



**Food and Agriculture  
Organization of the  
United Nations**



**World Food Programme**

# **SPECIAL REPORT**

## **FAO/WFP CROP AND LIVESTOCK ASSESSMENT MISSION TO MONGOLIA**

**22 December 2017**



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### **Acronyms and abbreviations**

BCS	Body Condition Score
CMP	Child Money Programme
CPF	Crop Protection Fund
FAO	Food and Agriculture Organization of the United Nations
FMD	Foot Mouth Disease
GDP	Gross Domestic Product
GIEWS	Global Information and Early Warning System on Food and Agriculture
IBLIP	Index-Based Livestock Insurance Programme
IRIMHE	Ministry of Food, Agriculture and Light Industry
LTA	Long Term Average
MoFALI	National Agency for Meteorology and Environmental Monitoring
NAMEM	Ministry of Social Welfare and Labour
MSWL	National Emergency Management Agency
NEMA	Normalized Difference Vegetation Index
NDVI	Tugrik
MNT	National Statistics Office
NSO	Proxy Means Test
PMT	Pasture Carrying Capacity
PPC	Sheep Unit
SU	United Nations
UN	United Nations Development Programme
UNDP	United States Dollar
USD	Vegetation Health Index
VHI	World Food Programme
WFP	

### **Mission Highlights**

- A severe drought in mid-2017 gravely affected large agricultural producing areas and pasture rangelands.
- The 2017 production of wheat, the country's main staple food, is forecast at 231 000 tonnes, almost half of last year's high level and more than 40 percent lower than the average of the previous five years. The impact on other crops, including potatoes, barley, oats and buckwheat, was also severe.
- Reduced pastureland resulted in below-average livestock body conditions. The impact on livestock is further compounded by the drought-reduced hay and fodder availability, which is estimated at 53 million tonnes, the lowest level since 2007. These conditions raise serious concerns over the occurrence of a *dzud*<sup>1</sup> event in the winter/spring months.
- In October, prices of meat products were well below their levels a year earlier, mainly due to increased herders' sales on fears of animal losses during the winter/spring months and the need of buying hay to sustain remaining animals.
- Wheat import requirements in the 2017/18 marketing year (October/September) are forecast at about 230 000 tonnes, considerably above the five-year average. It is expected that required imports will be fully covered by commercial purchases.
- With the decrease in crop production, many farmers were unable to repay debts and have reduced hiring of seasonal labour - eliminating the primary income source for the season for many wage labour households.
- Poor pasture land conditions have forced herders to find alternative fodder sources by traveling long distances to collect hay and/or procuring hay at higher than usual prices.
- With reduced meat prices, herders must decide between selling at a lower than normal price or maintaining their animals through the winter.
- Access to credit is crucial for many households in the winter and spring when incomes are reduced. Herder households with less than 200 animals do not have sufficient collateral to receive a loan.
- Previous *dzud* events have led to loss of livelihoods and mass migration to urban *ger* districts where infrastructure, public services are limited, and poverty and food insecurity rates are high, particularly in the winter and spring.

## **1. OVERVIEW**

An FAO/WFP Crop and Livestock Assessment Mission visited Mongolia from 15 to 28 October 2017, prompted by the prolonged drought from mid-May to end-July that sharply reduced the 2017 crop output and depleted rangeland conditions, raising serious concerns over the impact on the livestock ahead of the winter/spring period. The Mission estimated the impact of the dry weather on the 2017 wheat, potatoes and vegetable production and forecast the expected wheat deficit for 2017/18 marketing year (October/September). The Mission assessed also the impact of the dry weather on hay production and fodder supplies for the livestock sector for the forthcoming winter/spring months, up to April 2018. Furthermore, the mission assessed the impact of the drought on households, their coping strategies and contingency plans in view of the coming winter.

The Mission visited seven of Mongolia's 21 provinces in Khangai and Central regions. The team was composed by three international staff from FAO/WFP and national agricultural officers.

Prior to departing to the field, the Mission was briefed on current crop production and livestock performance as well as general macroeconomic context by several national and international institutions and obtained national and province-wise data on precipitation, crop production and livestock numbers, prices, inputs availability and trade. Institutions visited were the Ministry of Food, Agriculture and Light Industry (MoFALI), the Parliament House, the National Emergency Management Agency (NEMA), the National Statistics Office (NSO), the Meat Producers Association, the Ministry of Social Welfare and Labour (MSWL).

The Mission obtained MoFALI data at provincial and district level of crop harvested area, yield and production estimates. During the field work, obtained data was cross-checked against information provided by farmers, including smallholders and large scale wheat producers, and against Vegetation Health Index (VHI) images,

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<sup>1</sup> *Dzud* refers to the impact of multiple natural disaster on livelihoods (see page 17).

estimated rainfall and other remotely sensed meteorological data provided by FAO/GIEWS. Visits to food markets with interviews with traders were also conducted. The Mission conducted structured interviews with a number of herders and farmers to assess the impact of the drought and analyse households' winter preparedness and coping strategies ahead of the winter/spring.

In 2017, a prolonged period of severe dry weather between mid-May and end of July, intensified by extreme high temperatures in June, damaged large swathes of cropped areas and caused a severe deterioration of pastures and rangeland conditions. An estimated 80 percent of the country was affected by drought conditions. This resulted in severe yield and area losses of the 2017 crops, including wheat, potatoes, barley, oats and buckwheat. The 2017 wheat production is estimated at about 231 000 tonnes, almost half of last year's high level and over 40 percent less than the five-year average. Similarly, potatoes output is estimated at about 117 000 tonnes, 23 percent less than in 2016 and 36 percent below the previous five-year average.

The wheat import requirements in 2017/18 marketing year are forecast at about 230 000 tonnes, considerably above the five-year average and close to the 2015/16 level, when imports reached 215 000 tonnes in response to a drought-reduced wheat output. Imports are expected to be fully covered by commercial purchases.

Drought also caused a severe deterioration of pasture conditions, which prevented livestock to gain fat stores and strengthen core muscle strength, critical to overcome the normally harsh winter/spring months. According to MoFALI data, as of November 2017, overall livestock body condition is 14 percent below average. Body conditions were reported to be particularly poor in Khangai and Central regions' provinces. Drought-reduced hay and fodder availabilities, coupled with weak livestock conditions, rise serious concerns over the impact of the winter/spring months on livestock and livelihoods.

Retail prices of wheat flour have remained stable in recent months, but are expected to increase in early 2018 due to reduced availability of wheat grains following the 2017 severely reduced output. In October, prices of meat products were reportedly lower than a year earlier, due to poor livestock body conditions and increase of distressed sales of animals in most markets. Most herders have decided to sell larger amounts of livestock, even at lower prices, ahead of further deterioration of their body conditions and high probability of increased mortality during winter/spring months. By contrast, prices of dairy products are reportedly higher than in 2016, mainly due to reduced animal productivity due to drought.

The reduced crop production resulted in widespread indebtedness of farmers, who were forced to drastically reduce the use of seasonal wage labour. As a consequence, the loss of wage labour opportunities left a significant number of households who live in wheat producing areas with reduced employment and limited alternative sources of income.

Harsh winters following summer droughts significantly increase risks for herders to lose their animals. As past events have demonstrated, the loss of livestock assets is likely to determine large migration movements into urban areas in search for economic support. Migratory groups often settle in suburban areas of capital city Ulaanbaatar, known as *ger*, where there are virtually no infrastructures and public services, and face food security issues, particularly during the winter periods.

## **2. SOCIO-ECONOMIC CONTEXT**

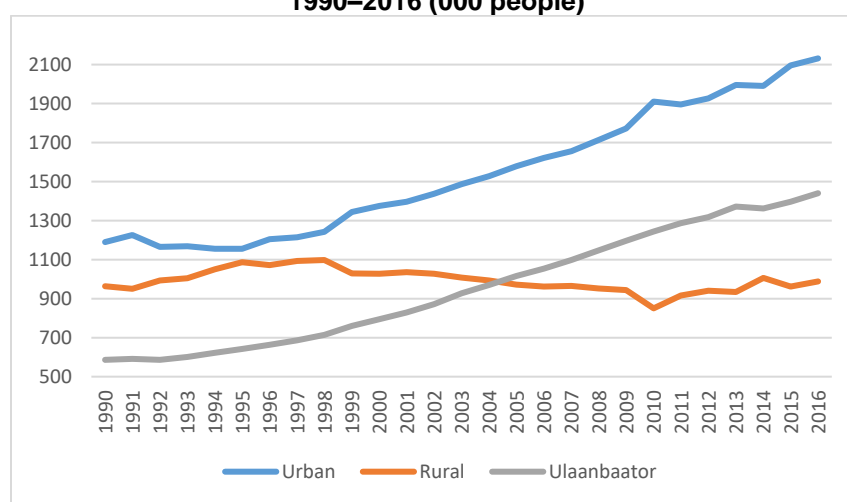
### **2.1 Population and poverty**

Mongolia is a landlocked country in the northeast Asia and borders China on its eastern, western and southern sides and the Russian Federation to the north. The country has a total area of 1 565 600 km<sup>2</sup> and a population of 3.03 million people (UN-DESA). Mongolia has a low density of population with the majority of people living in urban areas, mostly in the capital city Ulaanbaatar (1.44 million people). Urban population increased steadily since 1990s, with most of this growth attributed to inward migrations from rural areas due to people's search of job opportunities, better health and social services (Figure 1). Almost 1 million people currently live in rural areas, mostly livestock herders, who seasonally move between summer and winter pastures. Geographically, the country is divided into four regions (Western, Khangai, Central and Eastern), while administratively it is divided into 21 provinces – *aimags* - and the capital city Ulaanbaatar. The *aimags* are subdivided into soums (333), which are districts consisting of bags (1664), the smallest formal administrative and territorial unit. Agriculture is a key economic sector after mining and accounts for 12 percent of the Gross Domestic Product (GDP) (NSO, 2016).



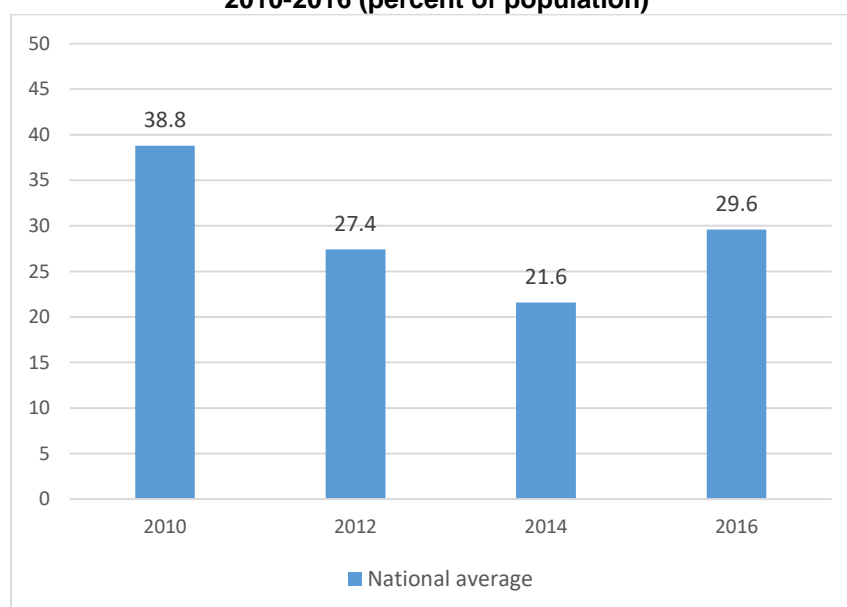
Mongolia is classified as a lower middle-income country, with a GDP per capita of about USD 3 857 (NSO, 2016). In recent years, the country has had generally low and stable Gini coefficient, a measure of the income distribution of a country's population and inequality, and it was 0.32 nationwide in 2016. Poverty is mostly the result of lack of income opportunities, migration, severe weather conditions, poor access to water and health services, social vulnerability (disability, old age, single-parent households). Poverty rates declined significantly from 39 percent in 2010 to 22 percent in 2014, mostly as a result of the strong economic growth and the effect of targeted policies, including expansion of safety nets and improvement of labour markets. However, in line with the economic downturn and decrease in consumption registered in 2016, poverty rate increased by 8 percent compared to 2014 level and reached about 30 percent in 2016 (Figure 2), corresponding to around 907 500 people (NSO, 2016). Most of the poor live in rural areas, with a poverty incidence of 34.9 percent compared to 27.1 percent in urban areas. The Eastern, Western and Khangai regions have the highest poverty headcounts with 44, 36 and 34 percent of their population living in poverty, respectively. Mongolia has one of the lowest road density in Asia, with a few hard-surfaces and paved roads, and tracks are predominant throughout the country. The road network does not covers all the country and road conditions are often poor and unpassable during winter and early spring months.

**Figure 1: Mongolia – Distribution of population rural, urban and capital city, 1990–2016 (000 people)**



Source: NSO.

**Figure 2: Mongolia – Poverty headcount ratio, 2010-2016 (percent of population)**

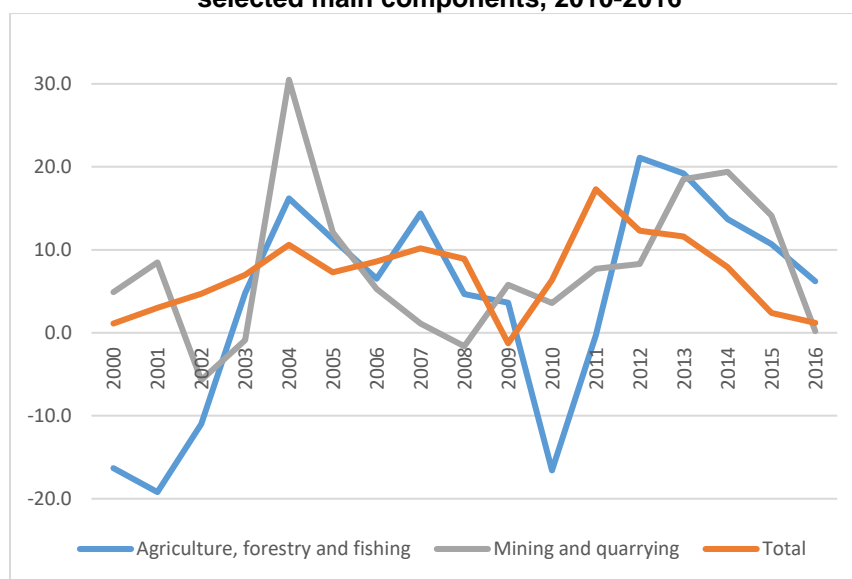


Source: NSO.

## 2.2 The macro-economy

According to the estimates of the NSO, the real GDP slowed in 2016 (Figure 3) to 1 percent from about 2 percent in 2015, after sharp increases registered between 2010 and 2014, with a record-high level of 17 percent in 2011. The slowdown was mainly on account of declining export earnings due to weakening in global prices for Mongolia's main exported commodities, including copper and coal, and lower demand from China, the country's key export market. Other factors contributing to the sluggish economic growth in 2016 include low levels of foreign direct investment as well as the poor performance of key economic sectors, such as construction, wholesale and retail trade, finance, insurance and information and communication technology services. A severe drought in 2015, which sharply reduced the agricultural output and affected the livestock sector, also contributed to the economy decline during this period. In 2017, however, the situation has improved as a result of increased export demand, a rebound in prices of major export commodities (copper and coal), which benefited the country's foreign exchange reserves, and increased investments in the mining sector. In addition, the International Monetary Fund approved a three-year USD 434 million loan in May 2017 in support to Government's commitment towards macroeconomic stability, which improved business confidence and contributed to the recent economic growth. As far as trade is concerned, since 2014, the value of exported goods has surpassed the value of imports, resulting in a positive trade balance. In 2016, the trade balance was estimated at USD 1.6 billion (Table 1). As already mentioned, main exports of the country are mineral products, including copper, coal, gold, crude petroleum and iron ore as well as natural and cultures stones, precious metal and jewellery. China is the most important trading partner of the country, accounting for almost 70 percent of international trade in 2016, followed by the United Kingdom, Russia, Germany and Italy. Imports mostly consist of refined petroleum, cars, electricity and packaged medicaments mostly from China and Russia, followed by Japan, South Korea and Germany. Although the economic outlook for trade in 2018 is overall positive, it will depend on key export commodity prices and external demand. In addition, the severe drought in the summer 2017, which affected crops and pastureland, raises serious concerns for agriculture and livestock sectors, with consequent impact on the overall country's economic growth.

**Figure 3: Mongolia – Annual growth of total GDP and selected main components, 2010-2016**



Source: NSO.

