

The Industrial Diversification of Mongolia

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- Industrial development of Mongolia before 1990's
- Industrial development during the transition period
- Current problems of economic development
- Solutions of industrial diversification

Industrial development of Mongolia before 1990's

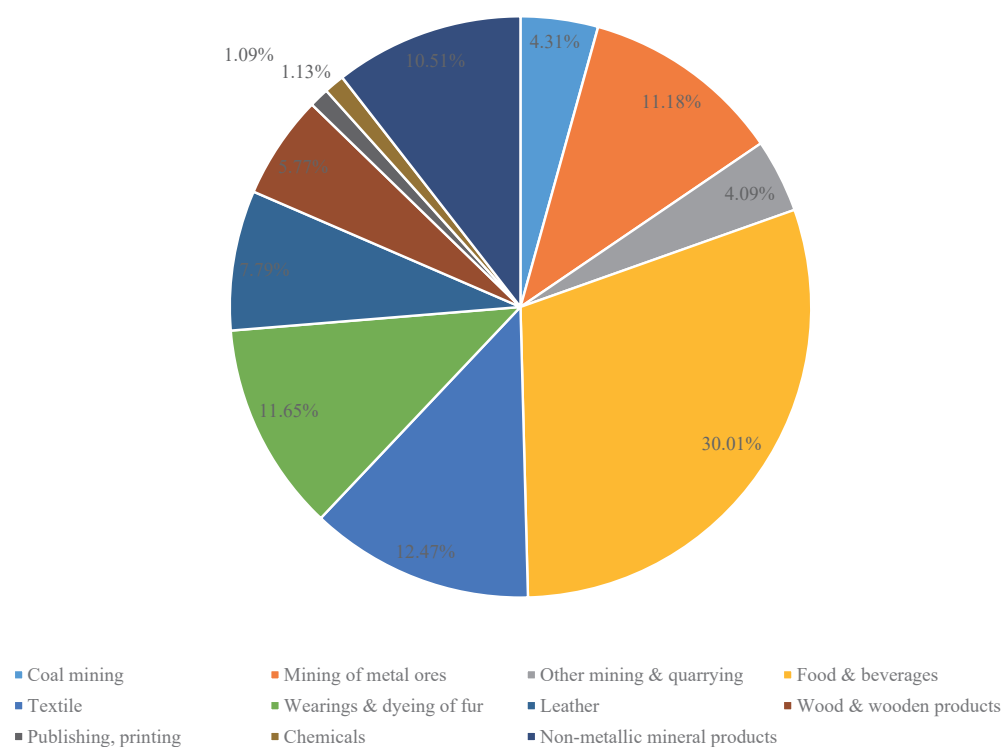
Industrial development specifics before 1990's

- State owned enterprises
- State planning mechanism
- Close integration to CMEA member countries
- Specialization and export orientation
- Concessional terms of trade

