The border development venture of the FEZ will serve to improve foreign direct investment (FDI), the main driver of FEZs from Erlian's 2006 FDI of US \$64.5 million from Mongolia, Russia, Hong Kong, Japan and Canada.

China's rapid urbanization and industrialization is marked by the successes of the Special Economic Zones approved by the central government to only 7 SEZs since 1980 of which the 2006 Tianjin's Binhai Newly Developing Area is a useful model for Zamyn-Uud-Erlian. The favorable policies of the SEZs for taxes attracted investment, technology and raised output. In Shenzhen, Guangdong province, there is a remarkable 1980-2005 growth rate of 27% and FDI from US \$157.7 million to US \$3.3 billion. The industrial structure began in assembly and processing and progressed to independent manufacturing. The Shenzhen SEZ success factors are its labor force of which 83% are migrants workers (Erlian is experiencing migrant labor); availability of capital; established infrastructure with logistics as a centerpiece; and transparent government.<sup>10</sup>

In the United States, the policy to promote Foreign Trade Zones (FTZ) began in 1934 to improve foreign commerce and continues to save businesses in customs duty, broker costs, and other processing fees while increasing employment. In 2006, the value of processed goods in the US FTZs was US \$491 billion, a 20% growth over 2005. The value of 1996 FTZ exports was US \$ 5 billion and in 2006 was up 30% from 2005 to US \$30 billion or twice the 16% increase for exports of general US exports. There are 2,646

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<sup>10</sup> "Special Economic Zones and Competitors A Case Study of Shenzhen, PRC," Pakistan Resident Mission Note, Guo and Feng, ADB, November, 2007.

companies operating in 256 general- purpose FTZ and 262 sub-zones in the US 50 states and Puerto Rico. Texas has the largest FTZ activity because of its energy sector.<sup>11</sup>

There are many supply chain advantages in FTZs to US multinational high technology companies. Hewlett Packard Company and Agilent Technologies benefit from operating within FTZs for reduced duty and Customs fees which are dramatic savings for high volume of imports and exports of electronics. Their selection process performed a feasibility study to evaluate the investment required and the benefits. The implementation of the project selected the zone operator of which there was an existing relationship with DHL, the global logistics service provider for their warehousing, brokerage and transportation. The location within the zone was established by using a sub-zone within the Customs district. There are administrative and operational conditions that need to be met for reporting and in bond transportation, but the advantages are greater.

The FEZ Master Plan needs to show an integrated plan with not only the Zamyn-Uud transshipment and logistics centers (multimodal) with connecting roads, but also in the context of a joint development project with Erlian's FEZ master planning for a logistics cluster zone to serve to the current and future industries. The current industries are in processing, distribution and storage, yet there is a greater need to attract new industry sectors for long term economic development. The following recommendations are to identify new target industry sectors:

- **Industrial Clusters:** there is a growing amount of information and methodologies for industrial clustering of small and medium enterprises as an economic development strategy which can be applied across the border. The advantages are innovation, technology transfer, lowering of local government barriers, and inter-firm linkages. The Asian Development Bank Institute and the United Nations Industrial Development Organization, Industrial Clusters and Capital Operations Office together with this international consultant are sources to implement the program.
- **Partnership Programs:** The results of the industrial clusters program will identify target industries for the FEZ. In addition, an investment promotion program will align source of capital and investors to target industries. The Multinational Investment Guarantee Agency (MIGA) Financing Direct Investment Promotion Center website is useful: [www.fdicenter.com](http://www.fdicenter.com).
- **Appendix G:** Offers an example of the output from a study on the suggested target industries for the FEZ. There are many "clean industries" that need to be researched that fit the conditions of a Zamyn-Uud-Erlian FEZ. Some examples are: alternative energy, software, new science, new materials, pollution control equipment for energy efficiency, information technology.

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<sup>11</sup> "NAFTA Rides Momentum to Increase US Job Opportunities," FTZs, McKenna, Journal of Commerce, September 15, 2008, p. 37.

- Industry Transfer Promotion Center (ITPC), Ministry of Commerce Shanghai Base, Caohejing Hi-Tech Park, No. 900 Yishan Road: A non-profit organization established to promote business investment activities in the PRC middle and west regions. The purpose is to have industry transfer from the east coast to the western regions and serve as a channel of information for foreign investment companies' transfer of site locations.
- The Inner Mongolia Finance Office, Hohhot: Expressed and interest in opening an office in Ulaanbaatar to work on border town investment opportunities and promotion. The Mongolian National Chamber of Commerce & Industry will open an Erlian office in May, 2009.

## **Chapter VIII Capital Investment Projects and Capacity Building**

The Harmonizing Border Development of Zamyn-Uud and Erlian study has actionable investment projects and technical assistance as well as capacity building for multimodal trade logistics and urban development that can be implemented, jointly. Both border towns can jointly incorporate the findings and recommendations of this study into their development and investment planning. Some investment costs are included with recommended financing mechanisms. The following concept projects are aligned with CAREC Transport and Trade Facilitation Strategy (TTFS), Draft Action Plan, Baku, November, 2008 for successful corridor performance which are based on infrastructure, technology and management.

### Physical Infrastructure

#### **1. Intermodal and Logistics Facilities**

Short term improvements to the existing structures by repairs and expansion are recommended as longer term facility designs and construction are decided. UBTZ has a budget for improvements and expansions. UBTZ can work with ADB on a detailed list.

- a.) road-rail platform repairs and extensions for the use of mechanical equipment
- b.) Zamyn-Uud warehouse space with refrigerated areas and a cold power station.
- c.) roads-gravel-paved of 6 km from main road to stations #1 and #2 and 5 km between them; 4 km from main road to transshipment #3 with a road of 12 m. to station #1.
- d.) parking in designated areas with gravel-pavement for 150 trucks phase 1 and 300 phase 2.
- e.) special handling equipment for chemicals and explosives (Hazardous Materials)
- f.) working capital loan-start-up costs for Zamyn-Uud logistics center distribution area to store bulk materials for construction (imports) and mining (exports) markets.

Appendix C Hailar CTT and Baotou ICD offer specifications on the facilities' areas and the costs can be used as an estimate. Discounts on construction materials can be negotiated with Erlian's main suppliers. Currently, the main Erlian building supplies distributor offers a 9.8% sales discount for Mongolian customers. Possible public private partnerships (PPP) with a new Zamyn-Uud rail logistics operator: E-Trans.

Possible ADB source is: MON IP 3: Modernization of Mongolian Railway, \$189 million.