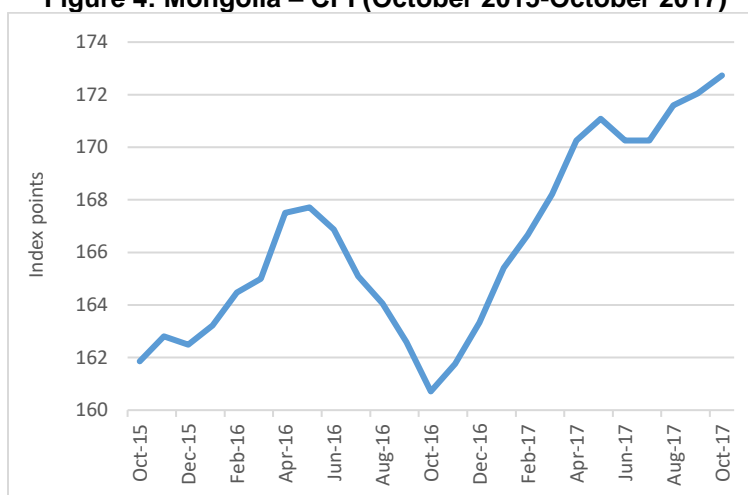
**Table 1: Mongolia - External trade, exports and imports, 2010-2016 (million USD)**

	2010	2011	2012	2013	2014	2015	2016
Export	2 908.50	4 817.50	4 384.70	4 269.06	5 774.33	4 669.30	4 916.34
Imports	3 200.10	6 598.40	6 738.40	6 357.82	5 236.67	3 797.50	3 358.14
Trade balance	-291.60	-1 780.90	-2 353.70	-2 088.77	539.23	871.80	1 558.20

Source: NSO.

According to the NSO, the Consumer Price Index (CPI) in October 2017 increased by 0.4 percent from the previous month and was 5.7 percent up from the same month last year (Figure 4). The year-on-year increase was mainly due to higher prices of transports which rose by some 11 percent and of food and non-alcoholic beverages prices, which increased by 9 percent. Within the Price Food Index, the main drivers of the increase were prices of potato and vegetables, up by 27 percent and non-alcoholic beverages and milk coupled with dairy products, whose prices were 10 percent higher than one year before. Consumer prices have been increasing since late 2016 when local currency was strongly depreciated making imports more expensive and because of increased investment in the mining sector driving up money supply. Despite the increase, however, the inflation rate recorded in October was still in line with the Central Bank target for 2017/2019 to keep it below 8 percent.

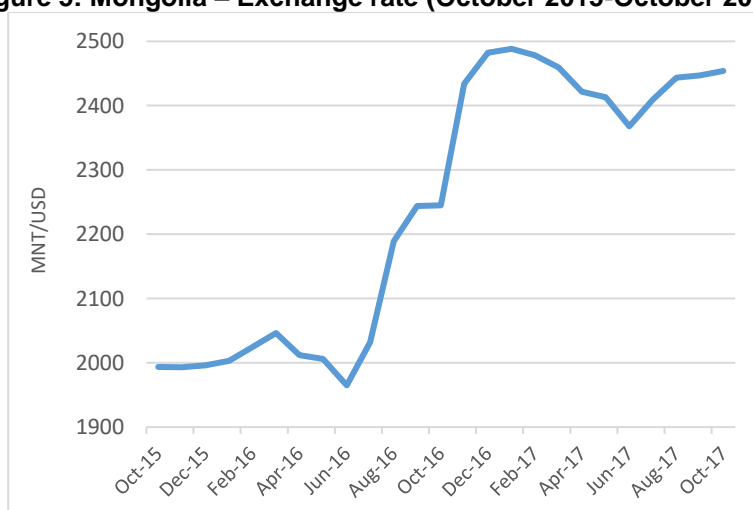
**Figure 4: Mongolia – CPI (October 2015-October 2017)**



Source: NSO.

The Mongolian Tugrik (MNT) depreciated sharply against the US dollar in the second half of 2016, from an average of MNT 1 965 per USD 1 in June 2016 to MNT 2 483 per USD 1 in December 2016, losing about 26 percent of its value (Figure 5). Concerns about the fiscal deficit and export prospects, coupled with declining foreign-exchange reserves, were the main reasons behind the rapid currency depreciation. In the first half of 2017, improving export prospects, linked to a recovery in commodity prices, and the financial assistance granted by the IMF supported the local currency, which strengthened against the US dollar. However, investors' concerns over political stability and a recent increase in money supply led to a new depreciation of the local currency since July and in October it was trading at MNT 2 459 per USD 1 against MNT 2 308 per USD 1 at the same time last year and MNT 1 993 per USD 1 in October 2015.

**Figure 5: Mongolia – Exchange rate (October 2015-October 2017)**



Source: NSO.

## 2.3 Agriculture sector

The agriculture sector, after mining, is the second most important contributor to the Mongolian economy, accounting for 12 percent of GDP (NSO, 2016), and it directly or indirectly provides an estimated 28 percent of total employment (World Bank, 2015). The livestock sector accounts for 87 percent of agricultural production, while the remaining 13 percent is sourced from crops, mostly wheat.

The country is characterized by wide fluctuations in both temperature and precipitation. In the northern mountainous regions annual average temperatures range from -22°C to 17°C, with limited precipitation of around 300–400 mm annually. Across the central steppes and the Gobi Desert, temperatures range between 15°C and 21°C, with precipitation levels of 150 to 250 mm and 50 to 100 mm, respectively. The country is prone to several weather related hazards such as snow storms, dust storms, flash floods, droughts, steppe and forest fires and it is highly susceptible to climate change. The frequency of weather hazards have doubled in the last 20 years and will likely increase over the coming decades with global warming<sup>2</sup>. Climatic conditions make agriculture very difficult, as a result arable land accounts for less than 1 percent of the country's total land. The country's climate is more suitable for extensive grazing, which covers some 80 percent of the land area.

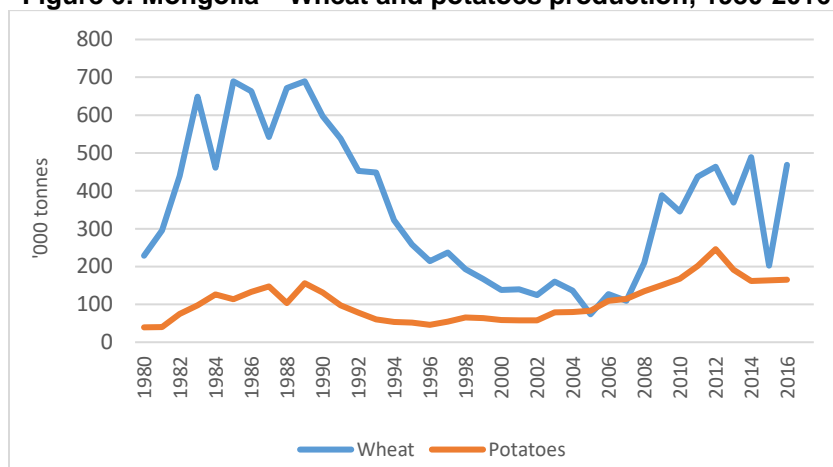
### 2.3.1 Crop production

The harsh environment, short summers and sharp falls in temperature and frosts during the warm period, highly limit crop cultivation, with only one percent (1.35 million hectares) of country's total land (1 565 million hectares) being suitable for crop cultivation. Wheat is the main crop produced, followed by potatoes, vegetables and other cereals as barley, rye and oats, which are mostly used as feed for dairy cattle. Crop production is highly susceptible to weather shocks. Due to severe winters and limited snow cover, it is not possible to grow winter wheat varieties, therefore only early-maturing spring wheat varieties are used in the country. The wheat crop is normally sown in May and harvested in September and the country practices fallow rotation as normally wheat cultivation is followed by one year of bare fallow. Wheat production dropped significantly from about 690 000 in the mid-1980s to record low 74 000 tonnes in 2005 (Figure 6) and has been on an increasing trend since then. The country moved from self-sufficiency in wheat, and even occasionally exporting some quantities until mid-1990s, to import when the local production is reduced due to weather conditions. Consecutive severe drought in 2005, 2007, 2010, 2013 and 2015 lowered wheat production severely. Production rebounded in 2016, reaching 470 000 tonnes, but still remained below the national requirement. The drastic decline in agricultural production is mainly the result of the transition from a centrally planned economy to a market-based economy in early 1990s, and has been accompanied by a strong decline in the use of irrigation infrastructure, farm machinery and other agricultural inputs, such as fertilizers. Only 54 000 hectares of land are irrigated and wheat cultivation is on only 5 000 hectares. The country also produces small quantities of potatoes and vegetables (largely irrigated), mostly grown in the Central provinces and the capital city, which together account for about 60-70 percent of the country's total agricultural output. There is a clear market preference for locally grown potatoes and vegetables products, despite their higher prices, which resulted in an increase in domestically produced output in recent years. Limited quantities of barley, oats, rye and buckwheat, as well as fruits, such as watermelons and various types of berries, are also produced on a small scale.

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<sup>2</sup> Batima, P. et al. Institute of Meteorology and Hydrology. 2006. Climate Change Vulnerability and Adaptation in the Livestock Sector – AIACC Working Paper; Climate Change Knowledge Portal, Mongolia Dashboard, World Bank, 2016.

**Figure 6: Mongolia – Wheat and potatoes production, 1980-2016**

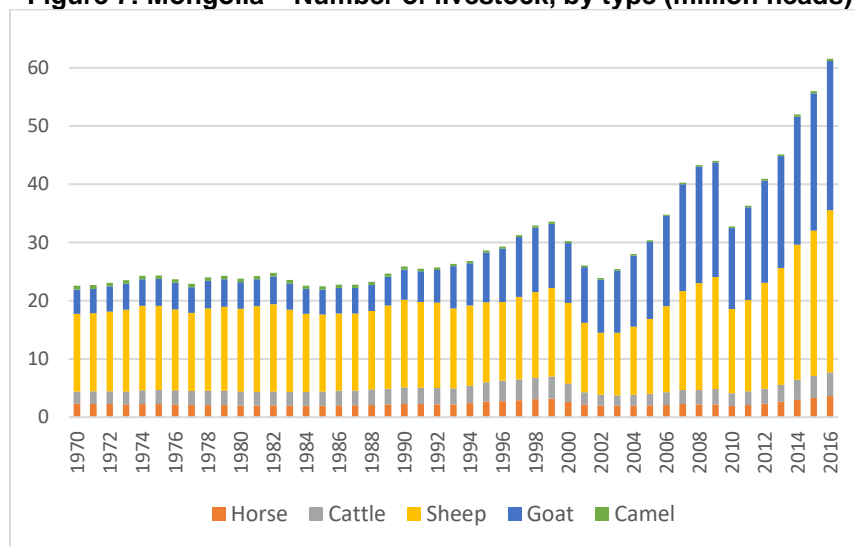


Source: NSO.

### 2.3.2 Livestock sector

Livestock breeding is the key traditional sector of Mongolia's economy. Although livestock contribution to the GDP has been on a declining trend in the past several years, it continues to be an important sector of the local economy. In particular, the livestock sector still employs around one-third of the working population and constitutes almost half of the share of the gross agriculture production. In 2016, the number of livestock in Mongolia was estimated at 61.5 million heads (Figure 7), 5.6 million more than in 2015 and a record. Mongolia's livestock herd has shown a strong increasing trend over the past years as herders attempted to better manage risk and to increase their output. Although herders are encouraged to raise mixed herds, the greatest increase in herd size reflects the small ruminants, sheep and goats, due to the cash income from cashmere and wool. Among the different livestock species, camel numbers have been low in the past several years, mostly a result of the increasing availability of motorized means of transport.

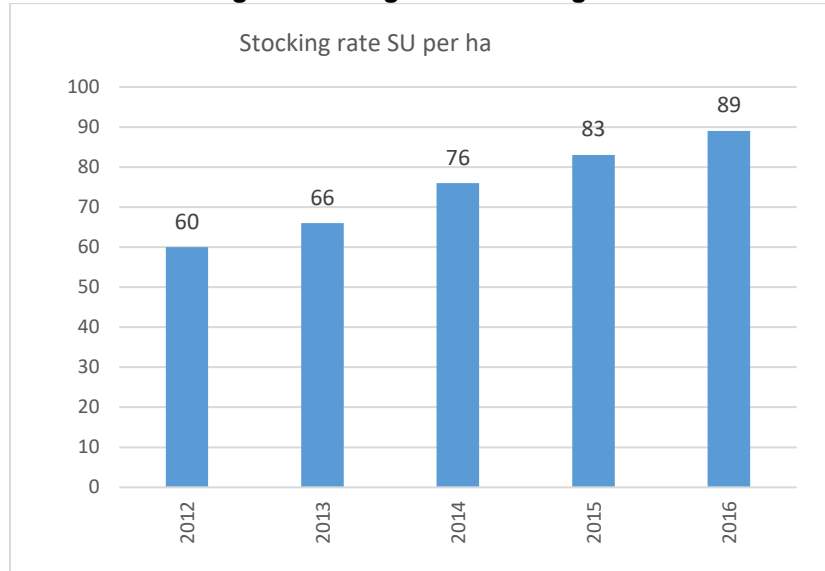
**Figure 7: Mongolia – Number of livestock, by type (million heads)**



Source: NSO.

The number of livestock per hectare in sheep units (SU) has been on a constant rise over the last few years. The stocking rate, which measures the relationship between livestock and the forage resource, has also been increasing over the past years (Figure 8), as a result of pasture tending to shrink because of land taking for mining, infrastructure, environmental protection and urbanization, whereas the number of livestock strongly tends to grow.

**Figure 8: Mongolia – Stocking rate**



Source: NSO, 2016.

The increasing livestock numbers, overcoming the capacity of rangeland to support them, has contributed to rangeland degradation in over 70 percent of the country. The National Agency for Meteorology and Environmental Monitoring (NAMEM), which is responsible for nationwide rangeland management, evaluated in 2015 1 450 monitoring plots representing all bags in Mongolia and found that about 65 percent of the sites have been altered with respect to the respective ecological potential of the soils and climate zones. The analysis pointed that 48 percent of the sites would require more than three years for recovery to occur. In addition, a significant trend of declining precipitation and warmer temperatures, amid increasing animal numbers, indicated an increasing risk of further rangeland degradation, especially in central and northern parts of the country<sup>3</sup>.

Herders move their animals seasonally from lowland pastures in the summer to highland pastures in the winter, from November until March, to find shelter from heavy winds and snow storms. However, herders also travel larger distances to reach better pastures. They move their animals from their soums to other soums of the same *aimags* or of other *aimags*, upon acceptance of their requests and subsequent agreement of the two soums' governors, mainly dependent on the local carrying capacity. Across the country exists a system of emergency grazing reserves areas, called *otor*, which includes state, inter-soum and inter-*aimag otors*. These areas are for special use in case of deep snows or drought, to fatten animals in the fall and for fresh pasture in the spring. There are nine *otor* reserves for a total area of 783 300 hectares and they include feed storage and wells (Table 2). Government bodies coordinate these areas, deciding on the number of making-request herders who can enter. These areas are mapped according to grass conditions and carrying capacity to identify which areas can be assigned to herders and which instead need to be preserved to let them recover. Besides *otors*, border areas and state specially-protected areas are also used for the winter. However, unregulated growth of animal numbers during last years has hampered rotational use of seasonal pastures and the regular use of reserve areas. In Mongolia, private property in pastureland does not exist and areas, including *otors*, tend to be occupied by herders, also due to the lack of a comprehensive legal framework for both pasture land and *otor*, which is still under discussion.

<sup>3</sup> National Report on the Rangeland Health of Mongolia, 2015 [https://jornada.nmsu.edu/files/Mongolia-Rangeland-health-Report\\_EN.pdf](https://jornada.nmsu.edu/files/Mongolia-Rangeland-health-Report_EN.pdf)

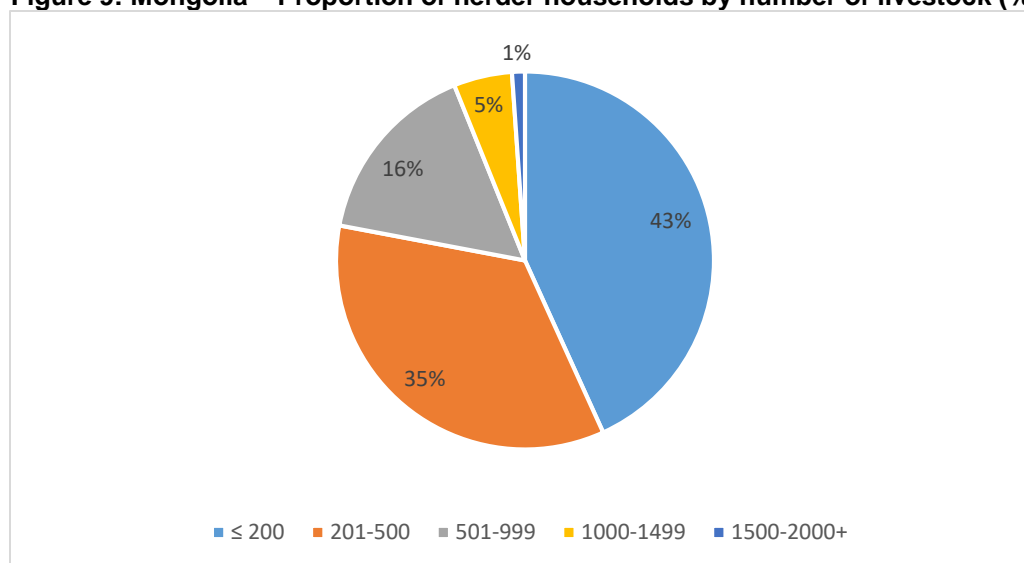
**Table 2: Mongolia – *Otor* reserves**

Name of <i>otor</i> reserve	Size ('000 ha)	Number of feed storage	Number of wells	Number of shelters/ enclosures
Kherlen Bayanulaan in Khentii <i>aimag</i>	192.8	2	26	12
Argalant (in Gobi-Altai <i>aimag</i> )	118.6	2	3	n.a.
Bagakhairkhan (in Zavkhan <i>aimag</i> )	68.3	2	8	7
Malakh (in Gobisumber <i>aimag</i> )	73.1	2	8	n.a.
Choibalsan (in Dornod <i>aimag</i> )	124.4	n.a.	8	2
Chilen (in Bulgan <i>aimag</i> )	34.1	3	17	6
Khukh del (in Tuv @ Uvurkhangai <i>aimag</i> )	37.9	n.a.	2	n.a.
Achit nuur (in Uvs @ Bayan-Ulgii <i>aimag</i> )	28.9	2	6	n.a.
Bayan nuruu (in Khovd <i>aimag</i> )	105.2	n.a.	n.a.	n.a.
<b>Total</b>	<b>783.3</b>	<b>13</b>	<b>78</b>	<b>27</b>

Source: MoFALI, 2017.