Share of industrial sector

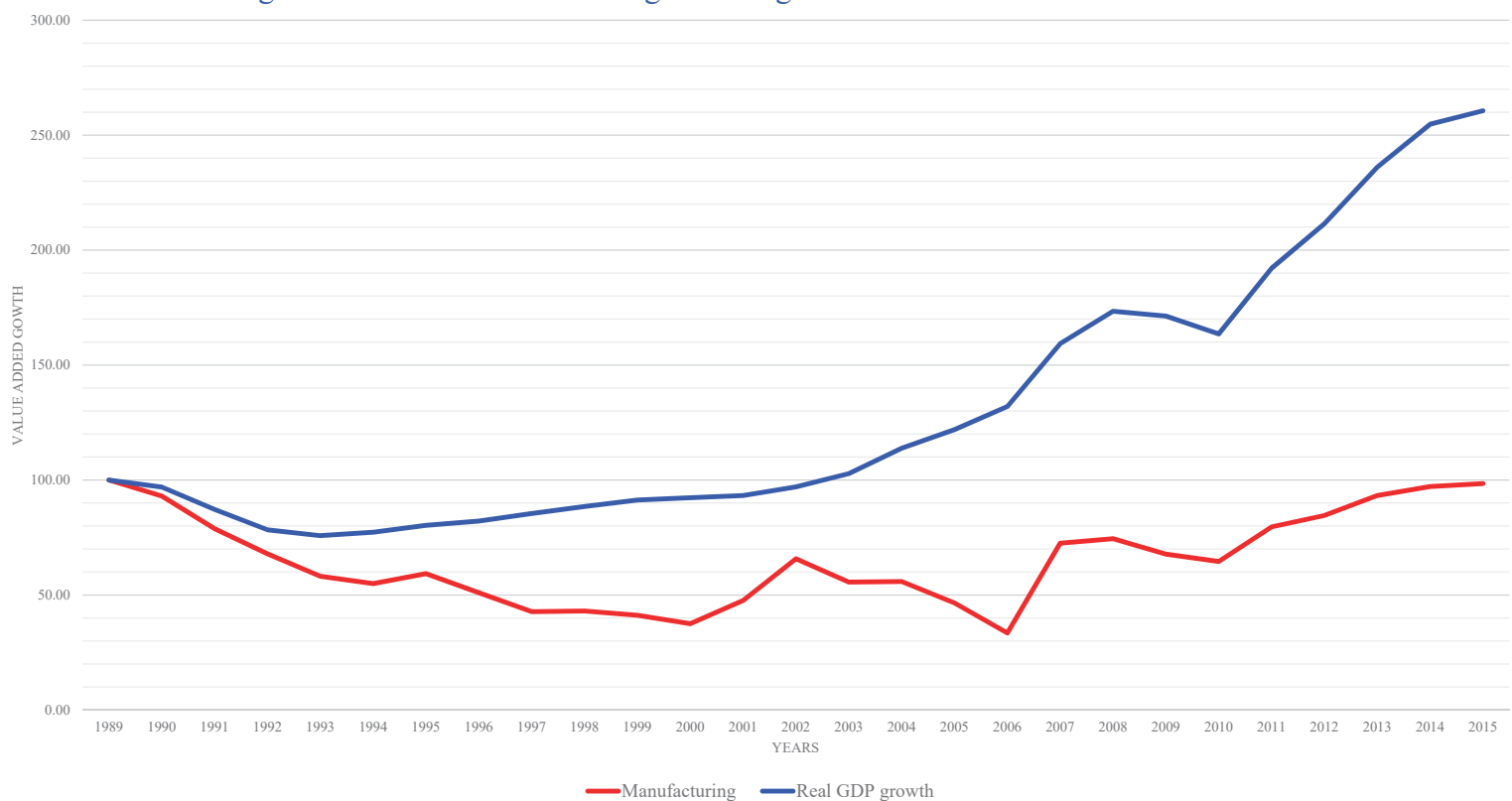
- In total GDP of Mongolia – 35.8% (in 1990)
 - Mining & quarrying
 - Manufacturing
 - Electricity, gas & water supply
- In total employment -16.6% (in 1992)
 - Mining & quarrying
 - Manufacturing
 - Electricity, gas & water supply

Industrial production in 1990 by sub division



Industrial development during the transition period

Mongolia's GDP and manufacturing sector's growth between 1990 and 2015



De-industrialization

- Disappearance of export markets
- Collapse of supply channel
 - Privatization of suppliers: negdels, state owned enterprises
 - Collapse of state owned whole sale system and logistical network
- Disruption from technological supply, and raw material from CMEA countries
- Trade liberalization and open economic policy

