



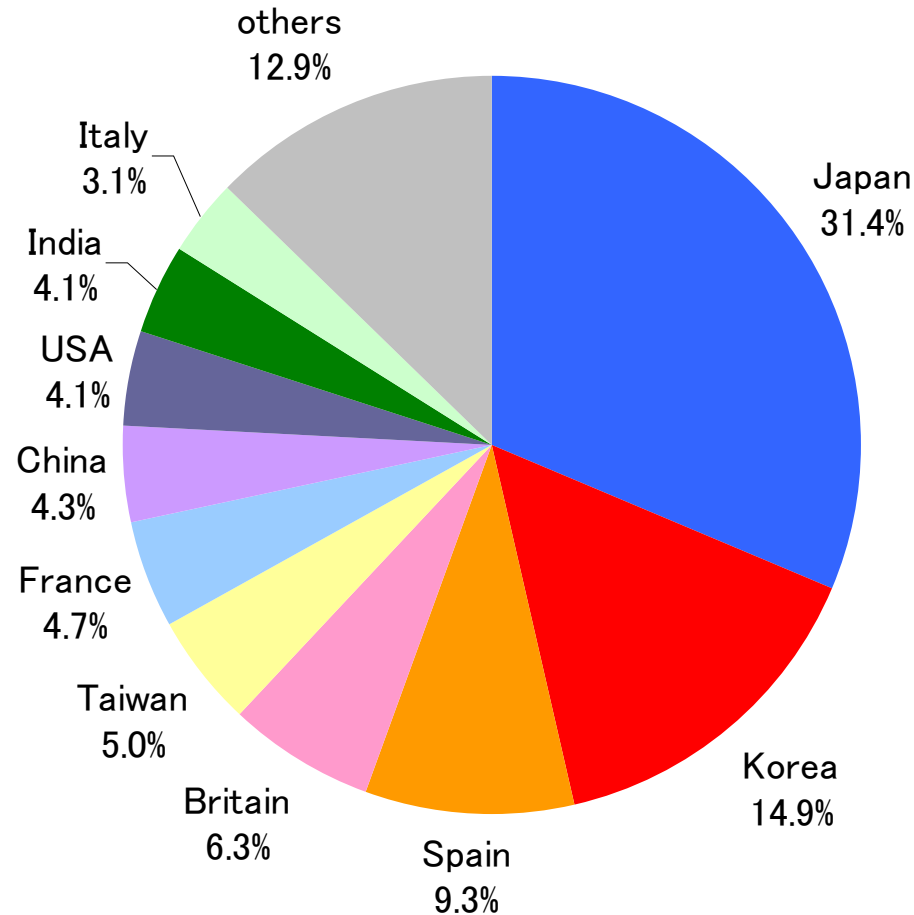
Financing Infrastructure Development in Northeast Asia

