
**AGRICULTURAL MACHINERY &
TECHNOLOGY RENOVATION
FOR FOOD SECURITY AND
AGRICULTURAL SUSTAINABILITY
IN MONGOLIA**

*Country presentation by
D.Galsanbuyan*

*Director, Mashinery and technical division, Ministry of
Food, Agriculture and Light Industry of Mongolia*

Mongolia's geographic, economic and social conditions

- ✘ **Extreme Weather Conditions:** Mongolia's climate is extreme continental with long, cold, dry winters and short, hot, dry summers. Temperatures ranging from – 40 degrees C in winter to + 40 degrees C in Gobi desert summers.
- ✘ **Sparsely populated country:** Mongolia has a territory of 1.56 million sq.km, which equals to three times France or half of the Indian subcontinent. Small population of 2.6 million people – population density is 1.6 people per sq. km, 227th position in out of 230 countries. This low density is more marked in rural areas due to high concentration of urban population.

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- ✘ **High concentration of urban population:** More than 60 per cent of the population lives in three major cities: capital city Ulaanbaatar (almost half), Darhan and Erdenet. In contrast, population in Eastern region is 0.7 persons per sq. km. Urban population is growing at estimated 5.6 per cent due to migrations caused by loss of livestock in climatic calamities and search for better life.
 - ✘ **Economic activity of the population:** Traditional nomadic, pastoral, extensive livestock grazing system predominates rural areas. Except for widespread cropping activities in the Central region (Selenge, Bulgan, Darkhan Uul and Tov provinces) over 75 per cent of rural population is engaged in extensive livestock production.

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- × **Landlocked country:** Mongolia is a landlocked country between two large neighbors, the Russian Federation and the People's Republic of China. Mongolia is a member of WTO. Food and non-food products are imported from and through two neighbors freely.
 - × **Low income food deficient country:** Mongolia is import dependent by over 50% of the domestic requirement in wheat, by 100% rice, vegetable oils and fruits. Lower economic development compared to neighbors, harsh climatic conditions and smaller population make more difficult for the country to compete with imported food. Though Mongolia is self sufficient in meat and milk, only 8% and 4% respectively are industrially processed.

× **Favourable macro-economic context in recent years:**

Improved during last 10 years. GDP growth, which stagnated and even decreased between 1999 and 2004 accelerated to 9.9% in 2007, 10.2% in first quarter of 2008. As result, GDP per capita increased from USD 384 in 1999 to USD 728 in 2005, and USD 1,743 in 2007. This increase is largely due to the mining activities, but also to growth in service and construction sectors.

***- How adverse will be the impact of current
Global Financial Crisis to the economy?***

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- × **Food and Agriculture sector:** Agriculture sector contributes 23% of the GDP (2007), stands for 10% of export revenues and employs over 30% of country's labor. Compared to 2006, livestock and crop sectors increased by 37.5% and 17.2% respectively. Herders represent 13.9% of the total population and livestock sub-sector provides 89.9% of the agricultural GDP. (*NSO, Agricultural Sector, 2007*)

Livestock production is major economic activity which supports livestock population of 40.8 million (in 2007) and total arable area for *crop production* is 705.5 thousand ha of which 28.8% (202.7 thousand ha) is used for growing crops, mainly wheat, potatoes and vegetables.

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- × **Poverty and Vulnerability:** Mongolia is the 114th country of 177 countries as per the Human Development Index of the UNDP Human Development Report 2007/2008 based on data of 2005. Poverty fell by 7 percentage point from 43% to 36% (900,000 persons). Poverty was 43% in rural areas in 2005 and 30 % in urban areas.

Vulnerability of the population is due to lack of livelihood diversification, aggravated by the extreme weather conditions. *Herders and farmers* may lose animals or crop in one season as result of adverse weather calamities and become food insecure. *Urban population* is vulnerable due to their weak purchasing power and instable access to food.

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- ✘ **Seasonality of agricultural production:** In extensive herding system meat production is seasonal with most animals sold between September and December once after they have recovered full weight after summer grazing. Locally produced vegetables, wild fruits and nuts as well as wheat are harvested in late summer and autumn.
 - ✘ **Highly unstable agriculture:** With 43 % of territory comprising of semi-desert affected by natural disasters – *dzud* and drought – agricultural performance is highly unstable. Severe winter conditions may result in quick and drastic reductions in livestock as in 1999 and 2002, livestock declined from 33.6 million to 23.8 million, when crop production suffered enormously (cereal production reduced from 170,000 tons in 1999 to 126,000 tons in 2002).