As of 2016, out of a total 311.4 thousand herders, about 35 percent were aged between 16 and 34 years, over 55 percent were at the age of 35 to 60 and about 10 percent were elderly. Around 80 percent of herder households have less than 500 heads of livestock and 43 percent have below 200 (Figure 9).

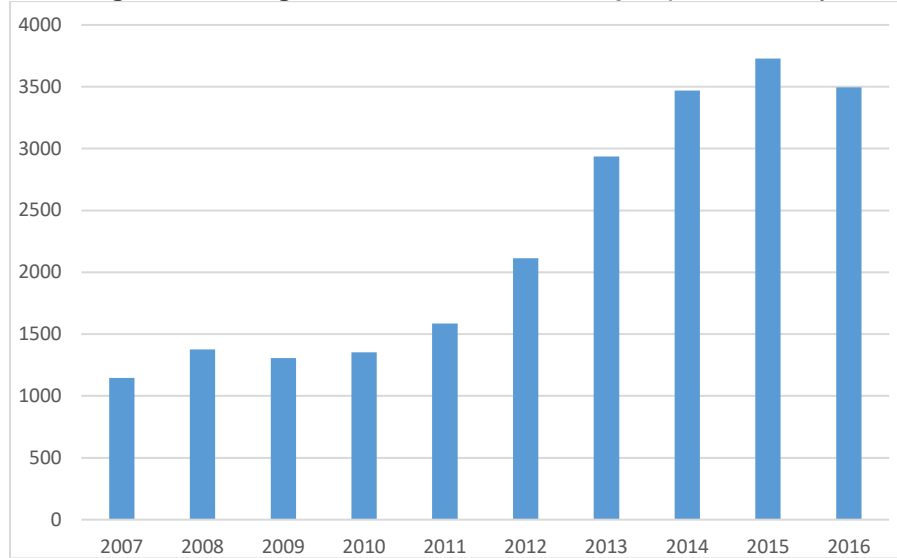
**Figure 9: Mongolia – Proportion of herder households by number of livestock (%)**



Source: Sectoral statistics bulletin, December 2016, MoFALI.

Over the last ten years, the gross livestock production grew 3 times with 13.4 percent annual increase (Figure 10), with meat production exceeding domestic demand. However, livestock products (wool, meat and skins) only constituted approximately USD 330 million or 7 percent of exports in 2016, according to Mongolian Customs data, far below its potential capacity.

**Figure 10: Mongolia – Gross livestock output ('000 tonnes)**



Source: NSO.

A wide range of technical and infrastructure problems limit country's ability to export, including the lack of modern abattoirs and storage facilities. Increasing meat exports and developing the local meat industry also requires the eradication of Foot Mouth Disease (FMD), the most crucial among disease concerns. As a response, the Government of Mongolia, amid continuous efforts to contain disease outbreaks, has developed heat sanitizing processing of meat and declared some disease-free regions within the country in order to be able to export meat to specific countries, such as the Russian Federation. These measures allowed for some degree of exports, but still well below its potential capacity. Improvements in sanitary control measures and infrastructure investments, like slaughterhouses, are crucial to expand the country's export market.

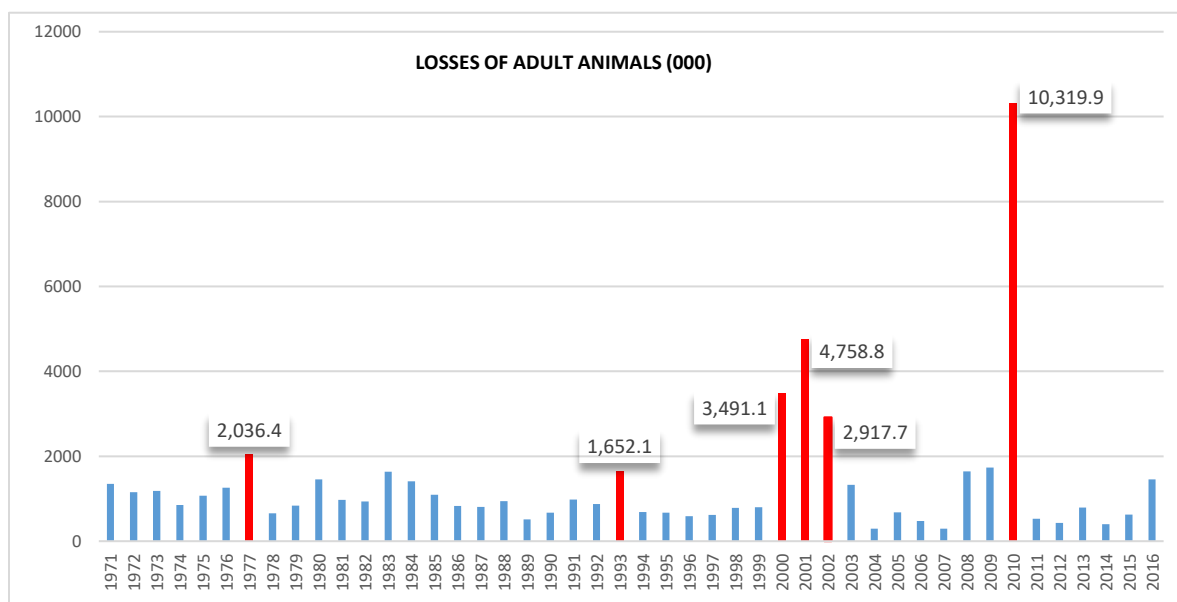


### ***The Dzud***

*Dzud* refers to the impact of multiple natural disaster on livelihoods. It usually consists of a summer drought that results in inadequate pasture and production of hay, followed by very heavy winter snow, winds and lower-than-normal temperatures. These conditions usually result in a significant increase in the mortality rate of animal, undermining the welfare and food security of most herders. Decrease in the number of wells and water points, lack of safety nets, inadequate winter hay preparation are all components which further contribute to such critical events. There are five different types of *dzud* which reflect the different characteristics of the winter weather:

1. *White dzud*: deep heavy snow and cold temperatures, which prevent livestock access to pasture.
2. *Black dzud*: freezing temperatures and no accumulated snow which causes lack of surface water.
3. *Iron dzud*: a short wintertime warming which melts snow, followed by a return to sub-freezing temperatures, creating an impenetrable ice-cover over pastureland.
4. *Storm dzud*: strong winds and heavy snow.
5. *Combined dzud*: deep snow and sudden temperature drop.

In 1999/00, 2000/01 and 2001/02, Mongolia was hit by three *dzuds* in a row and more recently in 2009/10, when more than 10 million animals died, as highlighted in red below:



Source: NSO.

■ *Dzud* events

## **3. CROP PRODUCTION IN 2017**

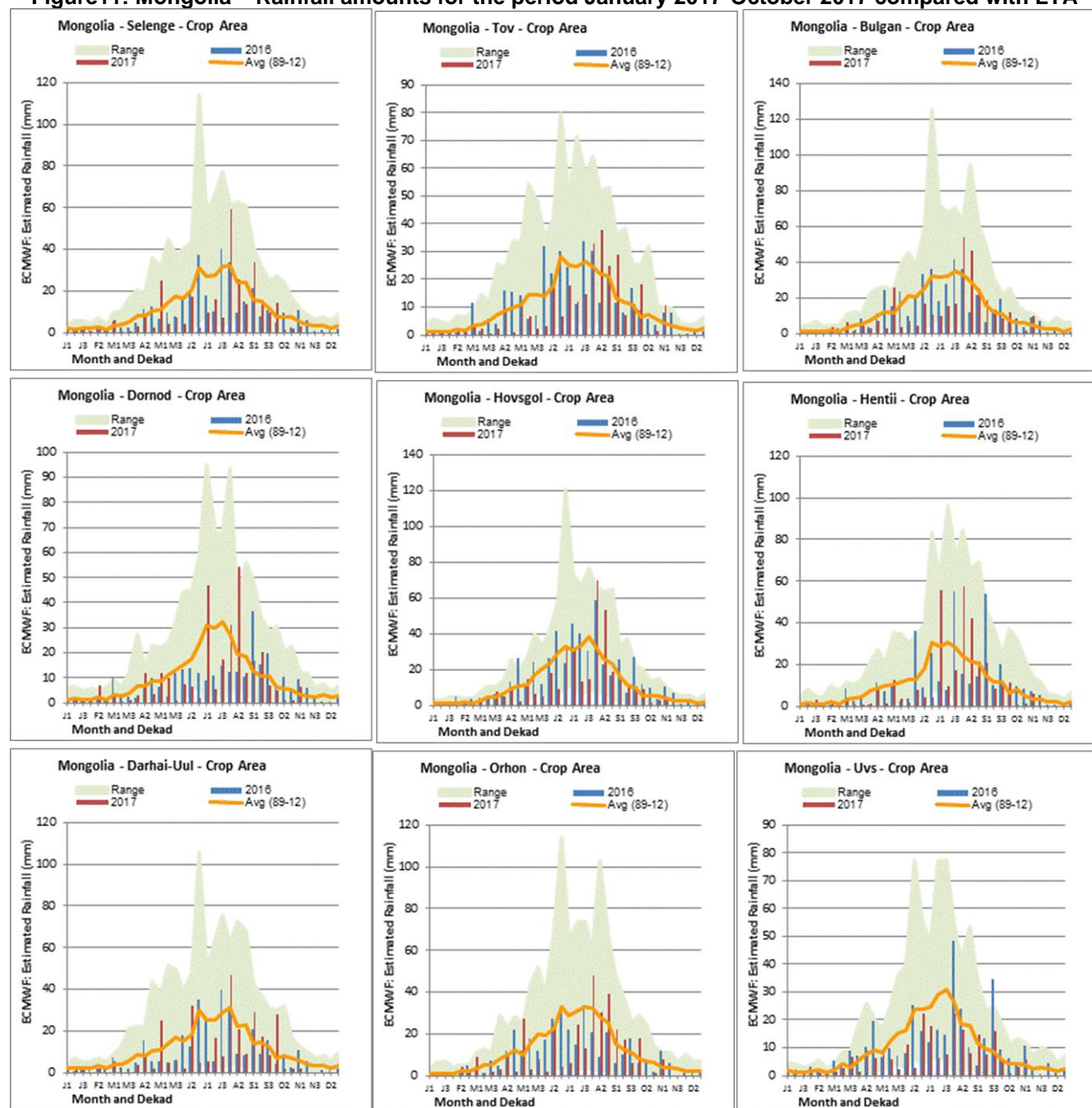
### **3.1 Factors affecting planted area and yields**

#### *Rainfall*

The Mission used estimated rainfall data and satellite images on Vegetation Health Index (VHI) provided by FAO/GIEWS. Rainfall from April to mid-May was generally near-average over most of the country, benefitting planting activities and early development of spring crops, such as wheat, barley, oats and buckwheat. The months from June to August are usually the wettest in the country, accounting for more than half of the total annual

precipitation. In 2017, however, well-below average rains between mid-May and end of July (Figure 11), intensified by extreme high temperatures in June, which is a critical period for crops, damaged large swatches of cropped areas. Cumulative precipitation during 2017 over all the country remained at levels well-below the Long Term Average (LTA)<sup>4</sup> (Figure 12). The drought effect on crop and vegetation growth is captured by VHI (Figure 13). As of late July 2017, an estimated 80 percent of the country was affected by drought conditions. Negative vegetation growth anomalies were particularly visible in June and July 2017 over most of the country, with drought conditions affecting the main cereal producing areas in the northern and central parts of the country. The drought was followed by heavy rains from the first dekad of August to the first dekad of September, which caused further damage to the crops just before harvest.

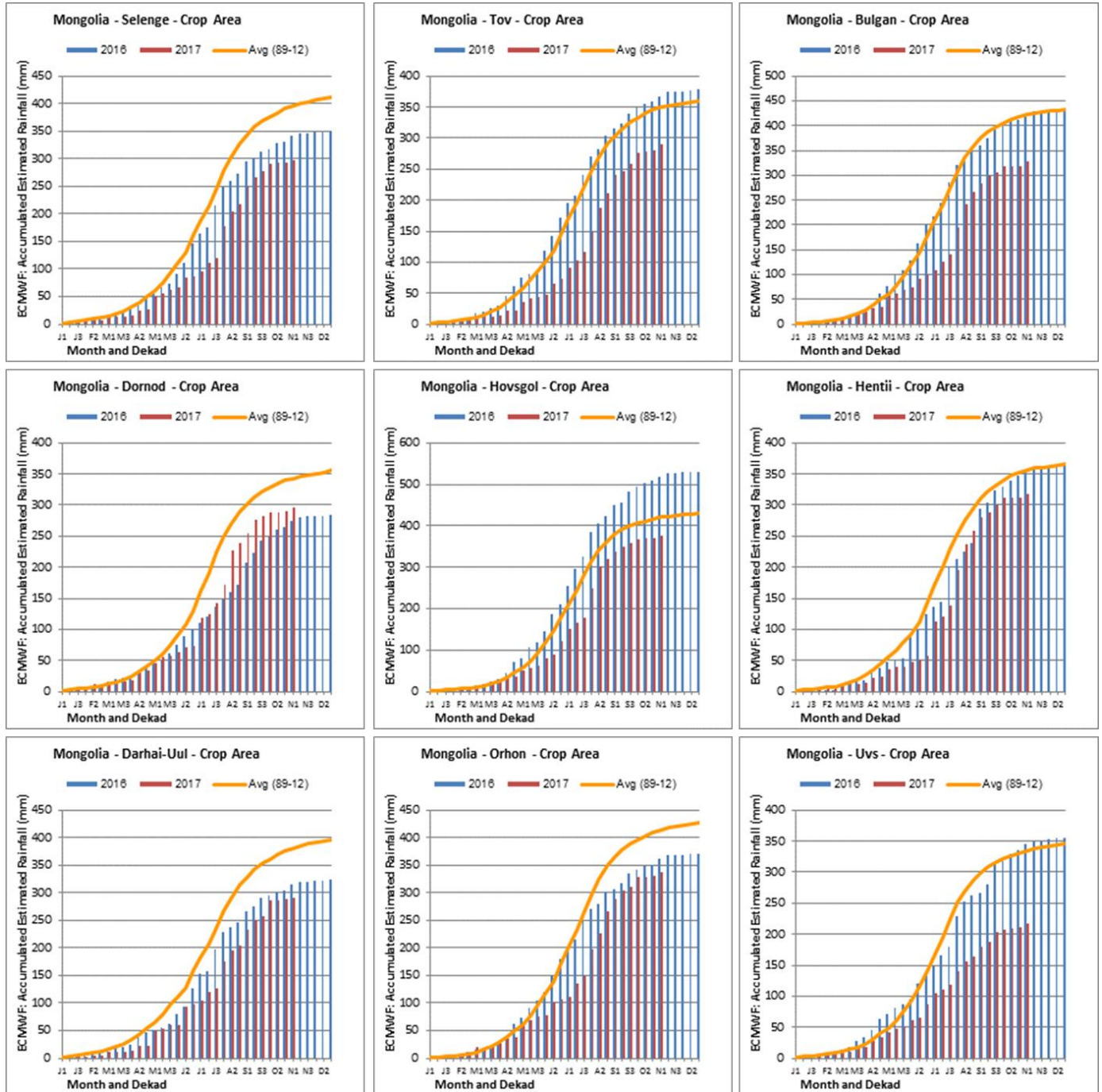
**Figure11: Mongolia – Rainfall amounts for the period January 2017-October 2017 compared with LTA**



Source: GIEWS/Earth Observation Tool.