## **2. Water Supply**

Jointly meet to discuss a timetable with defined start and end project dates to firstly, construct the three new pipelines of water supply in Erlian. Secondly, determine the sources of water supply currently in use by Zamyn-Uud and a project to develop new sources from Zamyn-Uud and by a pipeline from Erlian. The final component of the project is to build the Zamyn-Uud administration and tariff regime for proper cost reporting, service performance reporting, and payments for water resources. Cost of the Erlian three pipelines: US \$8.9-10.29 million of which ADB assistance in a non-loan financing is requested for US \$2.6 million. Costs for connecting by pipeline to Zamyn-Uud can be determined in joint consultation after intergovernmental agreement.

## **3. Choyr-Zamyn-Uud Regional Road Development Project**

The effectiveness of the border crossing and the function of the corridor 4 for reliable alternative to railway freight transport are dependent on the timely completion of the 432 km two-lane asphalt-concrete road between Choyr and Zamyn-Uud. The road needs a phased approach to eventually handle the modern intermodal traffic of 60-80 tons container loads and in the context of the Asian Highway 3 classifications. A working group within the Joint Border Development Commission (Project #8) is needed to organize the facts, determine the obstacles to overcome on construction, and set a defined timetable for completion under project management principles. ADB Third Regional Road Project 2009 \$24 million for 61.8 km section between well No.62 and Zamyn-Uud.

## **4. Ulaan Baatar Logistics Center**

The flow of cargo across the border is not the only constraint to international trade. In Ulaanbaatar, there is a need to make improvements to the physical infrastructure and operational improvements based on modern intermodal practices. There are 25-40 freight forwarding companies, distributors, and retailers competing for space in the logistics area of Ulaanbaatar (Appendix F) and freight traffic on the same roads as city passenger traffic. A comprehensive Ulaanbaatar logistics center located outside of the city proper is proposed by the private sector and the MFFA. Short term improvements to the existing facilities (shunting locks, cranes) and to building a new facility is required. Possible ADB source is: MON TA 2 Ulaanbaatar Intermodal Logistics Park Feasibility Study, US \$850,000.

## Operational Improvements

### **5. Joint Website**

Trade and transport representatives from Mongolia, China and Russia agree to design, build, operate and maintain a joint website. The main purpose is to share business information; business operations; and for training, but will not compromise businesses by sharing personal transaction data other than the function of tracking and tracing of shipments. The draft concept with components and cost estimates are in Appendix H. Possible sources of funding on a continuing basis are from internal sources: national freight forwarding associations' membership fees; national chambers of commerce and start-up costs from ADB.

(\$64,000 estimated start-up) REG TA 6: CAREC Trade Portal.

### **6. Operations Improvements: Zamyn-Uud**

The inefficiencies of manual loading from trucks to rail wagons are not cost-effective, hazardous to handle and will deepen the problems associated with delays from increasing trade volumes. The output per labor hour will improve measurably, by introducing new mechanical equipment and practices based on international supply chain practices. The list of components are:

- a.) pallets-wood or plastic
- b.) fork lifts-motorized and hand operated
- c.) conveyors
- d.) rail boards for platform gaps
- e.) generator sets (Appendix I for details and costs)
- f.) software package for truck registration and scheduling ([www.emodal.com](http://www.emodal.com))

Erlia equipment suppliers can partner with Zamyn-Uud operators for these project components. Mongolia's new 2004 Law on Financial Leasing (IFC Mongolia Leasing Development Project) is succeeding with financial leasing on the rise and can be a possible financing mechanism for the operational improvements project.

REG IP 1: Border Crossing Point Infrastructure and Investment, \$500 million.

### **7. Single Electronic Window**

The time and cost savings of cross border electronic exchange of business transaction data needs to be realized to reduce the trade-related transaction costs in both imports and exports and transit shipments of Zamyn-Uud and Erlia border crossing. There are duplication of papers and fees within agencies and across the borders that needs to become a paperless environment. Currently, there are piecemeal solutions and information systems (GAMAS and e-port) on both sides of the border to expedite shipments, but the real benefits of electronic data interchange (EDI) are not being realized of which the Single Electronic Window (SEW) can facilitate.

The SEW is a common platform that is internationally recognized where all the trade and transport stakeholders are connected to share information and trade documents. Currently, the Mongolia Information and Communications Technology Authority (ICTA)

with the USAID are planning to establish a public private partnership in order to share costs, risks and define a project implementation. The selection of the legal entity and investors need to be finalized.

However, there needs to be the proper leadership from the Ministry of Finance to firstly, find agreement among all the related agencies for an SEW project and secondly, meet with the PRC counterparts in Erlian, Hohhot and Beijing such as the Customs General Administration to make a formal agreement on the sharing and exchanging of data across the borders, Chapter V, B. International Trade Corridor Agreements, 3. Data Exchanges (1-3), page 28. The China International Electronic Commerce Center (Co., Ltd.) can be a force to move the joint SEW project forward on software and hardware harmonization after formal data exchange agreements are made.

The third and final component is the lack of understanding and awareness of the benefits and purpose of the SEW which are creating obstacles by agencies from agreeing to the SEW concept. Training and dissemination of information on the SEW can be a major part of the new “Joint Website, Project #5” of this report. Both Mongolia and Inner Mongolia, PRC agree to the concept, but the ADB is needed to define a timetable to accomplish the three components outlined in order to make the SEW project a daily tool for all trade and transport stakeholders in the near future. Source of funding to organize the project: TA 29 Development of Logistics Centers and Rail Intermodal Hubs and TA 6 CAREC Trade Portal, US \$3 million and US \$ 600,000, respectively.

Institutional-Policy Improvements

## **8. Joint Border Development Commission**

The Mongolia National Committee on Trade and Transport Facilitation and several Erlian government and business entities are those suggested to form a joint border development commission. All the chapters in this report define the purpose of more joint cooperation between Zamyn-Uud and Erlian for the even development of modern trade logistics, intermodal and urban resources connectivity. Currently, there is not an established and unified mechanism to work on all the problems one by one and simultaneously and to harmonize the master plans on both sides of the border. Chapter V, C. pages 30-34, International Trade Corridor Management, Models of Development explains the framework for establishing a joint border development organization with roles, responsibilities and USA best practices. Also, the “Transit Mongolia” Action Plan, 7.2 (Appendix A) resolves to establish an organization which needs to be with Erlian for common goals and defined projects for regional development. The following are the suggested agenda to start the joint commission for harmonizing plans: border crossing roads; water supply; Free Economic Zone; Single Electronic Window; Choyr-Zamyn-Uud road. (ADB REG TA 26: Institutional Support for National and Regional Transport and Trade Facilitation, portion of the US \$ 6 million)

## **9. China Inspection and Quarantine (CIQ) Electronic Document System**

The flow of products across the border are impeded by the paper documents. The meeting with the Certification and Accreditation Administration, (CNCA) PRC, Beijing expressed a willingness to establish the same electronic document system (English) for Mongolia at the border as is currently used by CNCA. The cost estimate is: US \$294, 117. Possible source is the government of PRC. China Customs uses a container monitoring system and Mongolia was granted the equipment and training after a formal government agreement in 2006.