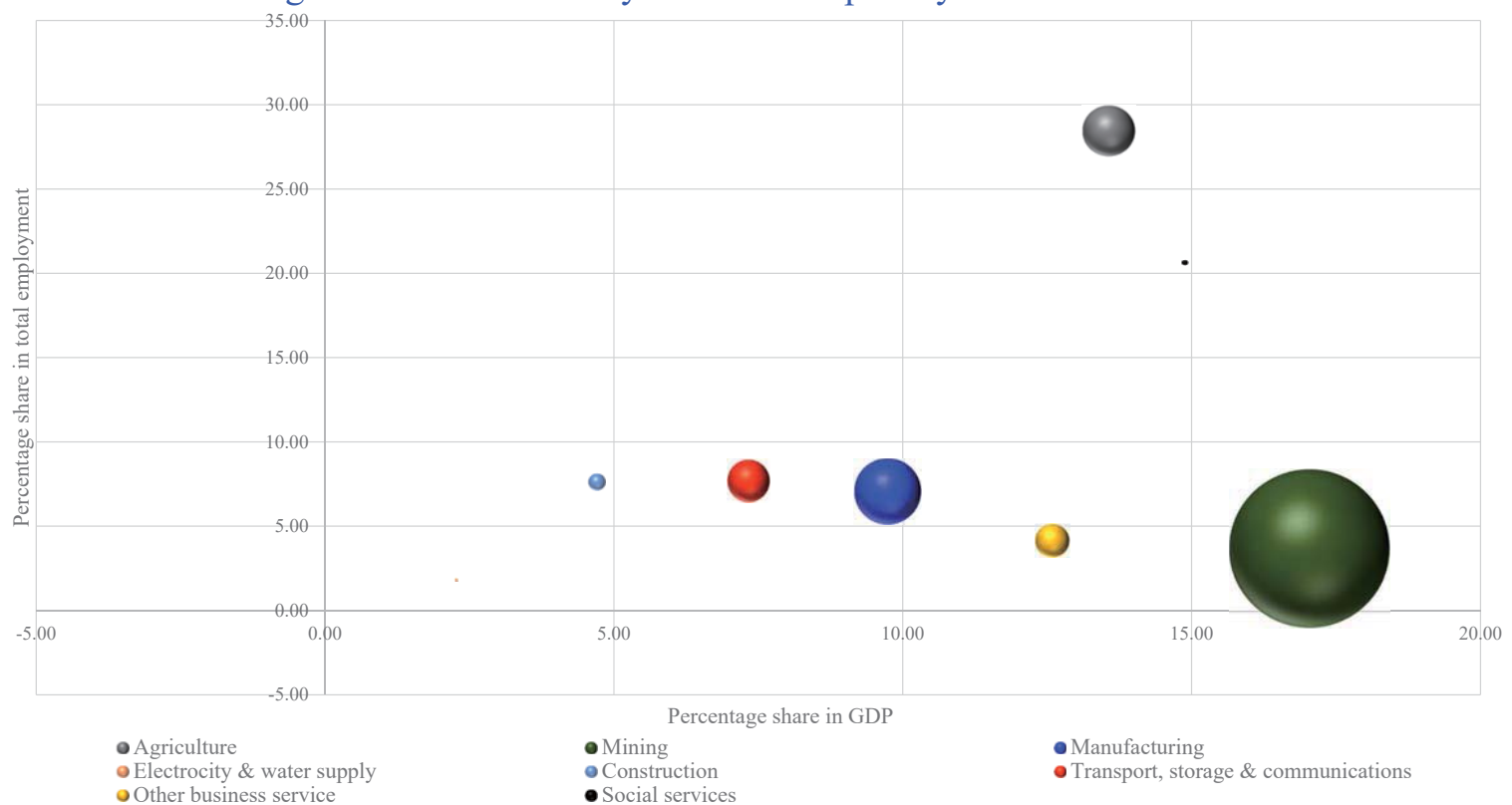
Sectoral composition of Mongolian GDP

	1990	1995	2000	2005	2010	2015
Agriculture	15.2	38.0	29.1	21.9	14.3	13.6
Mining	8.1	12.0	11.5	22.1	23.6	17.0
Manufacturing	26.1	12.1	6.1	5.8	8.4	9.7
Electricity, gas & water supply	1.4	1.8	2.4	3.2	2.5	2.3
Construction	5.0	1.7	1.9	2.5	1.7	4.7
Whole sale, retailing & hospitality	19.4	17.7	25.3	15.7	16.2	18.0
Transport, storage & communications	9.3	6.4	11.0	12.3	7.8	7.3
Other business services	2.7	1.8	3.5	8.6	12.9	11.8
Social services	12.8	8.5	9.2	7.9	12.6	15.7

Recovery of domestic industry

- Export orientation
 - Development of competitive advantage based industry
 - Rapid growth of mining sector
 - Growth of FDI
- Structural change
 - Domination of low and medium technology and low productivity
 - Decline of industrial value added
 - Growth of private sector
 - Development of SME