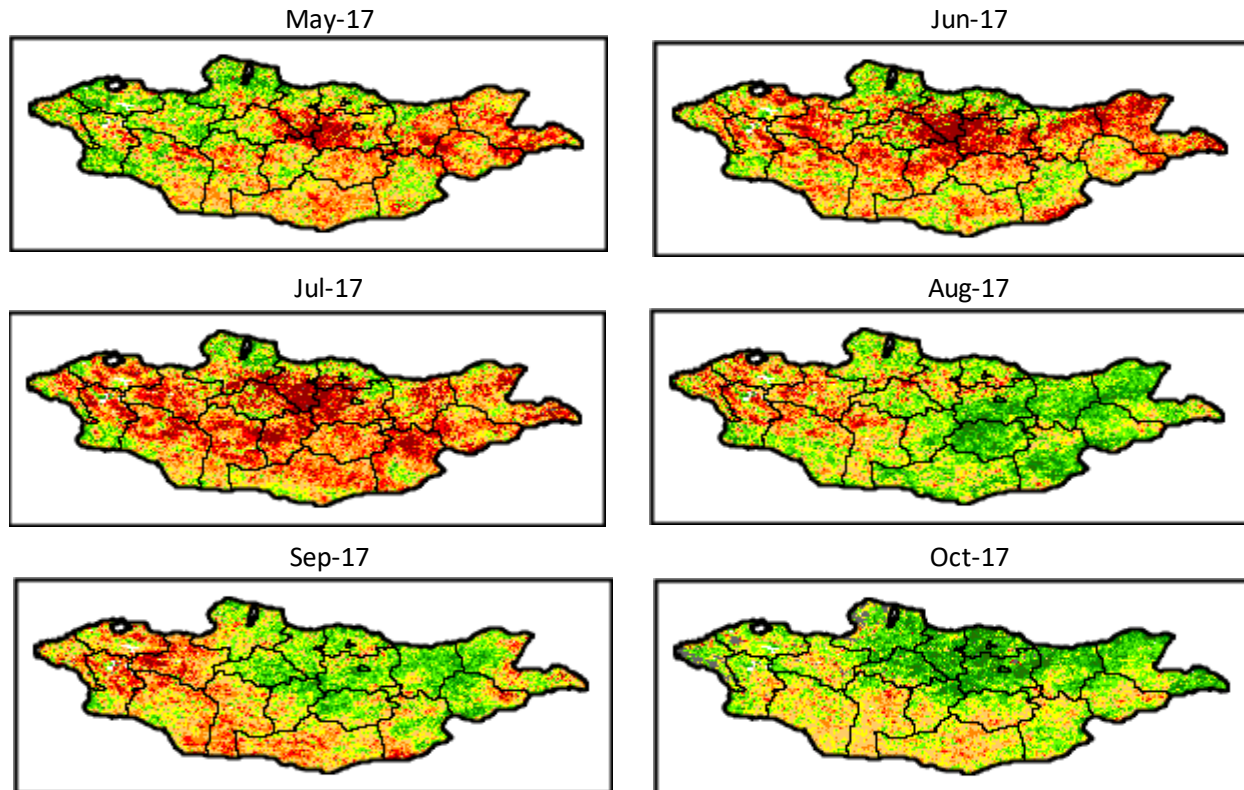
<sup>4</sup> The LTA is calculated from 1989 to 2012.

**Figure12: Mongolia – Cumulative rainfall for period January 2017-November 2017 compared with LTA**



Source: GIEWS/Earth Observation Tool.

**Figure 13: Mongolia – Vegetation Health Index (VHI), May-October 2017**



Source: GIEWS/Earth Observation Tool.

#### *Credit*

Many farmers, including large scale wheat producers, use credit to purchase inputs in preparation for the planting season. Much of this is supported through the state's Crop Protection Fund (CPF), which provides seeds, fuel, herbicide, fertilizer, and access to heavy machinery on credit. The CPF also provides subsidies in the form of wheat price support and sells high and certified quality wheat seeds.

#### *Seeds*

Farmers use seeds retained from the previous harvest, buy from the market or purchase high quality seeds from the Crop Protection Fund. For the 2017 season, wheat seed supply was adequate.

#### *Fertilizers*

Availability and use of fertilizer during 2017 season was at normal level. It is reported that farmers used NPK fertilizer (Nitrogen (N), Phosphorous (P) and Potassium (K)) and organic compost. Recommended application rates for wheat of Nitrogen are 60 kg/ha, of Phosphorous are 60 kg/ha, while of Potassium are 40 kg/ha. In some cases, the rates applied were slightly lower depending on availability.

#### *Chemicals*

Farmers' use of the five types of herbicide, including Folmex, Tonando, Phenizan, Pumasuper, Alazis and Threemix to control weeds in their wheat fields. Overall, the herbicide needs were estimated at about 3 500 tonnes. Around 566 tonnes were provided at subsidized prices and on loan through the Crop Protection Fund, while the remaining quantities were bought from the market. The prices of herbicides were close to last year's level.

## 3.2 Crop production in 2017

### 3.2.1 Wheat

#### *Planted and harvested areas*

Generally, favourable weather conditions between April and early May and adequate soil moisture during planting time benefitted planting operations. Overall, some 367 000 hectares of wheat were planted in 2017, slightly above the high level of 355 000 hectares sown in 2016 and the highest since 1994. The extended period of severe dry weather from mid-May to the end of July, which was intensified by unusually high temperatures in June, severely affected the wheat crop at the critical growing stages of heading and flowering. Further damages were inflicted by herds, which entered fields despite fences around cropped areas. Although this occurs every year, wheat farmers reported that this year attacks of the animals on field crops were considerably higher compared to normal years and in some cases accounted to up to 30 percent of the total damages. This was the result of livestock, mostly cattle, destroying the fences in search of feed, due to limited pasture availability. The combination of the above resulted in the complete loss of about 89 000 hectares of the 2017 wheat planted area and an additional 22 500 hectares that were severely damaged and crops were used for livestock feed. Overall, the area harvested in 2017 is estimated at about 256 000 hectares, 24 percent lower than the harvested area in 2016 and 11 percent below the average of the previous five years. Severe losses were registered in most wheat producing areas, including the main producing provinces of Bulgan in Khangai region, and Selenge and Tuv in Central region, which together account for more than two-thirds of the overall wheat extension (Table 3).

#### *Yields*

The national average yield for 2017 is estimated at 0.9 tonnes/hectare, compared with 2016 and average level of 1.34 tonnes/hectare (Table 3). The highest yield losses due to the drought were reported in the main wheat producing *aimags* of Khangai and Central regions. For example, the poorest performance was recorded in Tuv *aimag* in the Central region, which normally accounts for almost 20 percent national output, with yields estimated at around 0.35 tonnes/hectare, almost three times lower than the average levels of 1.3 tonnes/hectare. Similarly, in Selenge *aimag*, which produces around half of annual wheat output, yields decreased sharply to 1.1 tonnes/hectare, some 22 percent below average. In other important producing *aimags*, namely Bulgan and Khuvsgul (Khangai region) and Dornod and Khentii (Eastern region), registered yield losses ranged from 37 to 66 percent below average levels (Table 3).

#### *Production estimate*

Reduced area and low yields resulted in a wheat production of 230 654 tonnes in 2017, almost half of last year's high level and 42 percent lower than the five-year average. Most of the production decreases were reported in Selenge, Tuv, Bulgan and Khuvsgul *aimags*.



**Table 3: Mongolia – Wheat area, yield and production, 2012-2016 average, 2016 and 2017**

<i>Aimag</i>	Area Harvested (ha)					Yields (tonne/ha)					Production (tonnes)				
	2016	2017	Change: 2017 over 2016 (%)	2012- 2016 average	Change: 2017 over average (%)	2016	2017	Change: 2017 over 2016 (%)	2012- 2016 average	Change: 2017 over average (%)	2016	2017	Change: 2017 over 2016 (%)	2012- 2016 average	Change: 2017 over average (%)
<b>Western region</b>	<b>5 308</b>	<b>8 524</b>	<b>61</b>	<b>11 678</b>	<b>-27</b>	<b>1.333</b>	<b>1.218</b>	<b>-9</b>	<b>0.741</b>	<b>64</b>	<b>7 074</b>	<b>10 380</b>	<b>47</b>	<b>7 280</b>	<b>43</b>
Zavkhan	405	612	51	1 274	-52	1.111	0.670	-40	0.846	-21	450	410	-9	947	-57
Govi-Altai	208	40	-81	271	-85	1.212	1.250	3	1.132	10	252	50	-80	315	#]
Bayan-Ulgii									0.557	-100	0	24		3	669
Khovd	1	0	-100	18	-100	0.000	0.000		1.435	-100	0	0		33	-100
Uvs	4 694	7 872	68	6 721	17	1.357	1.257	-7	0.921	37	6 372	9 896	55	5 983	65
<b>Khangai region</b>	<b>65 620</b>	<b>57 676</b>	<b>-12</b>	<b>61 154</b>	<b>-6</b>	<b>1.449</b>	<b>0.776</b>	<b>-46</b>	<b>1.253</b>	<b>-38</b>	<b>95 053</b>	<b>44 755</b>	<b>-53</b>	<b>74 283</b>	<b>-40</b>
Orkhon	3 595	4 010	12	3 025	33	2.722	1.535	-44	2.373	-35	9 785	6 154	-37	7 350	-16
Uvurkhangai	5 230	4 883	-7	2 945	66	1.036	0.429	-59	1.046	-59	5 416	2 094	-61	3 133	-33
Bulgan	35 990	29 572	-18	30 890	-4	1.439	0.849	-41	1.337	-37	51 805	25 095	-52	41 194	-39
Bayankhongor						0.000	0.000		0.363	-100	0	0		0	
Arkhangai	5 000	5 950	19	3 002	98	1.328	0.718	-46	1.089	-34	6 639	4 272	-36	3 390	26
Khuvsgul	15 805	13 261	-16	14 503	-9	1.355	0.538	-60	1.324	-59	21 408	7 140	-67	19 217	-63
<b>Central region</b>	<b>225 954</b>	<b>170 369</b>	<b>-25</b>	<b>250 982</b>	<b>-32</b>	<b>1.460</b>	<b>0.969</b>	<b>-34</b>	<b>1.207</b>	<b>-20</b>	<b>329 874</b>	<b>165 158</b>	<b>-50</b>	<b>279 884</b>	<b>-41</b>
Tuv	75 284	30 269	-60	58 908	-49	1.070	0.344	-68	1.309	-74	80 573	10 416	-87	77 520	-87
Govisumber									0.000		0	0		0	
Selenge	140 949	127 835	-9	129 286	-1	1.647	1.129	-31	1.444	-22	232 191	144 361	-38	190 245	-24
Dornogovi									0.000						
Darkhan-Uul	9 721	12 265	26	9 296	32	1.760	0.846	-52	1.257	-33	17 110	10 381	-39	12 119	-14
Umnugovi									0.000						
Dundgovi									0.000						
<b>Eastern region</b>	<b>41 420</b>	<b>19 706</b>	<b>-52</b>	<b>46 064</b>	<b>-57</b>	<b>0.528</b>	<b>0.526</b>	<b>0</b>	<b>0.851</b>	<b>-38</b>	<b>21 852</b>	<b>10 361</b>	<b>-53</b>	<b>28 335</b>	<b>-63</b>
Dornod	16 850	8 175	-51	11 748	-30	0.687	0.430	-37	1.275	-66	11 573	3 515	-70	13 625	-74
Sukhbaatar	8 955	3 300	-63	3 204	3	0.200	0.495	148	0.469	5	1 787	1 632	-9	1 354	20
Khentii	15 615	8 231	-47	12 741	-35	0.544	0.633	16	1.085	-42	8 492	5 214	-39	13 356	-61
<b>Total</b>	<b>338 302</b>	<b>255 658</b>	<b>-24</b>	<b>287 835</b>	<b>-11</b>	<b>1.342</b>	<b>0.902</b>	<b>-33</b>	<b>1.340</b>	<b>-33</b>	<b>453 853</b>	<b>230 654</b>	<b>-49</b>	<b>395 960</b>	<b>-42</b>

### 3.2.2 Potatoes and vegetables

The area planted to potatoes increased slightly compared to last year's average level, supported by favourable weather conditions at the start of the season. However, subsequent drought from May to July and high temperatures in June caused the complete loss of about 2 700 hectares. The combination of extremely hot temperatures and low irrigation water availabilities, resulted in severe sown area decreases, and scorched the leaves and stems, and inhibited plant growth. As a result, the harvested area decreased to 12 500 hectares, 14 percent below the average, and yields were 25 percent lower than the average. Overall, the 2017 final output decreased to 116 878 tonnes, 23 percent lower than 2016 level and 36 percent below the previous five-year average (Table 4).

**Table 4: Mongolia – Potato area, yield and production, 2012-2017**

Potatoes	Harvested area (ha)	Yields (tonne/ha)	Production (tonnes)
2012	16 821	14.62	245 935
2013	15 503	12.36	191 619
2014	13 205	12.23	161 489
2015	12 749	12.96	165 273
2016	14 439	10.49	151 483
2017	12 511	9.34	116 878
Change: 2017 over 2016 (%)	-13	-11	-23
2012-2016 average	14 543	12.5	183 160
Change: 2017 over average (%)	-14	-25	-36

Source: 2012-2014; NSO: 2015-2017.

It is estimated that only about 80 000 tonnes of vegetables, mostly irrigated, were produced in 2017, which is 47 percent below the 2016 high level and 26 percent lower than the five-year average. As shown in Table 5, the reduced production was attributed to a sharp decrease in area, while yields increased compared to 2016 level, as most of it was irrigated, although slightly below the average.

**Table 5: Mongolia – Vegetables area, yield and production, 2012-2017**

Vegetables	Harvested area (ha)	Yields (tonne/ha)	Production (tonnes)
2012	7 641	12.95	98 918
2013	8 087	12.58	101 762
2014	8 316	12.29	102 202
2015	8 093	10.87	87 988
2016	14 439	10.49	151 483
2017	7 004	11.46	80 246
Change: 2017 over 2016 (%)	-51	9	-47
2012-2016 average	9 315	11.8	108 470
Change: 2017 over average (%)	-25	-3	-26

Other minor crops, such as barley, oats and buckwheat were also severely affected by the drought.

## 4. FOOD SUPPLY AND DEMAND SITUATION

### 4.1 Food price trends

Markets in Mongolia have a particular importance for access to food since the majority of the population lives in urban areas and inhabitants are net-buyers of food. In rural areas, herders are generally self-sufficient in meat and dairy products, but need to purchase all other food products, in particular wheat flour, a key food staple. The main food market is located in the capital Ulaanbaatar, while smaller markets can be found in all *aimag* and *soum* centres. Markets across the country are generally well-integrated, with prices following similar price trends. For the key staple wheat flour, Ulaanbaatar is a major retail and wholesale market and substantial quantities of domestically-produced and imported flour from the Russian Federation and Kazakhstan arrive directly there and

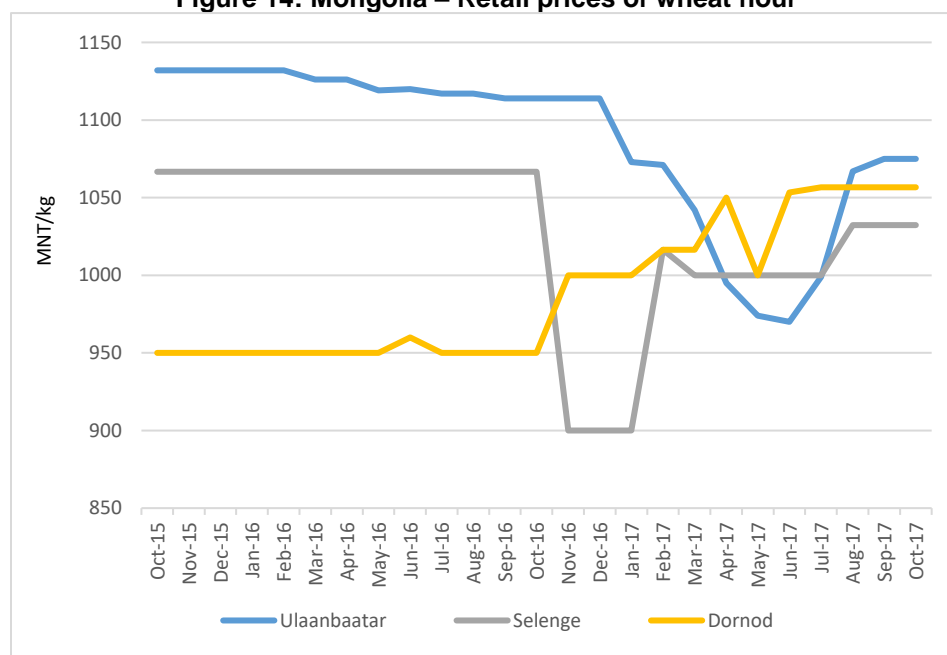
then are distributed to other markets in *aimag* and soum centres. Price disparities between markets is generally small and price differentials mainly reflect transportation costs and traders' margins. Prices of meat and dairy products follow similar trends across the country, but regional price differentials are minor compared to wheat flour. Moreover, in recent years, meat prices in urban and rural areas have converged, inferring increased market integration. Most of the meat is supplied from the domestic livestock sector, with imports limited to only high-quality cuts. As a result, price fluctuations are mainly influenced by changes in domestic supply and demand. Similarly, trends in potato prices are mostly driven by the country's supply situation. By contrast, the country is dependent on imports for other food commodities, including wheat flour and rice. This import-dependency was evident during the 2007/08 global food price crisis, when local prices of wheat flour and rice spiked in mid-2008 due to high international prices.