Other related components to process and information systems improvements are: (1) Mongolia Customs, SSIA, MASM improving databases for informing Zamyn-Uud station about certificates of conformity;(2) Renew the 2005 MOU for approving the Erliaan laboratory by MASM ; (3) Organize a meeting with AQSIQ, PRC and MASM-SSIA for access and permit of Mongolia meat exports; (4) Electronic network connecting Mongolia, Customs, Inspections, Accredited laboratories with PR China counterparts; (5) MASM project of on-line Standards Information, Enquiry and Training Center, (\$2.26 million); (6) Mongolia Customs Modernization Project, information systems training for officers; (7) Joint Border Control Processing Pilot Project, Erliaan-Zamyn-Uud not started. REG IP 5 Customs Modernization and Infrastructure Development, portion of \$22 million or REG TA 10 Regional Customs Training and Development, \$2 million.

## **10. Mongolia Labor Law**

The processing and logistics service provider firms in Erliaan have difficulties in making cooperation with Mongolia firms based on a very restrictive Mongolia labor law. There needs to be a review and harmonization of the Mongolia Labor Law for cross border cooperation. The requirements are for every one Chinese worker hired there are eight Mongolia workers hired. The other components of the Mongolia labor in need of review are for productivity and training as addressed in Chapter IV, page 18. A final component is the issuing of visas for temporary labor which is an obstacle for rapid development of trade logistics facilities in Zamyn-Uud. The monthly wages of Zamyn-Uud workers are US \$219 per month and in Inner Mongolia labor costs per month for skilled and technical workers are US \$147 to US \$294. Possible source: REG TA 27 Corridor Performance Monitoring and Reporting, portion of \$3 million.

## **Public Private Partnership-Financing Mechanism and Capacity Building**

Private participation in infrastructure projects depends on a fair return and profit on the invested funds within a reasonable period of time from a few years to ten or longer. The risks associated with the investment are valued by the cash flows from the operation of the infrastructure over the course of the project in terms of payback of invested funds and profit or rate of return. The risks in developing the assets in trade logistics infrastructure need to be shared between Mongolia and private investors in order to keep the costs of financing the project to a minimum.



Mongolia can minimize the risks and the costs of the project for potential investors by strengthening the human capital. The public sector capacity for public private partnerships has several components that can be satisfied in skills development from a training course. The main components to understanding and succeeding in public private partnership projects are:

- Economic, fiscal (tax) and financial evaluation of projects
- Regulations and tariffs (fees)
- Risk assessment and management
- Contracts-negotiations, procurement and legal documents
- Engineering-design, construction, supervision, operation, maintenance
- Project management and tools for timely deliverables
- Intermodal, logistics and supply chain modern concepts and practices

All stakeholders involved with trade logistics projects from the public and private sectors need to grasp these concepts as well as the risks such as:

- Construction risk (delays)
- Technology risk
- Sponsor risk (project deliverables on time)
- Commercial risk-demand projections are not realized
- Regulatory risk-change in regime
- Political risk-change of government policy<sup>12</sup>

Training can mitigate these risks with participants from the public sector of UBTZ, Ministry of Finance, Ministry of Road, Transport, Construction and Urban Development and selected members from the MFFA in cooperation Erlian counterparts. Also, the three challenges to Mongolia's infrastructure development will improve as to aligning prices with costs, improving efficiency in governance and better planning

Mongolia trade logistics infrastructure stakeholders from the public and private sector need to work within the Joint Border Development Commission (Project 8) with Erlian counterparts to select a joint delegation to participate in case study analysis and study tours in the following subjects and sites:

- **Logistics and Intermodal Operations**-Performance Measurements, Cold Chain

Site visits:

- 1.) Tianjin port-Binhai New Area; Tianjin-PRC Rail Intermodal Project
- 2.) Hailar, Hulunbeir, Inner Mongolia: Cargo Transfer Terminal;
- 3.) International Mobility and Trade Corridor Project, US-Canada border.

- **Free Economic Zone**-Construction, Operations, Processing Enterprises

Site visits:

- 1.) Tianjin port-Binhai New Area;
- 2.) US Free Trade Zone: US-Canada border cities;
- 3.) North American Super Corridor Coalition;
- 4.) US municipal economic development department

- **Customs and Inspection**-Training program in animal skins business, "wet blue" and chemicals. Single Electronic Window training.

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<sup>12</sup> "Public Private Partnerships in Infrastructure Development," UNESCAP, September, 2007.

Site visit:

1.) MASM, SSIA, Customs visit the Erlian CNCA laboratory.

- **Investment Promotion Agency (IPA) and Private Capital**-Industrial clusters, capital financing, MIGA Financing Direct Investment Promotion Center tools. Site visits: Clean Development Mechanism investment firms and international organizations for new industry sector development at the border

The capacity building will be structured over a period of three to four weeks. The first week to ten days time will be spent on case study analysis and concept building before actual site visits of one week per each subject. More details of each subject area will be documented for dissemination to all delegates of the joint study tour group. There will be opportunities to make connections and forge partnerships and for interested parties to visit the Zamyn-Uud-Erlian border. After the site tours, the Joint Border Development Commission can work with ADB to summarize the case study analysis and the site study tours into a document that can be used to continue training and for reinforcement of concepts for actual practice as facilities are developed at the border.

