



# Possibility of Mongolia to regional integration North East Asia based on sustainable urban development

Eleventh Intergovernmental Regional Environmentally Sustainable Transport (EST) Forum in  
Asia

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Ulaanbaatar

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## Main development indicators of NEA countries

Countries	Population, by millions, 2016	Land, by million km2, 2016	GDP, by billion US\$			GDP per capita, US\$, 2016
			2007	2016	Annual growth, % 2007/2016	
<b>Russia</b>	146,8	17,098	1299,7	1283,2	-0,1	8748
<b>Far East Russia</b>	6,2	6,169		89,5		1005
<b>Siberia</b>	19,3	5,145		169,6		3743
<b>China</b>	1373,5	9,563	3552,2	11199,1	21,5	8123
<b>Japan</b>	126,7	0,378	4515,3	4939,4	0,9	38894
<b>South Korea</b>	51,4	0,100	1122,7	1411,2	2,6	27539,0
<b>North Korea</b>	25,1	0,120	25,000	25,0	0,0	1000
<b>Taiwan, Chinese</b>	23,5	0,036	490	529,6	0,8	22598
<b>Mongolia</b>	3,1	1,564	4,235	11,2	16,4	3686
<b>Hong Kong, China</b>	7,3	0,003	211,6	320,7	5,2	43681
<b>total NEA</b>	1636,056	28,862	11220,74	19719,4	7,6	12,053

Source: World Bank. 2017. World Development Indicators

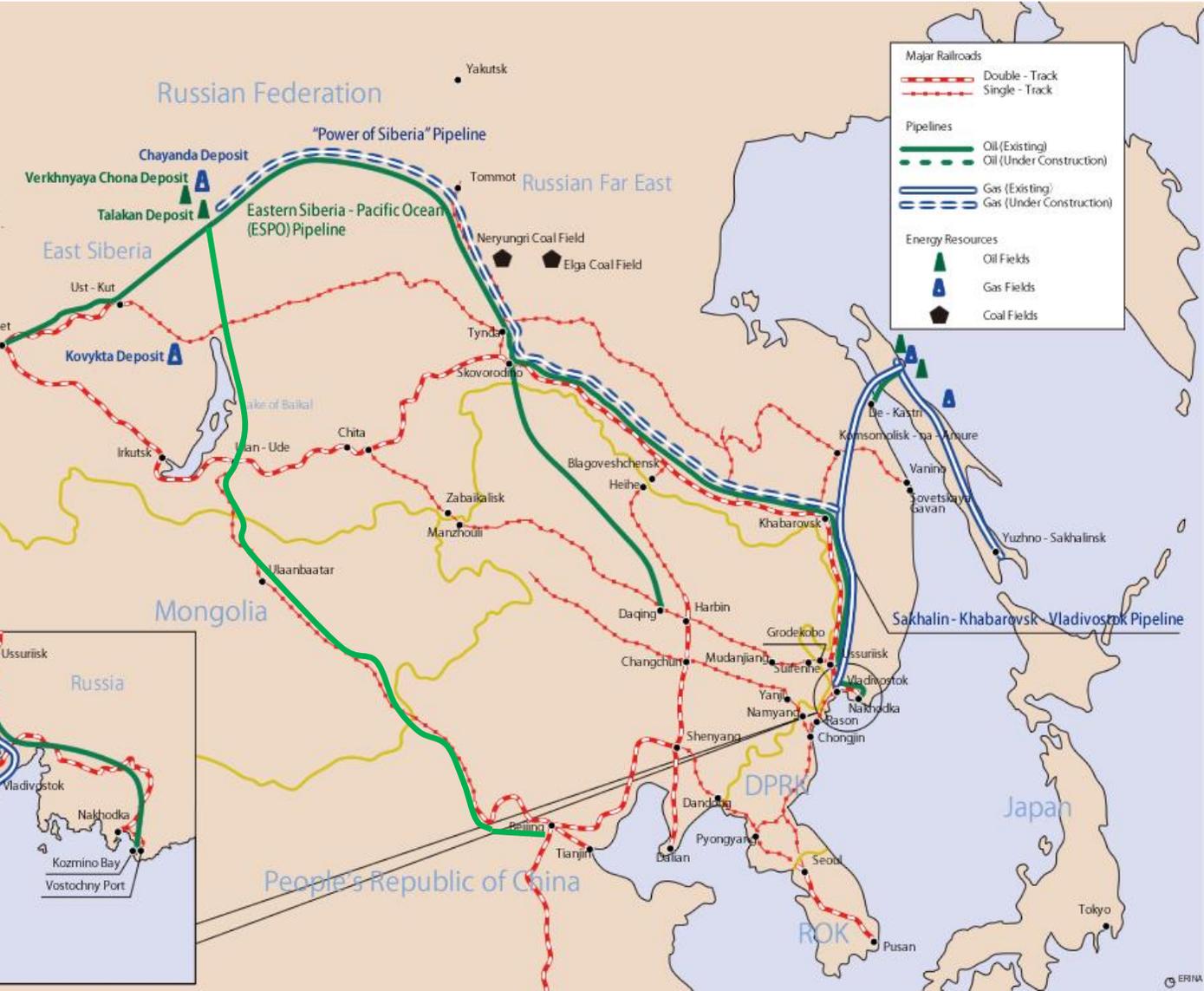
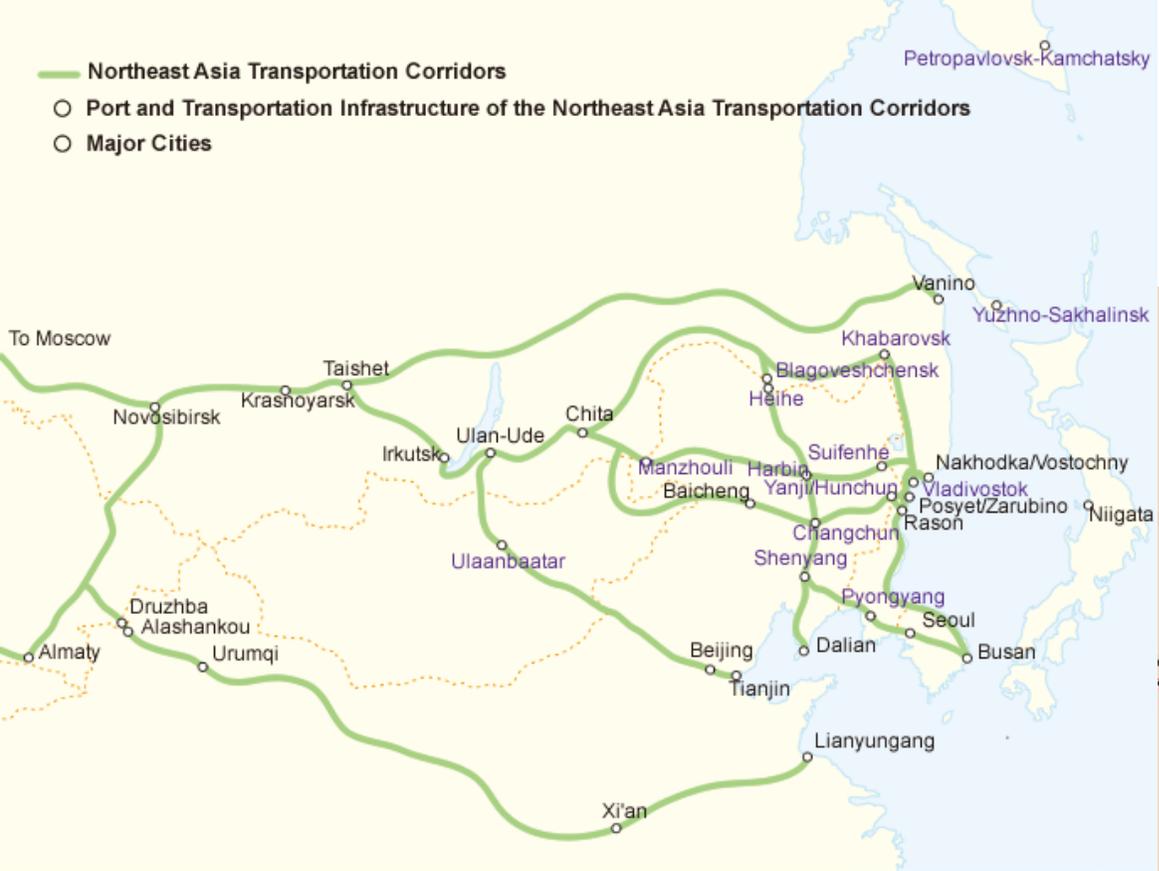
# Trade is the most fundamental of cooperation for Mongolia.