Percentage share of commodity & service export by economic sector /in 2015



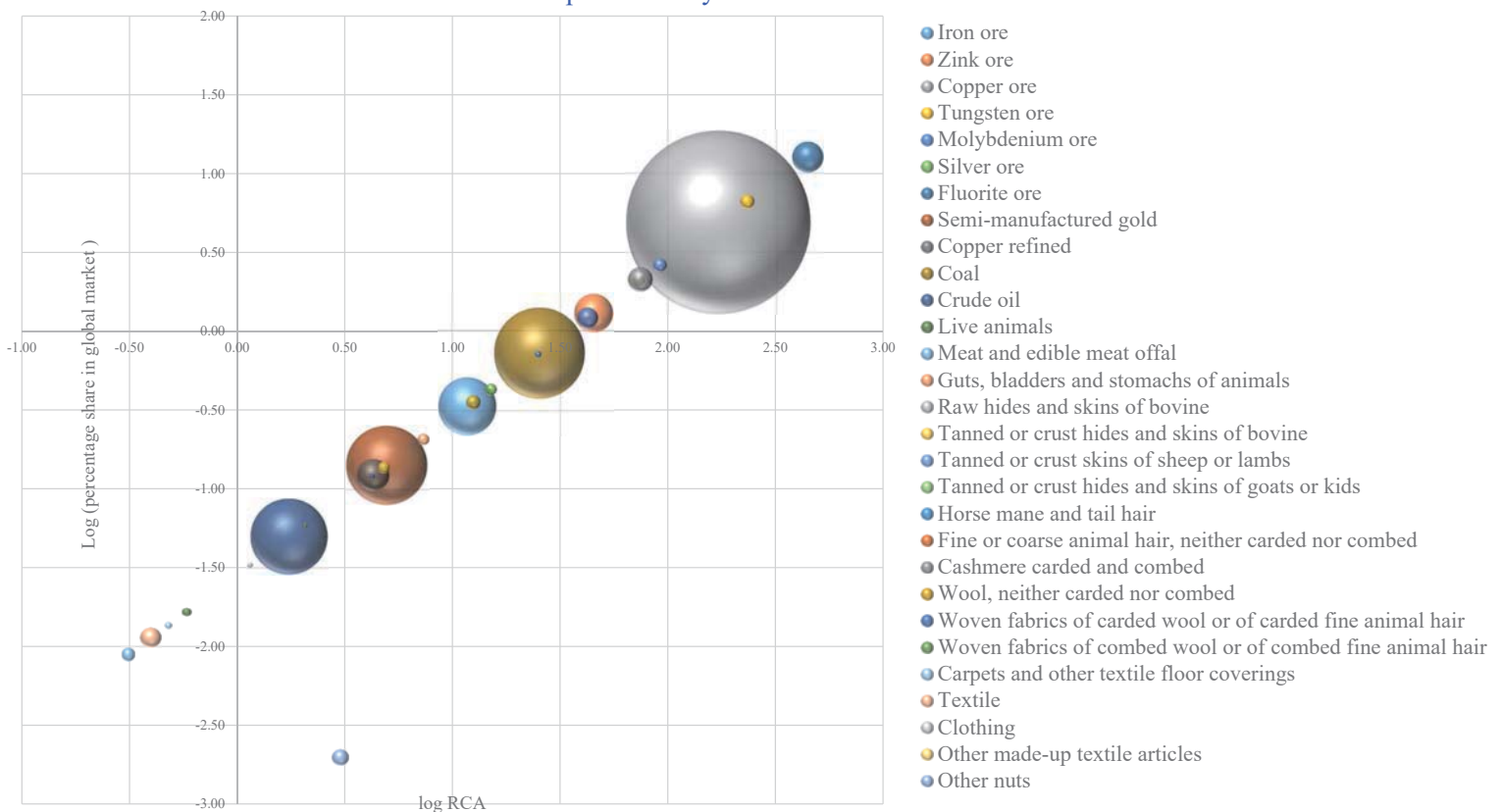
Trade opportunity and RCA



Revealed comparative advantage index

$$RCA_{i,j} = RXA_{i,j} = (x_{i,j}/X_{i,t})/(x_{w,t}/X_{w,t})$$

Export value by commodities / in 2015



Competitive advantage of main export commodities – log (RCA)

Export commodities	Log RCA	Export commodities	Log RCA
Iron ore	1.07	Tanned or crust hides and skins of bovine	0.68
Zink ore	1.65	Tanned or crust skins of sheep or lambs	1.96
Copper ore	2.23	Tanned or crust hides and skins of goats or kids	1.87
Tungsten ore	2.36	Horse mane and tail hair	1.40
Molybdenum ore	1.62	Fine or coarse animal hair, neither carded nor combed	3.37
Silver ore	1.18	Cashmere carded and combed	1.87
Fluorite ore	2.64	Wool, neither carded nor combed	1.10
Semi-manufactured gold	0.69	Woven fabrics of carded wool or of carded fine animal hair	0.63
Copper refined	0.63	Woven fabrics of combed wool or of combed fine animal hair	0.31
Coal	1.40	Carpets and other textile floor coverings	-0.32
Crude oil	0.24	Textile	-0.40
Live animals	-0.24	Clothing	-2.04
Meat and edible meat offal	-0.51	Other made-up textile articles	-1.16
Guts, bladders and stomachs of animals	0.86	Other nuts	0.48
Raw hides and skins of bovine	0.06		