IMPACT OF GLOBAL CLIMATE CHANGE

- × **Longer summers, increased precipitation, accelerated evapo-transpiration** : As the result of Global Climate Change, the summer months have tendency to prolong by one month. Longer summer, or rather a longer autumn.. Precipitation has tendency to increase, but at the same time evapo-transpiration increases 7 times faster in the conditions of desertification than precipitation, which results in drought and arid desertification. With the increased precipitation, the probability of winter calamities *dzud* increases. *Dzud* is a thick layer of snow turned into a thick layer of ice during overnight.
- × At the current rate of desertification: **80% of Mongolia's territory may become a desert similar to Sahara in 2050**

SOARING FOOD PRICES

- ✘ **Food Inflation highest in East Asia:** As per the Mongolia Quarterly Report of the World Bank, June 2008, food inflation was 48.5% in April (year-on-year), highest in East Asia. Inflation accelerated further over the summer up to 34.2% yoy in August, 2008, then started declining in September down to 31.7% yoy. More than two-thirds of the September inflation was due to increased food prices with oil prices contributing a small but growing proportion, 11%. Key food staples such as flour and meat were contributing to inflation the most at 25% and 45% respectively since the beginning of 2008.

SHORT ANALYSIS OF CAUSES OF SOARING FOOD PRICES IN MONGOLIA

- ✘ **External causes:** Import dependence in terms of staple food, due to Mongolia's arid climate, extreme temperatures, short growing seasons, low agricultural productivity, arable land being less than 1% of total territory, dependence on oil imports.
- ✘ **Internal causes:** Expansionary monetary and fiscal policies, inadequate policy coordination, high public expenditure increases in recent years (child support program, large increases in public salaries), which have been financed from additional revenue from the mining sector.

MOST AFFECTED AREAS BY SOARING FOOD PRICES IN MONGOLIA

- ✘ **Urban vulnerable population:** Low income households are at risk of increased poverty, malnutrition, and vulnerability as a result of soaring food prices. As per FAO/UNICEF/UNDP Joint Food Security Assessment Mission in April 2007, poor households living in the cities and rural towns are more affected by the soaring food prices. Urban population has no food production capacity and relies on cash incomes to purchase food from markets.
- ✘ **Peri-urban and rural population:** In harsh winter, heating is a need as great as food. The cost of firewood required to heat a *ger* is well above heating a two-room apartment with centralized heating. The poor have higher heating expenditure, which results in more food insecurity.

GOVERNMENT RESPONSE TO SOARING FOOD PRICES IN MONGOLIA

- ✘ **National Council for Prices Stabilization (NCPS):** On December 01, 2007, Government of Mongolia has set up the NCPS, consisting of Ministries, agencies and NGOs to work on a Program for Prices Stabilization.
- ✘ **Government measures on Prices Stabilization** (i) six major staple foods are exempted from tax since end June till September 2008; (ii) annual meat reserve of 8000 t of meat at ceiling price of 2100 MNT to three main cities; (iii) tax exemption for 40,000 tons of imported wheat flour; (iv) importing 100,000 t of wheat from Russia at softer terms; (v) subsidy to fuel importing companies up to the import tax; (vi) implementation of the “Crop-3” national programme.

“THIRD CROP REHABILITATION CAMPAIGN” or “CROP-3” NATIONAL PROGRAMME, 2008-2010

Context

- ✘ As the result of two Crop Production Campaigns implemented in 1957 and 1976 respectively, the total of planted area reached 1,2 million ha prior 1990, the year of transition to market economy. Mongolia was self sufficient in wheat, potatoes and vegetables.
- ✘ However due to collapse of the state farms, privatization, global climate change, lack of investment and manpower, the crop production reduced down to 30% of the registered arable lands. Self sufficiency decreased down to 24.9% in wheat, 47% in vegetables, 86% in potatoes.

“THIRD CROP REHABILITATION CAMPAIGN” or “CROP-3” NATIONAL PROGRAMME, 2008-2010

Objectives

- ✘ To reach self sufficiency in wheat: by 50% in 2008; 80% in 2009; 100% in 2010. As well as reaching 100% self sufficiency in potatoes and vegetables
- ✘ Renovation of Agricultural Machinery & Technology
- ✘ Training and formation of new generation of agricultural manpower, specialists and qualified technicians
- ✘ Improve legal environment: increasing land tenure up to 20,000 ha per entity, without affecting new virgin lands