NEA countries role on the world and regional intra-trade, 2016

Source: ITC (International trade Centre). 2017. Trade statistics of world countries

World	Total trade share in the world, %			Regional intra-trade share, %					
	Export	Import	Total	share of country's export to NEA	share of country's import from NEA	share of country's trade with NEA	Share in NEA export	Share in NEA import	Share in NEA trade
	100	100	100						
<b>China</b>	13.2	9.9	11.5	28.2	31.1	29.5	38.1	35.6	36.9
<b>Russia</b>	1.8	1.1	1.5	18.1	28.4	22.1	3.3	3.7	3.5
<b>Japan</b>	4.1	3.8	3.9	37.2	35.6	36.4	15.4	15.5	15.5
<b>South Korea</b>	3.1	2.5	2.8	40.1	39.7	39.9	12.8	11.6	12.2
<b>Taiwan</b>	1.8	1.4	1.6	51.9	44.7	48.7	9.4	7.4	8.4
<b>Hong Kong</b>	3.3	3.4	3.3	62.0	65.6	63.9	20.6	25.8	23.1
<b>Mongolia</b>	0.03	0.02	0.03	80.8	73.1	77.7	0.3	0.2	0.2
<b>North Korea</b>	0.02	0.02	0.02	88.2	93.1	90.8	0.2	0.2	0.2

# Transit pipeline, road and rail transport through Mongolia between Russia-China

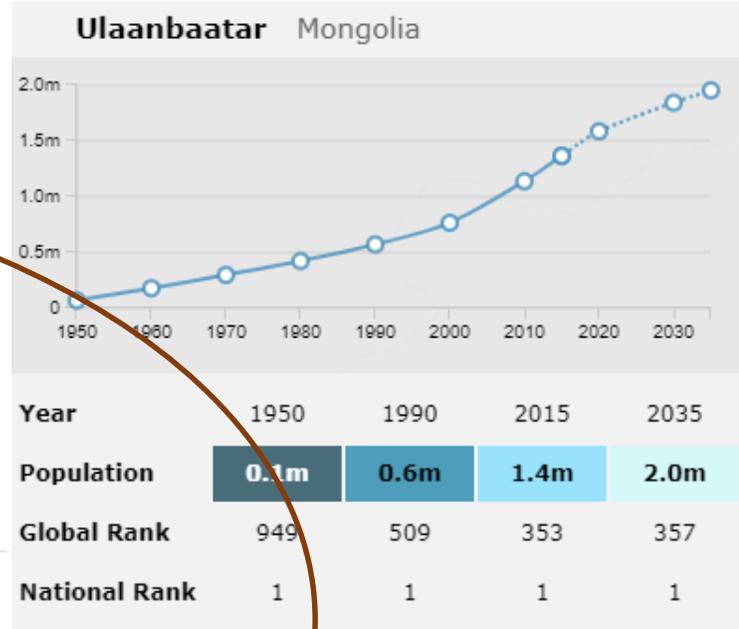
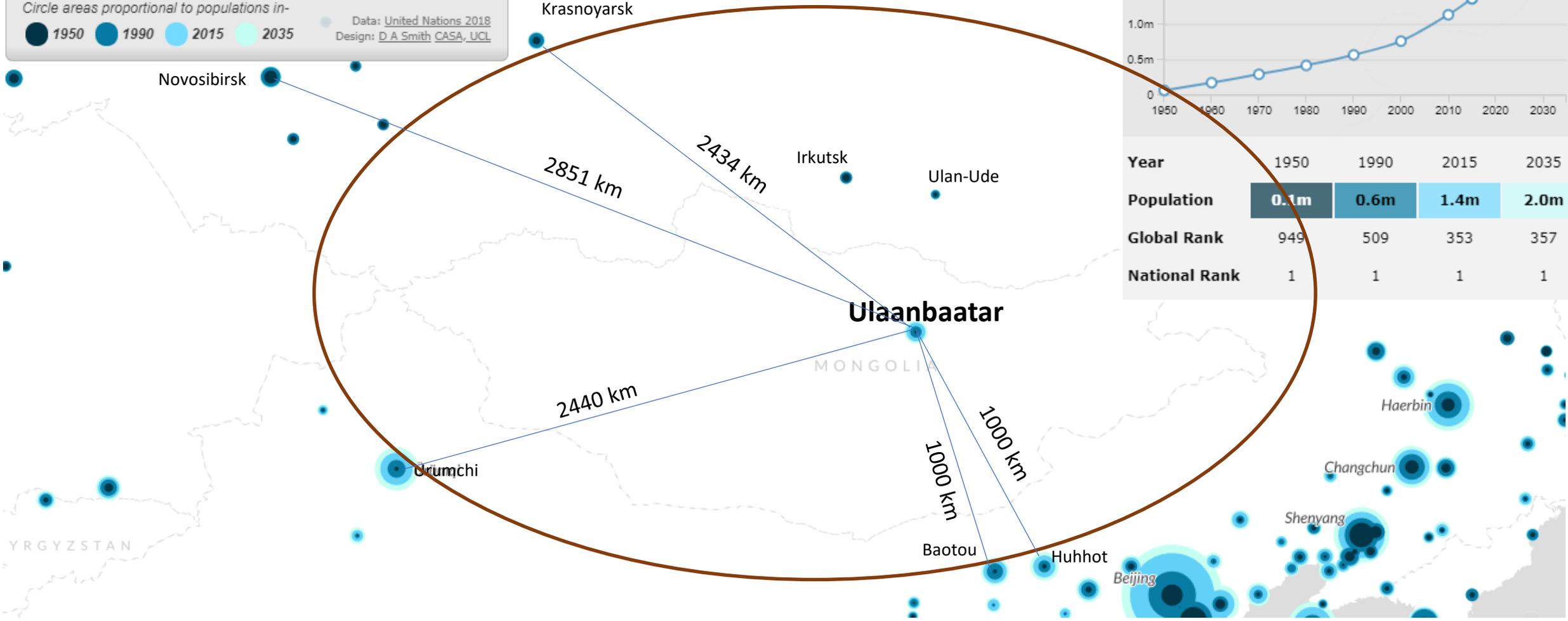