Current problems of economic development

Main problems

- Small and open economy:
 - Domestic market size and economies of scale
 - Small, open economy and production specialization
 - Small economy and investment opportunity
- Economic structure and export transportation cost of Mongolia
 - Land-locked-ness and geographical location
 - Poorly developed transport infrastructure
 - Export of minerals and raw materials
- Current transport infrastructure and inefficiency of economic cooperation
 - Economic slowdown of China
 - Decline of mineral prices in global market
 - Reduction of coal import of China
- Economic problem
 - External balance
 - Budgetary deficit
- Social problems
 - Poverty
 - Unemployment
 - Rural and urban disparity

Reasons of inefficiency

High transport cost of Mongolia
(US\$ per TEU equivalent container in 2014)

	In USD
Mongolia	2745
China	823
South Korea	670
Japan	829
Russia	2401

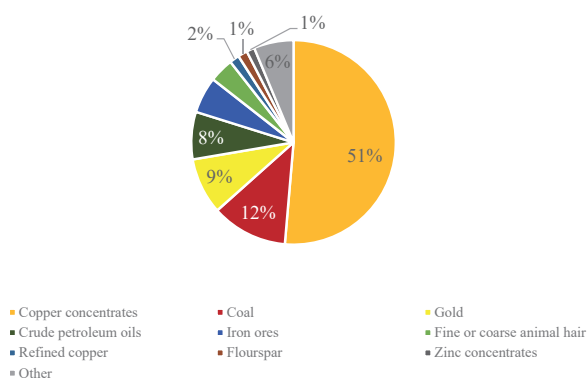
Source: World bank 2015

Low export price of Mongolia in Chinese market

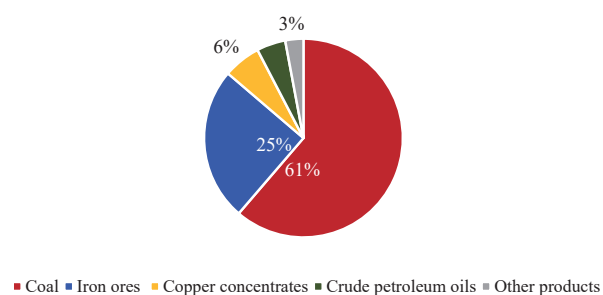
	Chinese average import price	Chinese import prices from Mongolia
Coal	65	37
Iron	61	44
Crude oil	400	306