“THIRD CROP REHABILITATION CAMPAIGN” or “CROP-3” NATIONAL PROGRAMME, 2008-2010

Direct support by the Government

- ✘ Providing subsidy equalling to 30% of the market price per ton of produced wheat
- ✘ State subsidy up to 50% of the cost of agricultural machinery
- ✘ State subsidy up to 50% of the pesticides
- ✘ Government has purchased 100,000 tons of wheat to the state reserve at a price promised as earlier announced to the producers in early 2008

“THIRD CROP REHABILITATION CAMPAIGN” or “CROP-3” NATIONAL PROGRAMME, 2008-2010

Outcome of the First year of Implementation: Successful

- ✘ Mongolia collected bumper harvest:** 205.8 thousand t of wheat, 142.1 thousand t of potatoes, 80.6 thousand t of vegetables.
- ✘ Increase compared to the previous:** by 91.2 thousand t in wheat, 28.5 thousand t in potatoes, 1.5 thousand t in vegetables
- ✘ Self sufficiency:** 50% in wheat, 100% in potatoes, 49% in vegetables.

RENOVATION OF AGRICULTURAL MACHINERY & TECHNOLOGY IN 2009

- ✘ During the period prior to implementation of “Crop-3” Campaign, the agricultural machinery used in crop production has become obsolete, resulting sharp reduction in numbers of tractors and combine harvesters.
- ✘ At the beginning of 2008, there 701 tractors, 486 combine harvesters and 1500 seeders, a capacity to cover mere 170.0-175.0 thousand ha.

Number of Agricultural Machinery & Technology Mongolia had prior 1990

Tractors	nos.	- 11.0 thous.
Combine harvesters	nos.	- 2.5 thous.
and other machinery and equipment		-70.0 thous.

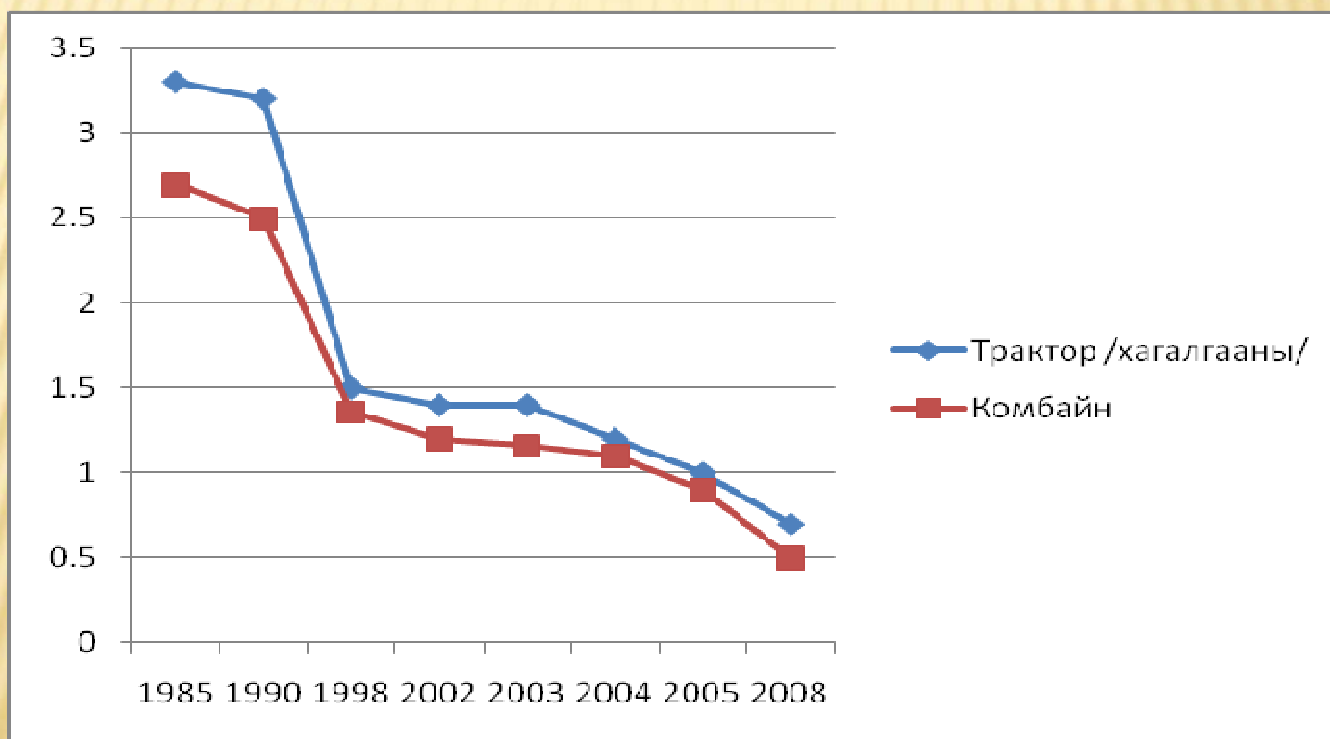
Level of mechanization:

