

**Speech by Mr. T. Gantulga, State Secretary, MNE  
to be delivered at the  
Round Table Discussion on Strategic priorities for Infrastructure Development in  
the Southern Mongolia**

**Ladies and Gentleman,**

I am honored to be present here today and enjoy the opportunity to brief the round table participants on MNE position for sustainable use and conservation of natural resource base in the region which experiences aggressive booming of mining business and related infrastructure development in recent years.

There is a high likelihood for the South Gobi to host several industrial complexes based on mineral resource extraction taking into account Government of Mongolia policy, the world market demand and economic interventions undertaken by major foreign investors and mining license holders. This includes construction of extraction and processing plants for Tavan Tolgoi coked coal, Oyu Tolgoi copper and gold deposit and Tsagaan Suvarga copper deposit. The capacities for those extraction industry is relatively high with technical and economic projections estimating for over 30 million tones of ore processing for enrichment plant, hydrometallurgical plant for production of 5 thousand tones of cathode copper and enrichment and processing plant in Tavantolgoi with annual production capacity reaching 8 to 15 million tones of coal.

The planned construction of those plants require associated infrastructure development linking settlement areas, water supply, telecommunication and other service sectors.

When the projected development trend and tendencies are taken into account in combination with harsh environmental conditions of desert eco-system worsened by global warming and climate change impacts, following environmental challenges will be prioritized in this region:

- Water shortage;
- Increased dust formations and its implications;
- Intensification of desertification process;
- Extinction/loss of some of the endangered plant and wildlife species

Detailed analysis for each of the challenges aforementioned reveals following:

1. For water shortage: During the centrally planned economy, in order to estimate accurately the mining industry water use and its demand, the water source prospecting expeditions and studies were financed from the central budget and relevant findings shared with and approved by the National Commission on Mineral resource management. Then the commission set up water withdrawal quotas were imposed strictly to the extraction industries.

The table below shows the list of underground water reserves for potential withdrawal of water to be used in the extraction industry .  
underground water reserves for potential withdrawal of water to be used in the extraction industry

Table 1

Ä/д	Mining industries	Demand in water i <sup>3</sup> / day	Underground water reserve	Estimated reserve size i <sup>3</sup> / day
1	Tsagaan Suvarga	31104	Tsagaan Tsav	69120

	copper deposit			
2	Omnogobi Khokhmorit deposit	950	Dugui Ulaan	1230
3	Shivee Ovoo coal deposit		Jargalant Lake	6480
4	Odvog hudag coal deposit		Morit spring	3440
5	Tevsh gobi coal deposit			1944
6	Tavan Tolgoi Coal deposit	33000	Balgas Ulaan Lake	40176
7			Tavan Zag	2419
8			Tavan Ald	6739
9			KhurmenTsagaan	29824
11	Oyu tolgoi copper and gold deposit sites		Galba Gobi	6500
12			Gun Khooloi	44060

Starting from 1990s with private sector investment into mining sector, the GoM supports the policy shift for channeling the private business funding for water reserve exploration expenses and minimize the government spending on this activity. Ever since then the private companies qualified for rendering the professional service and expertise have been approached for undertaking this activity.

Such companies as Ivanhoe Mines has covered underground water reserve exploration in Galba Gobi and Gunii Khooloi and both the sites have been registered under the national water reserve registration scheme. Olon Ovoot enrichment plant for instance operates at limited capacity of daily ore processing for 1, 7 to 2 thousand tones per day due to water shortage.

Most of the mining industrial complexes to be built in south Gobi will face the challenges of water shortage and its immediate solution for successful extraction process. Lack of surface running water and low level of precipitation qualifies the region for sole dependence on underground water sources. The Gobi underground water reserves are not fully explored and its reserve sizes haven't been fully estimated. Underground water reserves, their feeding and nourishment regimes and allowed level of water withdrawal have not been so far estimated and all of them require large scale exploration and prospecting work to be undertaken in order to respond to demands of large scale water users in Oyu Tolgoi, Tavan Tolgoi and Tsagaan Suvarga.