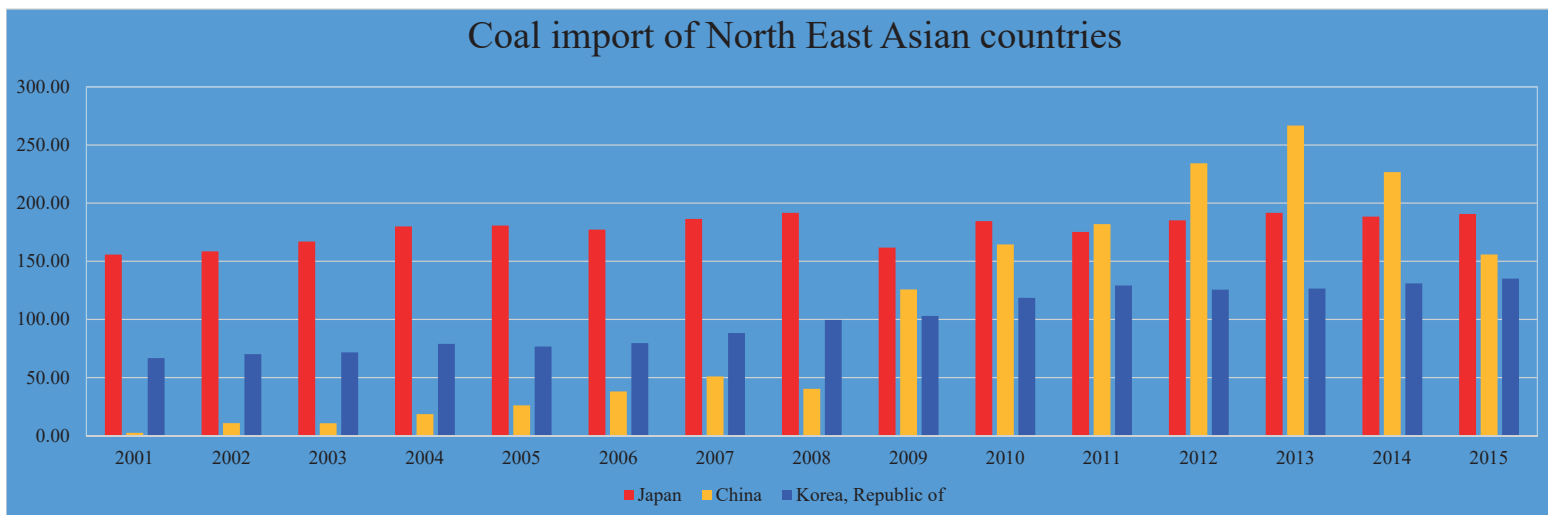
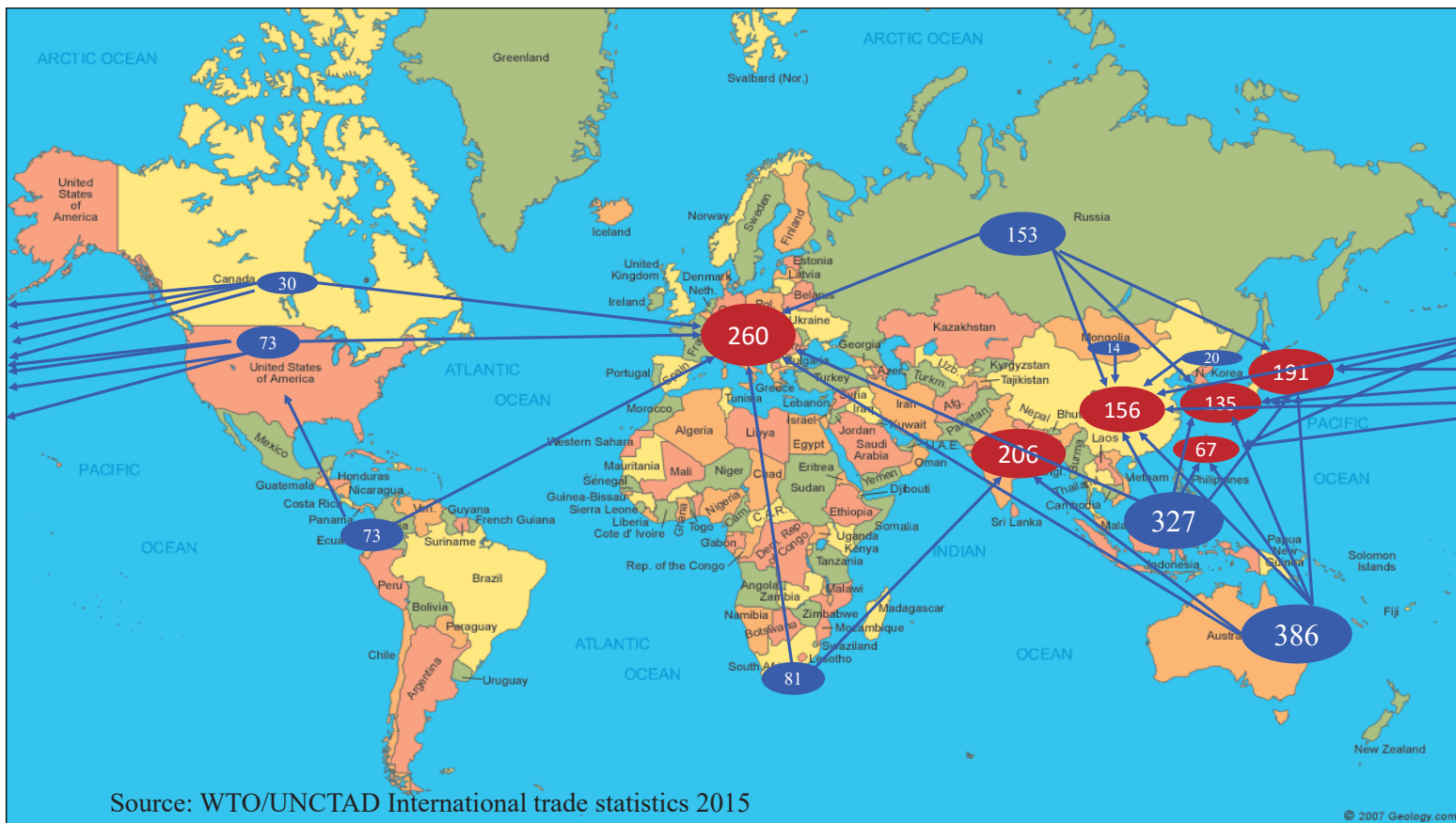
Source: WTO/UNCTAD International trade statistics 2015