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Tuesday, 9 August 2011

Japan / Korea Cooperation in Asian LNG Market

LNG purchase share by buyer countries

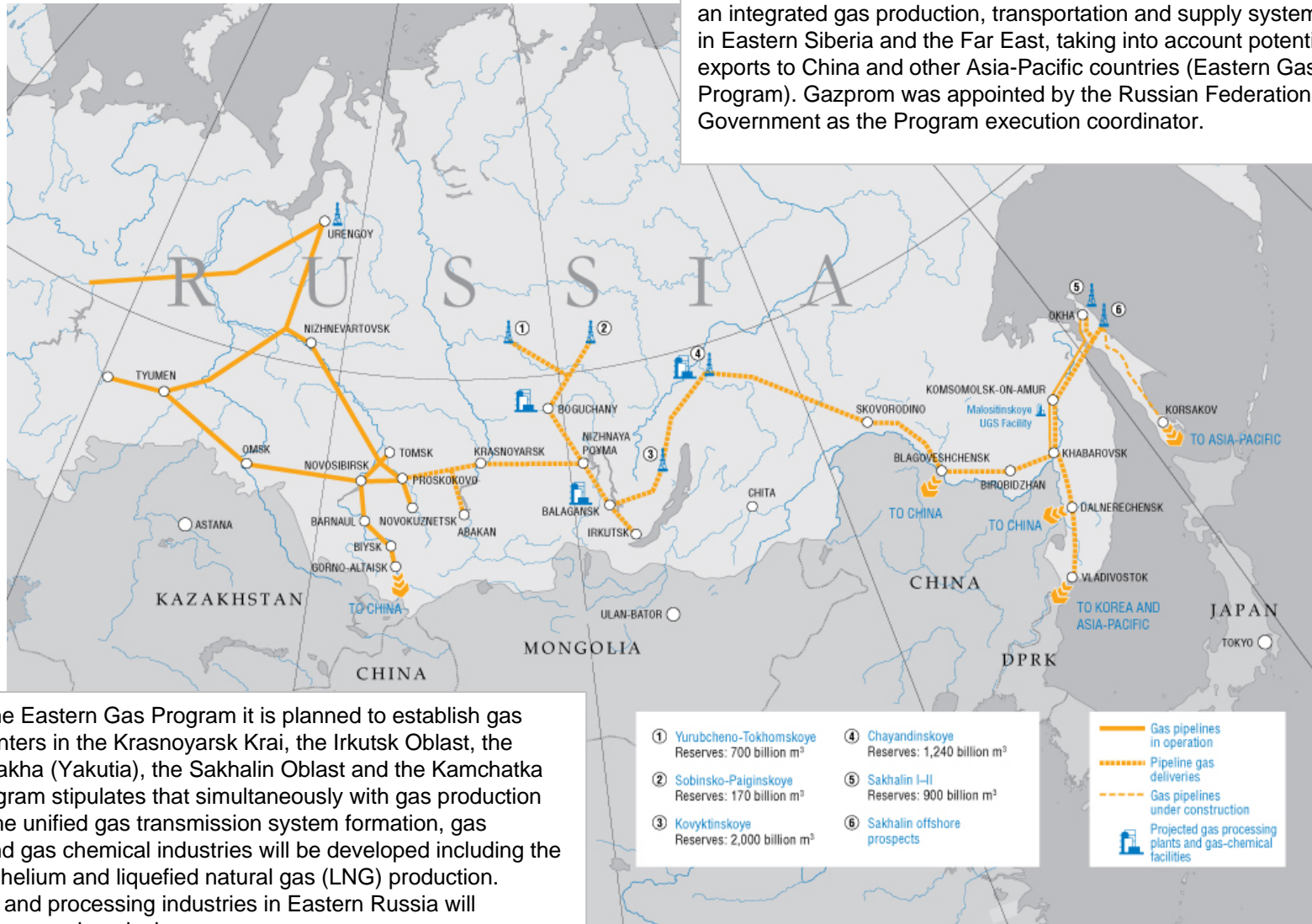


Source : BP "Statistical Review of World Energy, June 2011"

- Almost half of global LNG is purchased and consumed by Japan and Korea.
- Japanese buyers are NOT centralized and power companies and gas companies individually purchase LNG. But in Korea, KOGAS is the centralized LNG buyer.
- Generally, Japanese LNG consumption is high in summer while Korean consumption is high in winter.

Gasprom's Eastern Gas Program

The September 2007 Order by the Russian Federation Industry and Energy Ministry approved the state-run Development Program for an integrated gas production, transportation and supply system in Eastern Siberia and the Far East, taking into account potential gas exports to China and other Asia-Pacific countries (Eastern Gas Program). Gazprom was appointed by the Russian Federation Government as the Program execution coordinator.