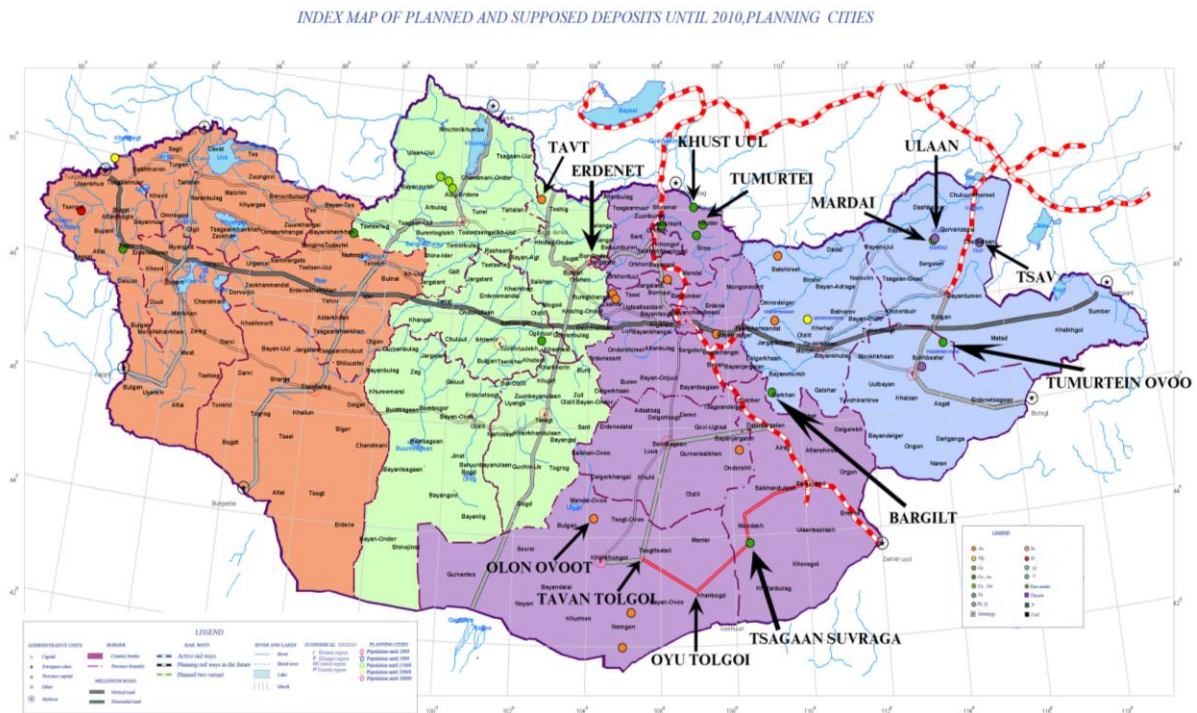
There are some larger scale underground water reservoirs along the Balgas Lake, Borzon Gobi and Borhoovor gobi and Unegt areas in Omnogobi and Dornogobi provinces. However their mineral contents are higher than the permissible levels for potable water with limited discharging level varying from 30-40 l/sec to 300-400l/sec.

The settlement areas containing 30-60 thousand resident population will be set up along the deposit sites in Tsagaan suvarga, Oyutolgoi and Tavantolgoi areas having the demand in potable water and industrial water use. The final projections on water demand for such sites have not been finalized yet.

Tavan tolgoi deposit site: Extraction capacity estimations stipulate for 10 million tones initially, but later upgraded into 20 million tones of coal under the technico-economic projection done by HydroMinng institute of former Soviet Union based in then Leningrad ( Saint Petersburg).

The current plan for development of the area envisions for the coal from Tavan Tolgoi to be enriched and the power station to be built. The water source to be utilized includes Balgas Ulaan Lake in 75 km distance from the deposit site. Under the Oyu-tolgoi ore enrichment project, the technology to be applied will be adopted similar to Erdenet mining based on floatation technology which will produce the combined ores of copper and gold. The processing will require 1089m<sup>3</sup> of water per hour and at the peak of full production capacity, the demand increases to 1474 m<sup>3</sup>/hour. The water will be withdrawn for processing production from the underground water reserve in Galba Gobi and Gunii Khooloi located in 50-100 km from the deposit site.