## **APPENDIX A “TRANSIT MONGOLIA”-ERLIAN COOPERATION ACTION PLAN-TWENTY-ONE OF THE SEVENTY-FOUR**

### **1. Refining the legal environment for foreign trade, international transportation and logistics services**

1.6 Conclude the transit transportation agreements between governments of Mongolia, Russia and China (or accede to regional agreements substituting the above agreement)

1.7 Address the Chinese part with the issue of Mongolian traders obtaining access to seaports through the territory of China

1.8 Participate actively in engagements of international and regional organizations, strengthen the position of Mongolia, establish mutually beneficial cooperation

1.10 Approve and facilitate implementation of laws and legal acts that would attract active participation of private sector in formulation and execution of sector policies

1.11 Implement policies and activities directed at introducing new techniques and technology, developing HR and supporting private technical schools and institutions

### **2. Facilitating and supporting the development of trade, transportation and logistics services**

2.9 Formulate technical and economic specifications for establishing customs secured warehouses at Zamyn-Uud, Altanbulag and Tsagaan Nuur areas

2.10 Formulate technical and economic specifications for establishing quarantine facilities at Zamyn-Uud, Altanbulag, Tsagaan Nuur areas

2.13 Build freight specialized terminal entities and logistics centers near Ulaanbaatar

2.15 Formulate technical and economic specifications for establishing advanced logistics centers, terminal entities, sterilization and disinfection facilities and quarantine facilities at Zamyn-Uud

2.16 Establish upscale logistics center, terminal entity in Zamyn-Uud

2.20 Coordinate the Zamyn-Uud free economic zone activities in line with the logistics center and terminal entity activities

### **3. Expanding national road and transport network, connecting it to the international transport system**

3.1 Commissioning of an auto road from Choyr to Zamyn-Uud

### **4. Supporting international transit transportation**

4.3 Implement the TIR Convention and other international agreements related to facilitation of trade and transportation

4.4 Expand cooperation with freight forwarding agencies from China, Russia, Asian and European countries; organize regular business meetings

### **5. Facilitating and improving the efficiency of border, customs and state inspection activities**

5.4 Establish control and analysis laboratories in border ports

### **6. Introducing innovations of information and communication technology in facilitating trade, transport and logistics services**

6.1 Introduce a single electronic window service into the foreign trade sector

6.2 Simplify information in trade and transport related documentations, introduce a unified standard, shift to electronic versions

6.4 Disseminate information through the website of the National Committee on Trade and Transport Facilitation in Mongolian, English and international languages; create a favorable environment for developing cooperation between participating parties

### **7. Reforming trade, transport and logistics sector structure and organization and strengthening human resources management**

7.2 Establish a unified mechanism and structure for exchange of views and information on program implementation progress, timing, policies and activities as well as for providing monitoring and evaluation

7.3 Organize study visits to countries with high development of trade, transport and logistics sector and obtain their experiences

7.5 Upgrade professional skills of trade, transport and logistics sector staff; strengthen human resources; support activities of citizens and legal bodies operating training centers in the field

**APPENDIX B MAJOR MINERAL RESOURCES IN MONGOLIA**

No	Minerals	Location	Reserve 10,000 ton	( Annual Excavation (10,000ton)
1	Coal	170km south of Ulan-Bator	680000	450
2	Coal	120km east of Ulan-Bator	890000	600
3	Coal	Southeast 250km of Ulan-Bator	10000	240
4	Coal	170km Southeast of Ulan-Bator	680	50
5	Coal		19000	300
6	Coal	550km south of Ulan-Bator	640000	500
7	Coal		75000	60
8	Lead		60000	100
9	Tin		30.2	10
	Zinc		10.3	
10	铅矿 Lead		22.62	5
11	Copper		143.377	20
12	Iron	240km north, 300km southeast of Ulan-Bator	73000	120
13	Copper Molybdenum		37500	45

Source: Feasibility Study Huadian Erlianhot Road Port Project, September, 2008

## **APPENDIX C HAILAR-MANZHOU LI & BAOTOU EXAMPLES**

### **Status of Hailar-Manzhouli Highway Cargo Transfer Terminal**

Hailar-Manzhouli highway Cargo Transfer Terminal is located at Hulunbeier Economic Development Zone, 15 km east of Hailar with the total area of 10,2825m<sup>2</sup>. The main construction area is 9159.93 m<sup>2</sup> , including office building, motel, garage with heating, boiler house, warehouse, repairing house etc. with the total budget of US \$382,352 (2.6million RMB). The project started in August, 2006. The main works have been completed on Oct 2007 , the operation may will start in the Spring of 2009.

CTT of Hailar will be a service hinge line of logistic after its operation and will play a fundamental function of connecting the 3 provinces in the Northeast and the trading with Mongolia and Russia.

Operation model: will based on the national competitive bidding (NCB) marketing mechanism, absorb the well-rounded enterprises, authorize the management, and gradually improve the function of CTT to provide the best services for the local economy.

April 2008 Hailar Cargo Transfer Terminal with Road and Rail



More facts based on questionnaire to serve as an example for Zamyn-Uud-Erlian:

1.) Quantity and scope of warehouse?

3 warehouses: Simple No.1- 3023.09m<sup>2</sup> , Simple No.2- 1008.83 m<sup>2</sup> , refrigerator warehouse 1998.98 m<sup>2</sup>.

2.) Area of refrigerated warehouse?

A: refrigerated area 1998.98 m<sup>2</sup>.

3.) Cost of refrigerated warehouse

A : US \$29,411 (200,000 RMB) in the first-term construction

4.) Based on the capacity of forecast in the year of 2010. The capacity is based on the design scope. Marketing research was made before the design stage. Total cost of equipment: US \$382,352 (2.6 million RMB).

5.) A: Total cost of equipment by 2010 would reach US \$674,264 (4.585 million RMB)

6.) NCB?

National Competitive Bidding- is based on the open bidding process: select the qualified bidders of the operation to define the responsible person or enterprises.

7.) Is there any training for operations ?

We have not conducted the operation management training up to now. However, we organized the staffs from Hulunbeier Communications Bureau and Transport management division to visit Guangdong, Henan and other provinces to study.

**8.) Who will be the operator ?**

We had a bidding on August 4, 2008 sponsored by Hulunbeier Communications Bureau and Transport Management Division to confirm the main body responsible for the CTT. The Tong Da Logistic Service Co. Ltd was set up at that time to be responsible for the overall operation of the CTT. The Company registered on October, 2008 and the operation will formally start in April, 2009 after the completion of the hand-over process.

Based on the Chinese related regulation, the Hulunbeier Communications Bureau issued a document on *Notice of assign Hulunbeier Transport and Management Division to management the business of Hailar CTT* ( Hujiaofa[2008]No.307 ) , confirmed the asset management and business management will be responsible by Hulunbeier Transport and Management Division.