### *Prices of wheat flour and potatoes*

Wheat products account for about one-third of the total daily caloric intake in urban and rural areas, and are particularly essential in the diets of the extreme poor populations of the cities who cannot afford to buy meat and milk products. As the country depends on imports to meet its wheat consumption requirements, local prices are affected by trends in the international market. In recent months, prices of wheat flour have remained virtually unchanged and, in October 2017, they were around or below their year-earlier levels. This reflects generally low prices in the international market and adequate domestic supplies (Figure 14). These trends were confirmed during the Mission's discussion with governors of *aimags* and soums, and it was stated that the wheat flour that is currently sold in most markets is locally produced and is from the above-average 2016 harvest. However, it was reported that prices of wheat flour are expected to increase early in 2018, due to expected tighter supplies resulting from poor wheat harvest in 2017. The extent of the overall increase will also depend on the imported volumes and price trends in the international market.

Prices of staple potatoes, mostly consumed in urban areas, have very seasonal trends, generally increasing at planting time in April/May and declining from late August with the new harvest. As expected, prices of potatoes declined seasonally in October 2017, with new supplies from this year's harvest, but remained at levels above those a year earlier due to a second consecutive year of reduced production (Figure 15).

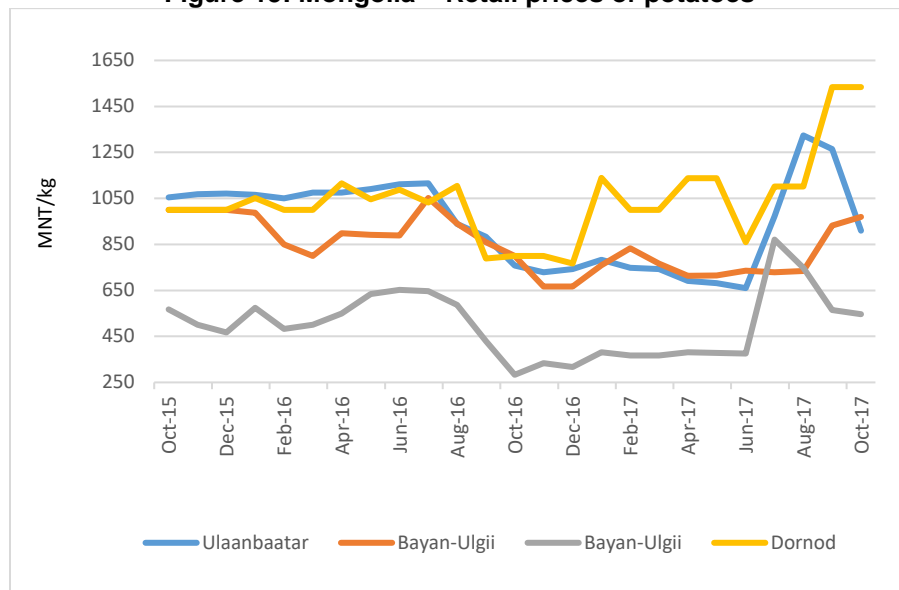
**Figure 14: Mongolia – Retail prices of wheat flour**



Source: NSO.



**Figure 15: Mongolia – Retail prices of potatoes**



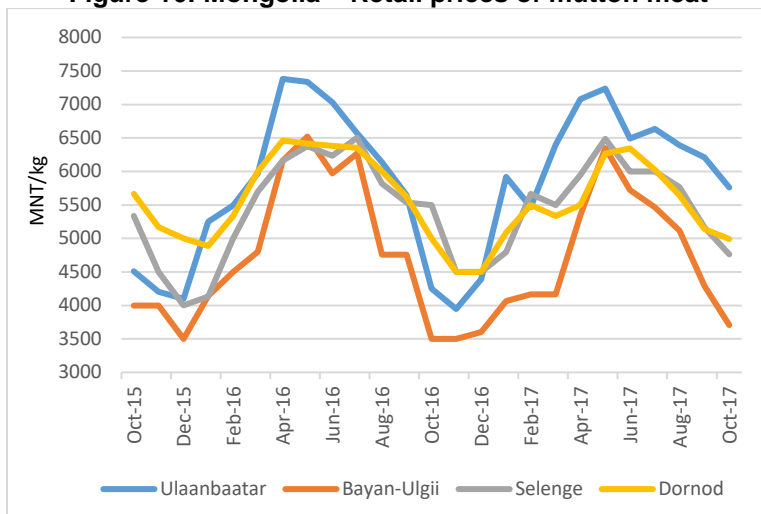
Source: NSO.

### Meat and dairy products

Meat is an important part of the food intake in the country, even for low income households, and sharp changes in prices can have a significant impact on households' food security and well-being. With only a small percentage of domestic meat production processed in major abattoirs, the principal meat marketing channel is through direct sales by herders to wholesalers. Carcasses are then transported to cities and sold in markets by retailers. Prices of beef and mutton meat show marked seasonal trends. They start to decline from June/July when slaughtering of animals, which are in the best conditions after grazing on summer and autumn pastures, begins. Slaughtering of animals for winter consumption continues until mid-November to early December, when the outside temperatures allow for meat freezing. Prices of beef and mutton meat in October 2017 were generally well below their values a year earlier (Figure 16 and Figure 17). This is the result of both low quality meat, due to poor body conditions because of drought and of an oversupply in the market. Herders have sold more livestock than in normal years on concerns of further worsening body conditions and lower quality meat. Worries of increased livestock losses during the winter/spring season due to a combination of weaker body conditions and expectations of reduced availability of hay and fodder also contributed to the increased sales. Another driver of the increased sales was the need of cash by herders to purchase hay reserves for the winter/spring period. In the drought-affected Bornuur *soum* of Tuv *aimag* and Saikhan *soum* of Bulgan *aimag*, in Kharkorin *soum* of Uvurkhungay *aimag*, the Mission was informed that prices of beef were 30 to 35 percent lower year-on-year.

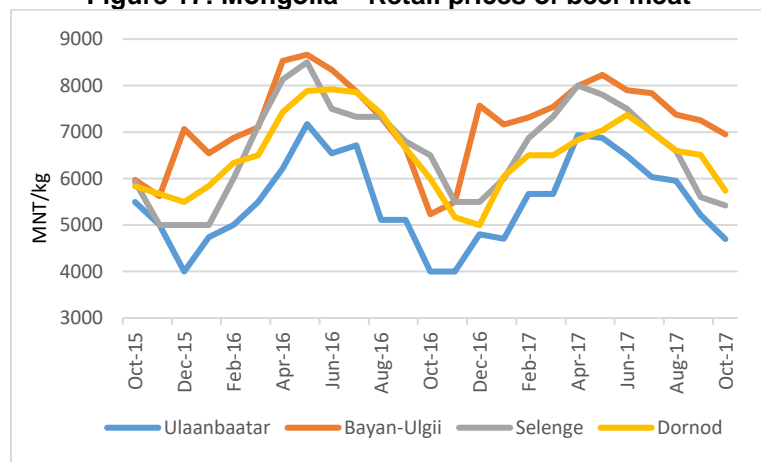
Poor pasture conditions due to the severe dry weather recorded in the past summer had a negative impact on animal productivity and prices of dairy products are reportedly higher compared to 2016. In Bornuur *soum* of Tuv *aimag*, daily milk production per cow was reported to be 5/6 litres against 12/14 litres in normal years. Milk and dairy products are mainly produced during summer, when pasture conditions are most favourable and provide the major source of food for rural and herder households during this period. Prices of milk fluctuate seasonally and tend to decline in the summer when supply is abundant, while they increase in the winter due to supply shortage and increased feed costs to support productivity. Prices increased sharply since July 2017, with seasonal trends exacerbated by reduced availabilities, and in October 2017 they were well above their year-earlier values (Figure 18).

**Figure 16: Mongolia – Retail prices of mutton meat**



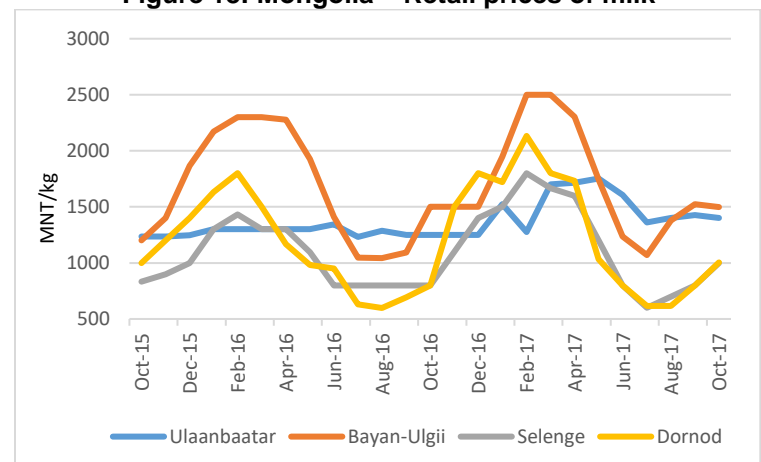
Source: NSO.

**Figure 17: Mongolia – Retail prices of beef meat**



Source: NSO.

**Figure 18: Mongolia – Retail prices of milk**



Source: NSO.

## 4.2 Wheat supply and demand balance for 2017/18

The national wheat supply/demand balance from 2012/13 to 2017/18 marketing year (October/September) are summarized in Table 5. For 2017/18 marketing year official production estimates are used and the following assumptions are made:

- Wheat production in 2017 is estimated at 230 650 tonnes.
- Food use is estimated at 383 000 tonnes, using the UN Population Statistic projected 2017/18 mid-year population of 3.1 million people and a per capita average consumption of 124.6 kg of wheat and wheat products per year.
- Seed use is estimated at 71 000 tonnes, assuming that the 2018 area planted is expected to remain close to the average level of the past years. The prevailing average seed rate used for wheat is of 180 kg per hectare.
- Total other uses, which include post-harvest and storage losses (for imported wheat), animal feed, industrial uses (distilling), are estimated at 78 000 tonnes. Post-harvest and storage losses at national level are estimated at 10 percent of production. In addition, minor quantities have been included as feed and industrial use (predominately alcohol manufacture).
- National stocks are negligible and are assumed to remain unchanged from year to year. Therefore they are not included in the balance sheet.

**Table 6: Mongolia – Wheat supply/demand balance, 2012/13-2017/18 (October/September) ('000 tonnes)**

	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
<b>Availability</b>	<b>487</b>	<b>422</b>	<b>523</b>	<b>418</b>	<b>4370</b>	<b>451</b>
Production	465	369	488	204	467	231
Imports	22	54	34	215	3	230 <sup>1/</sup>
Stock variation	0	0	0	0	0	0
<b>Total utilization</b>	<b>487</b>	<b>422</b>	<b>523</b>	<b>418</b>	<b>470</b>	<b>451</b>
Food use	355	351	372	375	371	383
Other uses	132	71	151	43	100	78

<sup>1/</sup> The forecast for 2017/18 marketing year refers to import requirements. Please see detailed description below.

- Import requirements for 2017/18 are forecast at 230 000 tonnes, which is well above the five-year average and considerably up from a mere 3 000 tonnes imported in 2016/17, when national production was high. Imports are expected to be fully covered by commercial purchases. This year's wheat imports are expected to be close to 2015/16 level, when they reached 215 000 tonnes, in response to a drought-reduced wheat output. In mid-November, the Mongolian Cabinet submitted a draft bill to the parliament to exempt wheat imports from value added tax and the customs duty, as it was done in 2015.

## 5. FACTORS AFFECTING LIVESTOCK PERFORMANCE IN 2017/18

### 5.1 Risk of a *dzud*

According to November forecasts<sup>5</sup> released by the Information and Research Institute of Meteorology, Hydrology and Environment (IRIMHE), around 30 percent of the total country's territory is at high risk of *dzud* in the winter months, with an additional 30 percent at medium risk.

The areas with the highest risk of *dzud* are:

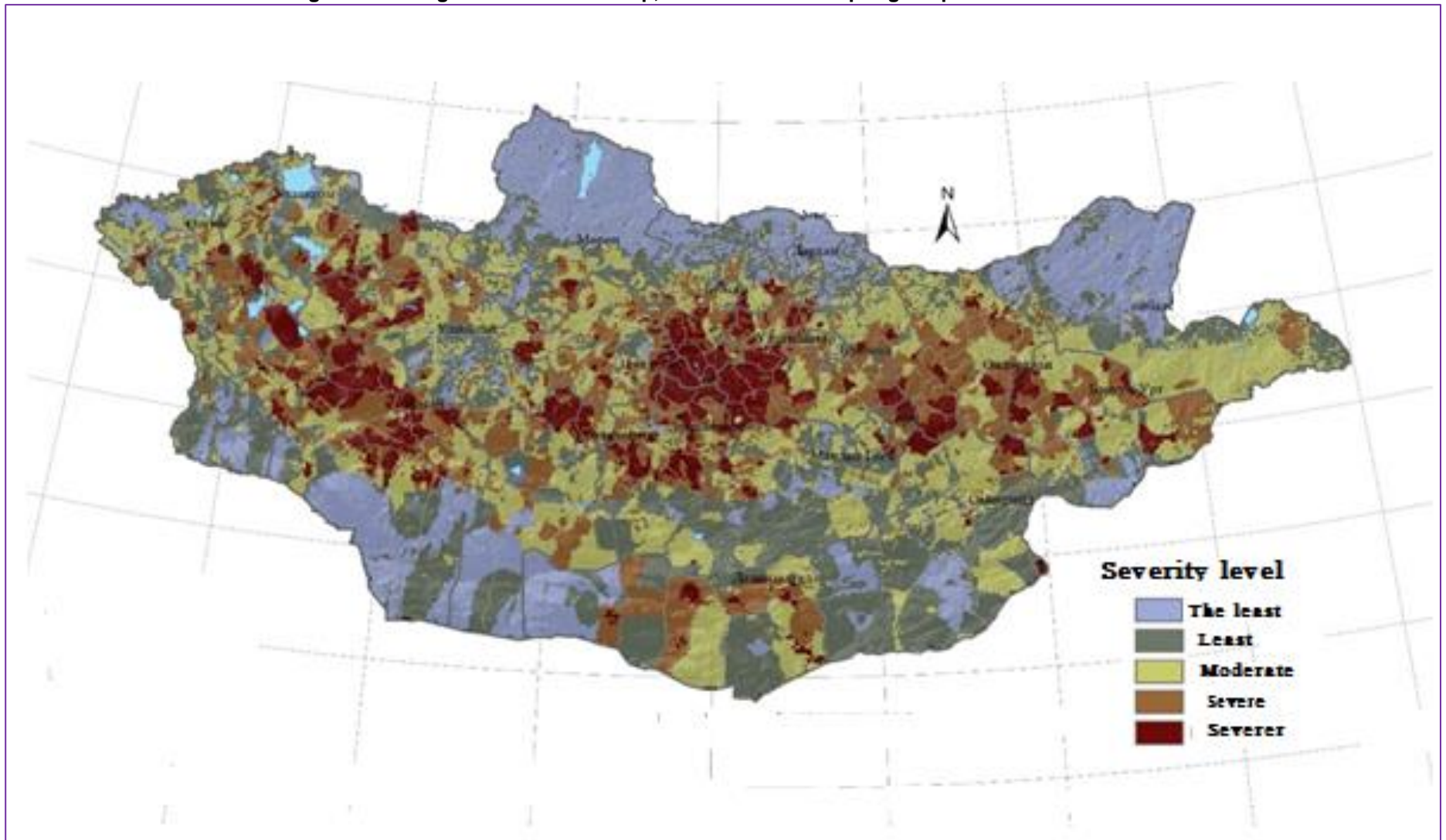
- Neighbouring soums in Uvs and Zavkhan *aimags*
- Northern part of the Khovd and Gobi-Altai *aimags*
- Eastern part of the territory of the Arhnagai *aimag*
- Northern part of the Bayankhongor and Uvurkhang *aimags*
- *Soums* along the borders of Bulgan and Tuv *aimags*, and
- Eastern part of the territory of the Tuv *aimag*, northern part of Sukhbaatar *aimag* and some areas of Umnugobi *aimag*.

The risk map mirrors similar areas of concern to those affected by the prolonged drought. In particular, they include the central and northern parts of the country, and localized areas in the central eastern part of the country (Figure 19).

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<sup>5</sup> For the forecasts of drought and *dzud* and processing of a *dzud* risk map, ground-based observations and satellite data and more than 10 data are used. The latest include the overall patterns of last warm seasons, scope and severity of drought, carrying capacity and productivity (green biomass) of natural pastures and livestock number. Important inputs are the derivations of air temperature and precipitation, snow cover, snow thickness, snow density and weather forecasts for the next months.