Map 1. Locations/positioning of newly planned mineral extraction plants



On the other hand, prevention and abatement of pollution and breaches of environmental standards related to poor practices of water use, disposal of waste water and water drainage systems and their adverse impacts to ecosystems and ecology of the surrounding environment could cause a different set of challenges.

For arid and poorly precipitated areas of Mongolia, soil formation process and vegetation growth is considered to be a lengthy process and degraded land areas hardly regain their original state. For instance, water shortage, water pollution, ecosystem level changes in water environment and top soil loss and land degradation resulted in increased level of dust and dust storms which are direct adverse impacts from the declining environmental condition.

Thus, identification of water sources and water saving measures for already identified water reserves at the earliest possible stage of project formulation is the strategic focus area of the primary importance for the gobi region extraction industry development.

This on the other hand dictates of the necessity for undertaking once more again more rigorous and detailed studies for estimation of the underground water reserve and

its size in the south gobi in order to come up with the ecologically benign and sound levels/amounts of water withdrawal and setting up monitoring network.

## 2. Increased frequency of Dust and yellow dust storms

Dust and yellow dust storms have been regarded as the environmental priority issue by the East Asian region countries. The dust storms factored by the geographic location of Mongolia, landscape and climatic distinctions, poor in nutrition desert soil, lack of vegetation cover and strong wind and storm conditions occurring mostly during the spring time in Mongolia, all being categorized under the natural conditions from one side and on the other hand, with anthropogenic impacts of land degradation due to overgrazing and mining activities, dust formation is increased leading to increased number of days with yellow dust storms. Nationwide, 118 hydrometeorological points have been set up for monitoring the dust storms

Photo 2 Intensification of yellow dust storms

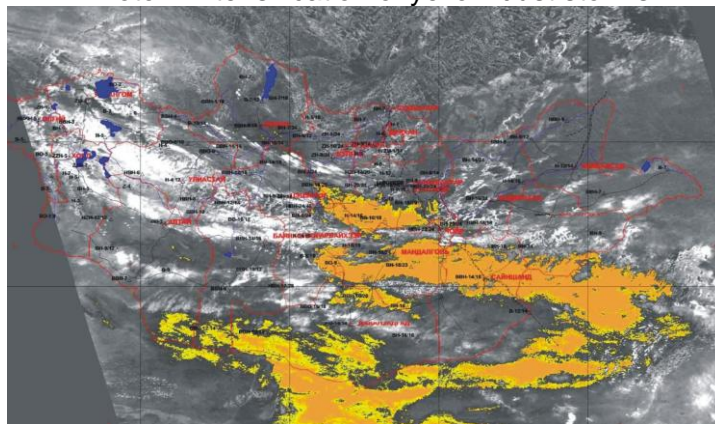
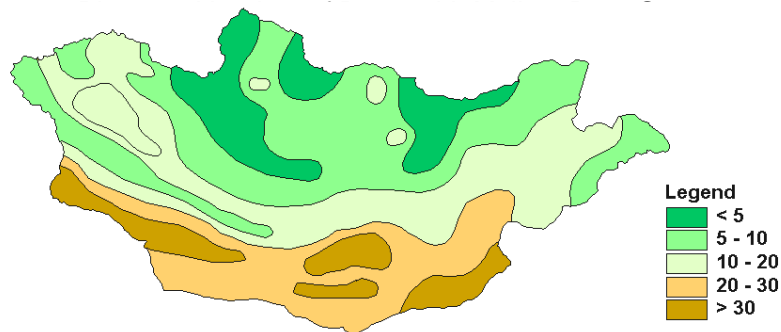


Photo 3. Number of days with Yellow dust storms



There is a need for close cooperation and collaboration for working out effective mechanisms and measures for abating the dust storms through bio-technical and technological means.

## 3. Intensification of Desertification process

Over 90 percent of the entire territory of Mongolia falls under the classification of arid, semi-arid, dry and poor humidity zones. As of 2000, 44, 7 percent of the territory

was threatened with desertification. The study commissioned by the Mongolian Geo-Ecology Institute supports of 70 percent of the territory exposed to modest and strong desertification process as of 2006. In other words, nearly 80 percent of the territory is desertified to some extent.