Cereals	- about 100 %
Forage	80 %
Potatoes	- about 90 %
Harvesting	- 70 %
Planting vegetables	- 45 %
Harvesting	-10 %

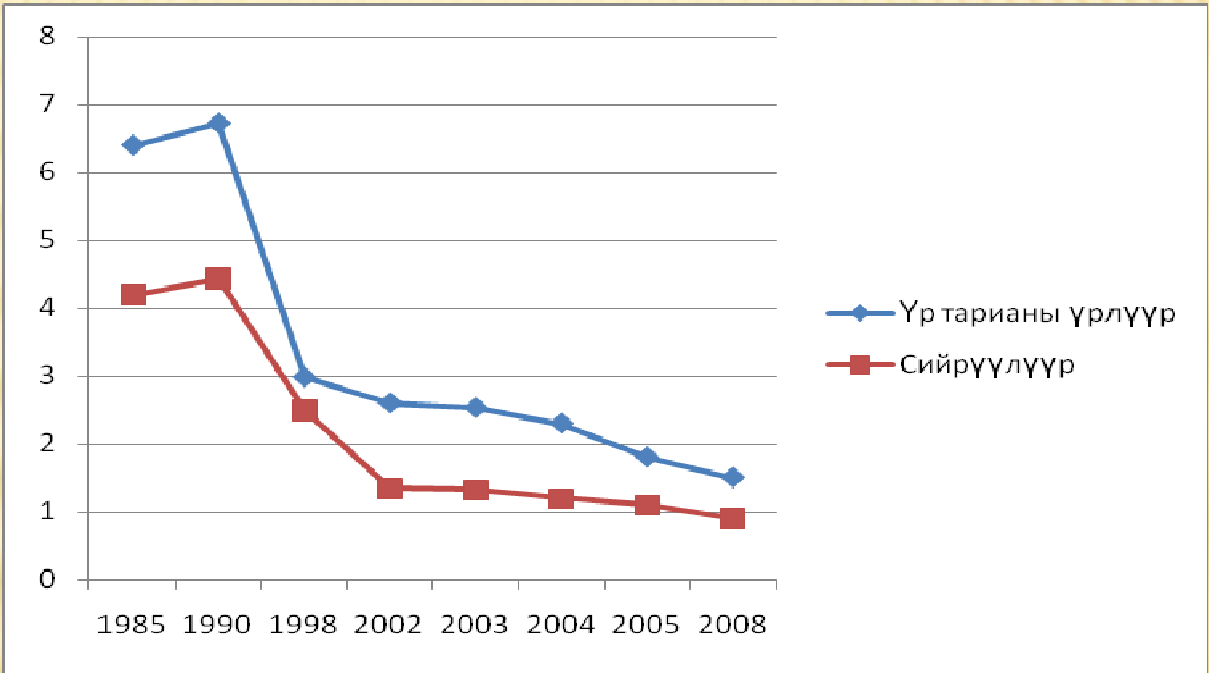
Duration of works: Planting – 12-14, Harvesting 30-35 days

This figure show the state of agricultural machinery as per January 01, 2008. The number of tractors and combine harvesters decreased down to 700 and 500 respectively. There were 1500 seeders and 900 cultivators.

*Number of tractors and combine harvesters
(in thous. nos)*



Number of seeders and cultivators (in thous. nos)



As per the national programme “Crop-3” Campaign, the Government of Mongolia provided funds of 22.5 billion MNT from the state budget for the agricultural machinery & technology renovation in 2008.