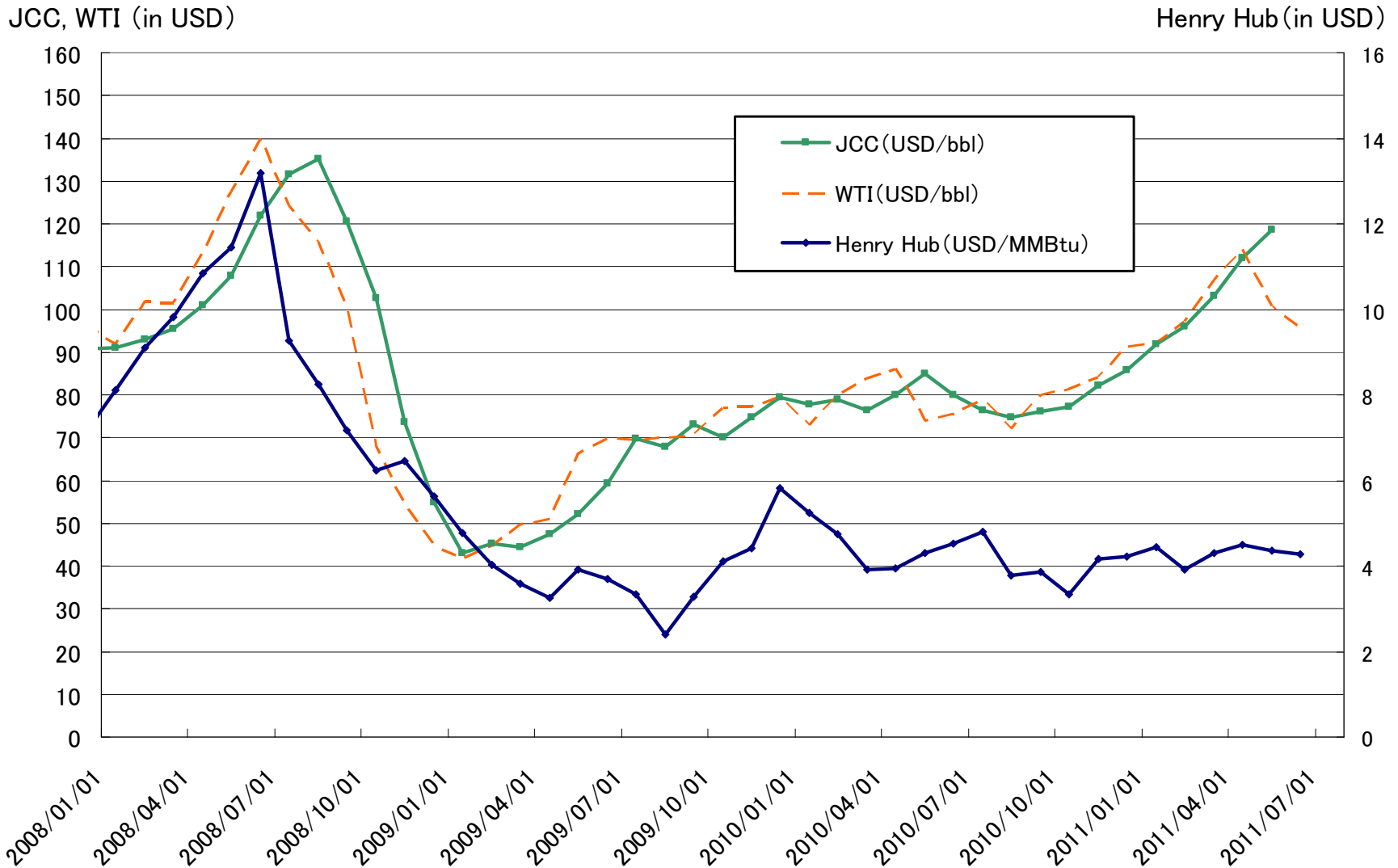


Pursuant to the Eastern Gas Program it is planned to establish gas production centers in the Krasnoyarsk Krai, the Irkutsk Oblast, the Republic of Sakha (Yakutia), the Sakhalin Oblast and the Kamchatka Krai. The Program stipulates that simultaneously with gas production centers and the unified gas transmission system formation, gas processing and gas chemical industries will be developed including the capacities for helium and liquefied natural gas (LNG) production. Thus, the gas and processing industries in Eastern Russia will be developed comprehensively.

- ① Yurubcheno-Tokhomskoye Reserves: 700 billion m³
- ② Sobinsko-Paiginskoye Reserves: 170 billion m³
- ③ Kovyktinskoye Reserves: 2,000 billion m³
- ④ Chayandinskoye Reserves: 1,240 billion m³
- ⑤ Sakhalin I-II Reserves: 900 billion m³
- ⑥ Sakhalin offshore prospects

- Gas pipelines in operation
- Pipeline gas deliveries
- Gas pipelines under construction
- Projected gas processing plants and gas-chemical facilities

Henry Hub and JCC price movements



Bilateral Cooperation between Korea and Japan on LNG (liquefied Natural Gas)

1. Joint Investment on Strategic LNG Projects

- By jointly participating LNG development projects, both Korea and Japan could assure and distribute plenary volume of LNG as project sponsors and both countries may become LNG “suppliers”.

【Recent achievements】

- ✓ Indonesia／Donggi-Senoro LNG Project (sponsor: Mitsubishi Corp., KOGAS)

【Further developments】

- ✓ Vladivostok LNG project and relevant gas field developments
- ✓ (In view of geopolitics balancing of energy security) LNG Projects in North America (re-exportation of LNG, liquefying shale gas)
- ✓ Development of stranded gas fields utilizing new floating LNG (FLNG) technology.

Bilateral Cooperation between Korea and Japan on LNG (liquefied Natural Gas)

2. Alliance of Both Countries as LNG Major Buyers

(1) Enlargement of LNG “Cargo-Swap” between both countries

- By enlarging current monthly LNG “cargo-swap” scheme between major buyers in both countries, achieving flexible seasonable adjustment and emergent accommodation even in natural disaster.

(note) TEPCO and Tohoku Electric Power was provided 5 cargos of LNG from KOGAS in order to maximize LNG fired power station due to sudden shutdown of nuclear power stations caused by Great East Japan Earthquake.