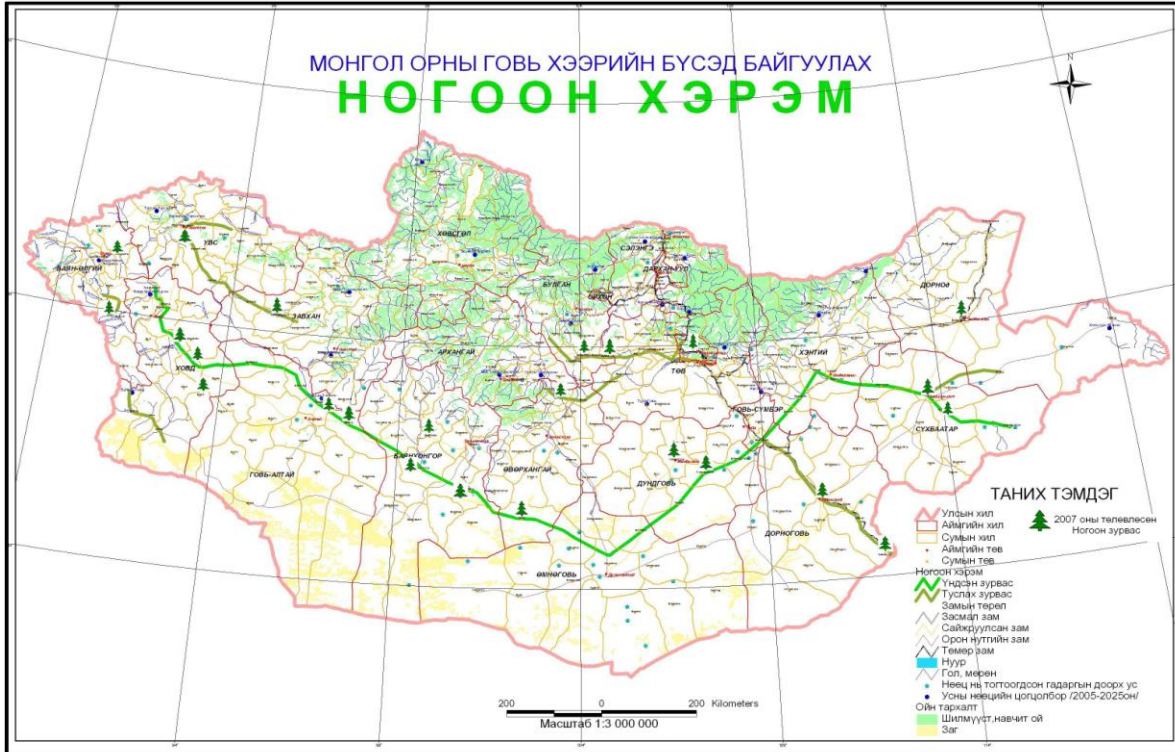
Desertification: Trends and tendencies

Intensity of desertification and territorial coverage in percentage	1990	2000	2006
No desertification	-	-	1.5
<i>Areas exposed to weak desertification</i>	76.0	34.9	16.5
<i>Areas exposed to modest desertification process</i>	20.0	38.7	37.2
<i>Areas strongly desertified</i>	3.0	16.1	34.0
<i>Intensive desertification</i>	1.0	1.8	7.0
<i>Arid areas</i>	-	8.5	3.8
<i>Semi-arid areas</i>	41.3%	44.7%	

For abatement of adverse environmental impacts from loss of forest, desertification, sand movements and intensification of dust storms through increasing green area coverage for blocking the sand movements and encouraging public buy-in of greening initiatives through the long term and holistic planning process based on staged implementation phases, the GoM has adopted the Green Belt program.

In 13 soums of Dugobi, Dornogobi and Omnogobi aimags the field and stationary expeditions were organized for undertaking the assessment and studies of the host environments looking into the plant community species composition, water supply, soil structure and climatic conditions serving as the basis for selection of potential sites for greening and worked out detailed action plans.