**9.)** Hulunbeier Economic Development Zone was established in September, 2002. It is located in the east suburb of Hailaer with the total area of 26km<sup>2</sup> with the advantages of central location and the conditions of land, energy, mineral resources as well as the port. The group industrial projects will be scientific, with high added value products, environmental protection and will be developed, economically. The economic zone will be constructed as the flagship of fast economic development through the efforts of 10—20 years in the future. The development is based on the priority policy of National Western Development. Hulunbeier economic development zone will implement more priority policy to the development zone.

The equipment of CTT will be financed by the operation enterprises. The basic infrastructures are the national asset, and will take into the account of national asset individually. The investment of enterprises will be take into the account of enterprises individually.

**10.)** The operation of container and exchange system of electronic data is under the program for construction.

**11.)** There is railway line to Hulunbeier economic zone connected with Binzhou railway. After consulting with the related department of railway, the railway line will lead CTT into the future.

**12.)** When the CTT is developed to a certain scope, the customs and inspection will be considered.

**13.)** Hulunbeier Tongda Logistic Co.is responsible for inviting the customers into CTT. There will be many customers moving into CTT.

**14.)** There are many methods of operation, including leasing, private operation to name a few.

**15.)** In the second stage, there is total area of 102,825m<sup>2</sup> and the areas in use is only 9159.93 m<sup>2</sup>.

Tongda Co.Ltd will develop in the second stage based on the situation of operation.

**16.)** A : Office building 598.02 m<sup>2</sup> , 36 rooms for motel, other buildings including refrigerated-garage, simple warehouse No.1, simple warehouse No.2, gate

keeper No.1, gate keeper No. 2, repair garage of container, refrigerated-warehouse, heating warehouse, refrigerated-warehouse.

Baotou, Inner Mongolia, Inland Container Depot (World Bank project of 8 China ICDs)

- 1.) Is the Baotou Trucking Co still a 15% investor?  
Baotou Fuel Co. is the 85% passive investor

Any changes to the capital structure?

Baotou Trucking Co: 85%

Baotou Fuel Co.15%, but now ICD has only one investor Baotou SASAC.

- 2.) What was the total cost of the facility?

The total investment at the beginning was US \$18, 235,294 (0.124 billion RMB). The total value of all kinds of equipment,(including loading and unloading equipment, tractors, cranes, forklifts) was US \$4,896,705 (33.2976 million RMB)

Since most of the assets such as front carrier, fork lifts, and tractors should be a calculated depreciation by the finance department.

- 3.) The total size in square meters and cubic meters? 190,000 square meters.

- 4.) Is the facility using container handling equipment? Container trucks? Container chassis? How many of each?

One front carrier, one 7.5 ton forklift, five 2.5 ton forklifts and 55 tractors.

- 5.) Are there connection with EDI with Customs and quarantine clearance services? Yes.

- 6.) Types of products? Perishables? Refrigerated-temperature controlled? If so, size of area?

Special vehicles, machinery, nonferrous metals ,chemical products, agricultural products,textiles. No perishables, no refrigerated-temperature controlled.

- 7.) Who operates and manages? Mr.Xu jianguang,he is the chairman of the board from beginning until now.

- 8.) Leasing space to private companies or concessions to operate value added services such as packaging? Labeling? Bar coding?



Yes, ICD offers valued added service.

9.) Is there only road access or also rail connection?

ICD has both road and rail connection, but rail is not used very regularly.

10.) Marketing plans? At the beginning of this year, ICD established a dry port with Tianjin Port Bureau. Now it goes well.

## **APPENDIX D MONGOLIAN CONSTRUCTION INDUSTRY ISSUES**

A. Mongolian trucks are restricted to enter into Erlian to buy goods and must:

<u>Problem</u>	<u>Fee</u>
1.) Park in special area and walk to stores	40 RMB/day
2.) Load goods onto Chinese 4 ton mini-trucks	30 RMB one way
3.) Use Chinese manual labor loaders	50 RMB per loader
4.) Have permission for empty Mongolian truck in China with Chinese translators	200 RMB/application
5.) Loaded Mongolian truck returns to Mongolia	1000 RMB/20 tons
6.) Enter China, Hotel check-out, Exit China	5, 5, 5 RMB/person
7.) Chinese suppliers do not give quality certificates to Mongolian buyers. Each commodity for fake documents	950 RMB/commodity
8.) Freight forwarders ask for 5 times more of all fees	
9.) Truck drivers have no hotels and sleep in trucks	

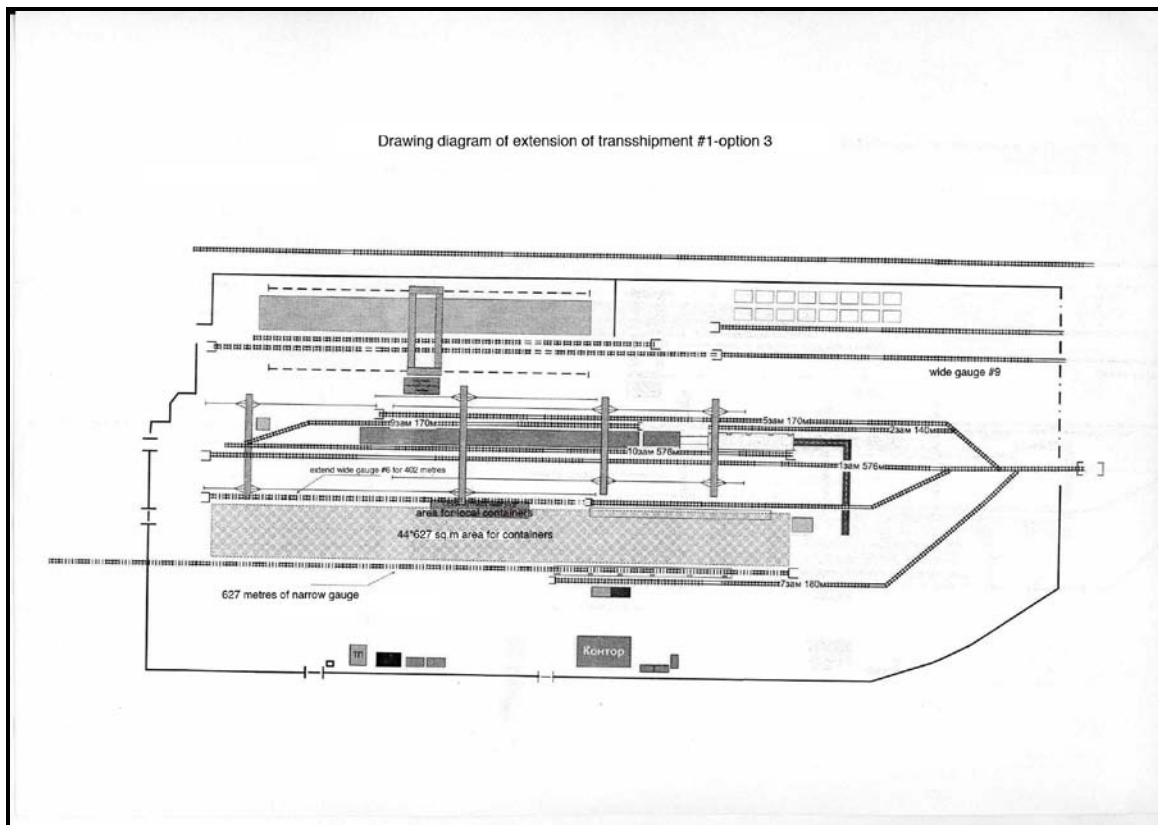
### **B. Zamyn Uud Wagon Shortage Issues**