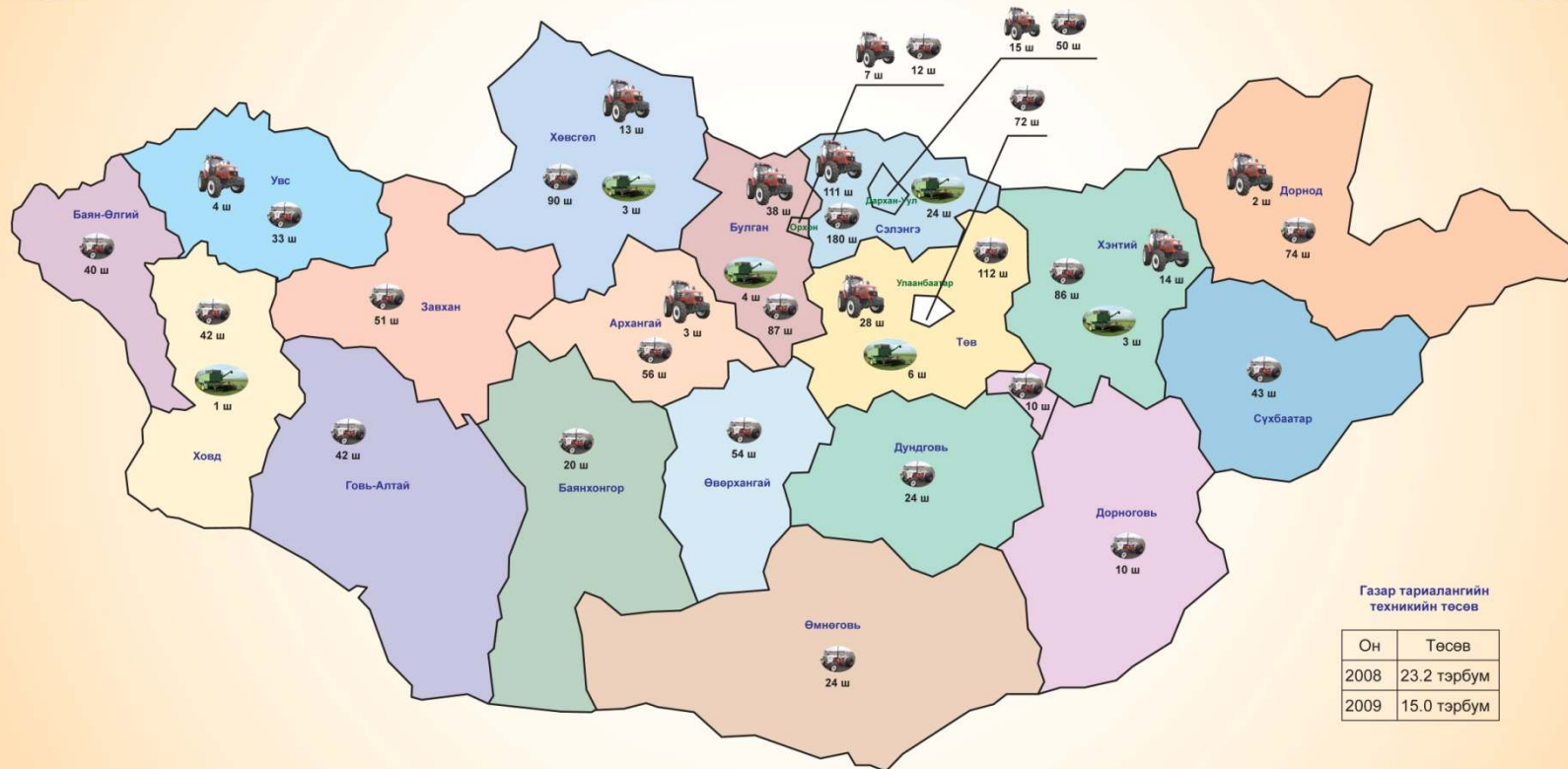
For the purpose of agricultural machinery & technology renovation 60.5 billion MNT will be required in 2009 and 65.3 billion MNT in 2010.




One of the main objectives of “Crop-3” is implement renovation of agricultural machinery & technology up to 70-80% with introduction of soil protection advanced technologies, which reduce wind erosions and degradation of soil.

Distribution of machinery in the territory of Mongolia, delivered for agriculture and planting in 2008