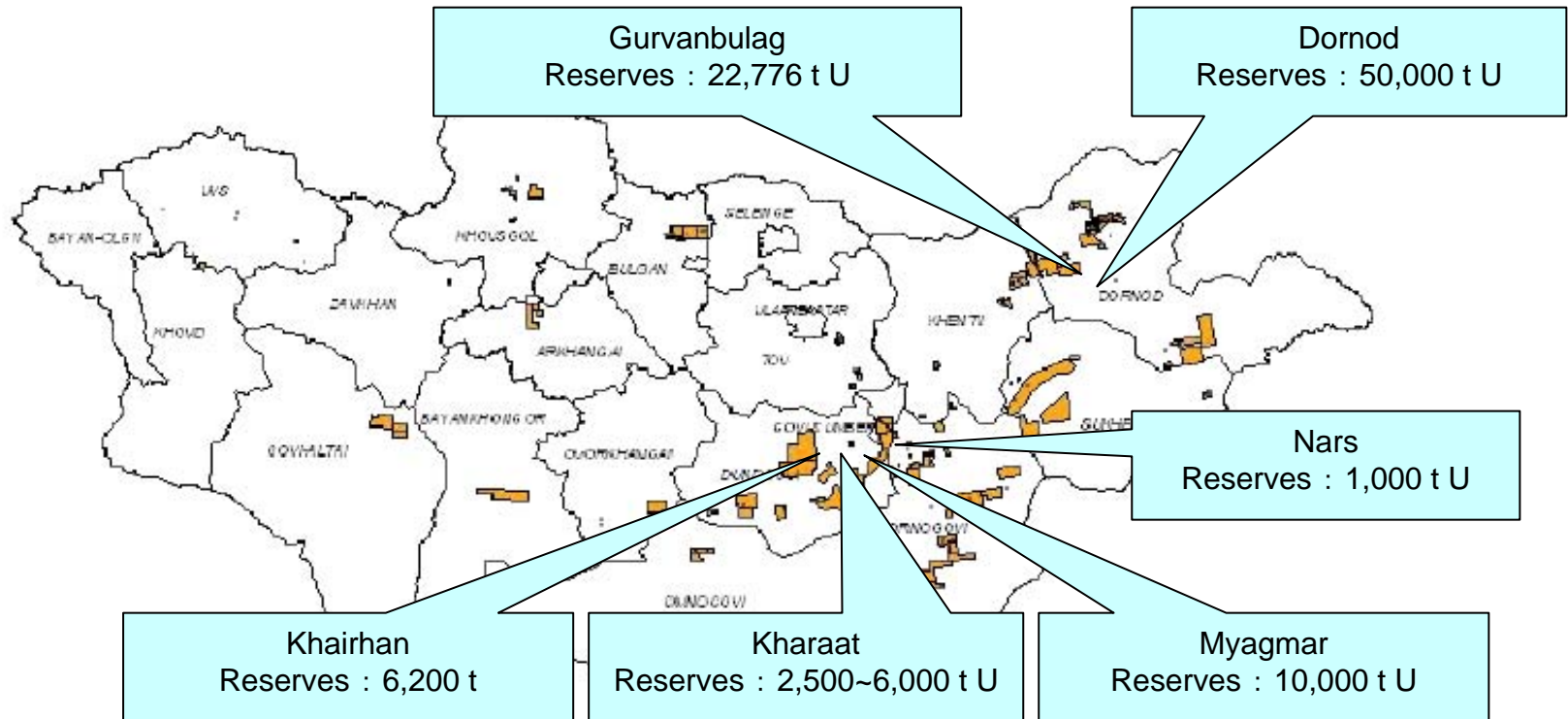
(2) Enhancement of bargaining power of LNG through joint procurement

- Allied procurement of LNG by both countries brings bigger bargaining power in LNG market. (1/2 of world LNG is procured by Korea and Japan)
- For example, joint purchasing of LNG decreases shipping cost of LNG by sharing LNG tankers without inviting unfair competition.
- Based on bigger bargaining power of LNG procurement, both countries could seek fairer pricing formula of LNG than current JCC index.

Natural Resources Development In Mongolia

Uranium in Mongolia

- According to the 2009 Red Book, Mongolia has 49,000 t U in Identified Resources, plus 1,390,000 t U in Undiscovered Resources.
- Mongolia has a long history of uranium exploration commencing with joint Russian and Mongolian endeavors from 1950s. Initial success was obtained in the Saddle Hills area of northeastern Mongolia (Dornod and Gurvanbulag regions).



(※)including undiscovered resources

Rare Metal Development in Mongolia

Latest Developments:

Year 2010

August: Japan Oil, Gas and Metals National Corporation (JOGMEC) signed MOU with the Ministry of Mineral Resources and Energy in Mongolia for enhancing cooperative relations by implementing mining projects and joint geological survey of rare metals

November: Mr. Tsakhia Elbegdorj, President of Mongolia visited to Japan and signed the “Joint Statement for Building a Strategic Partnership” with Mr. Naoto Kan, Prime Minister of Japan. The Statement refers “Bilateral cooperation” to develop mineral resources in Mongolia, including rare metal/earth.

November: Toshiba corp. signed MOU on cooperation in Development of Mineral Resources and Social Infrastructure with Mongolia’s MNFCC LCC

Year 2011

February: Green Technology Solutions Inc (GTSO) announced that it has entered into a joint venture agreement with Rare Earth Exporters of Mongolia (REE). The joint venture plans to convey Mongolian mining products overland to railway for transport to the seaport of Vladivostok, Russia. Destination ports for these mining products are set to include the U.S., Japan and South Korea.

June: Dr. Chang HO Wan, Director of the Korean Institute of Geosciences and Resources (KIGAM) told that the rare earth deposits were discovered in the area called Khangai the central province of Mongolia and told an intention to obtain mining license.

Notes:

1. JOGMEC’s joint survey has not yielded good results but it keeps the effort.
2. In June 2011, GTSO announced that core samples from the first of three mining properties to be sent for mineral analysis in South Korea.
3. Lack of infrastructure in Mongolia is said to be a bottle neck in case of huge deposits discoveries.