# Sea port gates for Mongolia

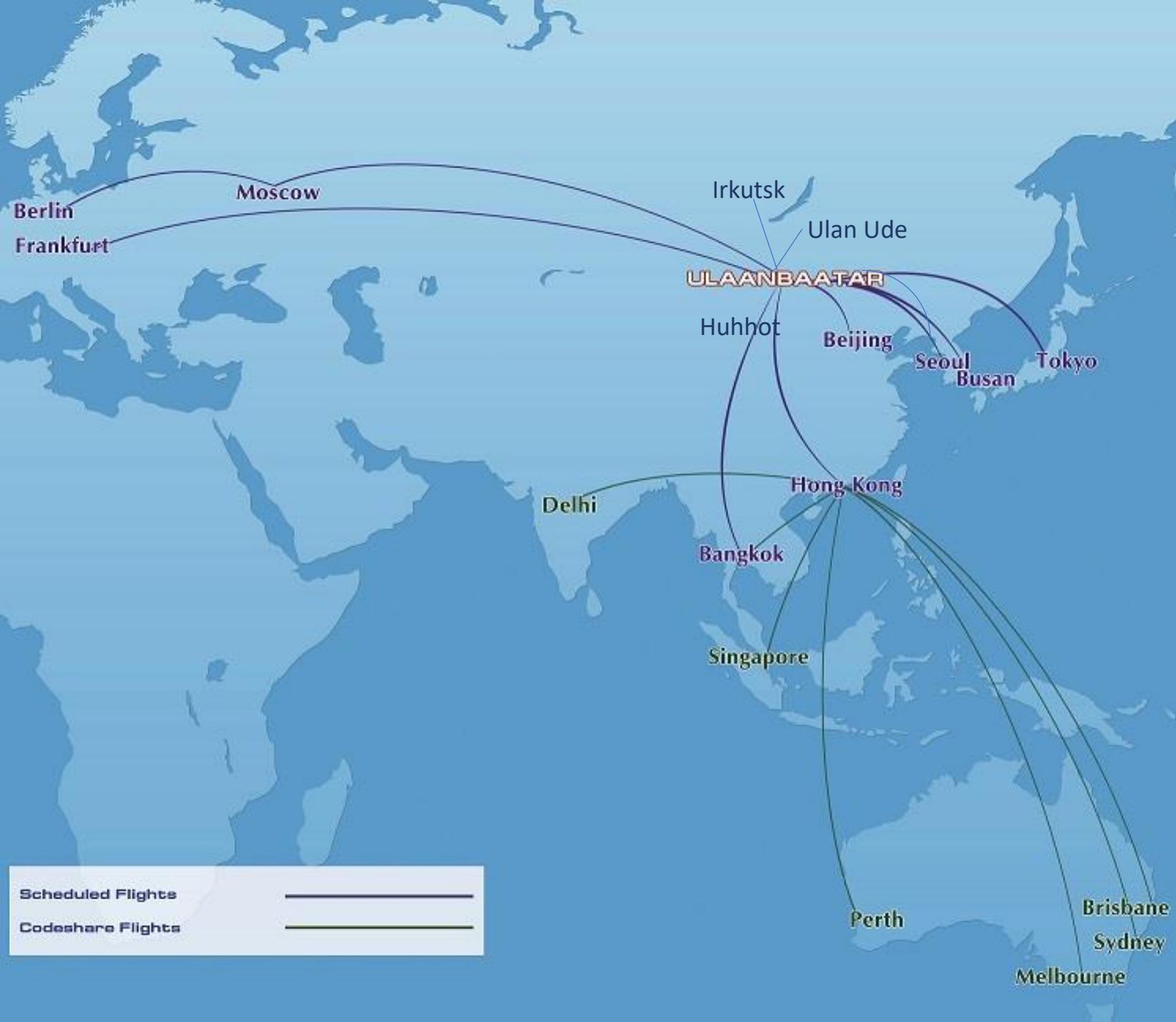


# Ulaanbaatar – alone biggest millionaire city within 1600 km radius in the region with high urban economy growth NEA

**World City Populations 1950 - 2035**  
 Circle areas proportional to populations in-  
 ● 1950 ● 1990 ● 2015 ● 2035  
 Data: United Nations 2018  
 Design: D.A. Smith, CASA, UCL



Source:



# Main transport network = Airway to NEA cities

## Rep Korea

- 8000-13000 passenger UB-Seoul/Busan-UB a month

## Japan

- 3000-5000 passenger UB-Tokyo-UB 7 a week

## Russia

- UB-Ulan-Ude-UB 2 a week
- UB-Irkutsk-UB 3 a week
- UB-Moscow-UB 6 a week

## China

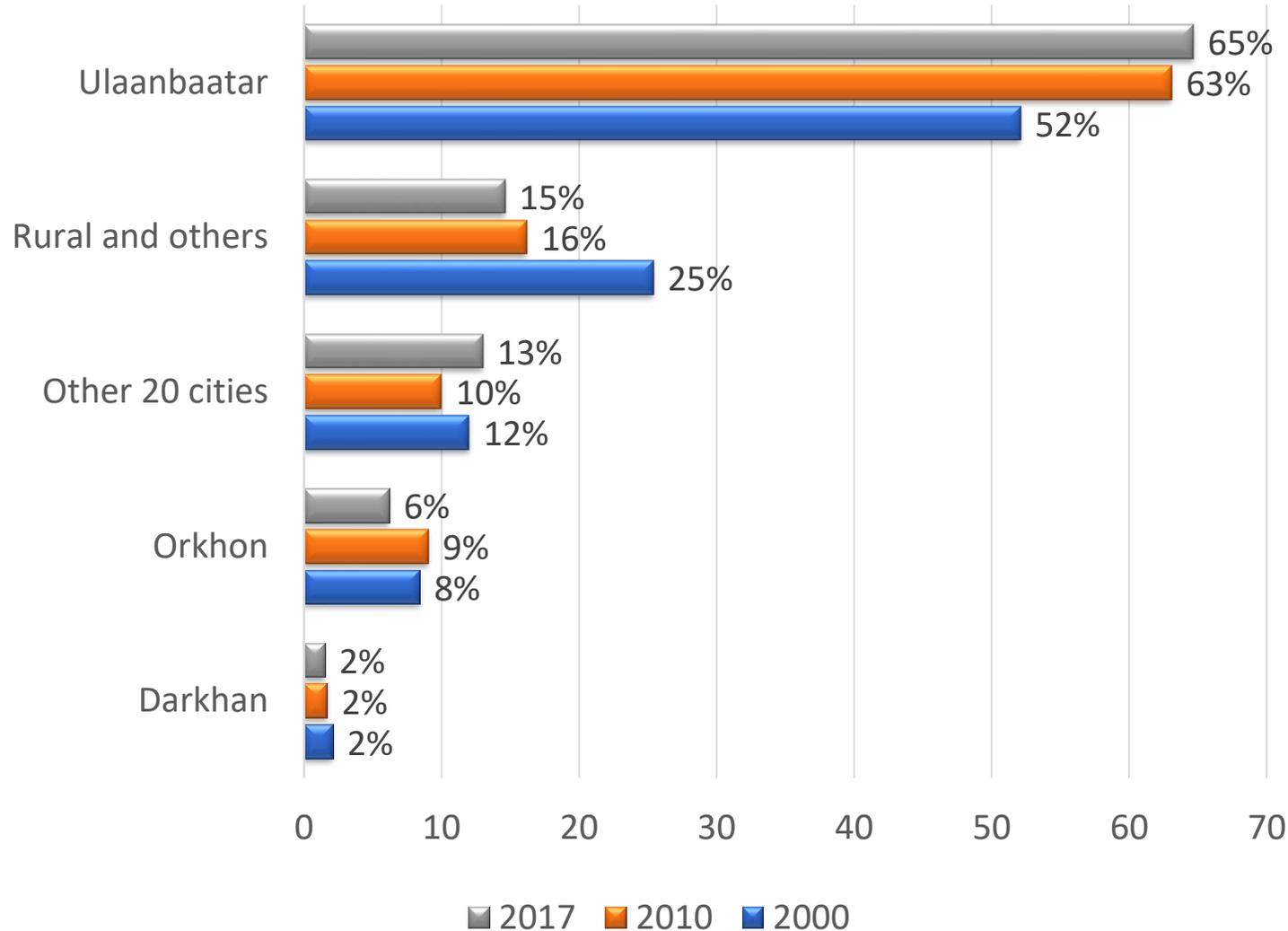
- UB-Huhhot-UB
- 6000-10000 UB-Beejin-UB 7 flights a week
- UB-Hongkong-UB 5 flights a week