Thirty ton truck loads must take entire 60 ton rail wagon by UBTZ rules. There is a wait list of 51 truckers for one rail wagon and pay extra fee of US \$100 to secure the wagon. There are 100 trucks waiting to transload and 300 trucks wait 2 months for rail wagons with a US \$8.77 (10,000 MNT) per night UBTZ security watch fee. Mongolian truckers fees for waiting per month 30 days: US \$877 (1 million MNT) = 10,000/night security fee + 12,000/night hotel + 8,000/day food. The alternative is corruption fee of US \$441 (516,000 MNT or 3,000 RMB). Recommends: UBTZ security fee: US 90 cents/night

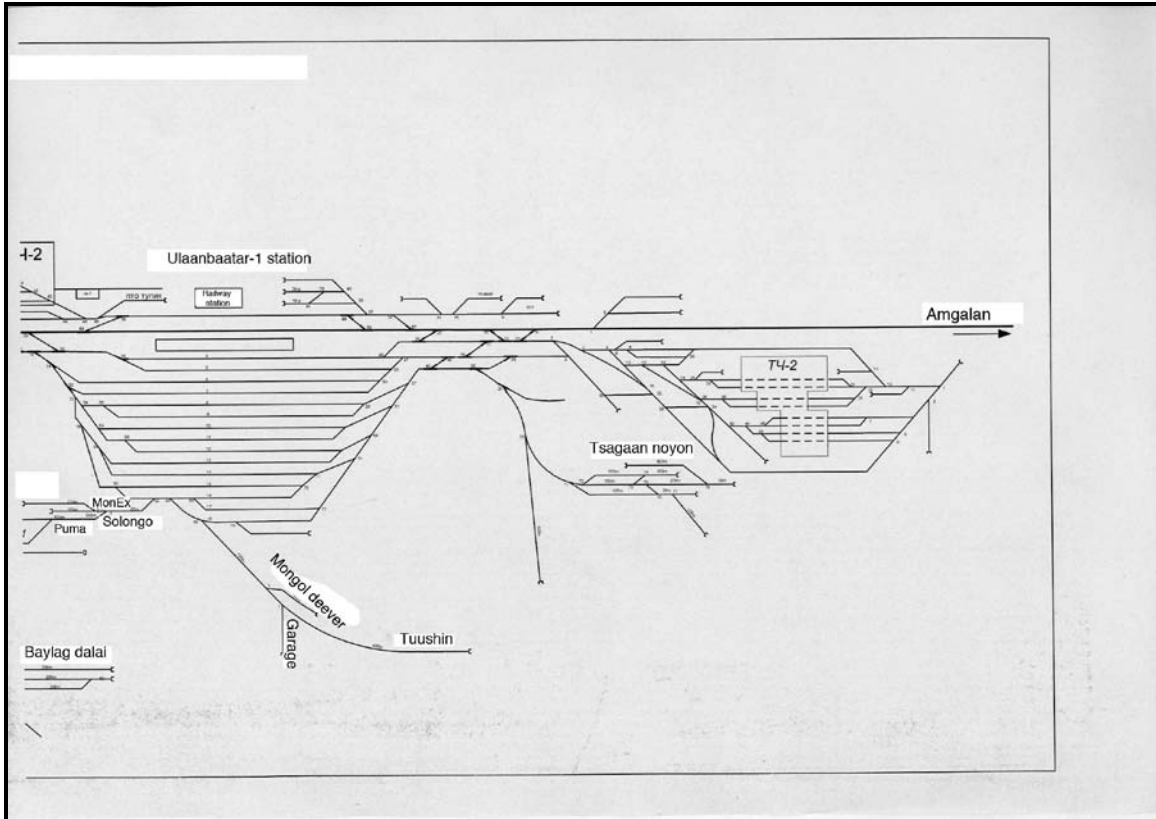
### C. Zamyn-Uud Customs/Inspection

There is a US \$4.38 (5000MNT)/commodity and 2-3 hours testing in Zamyn-Uud SSIA and testing in Customs lab is US \$17.50/commodity and 4 hours. There is no manual of standard operating procedures, no electronic documents, no MASM to Customs to ZU Customs database certification confirmation and US \$1754 (2 million MNT) of paint samples are stolen by Customs. Physical inspections: US \$ 8.77 (10000MNT) x 2 persons x Customs and State Inspections for the same shipment. Recommends: One Customs and State Inspection laboratory and physical inspection system.

### APPENDIX E UBTZ TRANSSHIPMENT #1 OPTION 3







## APPENDIX G FEZ EXAMPLE OF A NEW INDUSTRY

Source: Development Strategy for Zhongke Langfang Science & Technology Park, Final Report, PADCO, AECOM and EDAW, for United Nations Industrial Development Organization, ShanShan Investment Holdings Co. Ltd., Langfang City government, September 25, 2007

### Annex A Sector Report: Wind Power

#### Wind Power

Wind power energy is derived from rotors mounted in areas with strong winds, usually on shore, but it is possible to install more expensive operations offshore. The wind spins the rotors, which turn a turbine, generating 0.5 to 2 megawatts power per turbine. Some wind turbines are capable of producing 3 and even 5 megawatts. Commercial generation involves locating multiple – even hundreds – of turbines in a wind farm.

The technology is relatively simple. Advances in metallurgy have expanded rotor blade diameters more than 10 times in the last thirty years, increasing the generating capacity. Ultimately, the greatest factor determining wind power's costs and commercial adaptation is the positioning of wind turbines in locations with strong, regular wind.