Percentage share of main export commodities in total export of Mongolia / as for 2015



Percentage share of main export commodities in export transportation / as for 2015





Metal and coal import of China, Japan & South Korea / tons in 2015

	China	Japan	Republic of Korea
Copper concentrate	13'305'884	4'828'335	1'769'728
Refined copper	3'717'422	42'395	387'972
Iron ore	953'204'929	131'009'839	73'280'793
Pig iron	47'614	34'386	126'555
Coal	155'924'859	190'727'996	135'144'479
Coking coal and coke	3'766	2'881'686	391'179

Solutions of industrial diversification

Issues needs to be considered

- Above highlighted problems
- Comparative advantage
- Old industrial structure
- Input-Output analysis: production, consumption and fiscal linkages

Comparative advantages of Mongolian economy

- Mining
 - Budget revenue and foreign exchange earnings generation
 - Forward and backward linkage
- Agriculture
 - Social importance (employment, poverty)
 - Fast growing demand for agricultural goods

Production clusters in Mongolia

Agriculture based clusters			Construction cluster
Industry cluster of foods	Industrial cluster of leather and fur skin	Textile cluster	Production of brick, cement and lime
Meat processing, meat preparation	Tannery factory	Cashmere and wool processing	Production of construction concrete
<i>Dairy</i>	Leather processing	Yarn production	Production of armature
Flour and milling	Leather apparels and articles	Textile and woven	Construction
Preparation of cereals and flour	Fur skin apparels and articles	Carpet	Architecture
Beverage	<i>Boot production</i>		Wood and wooden products' cluster
Vegetable preparation			Logging
<i>Transportation, storage, whole sale, retailing and exportation</i>			Wood processing
Live stock, crops and fodder preparation			Falsework
Mining based clusters			<i>Furniture</i>
Minerals cluster	Coal cluster	Oil cluster	<i>Wooden articles, souvenirs</i>
Geological investigation and drilling	Geological investigation, drilling	Geological investigation	Health cluster
Metal mining: copper, gold, silver, zinc, molybdenum, tungsten, iron, fluorite etc.	Coal mining	Drilling wells	Medical treatment, diagnoses & emergency service
Ore processing: copper, molybdenum, silver, zinc, tungsten, fluorite	<i>Coal preparation, coal coking</i>	Oil extraction	Social health service
<i>Refinery: copper, gold, silver</i>	<i>Thermal energy production & distribution</i>	<i>Petrochemical industry</i>	Production and supply of medicine
Juvelery	Steam, heat production and supply		Health equipment, service
<i>Iron and steel industry</i>			Hospitals' food service
<i>Transportation, storage and exportation</i>			
Tourism and hospitality cluster	Financial cluster	IT cluster	Educational cluster
Infrastructure	Commercial banks	Internet providers	Universities, colleges and schools
Hotels, restaurants	Insurance	Mobile communication	Facilities and services
Museum, exhibitions	Non banking financial organization	Information and communication	Dormitory
Theatre, entertainment	Stock and commodity exchanges	TV and radio	Foods and services, book stores
Tourist camps	Real estate business	Websites	Printing and publishing
Tour operators	E-commerce	Meteorology	

Solutions of diversification

- To develop production cluster that based on country's comparative advantages
- To produce products with lowest transportation cost
 - Value added, final products
 - Luxury, premium and ecologically clean products

Conclusions

- The creation of industrial linkages through clusters could be the best way to diversify Mongolia's industrial sector. Clusters give opportunity to utilize comparative advantage of the country and to increase domestic value added.
- In Mongolia, comparative advantage lies in natural resource-intensive industries such as mining and agriculture, of which mining is capital intensive and generates large part of income necessary for further economic growth, while agriculture is labor intensive and generates jobs for people.