## Singapore

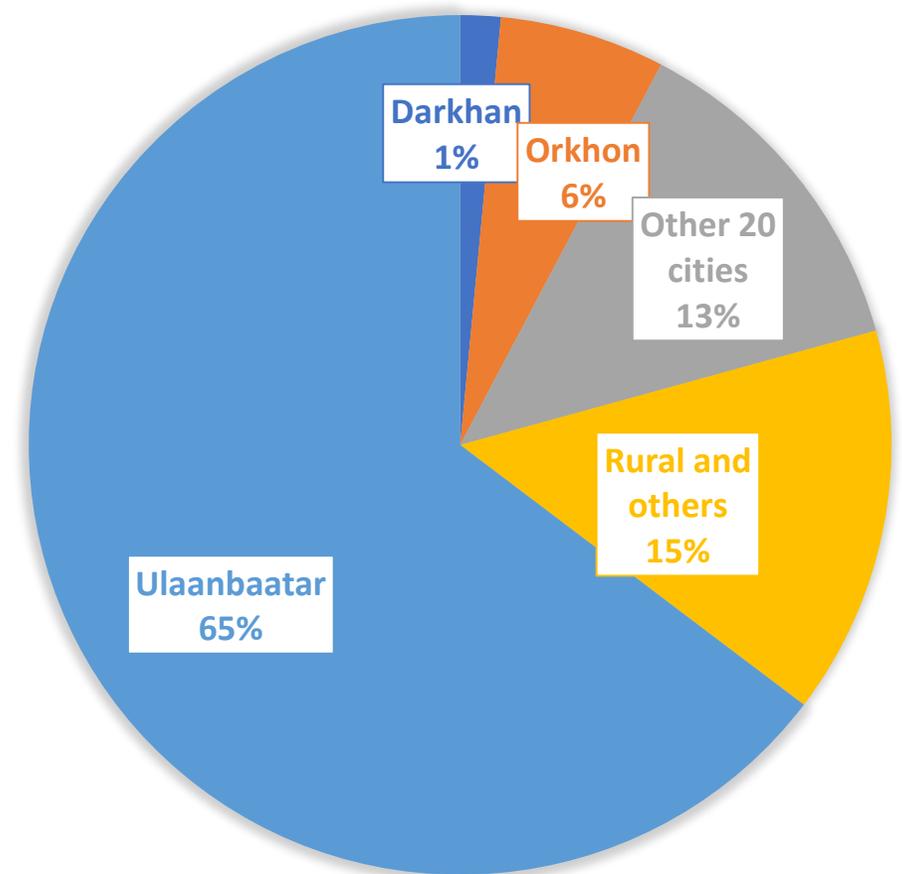
- UB-Singapore-UB

# Urban economies grow fast

GDP Mongolia structure by cities and rural, 2000-2017



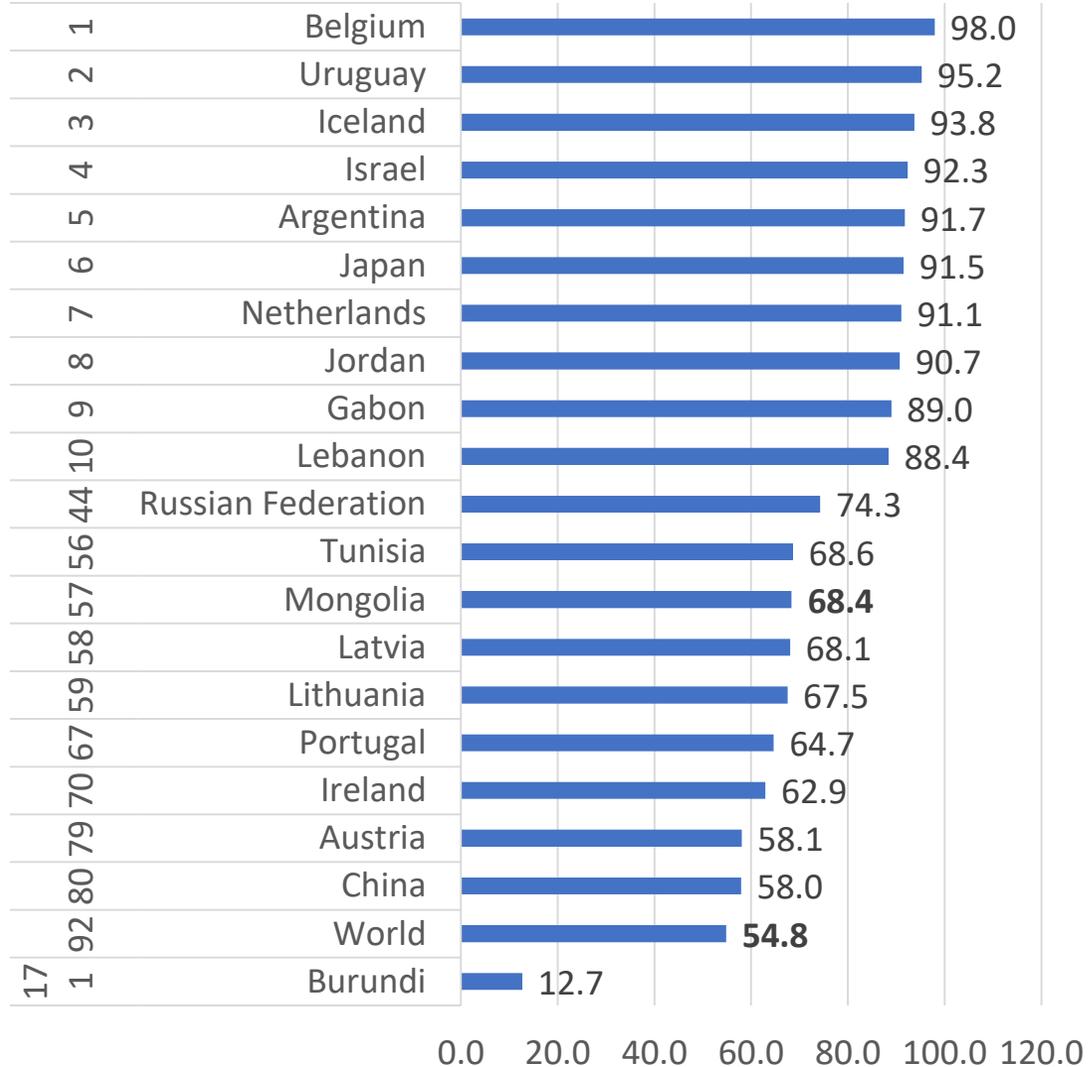
GDP share by cities and rural, 2017, by percentages



UB – Leading city in the world big 200 megacities by annual growth of economy (GDP) and employments.

# Mongolia is a leading country by urbanization rate in the region

World urbanization rate, 2017



Urbanization rate in the region of Central and East Asia

No	Country	1990	2017	1990/2017, by %
1	Japan	77.3	91.5	14.2
2	Korea, Rep.	73.8	81.5	7.7
<b>3</b>	<b>Mongolia</b>	<b>57.0</b>	<b>68.4</b>	<b>11.3</b>
4	Korea, Dem	58.4	61.7	3.3
<b>5</b>	<b>China</b>	<b>26.4</b>	<b>58.0</b>	<b>31.5</b>
6	Kazakhstan	56.3	57.3	1.1
	World	43.0	54.8	11.8
8	Turkmenistan	45.1	51.2	6.1
9	Uzbekistan	41.4	50.6	9.2
10	Kyrgyz Republic	37.8	36.1	-1.6
11	Tajikistan	31.7	27.0	-4.7

Source: UN Population Division. World Urbanization Prospects: 2018 Revision.