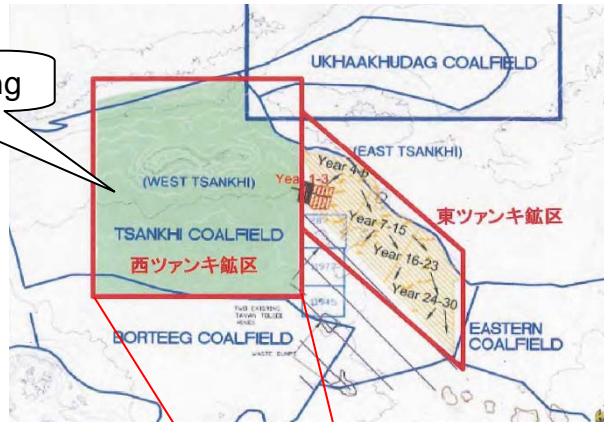
Khangai, Mongolia



Tavan Tolgoi Field Development Project

<Mining block and an overview of infrastructure>

Block for bidding



Tavan Tolgoi Field Development Project

<Overview of the Project>

- The overall fields in the region is expected to have a deposit of 6 billion tons.
- Of this total amount, the West Tsankhi Coal Field expected to have a deposit of 1.2 billion tons (Resource base), of which coking coal accounts for 740 million tons. The Mongolian government is currently invited international bidding for the development of this West Tsankhi Coal Field. It plans to select final bidders and let them form a consortium and consider development plan. Annual planned production is 15 million tons (of which coking coal accounts for 9 million tons).
- Simultaneously, the Mongolian government require a consortium developing coal field should contribute to the construction of railways (to Russia and China).
- Japanese companies has participated in the international bidding by forming two groups: first, Mitsui and Co. joined China Shenhua Group; second, Sumitomo Corporation, ITOCHU, Marubeni Corporation and Sojitz Corporation teamed up with a Korean consortium (which includes POSCO, KORES and KEPCO) and a Russian consortium (Open Joint Stock Company “Russian Railways” and SUEK).

Tavan Tolgoi Field Development Project

<Importance of Coking Coal in Mongolia>

- To date, coal has been a resource of which a stable supply is ensured from Australia and other countries. However, a predominant share of coal supply acquired by the suppliers and a dramatic increase of Chinese imports have led to the loss of price negotiating power of Japanese businesses.
- In particular, it is an important challenge for steel mills to ensure a long-term & stable supply of high-grade coking coal.



What is important in Japan's approach going forward are:

- (1) Promoting acquisition of interests and long-term supply in the current suppliers such as Australia.
- (2) Increasing acquisition of interests in new suppliers such as Russia, Mozambique and Mongolia.

⇒ Acquisition of interests and taking delivery of coal by Japanese company in Tavan Tolgoi project is essential.

Toward Integrated Logistical Network In North East Asia

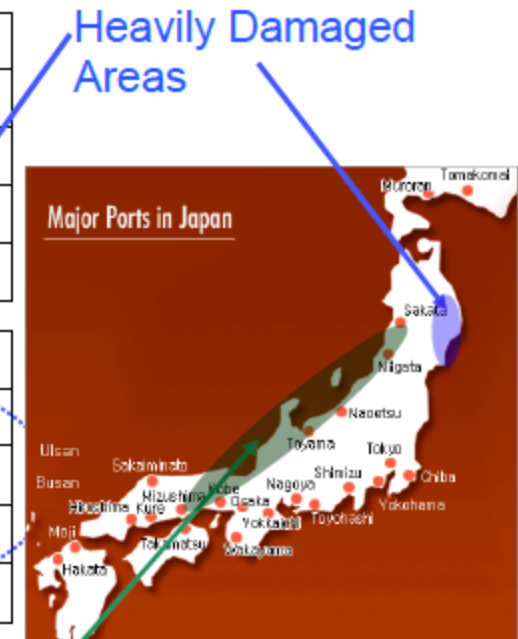
Export-Import Statistics by Custom Location

Statistics shows that logistics are moving from Pacific toward west bound or the Sea of Japan side.

in Billion Yen	Total		TOKYO		YOKOHAMA	
	Exports	Imports	Exports	Imports	Exports	Imports
2010 Apr.-Jun.	17,066	15,357	1,172	1,877	1,810	839
2011 Apr.-Jun.	15,692	16,949	1,110	2,029	1,659	1,008
Ratio to PY	92.0%	110.4%	94.8%	108.1%	91.6%	120.2%

in Billion Yen	ISHINOMAKI		KESENNUMA		SENDAI A.P	
	Exports	Imports	Exports	Imports	Exports	Imports
2010 Apr.-Jun.	5	13	0.2	0.2	5	5
2011 Apr.-Jun.	0	2	0	0	0	0
Ratio to PY	0.0%	12.3%	9.9%	0.0%	0.6%	0.0%