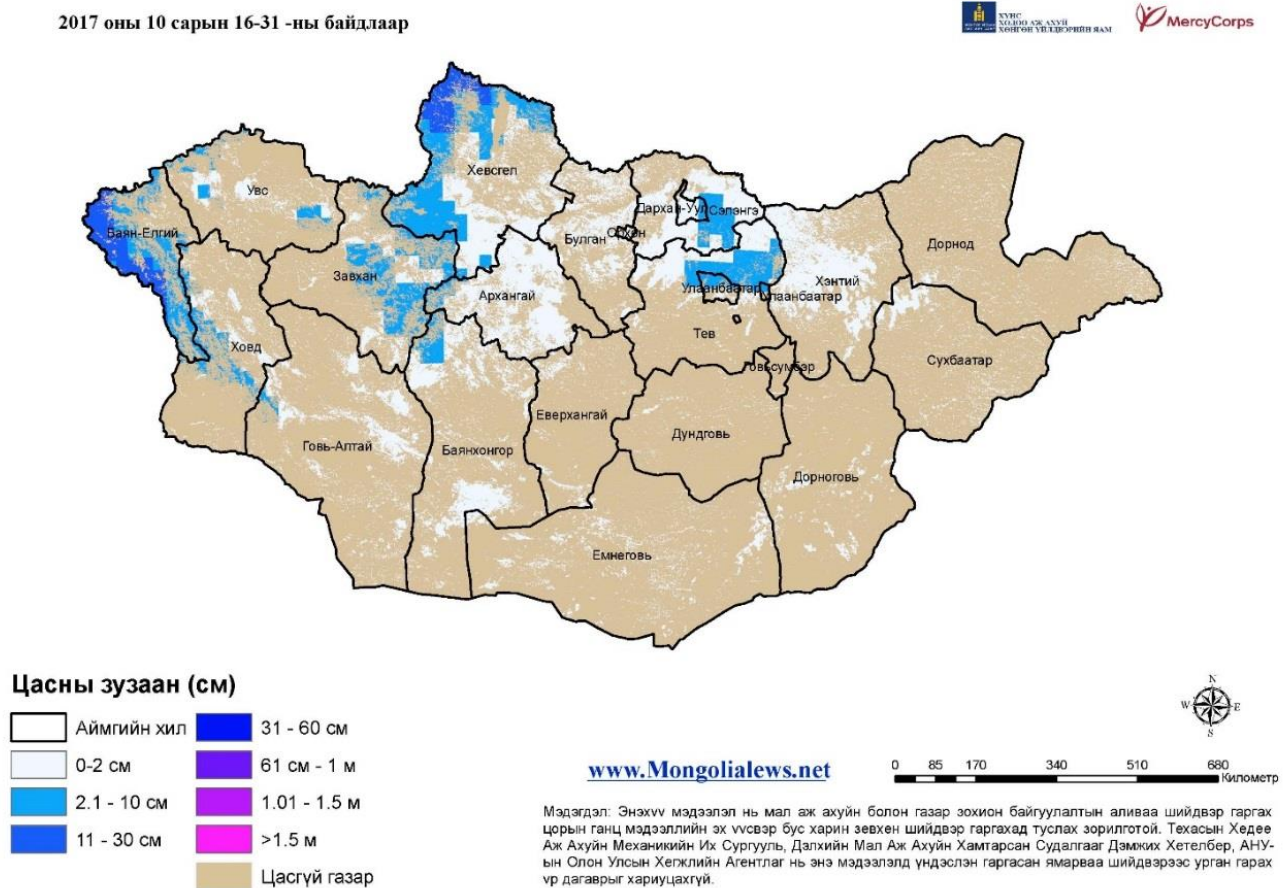
Figure 19: Mongolia – *Dzud* Risk Map, 2016-2017 winter-spring/adapted from IRIMHE



Source: Information and Research Institute of Meteorology, Hydrology and Environment (IRIMHE), Mongolia.

As of mid-November 2017, about 50 percent of the country was already been covered by snow. In some areas, including in parts of Khuvsgul, Zavkhan, Bayan-Ulgii, Arkhangai Bulgan, Tuv, Darkhan-Uul, Khentii, Bayankhongor *aimags* snow depth reached up to 10 cm. A period of above-average temperatures for several days, followed by freezing temperatures, resulted in snow cover compaction and high density of 0.10 to 0.28 gr/cm<sup>3</sup>, and ice cover formation, making extremely difficult or blocks livestock pasturing (Figure 20).

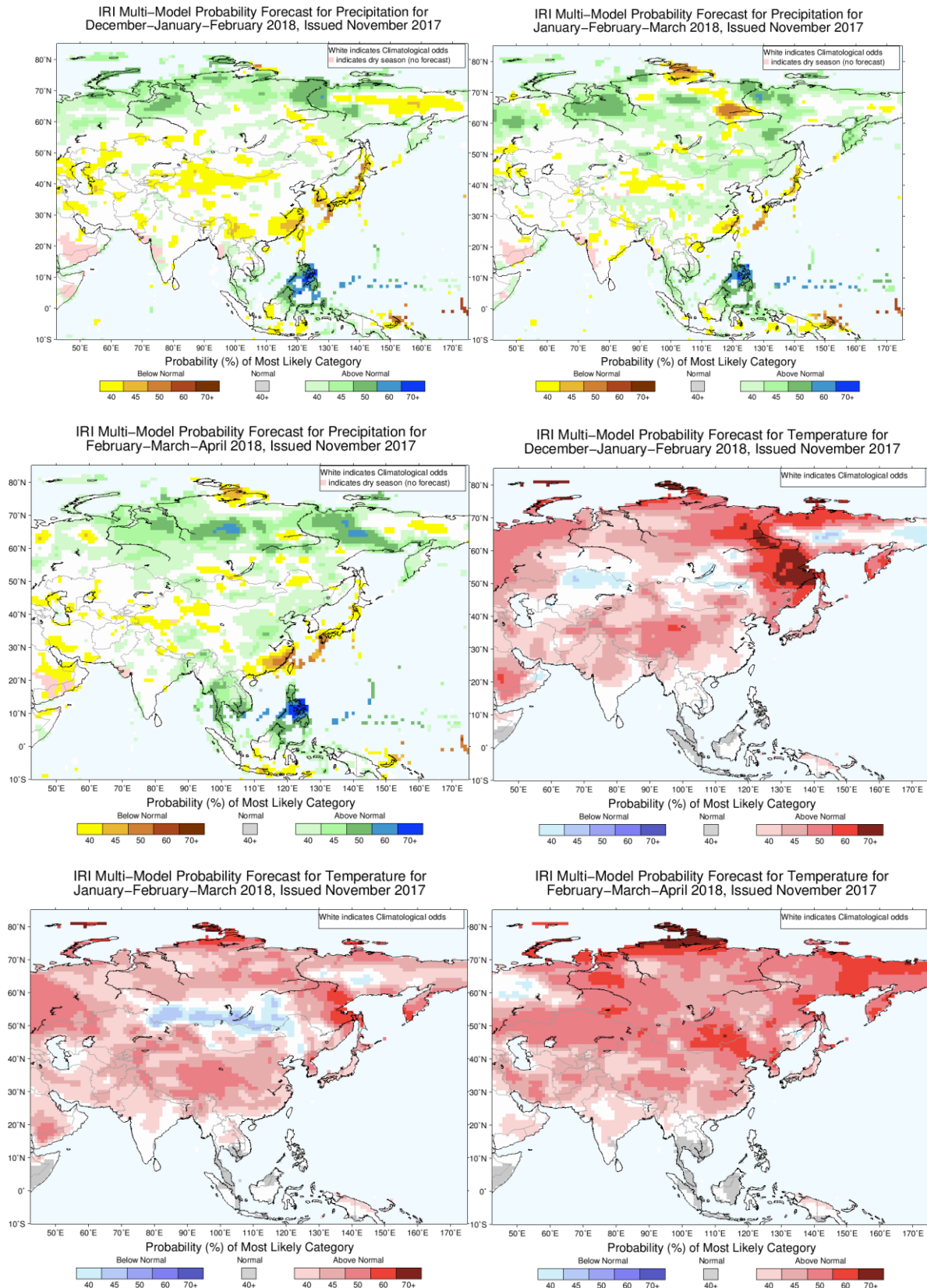
**Figure 20: Mongolia – Snow cover (16-31 October)**



Furthermore, November seasonal forecasts indicate an increased probability of above-normal precipitations, including snowfall, over large areas of the country, particularly for the period from January to March 2018. As for temperature, the seasonal forecast for the period from December to March indicates a slightly increased probability of below-average temperatures in northern and southwestern areas, while the remaining of the country could experience above-average temperatures over this period. Maps in Figure 21 highlight the potential for an intensified winter season, which finds correspondence with characteristics commonly found with *dzuds*.



**Figure 21: Mongolia – Precipitation and Temperature forecasts, December 2017-February 2018**



Source: International Research Institute for Climate and Society, Columbia University.

## 5.2 Grazing resource availability and prevailing grazing patterns

Mission's observations confirm that herd movements have increased in 2017 from northern and central areas where pasture conditions were poor due to drought to eastern areas, which were less affected (Figure 22). According to MoFALI, about 22 800 herders households with approximately 9.8 million livestock (around 20 percent of total livestock numbers) are estimated to have migrated to *otor* reserves in 2017, including inter-soum, inter-*aimag* and state *otor* reserves and border areas as well as state specially protected areas. A recent assessment for the 2017/18 winter-spring Pasture Carrying Capacity (PCC) by the National Agency for Meteorology and Environmental Monitoring of Mongolia (NAMEM) indicate that overgrazing is affecting about 75 percent of rangeland and over half of it presents moderate or heavy signals of overgrazing. Only the remaining 25 percent of rangeland resources are estimated to be generally adequate (Figure 23). This situation is further compounded by the strong increase in livestock numbers in the country. Current country's total PCC is estimated at 35 million sheep unit (SU). However, MoFALI indicate that, as of November 2017, the total livestock is estimated at 66.6 million (106.9 million in SU), more than three times the country's grazing area can support (Table 7). The effects of the overpopulation are intensified by poor rangeland conditions and reduced hay and fodder availability due to the dry summer. In order to adequately support herders through the winter/spring months, over 405 000 tonnes of hay and 23 000 tonnes of animal fodder are needed. Reduced feed availability during the winter months may lead to livestock facing hypothermia and starvation, with pregnant cows being more susceptible to miscarriages.

**Table 7: Mongolia – Number of livestock to overcome winter/spring season, by species and aimags**

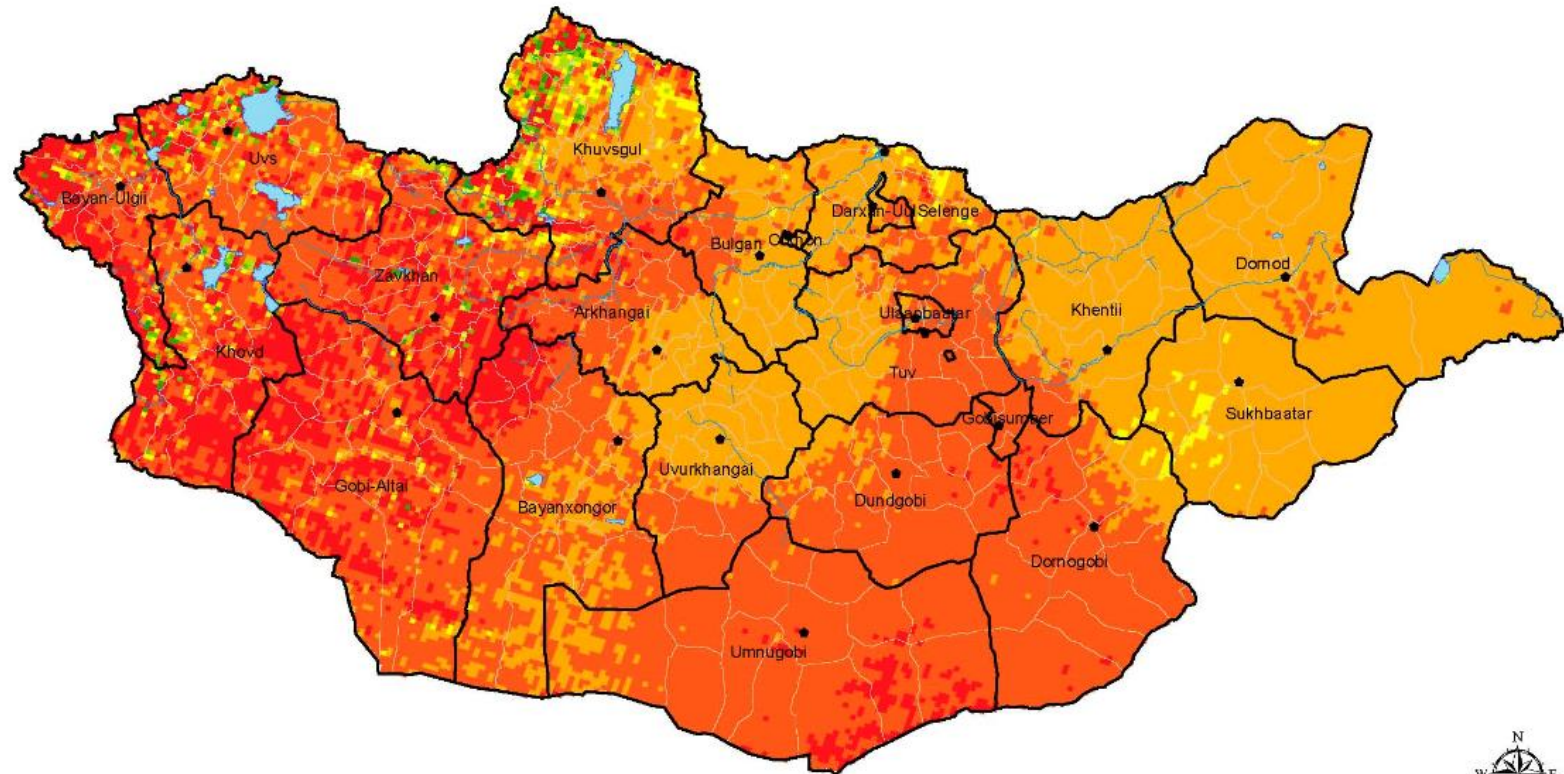
Aimags	Number of bags and other herders (units)			Number of livestock to overcome winter/spring season ('000 heads)						Sheep Units ('000 heads)
	Bag	Khot ail	House-holds	Total	Camels	Horses	Cattle	Sheep	Goats	
Arkhangai	101	7 090	14 436	5 595	1.2	424.4	738.5	2 929.1	1 501.8	10 950
Bayan-Ulgii	90	4 375	8 888	2 312.6	5.1	93.7	167.6	997.5	1 048.7	3 460.7
Bayankhongor	102	7 838	11 171	4 271.6	51.3	156.6	215.9	1 241.7	2 606.1	6 019.6
Bulgan	74	2 819	8 301	3 676.8	1.3	251	308.1	2 007	1 109.3	6 309.9
Gobi-Altai	87	4 522	6 903	3 534.2	39	107	75	1 096	2 216	4 412.7
Gobisumber	10	721	1 058	398.1	0.8	20.3	13.6	186	177.4	559.9
Darkhan-Uul	17	31	1 193	310.3	0.1	16.6	47.3	155.6	90.7	590.3
Dornogobi	61	1 970	4 137	1 752.9	37.7	118.7	63	758.4	775.2	2 790.2
Dornod	67	3 011	4 398	1 722.9	5.2	225	175.6	831.4	485.8	3 747.2
Dundgobi	63	5 349	6 590	3 433.7	38.3	144	66.8	1 620.2	1 564.4	4 561.5
Zavkhan	115	4 352	8 807	3 976.8	8	212.6	205.6	2 043	1 507.6	5 956.2
Orkhon	24	162	811	129.6	0.042	10.2	20.3	50.4	48.7	267.5
Uvurkhangai	109	10 443	15 407	5 548.3	27.8	344.3	273.7	2 601.3	2 301.2	8 589.7
Umnugobi	58	330	5 647	2 534.6	134	87.2	24	589.1	1 700.4	3 519.3
Sukhbaatar	66	4 433	7 256	3 392.2	8.3	296.7	233.4	1 738.9	1 115	6 027.1
Selenge	56	7 559	4 427	1 616.8	0.5	95.9	222.7	745.1	552.5	3 030
Tuv	97	7 600	11 278	4 705.9	3.4	382.6	326.2	2 442.4	1 551.3	8 164.8
Uvs	92	6 682	8 588	3 025.9	23.6	113.1	171.8	1 495.3	1 222.1	4 363.9
Khovd	91	6 533	7 407	3 663.5	25.8	137.4	201.3	1 404.3	1 894.8	5 206.7
Khuvsgul	126	8 241	15 267	5 409.8	2	265.6	536.6	2 586.6	2 019	8 955.9
Khentii	88	3 183	7 289	5 188.8	4.8	304.9	384.7	2 664.4	1 829.9	8 393.2
Ulaanbaatar	45	0	1 728	437.6	0.2	44.9	90.1	176.5	125.8	1 056
<b>TOTAL</b>	<b>1 639</b>	<b>97 244</b>	<b>160 987</b>	<b>66 637.8</b>	<b>418.7</b>	<b>3 853</b>	<b>4 561.6</b>	<b>30 360.3</b>	<b>27 444.1</b>	<b>106 932.5</b>

Source: MoFALI, November 2017.