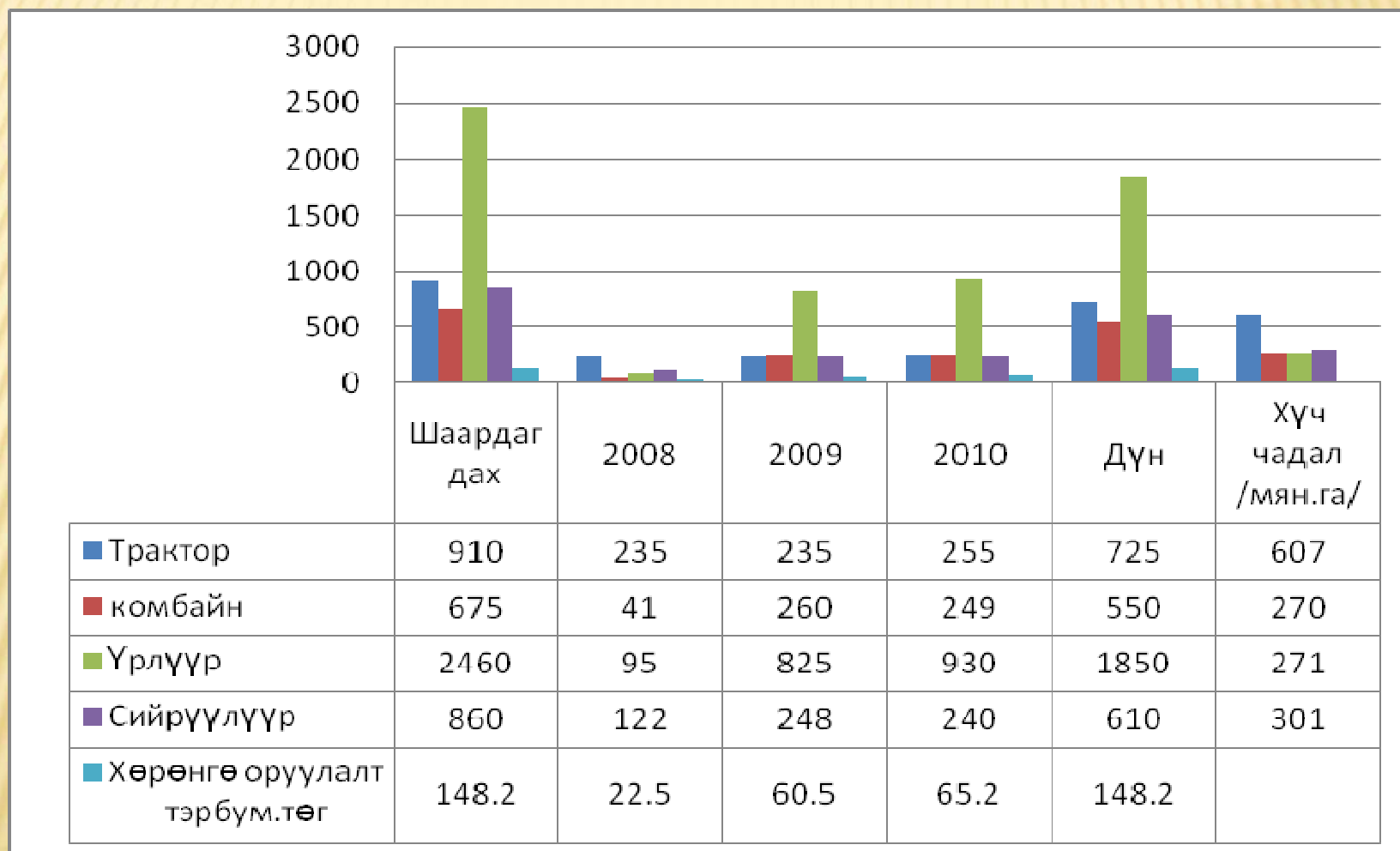


ГАЗАР ТАРИАЛАНГИЙН ҮЙЛДВЭРЛЭЛД 2008 ОНД ОЛГОСОН ТЕХНИК



 Комбайн
  Трактор
  Бага оврын трактор

Number of agricultural machinery planned to procure in 2008-2010 within the framework of “Crop-3” Campaign (in thous. nos)



Agricultural machinery of various powers will be supplied to the producers, depending on the sizes of their planted fields.

For instance, large companies with over 3000 ha will be supplied with world class machinery, which constitute 40% of the planned total procurement of machinery. Smaller producers will be supplied with machinery from Russia, which constitute 60% of the planned procurement. Thus, for agricultural renovation Mongolia requires total funds of USD 150 million.

The following agricultural machinery & technology are currently used in Mongolia:



BELARUS 1221



XT3-150K-09

Двигатель - ЯМЗ-236Д-3,
мощность 175 л.с.
Диапазон скоростей: 3,36 -
30,08 км/ч
Максимальное тяговое
усилие - 6 т.с.

Грузоподъемность навесной системы - 4,5 т
Эксплуатационная масса - 8200 кг



John Deere -2104



UTO-1604



BELARUS 1522



New Holland
TM-125, TM-165



K-3000



**NIVA-EFFECT
(Russia)**



John Deere 1075



**CLAAS
MEGA-204**



ENISEY-1200-1HM

Seeders

SKP-2.1



Numbers, areas and investment of rehabilitation of irrigation schemes with support from the state budget in 2004-2008.