# China can be divided into 22 city clusters, each of which has distinct characteristics

% of region, 2007

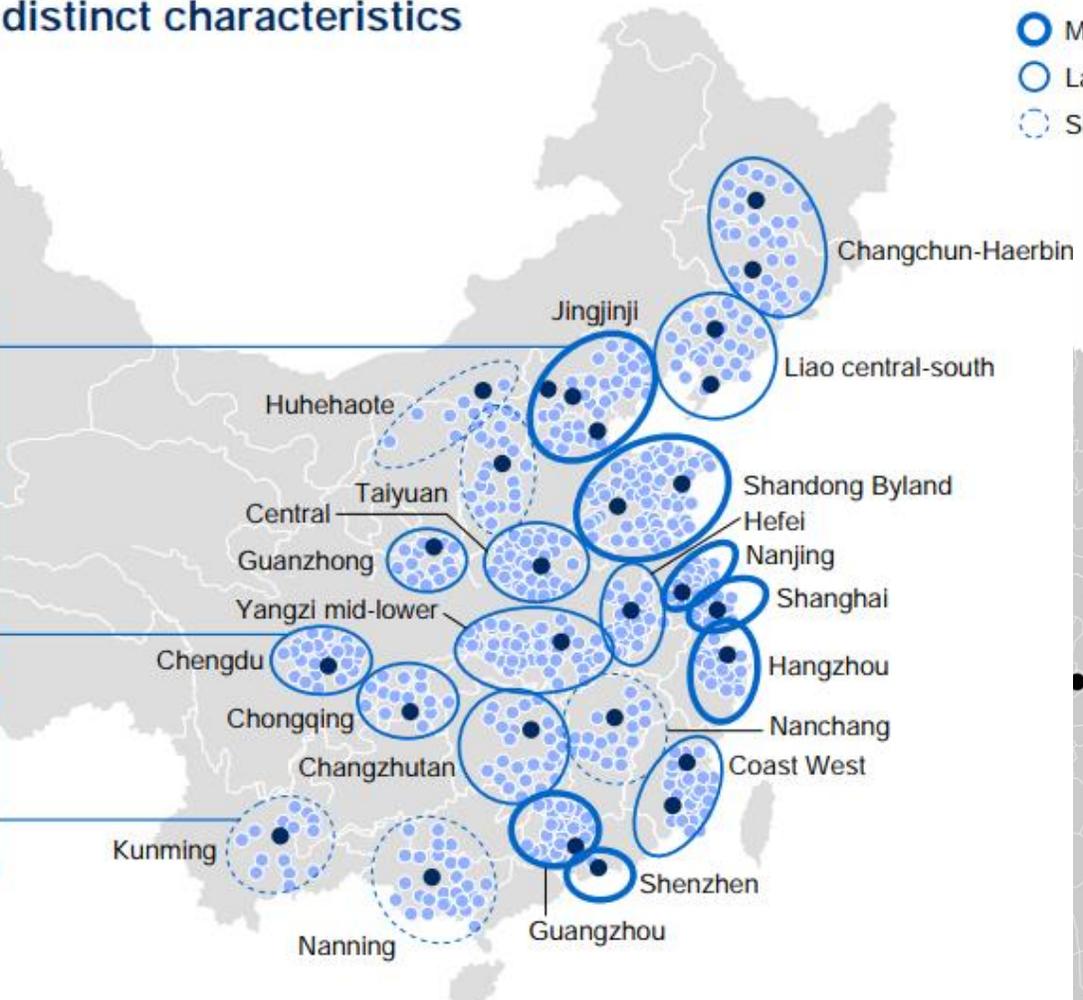
## CHINA EXAMPLE

- Mega
- Large
- Small

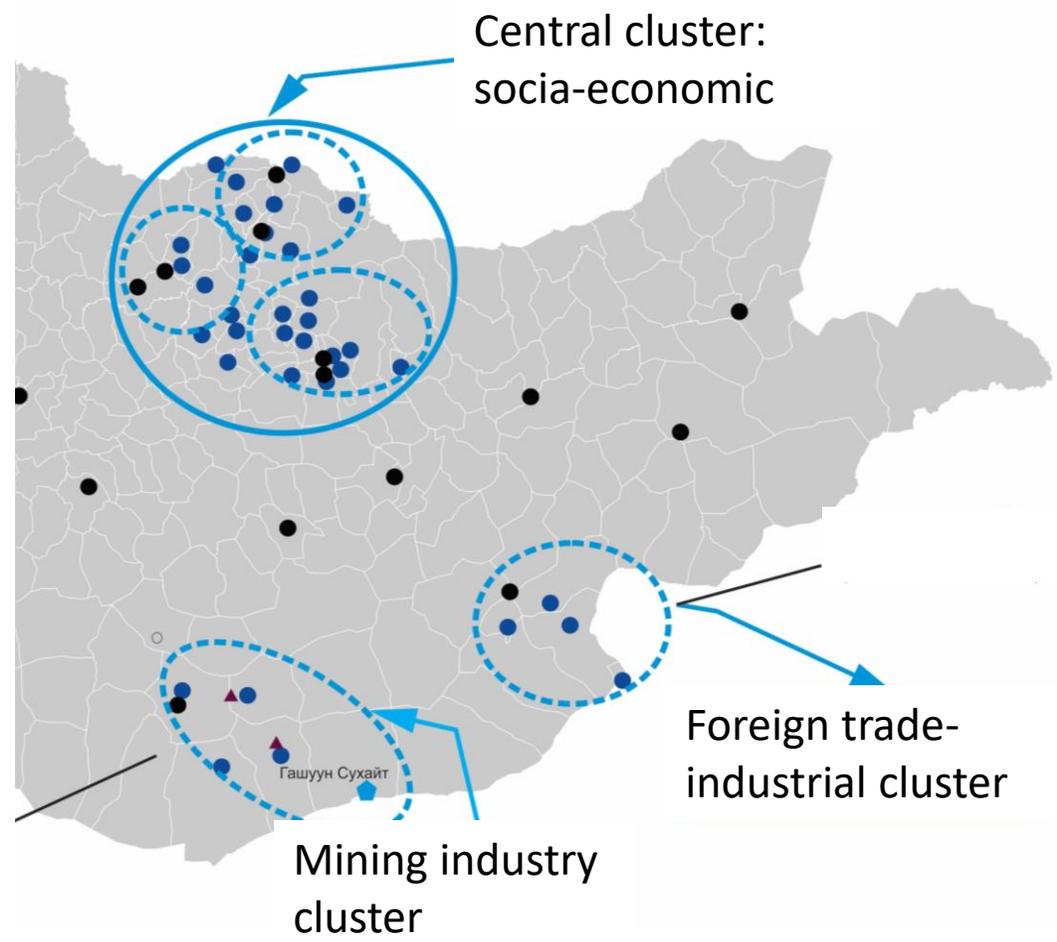
**Mega cluster example**  
 Jingjinji  
 ▪ 37 cities  
 ▪ Cluster GDP 10.8 percent  
 ▪ Hub city GDP 7.3 percent