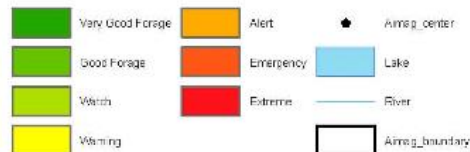


Figure 22: Mongolia – Total forage available to grazing deviation from long-term average

October 16 to 31, 2017



Total Forage Available to Grazers  
Deviation from Long Term Average



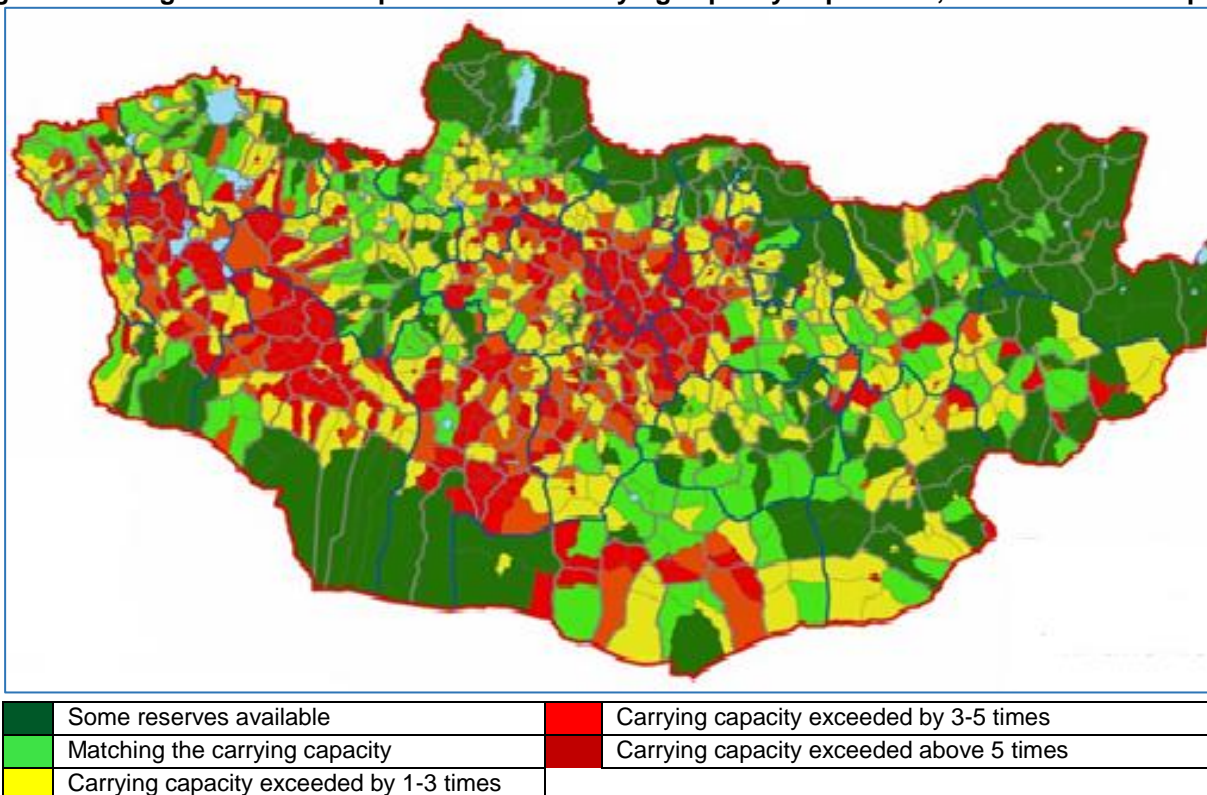
[www.Mongoliaews.net](http://www.Mongoliaews.net)

0 75 150 300 450 600 Kilometers



Disclaimer: This information is provided for decision support, but should not be the sole source of information for livestock and land management decisions. Livestock and Agricultural Marketing Project, Texas A&M University, the Global Livestock CRSP, and the US Agency for International Development are not responsible for any decisions made using the information provided here.

**Figure 23: Mongolia - Sketch map of estimated carrying capacity of pastures, 2017-2018 winter/spring**



Source: Environment Monitoring Institute, Ulaanbaatar, 2017.

Note: 15 percent of total grazing areas have been stocked up to 50 percent of the capacity (resources available); 10 percent pasture resources just enough, 35 percent are overstocked (carrying capacity exceeded by 1-3 times); 10 percent grazing stocking rate exceeds the capacity by 3-5 times, and 30 percent are heavily overstocked over 5 and more times.

### 5.3 Livestock body condition and diseases

Summer is the critical period for livestock to build up sufficient body conditions and energy, necessary to overcome long-lasting cold winter-spring season, which stretches from November to April. In 2017, livestock were not able to adequately accumulate fat and strengthen muscles due to the limited availability of grazing resources during summer months. According to MoFALI, as of November 2017, livestock body conditions (BCS) were generally very poor. In Khuvsgul *aimag* (Khangai region), BCS are estimated 50 percent below normal conditions and more than 15 000 herder households, which account for around 10 percent of country's total herders, are not adequately prepared in terms of fodder availability for the forthcoming winter months. The situation is also worrisome in Govisumber, Darkhan-Uul, Umnugobi and Selenge (Central Region), Zavkhan and Khovd (Western Region) and Ulaanbaatar as BCS are estimated to be between 15 and 20 percent below average. In the remaining of the country, BCS are around 90 percent of normal (Table 8). Ideally, livestock are generally required to start the winter period with above-average BCS.

**Table 8: Mongolia – Livestock body conditions compared to normal**

	Households	Livestock body condition, (normal 100%)
Arkhangai	14 436	90
Bayan-Ulgii	8 888	99.5
Bayankhongor	11 171	90.7
Bulgan	8 301	86.1
Gobi-Altai	6903	86.6
Gobisumber	1 058	81.7
Darkhan-Uul	1 193	85.3
Dornogobi	4 137	89
Dornod	4 398	89.3
Dundgobi	6 590	96.8
Zavkhan	8 807	80.4
Orkhon	811	90.0
Uvurkhangai	15 407	87.4
Umnugobi	5 647	79.3
Sukhbaatar	7 256	93.6
Selenge	4 427	84.7
Tuv	11 278	89.5
Uvs	8 588	87.9
Khovd	7 407	81.8
Khuvsgul	15 267	54.4
Khentii	7 289	91.3
Ulaanbaatar	1 728	80.0
<b>Total</b>	<b>160 987</b>	<b>86.1</b>

Source: MoFALI, November 2017.

Overall, there were no major disease outbreaks reported. There were a few cases of Peste des petits ruminants<sup>6</sup> (PPR) in five *aimags* in the western region, with Khovd *aimags* the most affected. A survey conducted by the Centre of Policy Research (CPR) in 2017 found that 72 860 small ruminants in 17 soums of Khovd *aimag* contracted PPR and 11 800 died, with a mortality rate estimated at 16 percent. Goats were seriously hit accounting for 83.4 percent of all illness cases and 81.7 percent of deaths<sup>7</sup>.

## 6. HOUSEHOLD VULNERABILITY

### 6.1 Impact of drought on households

#### *Farmers*

The impact of drought has broad macroeconomic implications for the country, reducing agricultural outputs, putting livestock at risk and increasing prices for several commodities. The microeconomic impact is felt across households, particularly farmers and herders. Farmers have experienced a drastic reduction in their harvests, while herders are unable to find sufficient pasture for their animals. While drought has affected large swathes of land, the impacts on households vary considerably based upon their livelihood, exposure to drought and level of vulnerability.

The Mission visited a number of farmers in drought-affected soums. In the visited areas, wheat farmers are large scale producers operating either through a cooperative, a company or as a household activity. These are farmers with greater than 100 hectares of land and are vulnerable to drought and face critical issues from a failed or reduced harvest.

Farmers who procure inputs on credit from the Crop Protection Fund normally repay their debt through grain and seed purchases made by the state after the harvest. Typically producers are expected to pay back their debt within

<sup>6</sup> Peste des petits ruminants (PPR) is a contagious transboundary disease, which has severe negative socio-economic impacts on the income of livestock farmers and, in particular, the livelihoods and food security of the most vulnerable rural communities, notably of women.

<sup>7</sup> Assessment of socio-economic impacts of PPR, CPR-conducted survey for FAO, November 2017

a crop year. However, this year, due to the severe drought, the fund has allowed borrowers to postpone their repayment by one year. This means that the harvest of 2018 will be used to repay debts from the planting seasons in 2017 and 2018.

In addition to the Fund, commercial banks provide loans directly to farmer. During the in-country assessment, from soum officials and a crop farmers' association, it was conveyed that there are discussions being held to also delay repayment due to the drought. It is unclear what this delay would mean for accrued interest on the loan.

The overall drop in 2017 wheat output masks localized full losses of the harvest which severely harmed farmers. Other crops include potatoes, rapeseed and canola for oil production, barley, oats, carrots, onions, turnips, and small amounts of fruit cultivation, which are partially irrigated. In cases where these crops were not irrigated, there were significant losses. The Mission interviewed a potato and vegetable farmer in Bornuur soum, Tuv *aimag*. This farmer uses irrigation but it is fed from a channel from a stream and is shared with other farmers, leaving her unable to irrigate her crops sufficiently. In a typical year, 18 tonnes of potatoes, 20 tonnes of carrots, and 10 tonnes of turnips are harvested from this plot. This year only 6 tonnes of potatoes, 3 tonnes of carrots, and 700 kg of turnips were harvested. With reduced income, the farmer is unable to repay a bank loan and is unable to pay for normal expenditures in the coming months.

#### *Agricultural wage labourers*

With less fields to harvest and expectations of lower revenues, many wheat producers drastically reduced or completely eliminated hiring of seasonal wage labour. The Mission reported that a large wheat producer in Kharkhorin, who typically employs about 800 people, reduced its workforce this year to 300, leaving around 500 wage labourers without their primary source of income, due to lack of labour needs and capital. A *bag* Governor in Kharkhorin soum noted that of the 918 households living there, 106 of them lost income from agricultural wage labour and that the Government has no support available to these households.

Normally wheat producers pay employees through winter for ongoing activities such as machine maintenance and preparation for the next season. Typically these producers continue to have income into the winter derived from outputs from post-harvest processing. But this year with reduced income and labour requirements, this off-season income to wage labourers will also be reduced or eliminated.

In another interview, the Mission spoke with a farmer who owns a cooperative with three other farmers. The cooperative normally employs six permanent employees and ten seasonal workers but this year no seasonal workers were hired. The cooperative cultivated just 70 tonnes of wheat from 185 hectares and the quality was poor. The harvest was sold for animal consumption while no seeds were retrieved for next season. This was reported commonly from government officials and interviewed farmers - they have either very little or no seed for next season. Seed prices will inevitably increase in the coming months and there is discussion of importing supplies from Russia to supplement the low local seed stock.

#### *Herders*

Following the summer drought, the deficit in animal fodder has led to a number of activities by herders to mitigate the impact on livestock. Many herder households have travelled long distances (up to 1 000 km) to collect hay in less affected areas. To do so, these herders must take up the expense of transportation and labour. As such, only more affluent herders are able to take on this activity.

With a major shortage of naturally available fodder, herders began purchasing hay in the late fall to avoid higher prices in the winter and spring and to stockpile their needs. However, hay prices were already high year-on-year and herders, who often have limited capital, are not able to procure sufficient hay and will be forced to buy again in the winter and spring months when prices will inevitably be even higher.

In soums where the impact of drought was severe, local government officials have been coordinating efforts with their counterparts in less affected areas to reach agreement on movement of herds from their constituency. The Mission was informed that more than 10 000 animals have been agreed to be hosted by other soums. But again, the expense of movement is to be managed by the herder household meaning that only those with sufficient means are able to migrate. In addition to government coordinated movement of herds, some households plan to move on their own accord and without official permission. From the Mission's understanding, this is done through

networking between herders across localities meaning that herders must have some connection in the place they plan to travel to in order to make such a move possible.

With reduced purchasing prices for livestock, herders are left with a difficult decision - whether to sell at a lower than normal price and reducing their income, or to hold onto their animals later into the slaughter season in hopes of a higher price, or to maintain their herd through the winter. Generally, it seemed that households with larger herds (> 500 animals) would prefer to sell their animals in order to cull part of their stock even if the price is lower than usual. They will opt to sell animals which are generally weaker and will less likely survive a harsh winter. By contrast, small herders (< 200 animals) would not decide to sell at low price as they often try to maintain their current assets with the aim to grow their herd size in the medium to long term. This puts the more vulnerable small herder households at greater risk of losing a greater proportion of their animals in the case of a *dzud*.

In many remote areas, there is not a local market nor demand for meat. In order to sell, connectivity to Ulaanbaatar and second-tier cities is required. This limits the amount of income that herders can generate once winter begins, particularly for those who are further from purchasing markets.

A number of herder households own milk-producing animals, including cows and sheep milk for commercial sale. Generally, during a drought, dairy production declines as milk-producing females' access to fodder and water is reduced. In extreme circumstances, milk production may even cease completely. The reduction in production not only reduces households' income, but also puts young animals at risk as their nutritional intake is lowered considerably. To counter the risk to young offspring, some households may decide to reduce or completely stop milking for human consumption.

As mentioned before, a dairy farmer in Bornuur soum (Tuv *aimag*) reported that he normally gets 12 to 14 litres of milk daily from his dairy cows during this time of year but is currently seeing outputs of just five litres per day per cow. For this household, dairy is the primary source of income and with the losses he is seeing and the reduced pasture availability, he had to take a high interest loan in order to procure hay and anticipates that he still lose some cattle during the winter and spring. Other households we spoke with who are not primarily dairy farmers but do sell milk from their productive cows reported that he would normally get about four litres per cow per day but now just get two litres per day. Though this is not their primary income, it remains an important supplemental source of income which has been halved.

## **6.2 Potential impact of severe winter conditions on households**

Interviewed herders had mixed opinions about the severity of the upcoming winter. In some areas, heavy snowfall came already in early October and set an expectation for a severe winter. In other areas, a relatively warm October led herders to believe the winter will be mild. Regardless, as the availability of pasture is already very limited, there are general concerns of herd welfare for the winter.

If snowfall greater than 10 cm were to occur, herders believe their animals will not be able to access pasture. However, if winter conditions are warmer than usual and precipitation occurs in the form of rainfall, herders' concerns are that this will freeze overnight and again make pasture inaccessible to animals. Another complication is if snowfall is insufficient, the primary source of water for animals in the winter and spring will be reduced and can potentially lead to dehydration.

Empirical evidence suggests that abnormally cold winters are a major contributing factor to animal mortality in Mongolia. This was seen most clearly in the winter of 2009/2010 when the average temperature during the winter months from November to February was -22.05 Celsius degrees, about three degrees colder than the long term average for the same four month period. From the same research, another major contributing factor to animal mortality is drought as measured by precipitation deficit and low soil moisture. In years where the months of July to September saw lower than usual precipitation and low soil moisture, higher mortality rates were observed in the following winter. These effects were found to be even greater in two consecutive years of drought.

The large amounts of livestock perished in past *dzuds* events demonstrate the extent to which a harsh winter following a summer drought can devastate national livestock assets. However, they mask the extent to which individual herders have lost half or more their animals, destroying their livelihood. In 2010, an estimated 75 000 households lost half or more of their herd, and of these 12 000 households lost their entire herd. With this loss of livelihood, migration to urban areas, in particular to the capital, is a common response. Between 1998 and 2003,



an estimated 180 000 people migrated to Ulaanbaatar having lost their livelihood to the severe winter conditions. It is estimated that another 30 000 herder households migrated to Ulaanbaatar following the 2010 *dzud*. Herders arrived with their ger and settled in the outskirts of the city in unplanned areas without infrastructure. The ger district of Ulaanbaatar today is a mix of ger and more permanent, though often sub-standard houses.

In addition to the capital, many *soum* and *aimag* capitals around the country saw an influx of herders following *dzud* events. The Mission had the opportunity to speak to a former herder household in Arvaikheer and another in Ulaanbaatar. While these were anecdotal observations from conversations with a limited number of households, they provide some useful insights about how an unfolding *dzud* impacted livestock and how the lack of adequate safety nets forced herders to abandon their livelihood and migrate to urban areas.