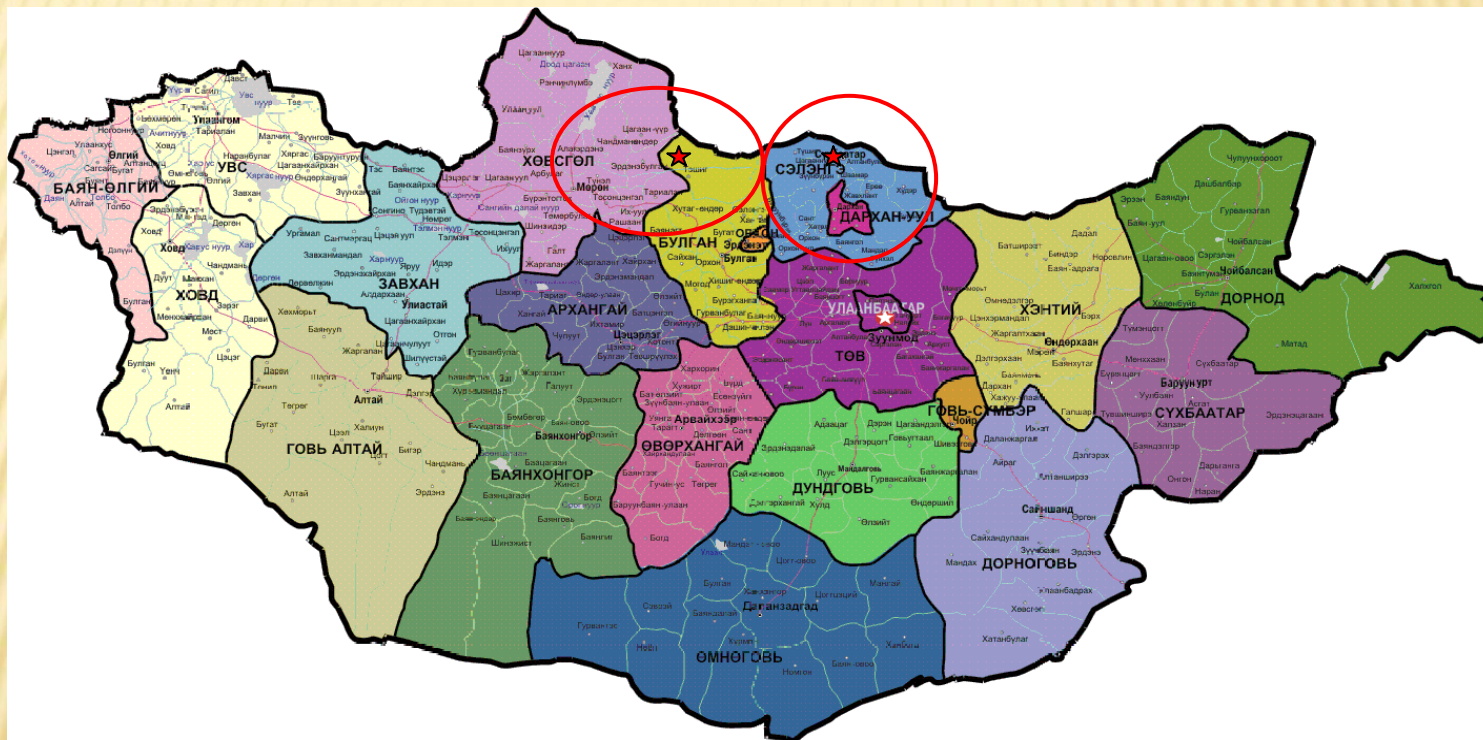
To setup of service and repair centers to ensure supply of spare parts;

For steady continuity of works it is important to set up service & repair centers. For training of the technicians, it is planned to form mobile and stationery centers of training.

Planned service centers (in aimaks provinces)

#	Province	Number of centers for cereal production	Number of centers for potato, vegetable production
1	Selenge	1	2
2	Bulgan	1	1
3	Central		1
4	Ulaanbaatar		1
	Total	2	5