**Large cluster example**  
 Chengdu  
 ▪ 25 cities  
 ▪ Cluster GDP 2.7 percent  
 ▪ Hub city GDP 1.1 percent

**Small cluster example**  
 Kunming  
 ▪ 15 cities  
 ▪ Cluster GDP 1.2 percent  
 ▪ Hub city GDP 0.6 percent

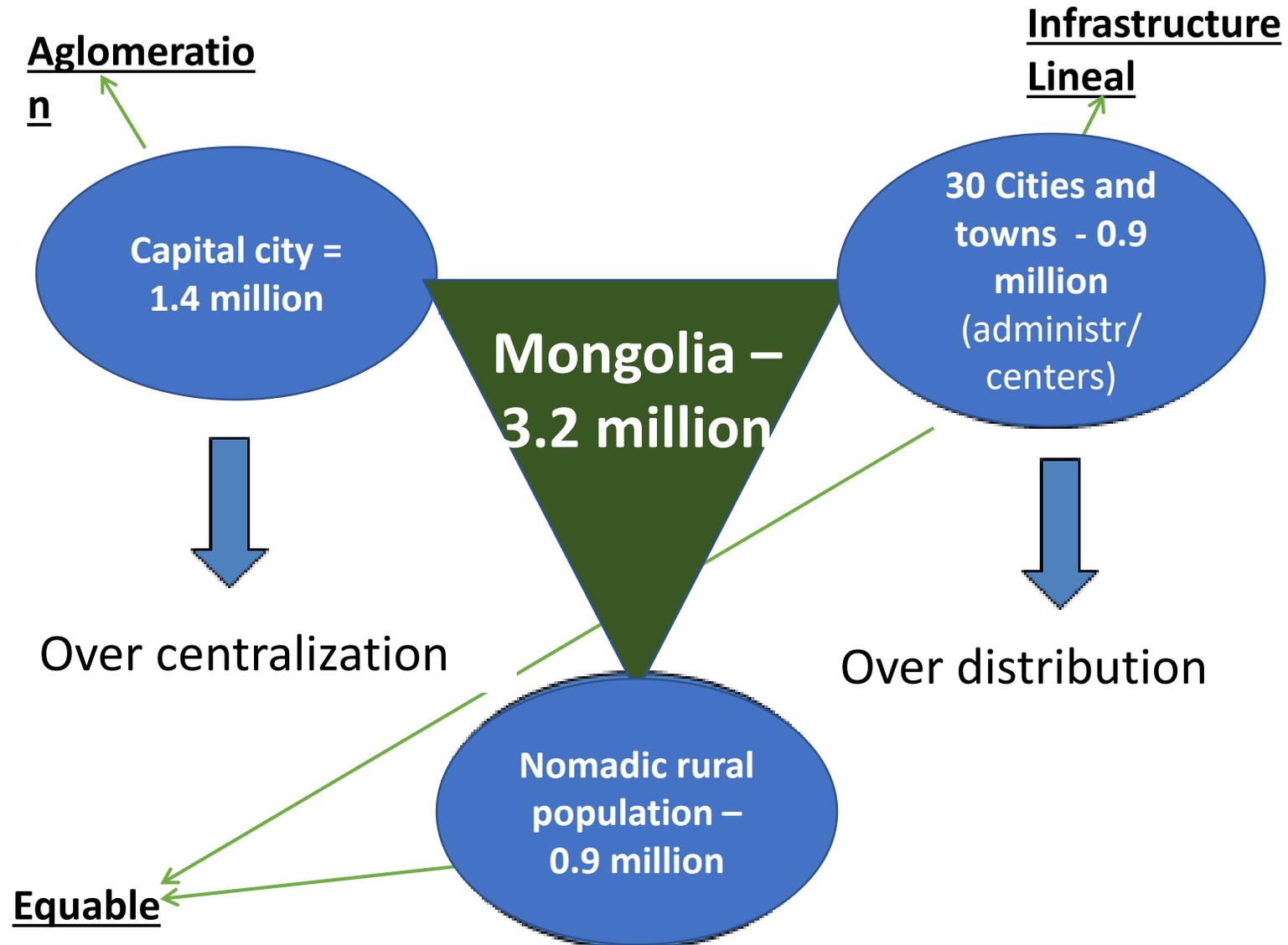


## Urban clusters of Mongolia



SOURCE: McKinsey Insights China; McKinsey Global Institute analysis

# Human settlement main 3 forms of Mongolia



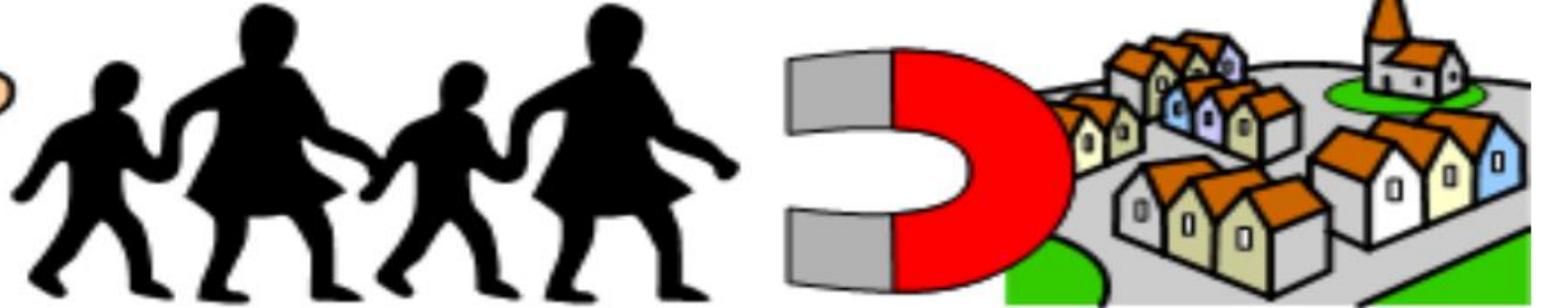
# Migration factors

## Push Factors



- Lack of employment
- Low wages
- Poor educational opportunities
- Poor healthcare
- Drought and natural disaster
- Small market size

## Pull Factors



- Better job opportunities
- Higher wages
- Better healthcare
- Better educational opportunities
- Higher standard of living
- Family and friends have already moved there
- Big market

# Migration law of Primate city

- The primate city is commonly at least twice as large the next largest city and more than twice as significant.  
Largest city = 2 \* Second city - population number
- Large distances between major urban cities is contributory factor to UB's primacy.
  - Darkhan, Erdenet, Choibalsan and Murun city=secondary cities are more than 250 km-671 km away from UB.
- It is more popular in small market countries.
- UB is the third biggest primate city in the world.
- Local primate city index: Murun – 17, Ulaangom - 15

# Primate city index – UB third city in the world

No	City	Country	Primate city index	Population, thousands		Annual growth 2005-2015	share total urban population 2015
				Largest	Second		
101	Primate city						
	1 Bangkok	Thailand	<b>22.2</b>	5686	256	2.49	27.3
	2 Monrovia	Liberia	<b>17.9</b>	1021	57	0.50	56.5
	3 Lomé	Togo	<b>17.5</b>	1859	106	2.79	33.4
	<b>4 Ulaanbaatar</b>	<b>Mongolia</b>	<b>14.7</b>	<b>1396</b>	<b>95</b>	<b>3.89</b>	<b>65.4</b>
	5 Montevideo	Uruguay	<b>12.5</b>	1304	104	0.57	52.2
	6 Minsk	Belarus	<b>12.5</b>	1834	147	0.76	27.0
	7 Lima	Peru	<b>11.4</b>	9886	869	2.03	40.4
	8 Bujumbura	Burundi	<b>10.6</b>	497	47	6.00	57.6
	9 Khartoum	Sudan	<b>10.4</b>	5129	492	2.54	38.3
	10 Addis Ababa	Ethiopia	<b>9.8</b>	3352	343	2.06	16.8
	11 Yerevan	Armenia	<b>8.8</b>	1060	121	-0.40	55.7
	12 Conakry	Guinea	<b>8.5</b>	1660	195	3.06	42.2
	13 Buenos Aires	Argentina	<b>8.4</b>	13473	1613	1.30	39.2
	14 Abidjan	Côte d'Ivoire	<b>8.2</b>	4395	536	3.15	42.1
	15 Nouakchott	Mauritania	<b>8.1</b>	958	118	3.70	39.6
101	Ho Shi Min	Viet Nam	<b>2.0</b>	7298	3629	5.19	11.6
	Total primate cities		<b>3.9</b>	364555	94067	2.26	30.63

# SDGs induced Human Settlement Plan of Mongolia



SDG 11: Sustainable cities and communities = SDG1 + SDG2 + SDG3 + SDG4+SDG6 + SDG7 + SDG8 +SGD13

# HSP implementing road map

## Institutional structure

- National committee – chair Prime Minister of Mongolia  
members – secretaries of Ministries
- **Implementing organization – Institute of Urban Development Planning, Ministry of Construction and Urban Development**
- Cooperation = JICA and other foreign agencies
- Cooperation = Research institutes of Mongolia and relative government agencies
- Local administrative-territorial units' working groups

## Main outcomes

- To move pull factors of human migration from UB to secondary cities
- Satellite and secondary cities development plan
- To set some functions of capital city to secondary or satellite cities
- To clarify local center settlements
- Rural and local cities sustainable development solutions
- To improve legal environment on urban development (to restore local city and national city status)

# Sustainable urban development challenges of Mongolia

- Rural-urban migration
- Transport system between UB and secondary cities
- Poor transport system in UB city
- Inequality
- Environmental pollution
- Social Infrastructure
- Housing
- Institutional strengthening
- Poverty

# Sustainable urban public transport system in global megacities

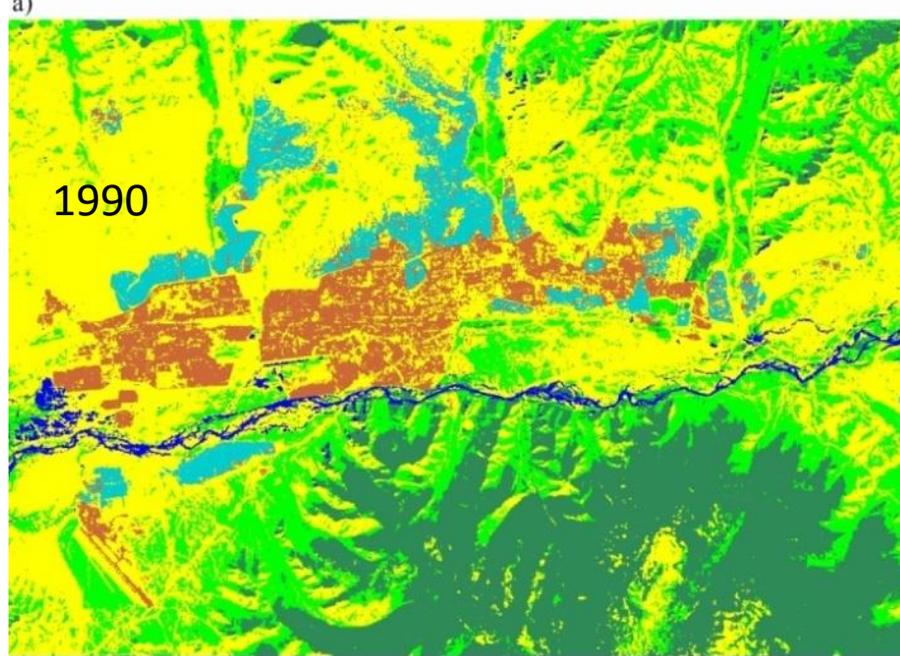
- Airport people mover systems
- Bus rapid transit systems
- Funicular railways
- Monorail systems
- Medium-capacity rail transport system
- Premetro systems
- Suburban and commuter rail systems
- Rapid transit systems by track gauge
- Tram and light rail transit systems
- Town tramway systems
- Trolleybus systems
- Non-motorized road: walking, running and cycling

# SWOT analysis of Ulaanbaatar City

Internal origin	<p><b><u>STRENGTHS</u></b></p> <ul style="list-style-type: none"> <li>• Young <b>educated</b> population</li> <li>• Relatively young city (rapid growth for 60 years)</li> <li>• <b>Peri-urban commons</b></li> <li>• IT fast growth</li> <li>• City of universities and colleges</li> <li>• Cultural center (ballet, opera...)</li> </ul>	<p><b><u>WEAKNESS</u></b></p> <ul style="list-style-type: none"> <li>• Original design for 600,000 people. Now- 1.3 Million;</li> <li>• Rapidly growing ger districts;</li> <li>• Air, soil &amp; water pollution;</li> <li>• Poor social services;</li> <li>• Centralized infrastructure;</li> <li>• <b>Insufficient funding for R&amp;D.</b></li> </ul>
External origin	<p><b><u>OPPORTUNITIES</u></b></p> <ul style="list-style-type: none"> <li>• <b>Advanced democracy compared in the region</b></li> <li>• <b>High potential for tourism</b></li> <li>• <b>Brain circulation and gain</b></li> <li>• Rich mineral resources</li> <li>• Collaboration on mitigation with countries from the NEAsia</li> </ul>	<p><b><u>THREATS</u></b></p> <ul style="list-style-type: none"> <li>• <b>Air pollution</b></li> <li>• <b>Rural to urban migration (CC)</b></li> <li>• <b>Water resources decrease due to global warming impact;</b></li> <li>• <b>Vulnerability to natural disasters such earthquake and flood;</b></li> <li>• <b>Poor transit, especially public transport;</b></li> </ul>