Turbines produce power a little more than ten percent of the time, or at best 30-40 percent of the time. The capacity and efficiency of wind turbines assumes areas with the most reliable winds; but their productivity falls quickly when placed in less advantageous location.

While it is possible to produce power electrical power from wind at 3 – 4 cents per kWh, 6 to 9 cents per kWh is a more realistic number; and turbines in some locations produce at costs as high as 20 cents per kWh.

The cost per kilowatt hour energy produced by wind has fallen 85 percent in the last 15 years. Under ideal conditions, it is almost commensurate with natural gas, coal, and significantly less than nuclear power.

### **Regulatory Environment**

The Chinese state sees great promise in expanding wind power generating capacity. They state plans plan to triple capacity 2006 to 2010, and triple it again between 2010 and 2020.

Wind power generators in the US and other countries have increasingly faced objections from the public concerned about the noise, aesthetic disruption of natural settings, shadows interrupting natural sunlight, and harm to birds. Wind technology is very safe, but safeguards do need to be in place to ensure low-flying aircraft do not strike the rotors.

### **Research and Development**

The research and development surrounding wind power aims at wind turbines' many different design aspects:

- Metallurgy producing materials effecting size and strength of blades; and the pitch of the blade allowing it to catch even slight breezes,
- High-output turbines,

Development Strategy for Zhongke Langfang Science & Technology Park, Final Report

### **Annex A Sector Report: Wind Power**

- Power controls with dynamic features adjusting for variable wind strength,
- Alternative designs (e.g. vertical, upwind...) with the potential to derive more force from the same wind.

In short, wind power R&D revolves around mechanics and metallurgy. It is not especially high-technology. Wind energy research and development funded by OECD governments represent only 15-20 percent of annual R&D budgets for alternative energy, or about one third what they spend on solar energy. The US government is responsible for the majority of government wind power R&D funding, followed by Germany, Japan and Denmark. The United Kingdom has recently joined the leaders in this field.

### **National Market**

The best way to measure the market for wind power is to simply state the existing and expected installed capacity of the China wind power generation industry:

China's Installed Wind Power Capacity

2005 2006 2010

Installed Capacity (MW) 1,260 2,604 8,000

The value of annual investment will actually shrink. That is, the annual increase in installed capacity will remain constant in megawatt terms, but actually shrink in terms of value as innovations introduce cost reductions in the price of a megawatt installed:

(Note: the scale in the graphic above is magnified – more detailed than appears in other graphics – in order to graphically represent the size of this small sector.)

In addition, China is said to have three hundred thousand more small-scale wind turbines generating electrical power for local uses. That is, while growth in wind turbines 2005-2006 was almost 1,400MW growth in the years 2005-10 amount to an average added 1,400 MW per year. In short, annual investment in wind power will not grow during that four year period. Innovations should reduce the cost of wind power per watt installed, which will actually reduce the costs of the investments.

Development Strategy for Zhongke Langfang Science & Technology Park, Final Report

#### **Annex A Sector Report: Wind Power**

China has the wind resources to capable of generating 253 thousand megawatts, most of it along the coast. Another 750 GW is exploitable off-shore. It is for this reason that China's leaders put great faith in expanding wind power generating capacity. They have budgeted \$5.8 billion to expand capacity to 8 thousand megawatts by 2010. Early 2007 revised plans aim to have 30 thousand megawatts wind capacity in place by the year 2020.

There are several large wind power generation and research projects, most of them in the southern coastal provinces, but also in Hebei, Shanghai, Inner Mongolia, Heilongjiang, Liaoning, and Jilin. A 200 MW capacity project in Dongtai, Jiangsu is expanding to 400 MW by 2008; while another in Rudong Jiangsu is planned for 850 MW. A 1,000 MW wind farm in Hebei province will be completed in 2020.

China is able to manufacture 10 types of wind generation units. There are already joint ventures between China Aerospace and Technology Group with Spanish and Danish producers of wind power equipment.

#### **Global Market**

The best way to measure the market for wind power is to simply state the existing and expected installed capacity of the global wind power generation industry:

Worldwide Installed Wind Power Capacity (Megawatts)

2005 2006 2010

Installed Capacity (MW) 59,000 76,000 132,000

This represents respectable growth in annual investment in wind power in the coming years:

#### **Annex A Sector Report: Wind Power**

Germany, Spain, the United States, India and Denmark are the world's five largest producers of wind power. Still, state supported expansion of wind power is expected to put China in the top spot by 2020.

#### **Chinese Competitiveness**

Wind power is one of the most promising forms of renewable, alternative energy over the long term. In the near term, however, wind remains uncompetitive against traditional fuels. However, planners' long-term foresight and decision makers' willingness to subsidize alternative energy determine which nation's will develop the infrastructure and

know-how over the long-term and be prepared for future petroleum price shocks. China is one nation that has decided to subsidize wind power over the long term. This could put China in the position of being a major exporter of wind power equipment in the future. 2010 Investment: \$ 10.2 Billion

## **APPENDIX H JOINT WEBSITE PROJECT**

(source: China International Electronic Commerce Center (Co., Ltd.), edited by Wallack)

First draft and cost estimates:

### **Budget of Economic and Trade Cooperation Website**

#### **I. Project Objective**

With the acceleration of economic globalization, regional economic integration has become an important part in the process of globalization. A growing number of countries join regional free trade agreements and seek to expand economic cooperation and enhance economic growth potential by means of regional division of labor. In recent years, East Asia gains a high profile in regional economic cooperation.

The breakout of financial crisis proves that no single country can guard against the risks brought about by over financial speculation and that multilateral organizations such as the International Monetary Fund are not a panacea or always friendly. Therefore, it is necessary to strengthen regional economic cooperation in order to enhance crisis resisting ability and promote economic growth.

However, the complex customs clearance procedures and incomplete information flow seriously affect the multilateral cooperation process. It is urgent to advance coordination in economic and trade exchanges between the countries. To solve these problems, we propose to make the "Economic and Trade Website" a web portal to strengthen exchanges and cooperation, to smooth understanding of procedures, to simplify the clearance process and eventually, to realize the online retrieval and processing of model documents and standard data. This website will help to create a favorable environment for border cooperation and promote the common prosperity and development of multilateral trade.

#### **II. Project Contents**

The website will contain four language versions in Chinese, English, Russian and Mongolian. Targeted at the demands of import and export enterprises and freight forwarders and integrated with the information and resources of border trade, transport, customs in the three countries, the

website will become a comprehensive, powerful economic and trade information platform and gradually cover the whole Central Asian region.