Locations of machinery service stations in the cereal production sub-sector

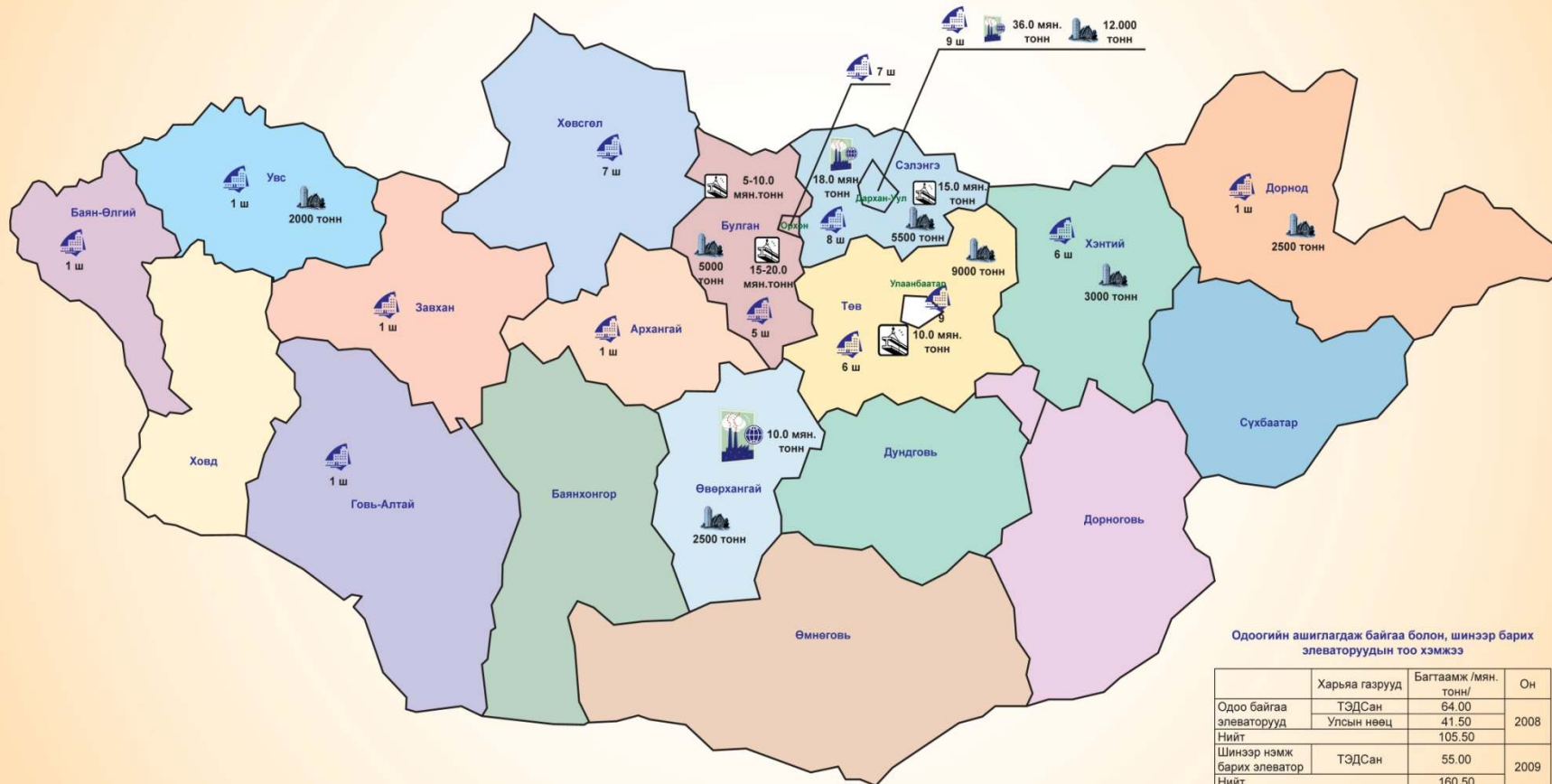


- Bulgan province, Khutag Ondor soum
- Darkhan Uul province

Elevators and flour mills



ГУРИЛЫН ҮЙЛДВЭР, ҮР ТАРИА ХАДГАЛАХ ЭЛЕВАТОР ХҮЧИН ЧАДАЛ, БАЙРШИЛ



ТЭДСангийн элеваторууд



Шинээр баригдах элеваторууд



Гурилын үйлдвэрүүд



Улсын үрийн нөөцийн агуулахууд

× **Grain elevators:**

× Khotol 36.0 tons

× Kharkhorin 10.0 tons

× Selenger 10.0 tons

× **It is planned to construct:**

× Central aimak 10.0 tons

× In the area of Bulgan, Selenge 45.0 tons

Government of Mongolia within Crop rehabilitation campaign paying much attention to renovation of an agricultural machinery and seeking all possible way to collaborate with other Asian countries . Mongolia is with vast territory and by using modern resource saving techniques and technology could play important role in a supply of cereal products in near future in Asia.

*Thank you
Bayarlalaa*