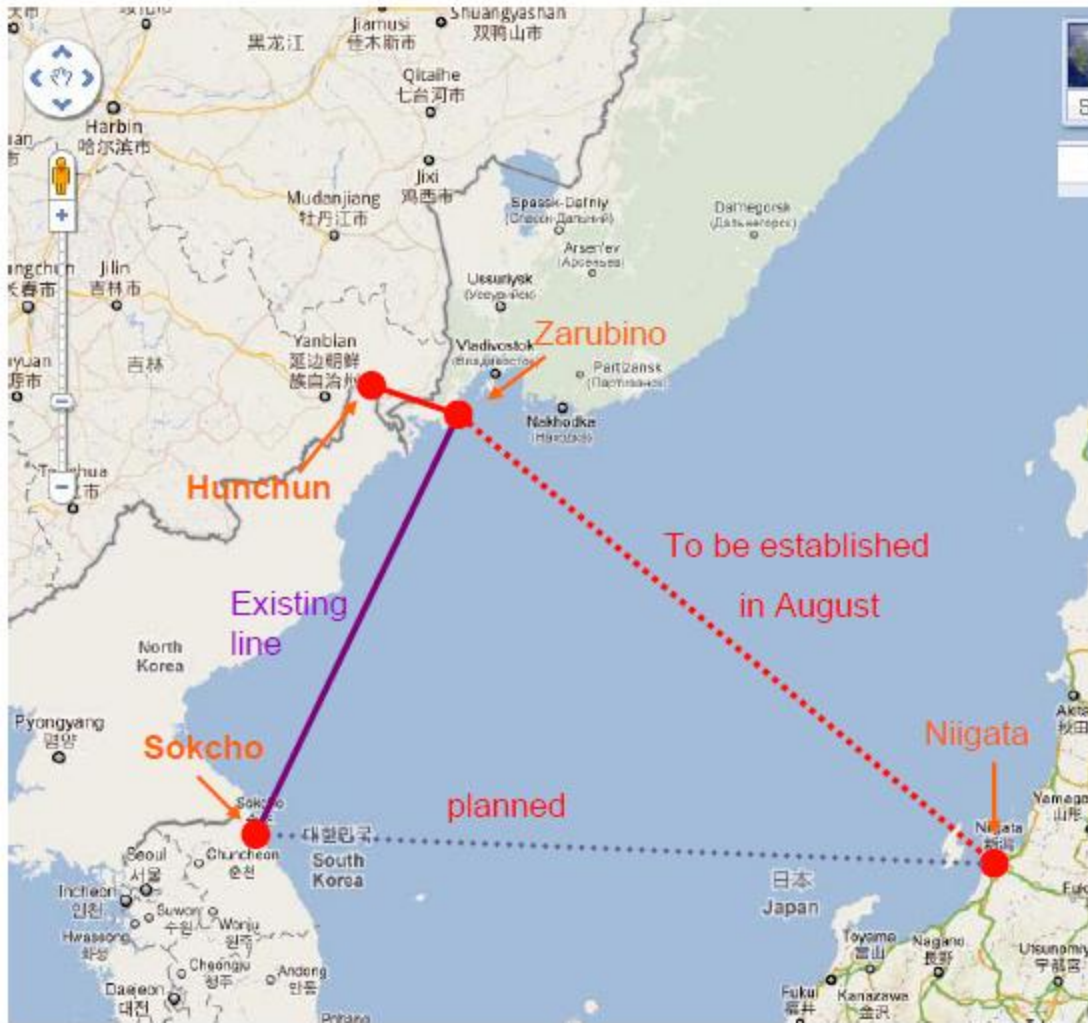
in Billion Yen	OSAKA		KOBE		KANAZAWA		NIIGATA	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
2010 Apr.-Jun.	848	935	1,304	635	17	9	31	103
2011 Apr.-Jun.	777	1,077	1,363	718	28	12	32	156
Ratio to PY	91.7%	115.2%	104.6%	113.1%	165.2%	138.2%	100.9%	151.2%



Increased Areas

Source: Ministry of Finance website

Recent Establishment of Trans-Sea of Japan Line



Japan, China and Russia have agreed to establish a new trans-sea line which connects Hunchun, Zarubino and Niigata.

It is a significant step to create logistical triangle among north east Asia.

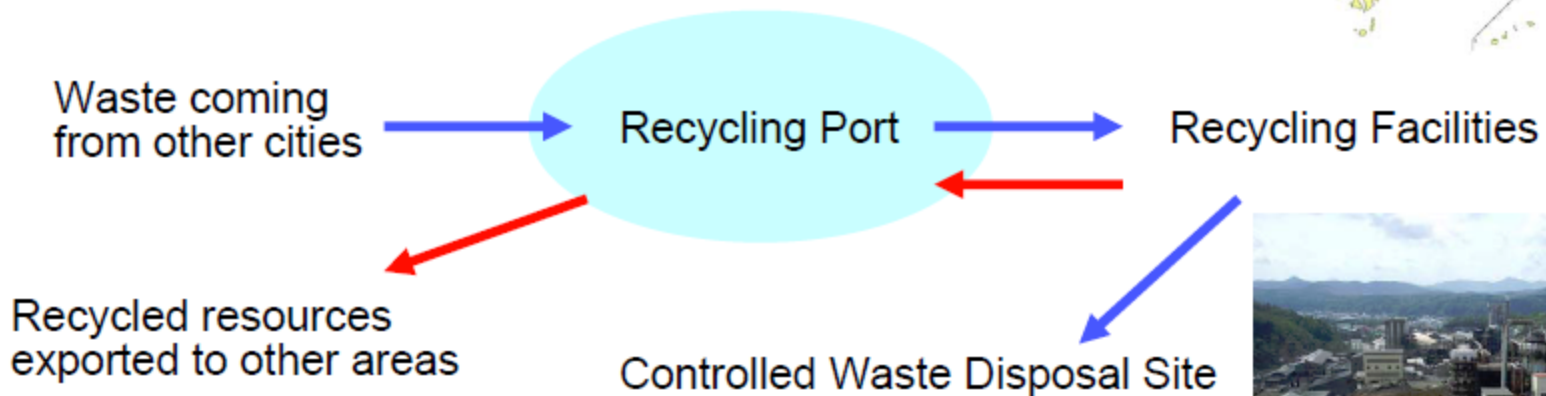
Business Model of "Recycle Port"

Recycled resources are very important in north east Asia. For example, export of waste plastics from Japan to China increased three times for the past five years.