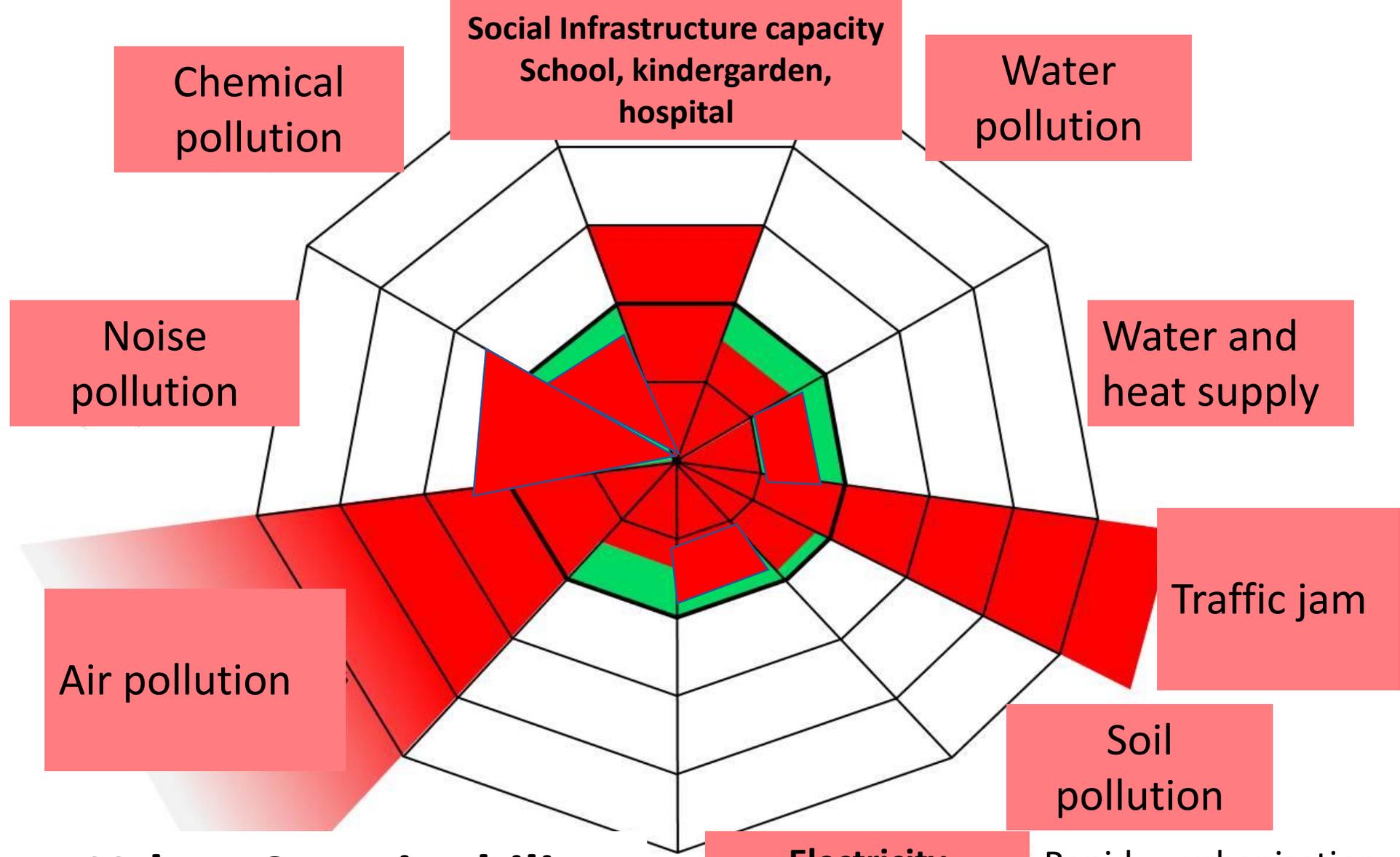
Source:  
T.Chuluun  
2017

# Rapid spatial growth of the Ger districts



Land cover class	Total area (ha)		
	1969	1990	2011
Ger area	979	2720	8613

Source: Amarsaikhan, D., 2013



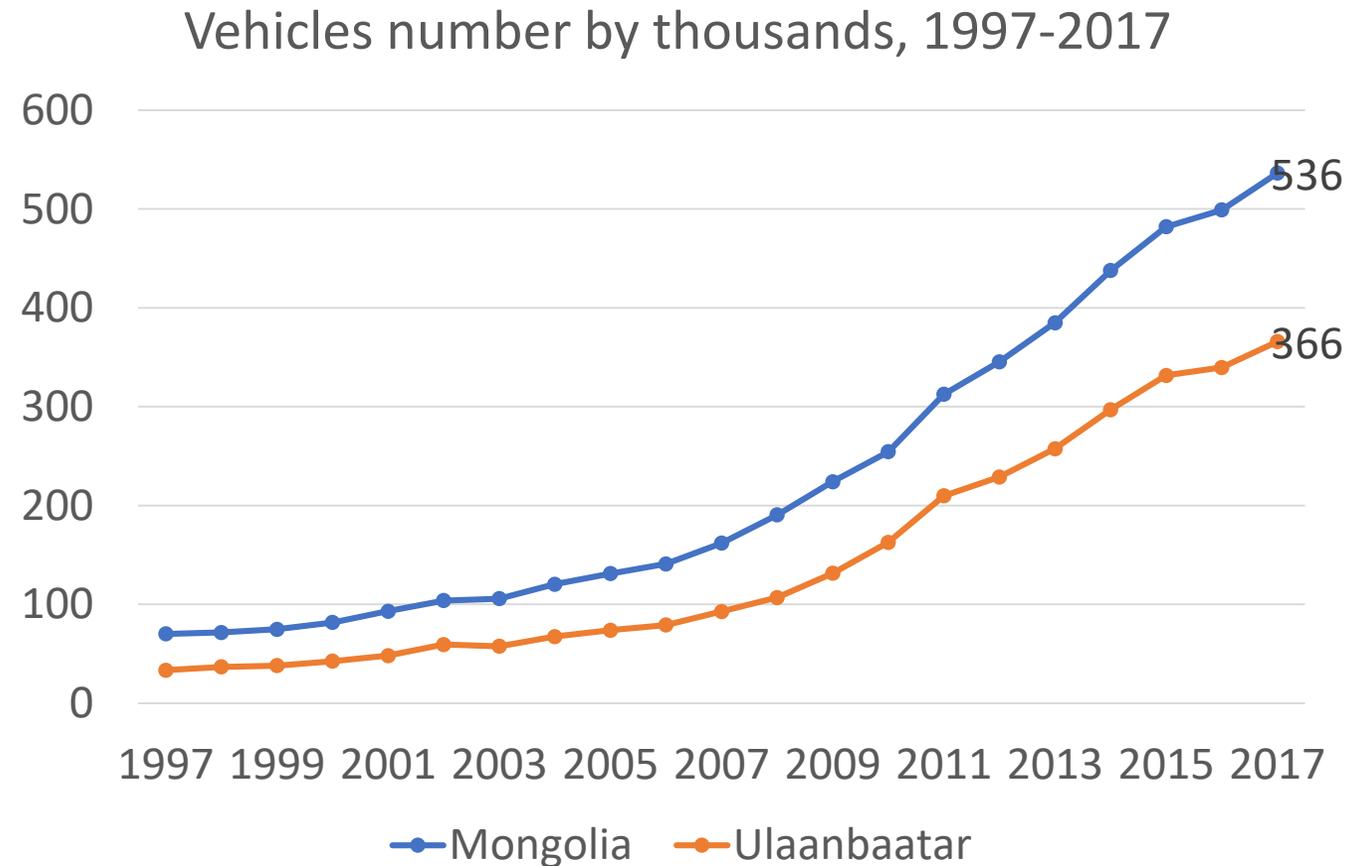
## Urban Sustainability boundaries of UB city

Rapid urbanization leads to environmental serious problems in developing countries. UB-biggest expamle.