### **1. Information Exchange Platform**

Economic news: economic and trade contacts of governments, enterprises, trade associations and non-governmental organizations from the three countries, events in import and export trade, transport, customs, inspection and quarantine, insurance, foreign exchange, taxation. Also, will have information of trade shows and fairs, warning messages of political and economic emergencies.

### **2. Business News and Business Operations**

Economic and trade knowledge: policies, laws and regulations related to trade, freight, customs, inspection and quarantine, insurance, foreign exchange and taxation in the three countries, political, economic, cultural and social profiles, related regional or border trade agreements. Supply and demand: comprehensive marketing promotion for small and medium enterprises.

### **3. Education and Training Base**

Information on relevant qualification examinations and trainings in the fields of economy, trade, transport, (multimodal, TIR, 10 + 2 data) customs, inspection and quarantine, recognize quality certifications of each country, online or offline trainings. (CIFFA, IMLA, MFFA, FIATA)

### **4. Trade Workflow Window**

Introduction on the application procedures of import-export qualification, freight logistics, industry and commerce, customs clearance, quarantine inspection, insurance, foreign exchange and taxation, related administrations and costs in the three countries; international qualification identification system, bill of lading registration, insurance, credit rating, track and trace of shipments, approval process for license, letter of credit, bills of lading and other shipping documents with sample documents provided. (ex. railroad CIM/SMGS)

After the development of Import and Export Examination and Approval System, the website's second phase can provide document transfer among the three countries and thus realize on-line operation function.

## **III. Feasibility Analysis**

1. CIECC is equipped with a special network line with fast speed and secured stability, which satisfy the hardware requirement of the website.



2. Ministry of Commerce is in charge of foreign trade sector in China. As a subordinate institution under Ministry of Commerce, CIECC keeps close contact with departments of the Ministry of Commerce, which will facilitate the website operation.

3. CIECC has a professional team for website construction and maintenance, including multi-language editors, art designers and technical support staff. The team has rich experiences in operating websites and has run a number of specialized sites successfully.

#### IV. Project Budget

##### 1. Website Construction: US \$64, 705 (RMB440,000)

Item	No.	Fee	Detail	Price (RMB10,000/year)
Website R&D	1	R&D of Admin. System	4-language News Updating Systems	22
	2	Server, Application System, Database Software	Procurement	4
	3	Computer	6 computers (4 editors, 1 technical staff, 1 project manager) ,1/computer	6
	4	Training	4 persons (1 editor and 1 business staff/ country) , 3/person	12
Total				44

##### 2. Website Maintenance: US \$35, 882 (RMB244,000)

Item	No.	Fee	Detail	Price (RMB10,000/year)
Website Maintenance	1	Project Manager	1 project coordinator, 0.5/person/month	6
	2	Technical Staff	1 person, 1.2/person/month	14.4
	3	Office and Equipment Maintenance		
		Rent for Server Room and Bandwidth		2
		Office Rent		1
	Office Expenses (Transport, Communication, Stationeries)		1	
Total				24.4

**APPENDIX I GENERATOR SETS FOR REFRIGERATED CONTAINERS**

There is a refrigerated equipment requirement in response to the rising demand of USA imported chicken meat, China sourced fruits, vegetables and seafood. Currently, meat is deep frozen for container shipments and in need of temperature control, especially from Erlian-Zamyn-Uud en route to Ulaan Baatar. The lack of generator sets for refrigerated containers risks the spoilage of the perishables and affects the nutritional quality of the goods. Mongolia financial leasing is possible. (will need flat rail wagons)

December 16, 2008

**Quotation  
for  
ADB Trade Logistic**

**Description**

Carrier Transicold model **Clip-On Generator 69RG15-130W** includes following features:

- Water-cooled, four cylinder Kubota diesel engine
- Nominal 15kw brushless, self regulated generator
- 460 Volts output (60HZ) with Receptacle
- Solid State Battery Charger
- 130US gallon (draw) anti-slosh integrated fuel tank
- Gauge package : Engine hour meter  
Water temperature gauge  
DC ammeter
- Main Circuit Breaker
- Larger oil pan capacity for reduced number of oil changes
- Electric fuel warmer
- Pin Mount
- Lifting provision both for forklift pockets and ring shackle connection
- Weight : 1830lbs (830 kg) less fuel

**Price and Quantity**

Pricing for this specification is based on basic model outline above.

**Unit Price Ex-Factory (for 10 units) .....US\$10.600 each**

**For delivery to Tianjin Xingang Port .....US\$375 each**

## Terms and Conditions

- Payment terms are letter of credit net 30 days from shipment ex-warehouse or payment as detailed in the attached terms & conditions. (Exhibit A)
- Price excludes any taxes or duties, if any.

## Warranty

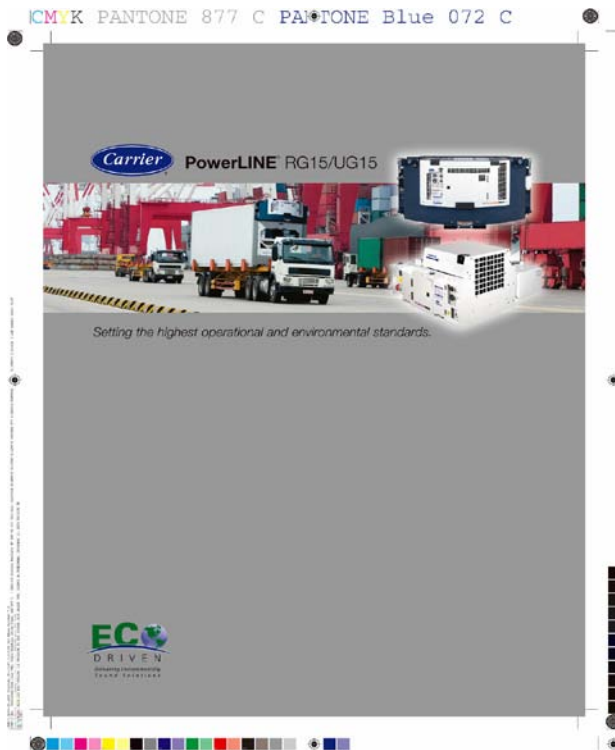
Unit warranty will be as per CTD warranty form 62-10185-00. This warranty provides parts and labor coverage for **Two years** on basic unit.

## Validity

This quotation shall remain valid till January 16, 2009

## Production

At this moment it is 2 weeks upon receipt of order confirmation.



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