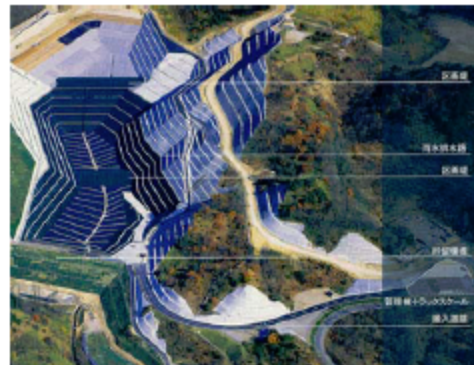
Japanese Government has selected 21 "Recycling Ports" which are expected to be local hubs of recycling industries.

Waste plastic export from Japan to China

	2006	2007	2008	2009	2010
Thousand Ton	230	530	570	710	770
Billion Yen	11.6	28.8	31.8	28.9	34.6

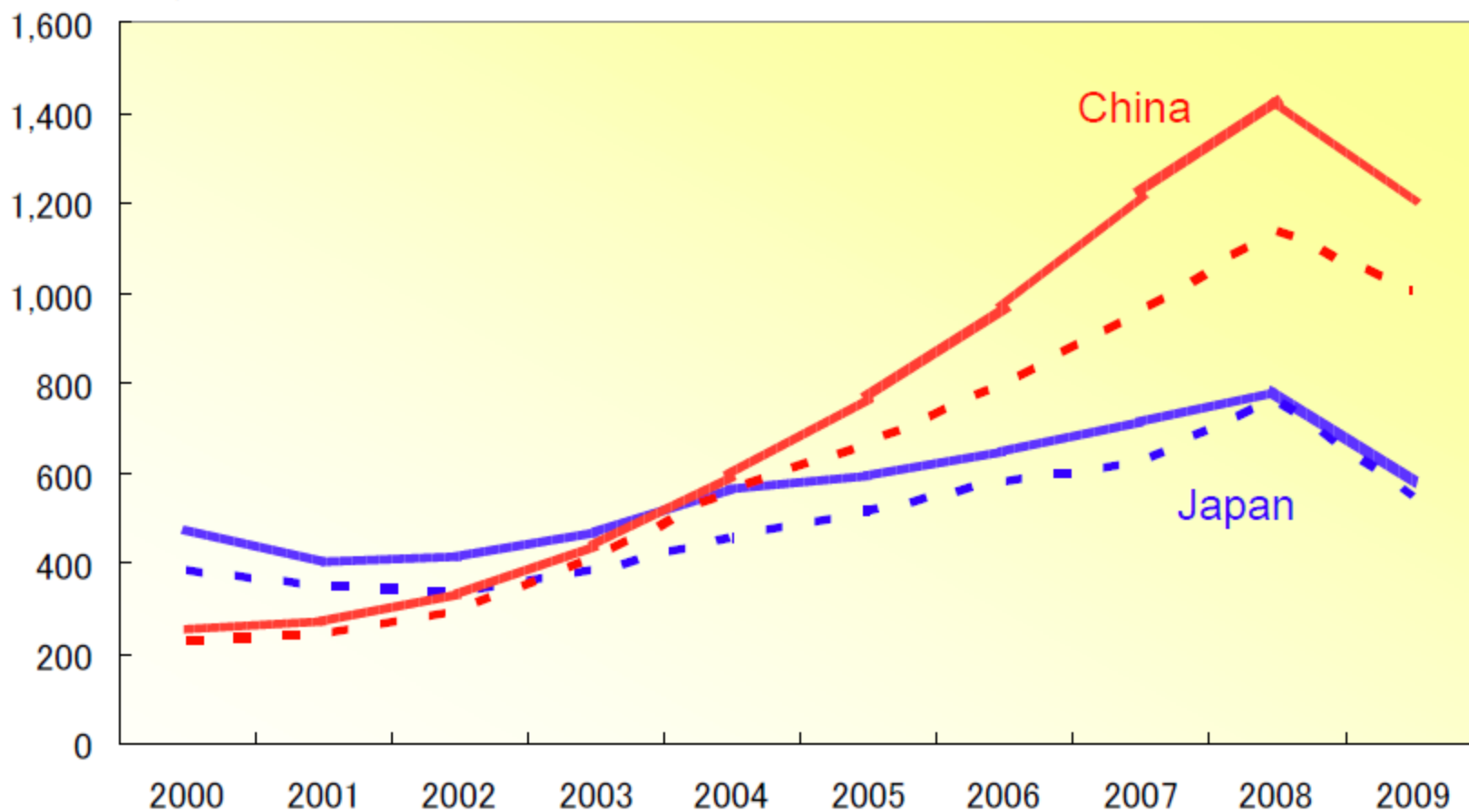


Noshiro Port is one of the "Recycle Ports" and is backed by DOWA group which has highly advanced recycling technologies of rare metals. Recycling ports combined with recycling facility and controlled waste disposal site may have opportunities in North East Asia, where recycling has potential importance.