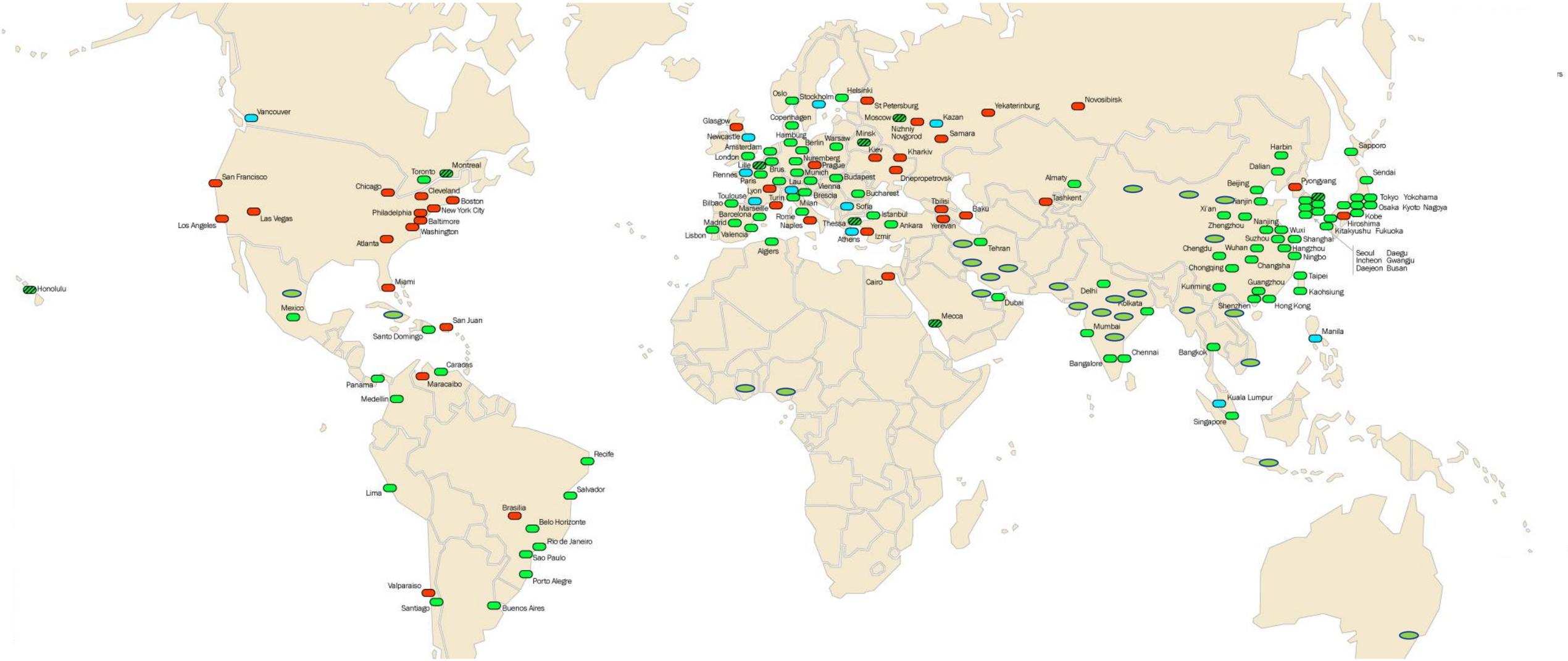
# Poor road transport system in UB

Total	793 km
Street road	512 km
Roads in apartment towns	280 km

- 366000 vehicles in UB
- 50% of total vehicles = 183000 \* 6 metres / 2 rows = 549 km, 100% = 1098 km
- 512 km < 549 km



# UB is the one of the few cities without metro system within 1-1.5 millionaire global cities



- 223 cities have metro system in the world.
- 40 cities  $\leq$  UB population number (1.4 millions) have metro systems.
- Metro system building needs 6-8 years. UB will remain alone city without metrosystem in 2025 in the world.

# Transport newtwork between cities

- Highway or speed railway will be shorted twice the duration time between cities.  
For example: UB-Darkhan from 6 hours to 3 hours



**Ulaanbaatar**



**Darkhan**



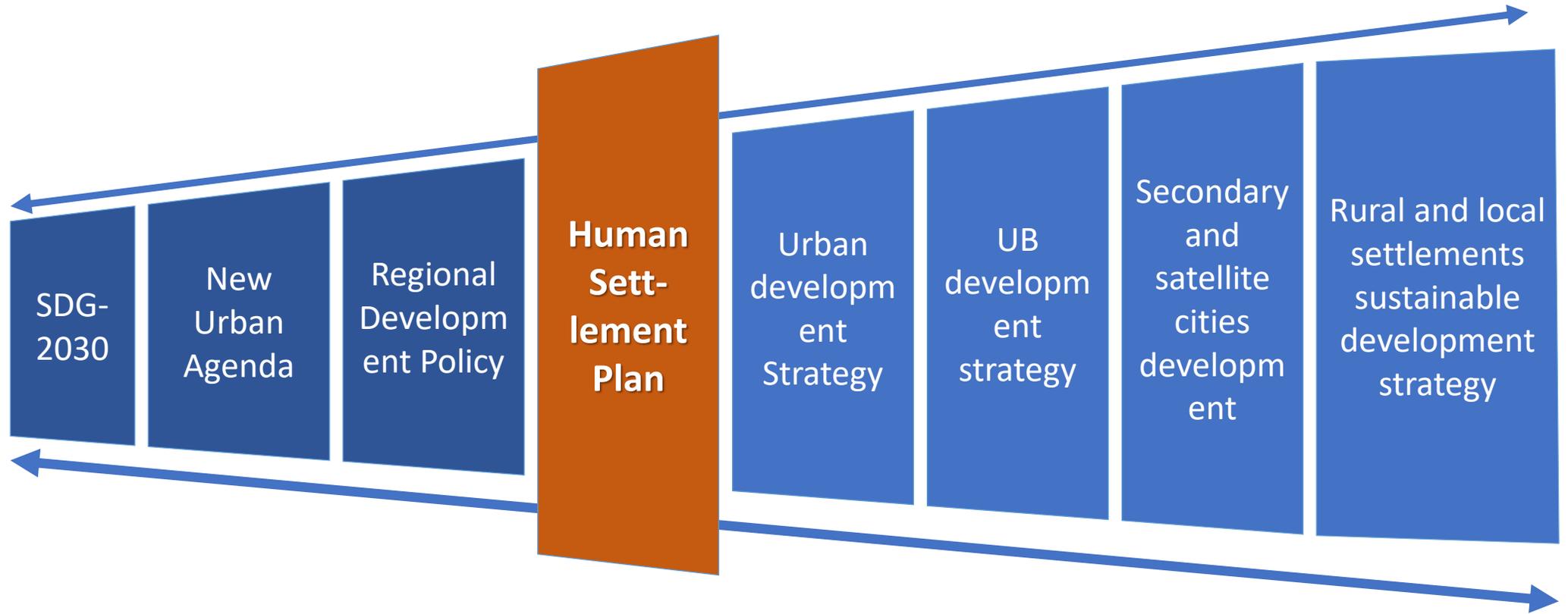
## Development resource analysis – mutually beneficial opportunities in NEA

•AA = Very abundant; A = Abundant; S = Scarce; SS = Very scarce

Countries	Natural resource	Labor	Market size	Infrastructure development	Capital	Technology	Management experience
China	A	A	AA	A	A	S	S
Russia	AA	S	A	A	S	S	S
North Korea	A	A	A	SS	SS	SS	SS
Mongolia	AA	S	SS	SS	SS	SS	SS
South Korea	SS	S	A	A	A	AA	A
Japan	SS	SS	AA	AA	AA	AA	AA
Taiwan, Chinese	SS	SS	A	AA	A	AA	A
Honkong, China	SS	SS	S	AA	A	A	A



# What do we want to achieve?



Integrated indicator framework at the centre

# Cooperation opportunities

- Consultancy and technical cooperation on development Human Settlement Plan of Mongolia
- Knowledge and experience sharing on spatial or regional development policy, sustainable urban development, human settlement
- To develop UB city's sustainable public transport system
- Human migration study on rural/local cities-UB
- Capacity building on urban development of Mongolia
- Strengthening urban institutional governance
- Urban economy governance
- Rural and local cities' sustainable development policies



***Thanks for  
your  
attention...***