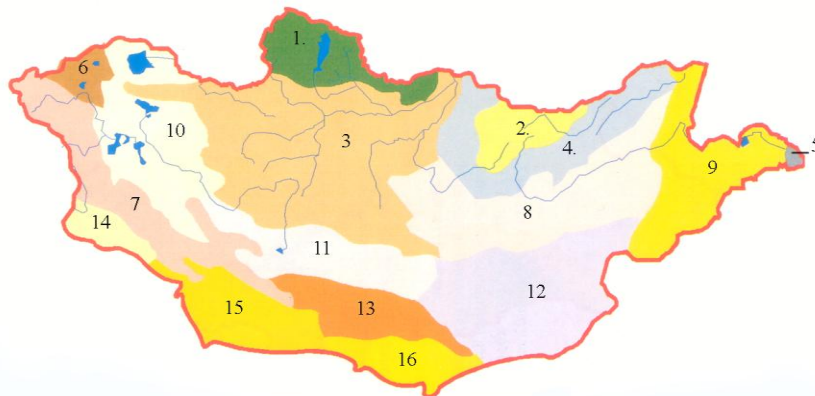
There is a need to intensify the World Bank involvement into the program on introduction of drought resistant species of plants, plantation technologies and know-hows transmitted to public.



### Loss of biodiversity in gobi-desert regions

The bio-diversity gobi-desert regions of Mongolia is relatively poor as a result of prevailing climatic and natural conditions of the area and anthropogenic factors leading to resource decline.

The south gobi region falls under 4 different plant and geographic zonations and in total the area hosts 1319 species of plants 65 of them are endemic, 5 endangered (*Glycyrrhiza uralensis* Fisch.-Урал чихэр өвс, *Astragalus mongolicus* Bge.-Монгол хунчир, *Synomorium songaricum* Rupr.-Зүүнгарын гоёо, *Allium odorum* L.-Анхил сонгино *Stellaria dichotoma* L.-Ацан ажигана), 2 rare species (*Cistanche deserticola* Ma.-Цөлийн аргамжинцэцэг (цагаан гоёо) *Peganum harmala* L.-Эгэл үмхий өвс).



### 16 zones of plants

1. Huvsgul, 2. Khentii, 3. Khangai, 4. Mongol Daguur, 5. Khyangan, 6. Khovd, 7. Mongol Altai, 7. Mongol Altai, 8. Dundad Khalkh, 9. Dornod Mongol, 10. Great Lake Basin, 11. Multiple lakes valley, 12. Dornogovi, 13. Gobi-altai, 14. Zuungariin Gobi, 15. Gobi behind Altai, 16. Alshaagiin Gobi

Omnogobi aimag hosts on the territory of 22516 км<sup>2</sup> land, 101 khulan-wild ass, 562 heads of black tailed gazelle on territory of 22516 км<sup>2</sup> land, on the eastern of the area 956 argali sheep and 2018 heads of wild goats or ibex. Their distribution varies depending on availability of grazing space, water sources and overlapping with human settlements and livestock herds.

For khulan or wild ass, for 5 soums of Omnogobi aimag, they share the same habitat and open water sources with 11702 people in 3066 households and 132 thousand heads of livestock.

In Dornogobi aimag, the khulan wild ass numbers are higher by 27,6% against the 2004 data, 28,6% raise for black tailed gazelles against 2004, argali sheep at 8.8% and ibex wild goat at 11.9% decrease. The figures for Dundgobi aimag stipulate for argali sheep heads against 2001 data for 15 percent increase, however with 30,4 % of decrease in habitat areas.

In south gobi, with infrastructure development projects, the biodiversity in the area and their habitat integrity will be threatened leading to loss of ecological balance and loss of endangered and threatened species. This issue is to be addressed in advance by undertaking detailed and complex and multi-disciplinary studies on roles and ecosystem functions of plants and wildlife species present in the area highlighting the sustainable use and harvest limits of resources, reintroduction and conservation of endangered species, through increasing public and relevant stakeholder participation to opt for the optimal and best suited management options for natural resource management and application of advanced bio-technological methods for gene pools.