Yearly Trade Volume of Japan and China

(Unit: billion USD)

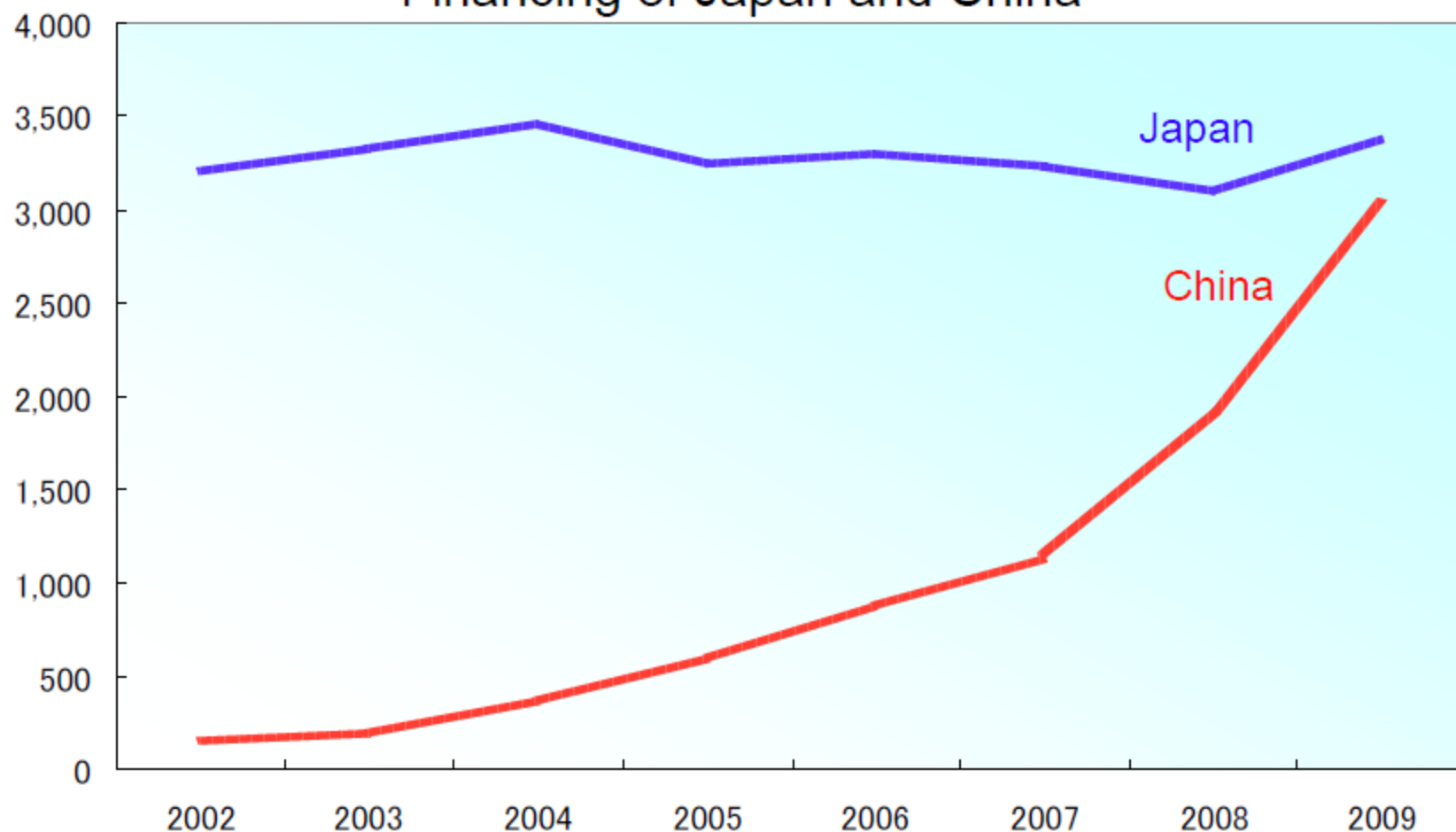


Export (Japan) Import (Japan) Export (China) Import (China)

(Source: "World Statistics", Statistics Bureau of Ministry of Internal Affairs and Telecommunications of Japan)

Yearly Outstanding Amount of Policy-based International Financing of Japan and China

(Unit: 100 Million USD)



(Note1) Japan: Total of outstanding loans, guarantees, equity investment and insurance underwriting of JBIC, JICA and NEXI. Fiscal year basis.

(Note2) China: Total of outstanding loans in foreign currency (used for international loans) of CDB, loans of ChinaExim and insurance underwriting of SINOSURE. Calendar year basis.