In the city of Arvaikheer, the Mission visited a family of four - the parents and two adult children - living in the ger district on the edge of the city. The family moved here after losing the entire herd during the 2009 - 2010 *dzud*. In 2009, they lived 50 km from the city and their herd consisted of about 100 animals – mostly sheep and goats along with two cattle. Following the 2009 drought, there was little pasture and hay available going into the winter. Their animals had not gained sufficient weight and beginning in December as temperatures dropped, five to six animals began to die on a nearly daily basis. Deaths continued through the winter and spring and by April, the entire herd perished. Without any means of subsistence, the entire family moved to Arvaikheer in May. Following three failed attempts to once again become herders, the family sold the materials they had for a barn for their animals to raise some cash and gave up herding altogether. For income, they do seasonal work, currently animal slaughter performed by the male head of household. Even with their losses, this household somehow does not currently receive any government support.

After returning to Ulaanbaatar, assisted by World Vision International and local government staff, the Mission interviewed a former herder household living in one of the ger district of the capital. The visited household is headed by a 55 year old male who lives with his wife, five adult children, and a grandchild. The family moved to Ulaanbaatar in 2008, prior to the 2009 drought. They previously lived in Kharkhorin and had a sizable herd consisting of 200 sheep and goats, 20 horses, and 30 cows. Following drought in 1999 and a severe winter in 2000, they lost all of their cows, horses, and were left with just 30-40 sheep and goat. At the time, their six children were young and with their livelihood decimated faced extreme hardship. They continued to try to grow their herd back to its previous size but with high household needs, they had to sell or slaughter for home consumption more animals they could produce and were never able to get above 30 livestock again. In 2008, they left their animals with their nephew and moved to the capital to look for other work. During the extreme winter of 2010, the remaining animals died and the family never returned to Kharkhorin. They have daily expenses for water, which is fetched nearby, and the cost of coal and wood for heating and cooking in the ger. The currently spend about NMT 3 500 for coal per day and expect that the amount needed will double in the winter. With just a pension from the wife as an income source and a large family to support, their ability to purchase food is very limited.

Per the 2016 Statistical Yearbook, 43 percent of herders own less than 200 animals, limiting their ability to access credit from lenders. Without access to credit, these herders will have limited ability to procure sufficient hay for the winter, build shelters for their animals, and move their herd long distances to reach sufficient pasture. This vulnerable population will face significant risks if the winter is severe. And with the extent of drought that affected much of the country, they may also lose animals during the winter and spring even if the winter is not severe.

Loss of livestock to unforeseen circumstances has a major impact on herding households. For herders with less than 200 animals, loss of livestock represents a significant reduction in their current assets and jeopardizes their future livelihood in multiple ways. First, without sufficient assets, they are less likely to be able to secure a loan which could become a necessity in the spring for expenditures on fodder for their animals as well as basic expenditures for the family including food, healthcare, education, and transportation costs. Second, loss of livestock jeopardizes their ability to grow their herd to a more stable size. Herd maximization strategies, though unsustainable in the long term, are a common practice to mitigate the risk of livelihood loss due to an extreme event. If a herd size is greatly reduced, herders may not be able to recover.

In 2005, the Government of Mongolia requested assistance from the World Bank to improve rural herder vulnerability to frequent and high livestock mortality rates. An index-based insurance programme based on livestock mortality rates was developed by the Bank and by 2012 the so called Index-Based Livestock Insurance Programme (IBLIP) was implemented in all of Mongolia's 21 *aimags*. Payments are based on the total number of livestock lost by species and *soum* rather than on households' actual, individual losses. Insured families get paid

if the loss of livestock surpasses 6 percent of the total count at *soum* level. This system protects herders against big disasters; however, its limitation, as discussed during the Mission, is the threshold of the 6 percent loss. It may be the case of herders not losing animals and others losing all with an overall loss at *soum* level which does not reach the threshold of 6. Shall be this the case, herders who lost all or most of their animals will not get any reimbursement.

### 6.3 Government contingency plans

The most important action to be taken in response to the approaching winter-spring 2017/18 and likelihood of a *dzud* event is the improvement of feed supply. The Government sets the targets of feed supplies for the winter, including volumes of emergency feed reserves to be prepared at *aimag* and *soums* level and by herders. In pursuant of Government Resolutions 186 and 187 of 2017 to ensure preparation of livestock sector and dwellings for the winter months, around 70 percent of required hay and fodder was prepared at national level by herders as of November (Table 10). The total feed available at herder household's level equalled to 52.7 million tonnes, the lowest since 2007.

In addition, this year, the overall weak body conditions of livestock are causing a further burden to herders, as they need to procure more feed than in normal years to overcome the winter/spring season and because feeding of livestock is expected to start much earlier than normal. MoFALI *aimag*-level data (Table 9) show that Arkhangai, Bayankhongor, Bulgan, Gobi-Altai, Darkhan-Uul, Dornod, Orkhon, Umnugovi, Tuv, Uvs, Khovd, Khuvsgul and Khentii provinces are 80 to 86 percent ready. Meanwhile, the remaining eight provinces are behind, with less than 80 percent readiness. These percentages would be good in normal years but they are not relatively to current conditions of shortage of pasture forage in terms of dried back grasses; numbers of livestock to be fed and feeding of livestock expected to start earlier. In addition, the cost of hay is reported to be high. In most areas visited during the mission, selling price of a bale of hay (20 kg) was double their year-earlier levels.

**Table 9: Mongolia – Winter preparedness by aimags (percent)**

<i>Aimag</i>	Herders' animal feed preparedness	<i>Aimags'</i> emergency reserve	<i>Soums'</i> emergency fodder reserve	Readiness of water points	Water supply for animals	Animal warm shelter and beddings	Herder households' winter preparedness	Generalized Preparedness for the winter
Arkhangai	77.4	60.0	46.0	94.5	96.7	96.5	91.3	80.4
Bayan-Ulgii	85.9	50.0	33.6	96.0	88.8	100.0	97.0	78.8
Bayankhongor	15.2	100.0	79.0	96.9	96.7	91.2	83.1	80.3
Bulgan	62.3	67.0	68.4	89.3	92.4	97.3	89.2	80.9
Gobi-Altai	37.4	100.0	55.2	94.4	94.6	96.6	86.0	80.6
Gobisumber	47.4	100.0	54.3	67.7	98.6	95.2	86.5	78.5
Darkhan-Uul	72.6	100.0	57.8	93.8	94.8	96.1	85.2	85.8
Dornogobi	20.9	100.0	49.4	93.0	80.1	90.9	83.5	74.0
Dornod	100.6	100.0	92.3	95.3	87.7	93.5	94.5	94.8
Dundgobi	39.2	100.0	75.2	98.8	95.0	99.4	86.1	84.8
Zavkhan	75.6	94.6	30.1	64.3	81.9	95.0	87.9	75.6
Orkhon	83.5	100.0	100.0	86.7	80.0	91.6	83.0	89.3
Uvurkhangai	64.3	74.4	41.8	94.5	95.7	92.7	88.5	78.8
Umnugobi	33.1	100.0	81.5	90.7	83.5	91.4	81.8	80.3
Sukhbaatar	48.2	80.0	55.7	91.3	100.0	92.0	87.9	79.3
Selenge	90.6	83.3	54.2	96.4	89.8	99.2	90.4	86.3
Tuv	52.6	93.7	40.0	98.8	97.5	96.1	87.9	80.9
Uvs	89.3	100.0	55.9	83.3	95.4	90.2	88.4	86.1
Khovd	79.5	100.0	49.8	93.1	94.6	95.6	89.3	86.0
Khuvsgul	72.2	84.5	47.3	88.5	95.9	100.0	86.0	82.1
Khentii	94.0	87.0	63.9	88.7	83.8	88.4	93.6	85.6
Ulaanbaatar	32.4	100.0	57.8	89.3	77.1	99.1	85.3	77.3
<b>Total</b>	<b>70.1</b>	<b>89.8</b>	<b>58.6</b>	<b>90.2</b>	<b>90.9</b>	<b>94.9</b>	<b>87.8</b>	<b>82.1</b>

Source: MoFALI.

To support herders, the Government of Mongolia have pledged to import hay and fodder from the Russian Federation. As a way to target the vulnerable groups of population, the Government plans to introduce a barter system where herders agree to destock part of their herds in exchange for hay or concentrated feed to support the remaining animals.

The *soums* and *aimags* visited by the Mission provided some information about contingency plans and some key measures to be taken during risky weather-related situations.

1. The Governor of Selenge *aimag* issued a decree (#1/831, of 31 August, 2017) to allow haymaking in different *soums*:
  - a) Saikhan, Sukhbaatar, Shaamar and Orkhontuul *soums* in Tushig *soum*.
  - b) *Aimag* emergency reserve haymaking in Khuder *soum*.
  - c) Mandal *soum* in Tsagaannuur *soum*.
  - d) Orkhon and Saikhan *soums* in Khushaat *soum*.
  - e) Bayangol and Javkhlant *soums* in Yoroo *soum*.
  - f) *Aimag* emergency hay making in Altanbulag *soum*.
  - g) Orkhon *soum* in Zuunburen *soum*.

*Soums* making hay in other *soums* need to submit their request indicating the quantity of hay and size of land required.

2. The Governor of Bayangol *soum*, Selenge *aimag* issued a decree (# A/147, of 27 July 2017) on enhancing the measures for 2017-2018 winter preparation and development of *soum dzud* risk contingency plan. Points of the decree are:
  - To nominate a *soum* commission responsible for winter preparation headed by the *soum* governor (13 people involved).
  - To approve the *soum dzud* risk contingency plan.
  - To provide herders and livestock keepers with on-site and public media advises and practical demonstrations for enhanced winter preparation.

The plan advises on all necessary measures and actions to be taken by government institutions and rural communities, including:

- Develop a *soum* winter plan (a document describing all measures to be taken to make better preparation for winter).
  - Arrange talks and consultation with other *soums* to allocate pastures for migration of herds and households.
  - Activities to be arranged by *soum*-based public services: school, hospital, etc.
  - Arrangements for all services related to livestock health: vaccination, dipping, deworming, etc.
  - At herders' level:
    - Repair of winter-spring camps
    - Haymaking where possible
    - Herd off-take planning (culling, sale, etc.)
    - Define the number of livestock which would overwinter in home areas and those which need to migrate
3. In Baruunburen *soum*, Selenge *aimag*, a map was created showing locations of group herders at winter-spring camps and the alternative tracks to reach them in emergencies – snow blockage, flooding etc.

#### **6.4 Social protection programmes**

The *dzuds* of 1999-2003 and 2009-2010 were recognized as national disasters with environmental triggers exacerbated by lack of institutional capacity to mitigate risks to herders. Substantial investments in social protection programmes have been made and currently there are a number of programmes in place. Mongolia's social protection programmes are overseen by the Ministry of Labour and Social Welfare and, as of 2013, they accounted for 2.78 percent of GDP and 6.34 percent of the state budget. This allocation is higher than most low-income countries where the average 1.6 percent of GDP, demonstrating the commitment of the local government to improve social welfare. There are more than 70 social welfare programmes in place nationally, which are categorized into social welfare pensions, social welfare allowances and services, and allowances for the elderly, disabled and for mothers and children.



In addition, the Ministry of Social Welfare oversees the Child Money Programme (CMP) which provides MNT 20 000 per month to every child in Mongolia. The CMP was created during the mining boom of the 2000s and was meant as a way to distribute wealth from the mining sector to future generations. However, increased fiscal pressure following a slowing in the economy over the past few years has led to the need for an IMF bailout. One of the contingencies of the bailout is increased austerity which includes a reduction of the CMP. It has been mentioned by the Ministry of Social Welfare that the coverage of the CMP will be reduced by 60 percent, but the targeting of the programme is not yet clear.

In 2016, there were approximately 1.9 million beneficiaries of the government's social welfare programmes and about half of them were beneficiaries of the CMP. After the CMP, the largest number of beneficiaries are for concessions for the elderly with 315 100 beneficiaries in 2016, followed by the 'Glorious Mothers' programme with 210 600 beneficiaries. The latter is a lifetime cash transfer given to women who have given birth to four or more children. The number of beneficiaries of this programme nearly doubled since 2015 - up from 161 800.

Most of the social welfare programmes are categorically targeted - for example to the elderly, the disabled, and to large families. With the exception of the Food Stamp Programme, most of the social welfare programmes are based on categorical targeting and do not exclusively benefit the poor. The modality of these programmes is in the form of a cash transfer with the exception of the Food Stamp Programme which is in the form of a voucher.

The Food Stamp Programme targets the poorest 5 percent of the population and eligibility is determined through a set of household characteristics through a Proxy Means Test (PMT) score. Using 2010-2012 data, the World Bank evaluated the targeting of each programme against PMT score quintiles and found that the poorest quintile were indeed the greatest beneficiaries of social welfare programmes generally and that the biggest contributor was the CMP which is allocated to every child in the country under the age of 18. About 62 percent of individuals in the poorest quintile households benefited from some social welfare program. However, that figure dropped to just 29 percent when the CMP was not considered. The World Bank study found that the Food Stamp Programme – the only programme which exclusively targets poor households – successfully selected the poorest with all households in the programme except for one classified in the poorest 2.7 percent of households.

Currently, the Food Stamp Programme provides a voucher valued at MNT 13 000 per adult and MNT 6 500 per child every month which can be redeemed at local stores for food purchases. There is a plan to increase the value of the voucher to MNT 18 000 per adult and MNT 8 000 per child, though the timeline for this change is unclear.

Eligible elderly citizens receive up to MNT 250 000 per month through a pension programme. Pensioners must have paid into the social insurance fund in order to receive their benefit and as such those in the informal economy, including herders, may not qualify for benefits.

Aside from assistance to the poor through the Food Stamp Programme, local government officials play a key role in determining eligibility for other social welfare programmes. The Ministry of Labour and Social Welfare does not provide specific assistance due to households or individuals affected by drought and/or *dzud*. However, emergency support is provided for those who have lost their home and to those who lost 50 percent or more of their livelihood. This is in the form of a onetime payment of MNT 1.2 million.

The array of social welfare programmes in the country provide broad coverage to citizens. However, lack of pro-poor targeting means that beneficiaries vary in their overall wealth status and some programmes tend to benefit non-poor households more than poor households. The Food Stamp Programme is well targeted to the poor, but its coverage and the amount of the benefit is limited. If a severe winter affects the already limited resources available to these families, they may have very few coping mechanisms available to them to respond. Further, a number of households who live below the poverty line are not beneficiaries of the Food Stamp Programme, though they may benefit from other social welfare programmes if they qualify. The concern is for households who do not qualify using categorical targeting who may fall into poverty (or further into poverty) if their income is reduced.

## 7. RECOMMENDATIONS

After consultation with local authorities, the Mission recommends the following immediate and long-term interventions to avert livelihood deterioration of the vulnerable population.

### Immediate measures:

- Urgent distribution of livestock fodder packages in the areas with limited grazing/fodder availability and poor livestock body conditions, including Khuvsigul *aimag* (Khangai region), Govisumber, Darkhan-Uul, Umnugobi and Selenge (Central Region), Zavkhan and Khovd (Western Region), where animals are estimated to be between 15 and 20 percent below normal body condition and forage availability is low.
- Facilitate herders' destocking of animals in exchange of cash to support the immediate needs and ensure their remaining livestock can survive the winter. Destocking should work in parallel with distribution of livestock fodder packages to protect animals throughout the peak of the winter season. The focus shall be put on *aimags/soums* where livestock has the poorest body conditions and availability of feed for the winter is severely limited.
- Improve *dzud* risk mapping to guarantee timely and rapid intervention management of decision-makers and other stakeholders in case of a *dzud* occurrence.
- Facilitate fodder and manufactured feed supply pre-positioning in remote areas that are most vulnerable to *dzud*, before adverse weather conditions hamper transport routes.
- Strengthen the national mechanism for coordinated preparation and response, in cooperation with the international community towards timely intervention.
- Particular attention should be paid to vulnerable segments of local communities with comprehensive pro-poor approaches. Assistance should focus in particular on small and middle herders (< 500 animals).
- Distribution of wheat seeds and irrigation equipments for next wheat crop, to be planted from April 2018 onwards.

### Long-term measures:

- Upgrade production and processing capabilities of meat and dairy products and improve infrastructure and regulation to ensure sanitary control measures and high quality of products. This would improve trade and increase the share of exports, contributing to the economic growth of the country. Through the supply chain, special attention needs to be placed at herder level with the improvement of veterinary services and the expansion of the vaccine programmes.
- Develop a legal and regulatory framework for pastureland management and protection, including measures to control the population and structure of livestock in accordance with pastures' capacity, to regulate proper use, tax possession and protection of pasture land. Local communities, including herders, should be empowered to participate in decision-making processes.
- Develop a comprehensive education and training programme for best practices on herding, especially among young people. This should be done in parallel with environmental awareness education programmes to improve the understanding of management of rural environmental issues.
- Alternative income sources, such as making handicrafts, felt products and vegetable growing, could improve herder households' livelihoods and contribute to reduce the problem of pasture degradation by reducing herds' size.
- Ensure appropriate investment in disaster mitigation and climate adaptation, including cultivated hay and fodder production (also promoting hay field fencing) and improved water resource management.
- A more structured Emergency Preparedness and Response framework, including supply preposition and standby funding, the accountability of which is decentralized at *aimag/soum* level, to support vulnerable households.
- Weather reports as provided by the national meteorology service should be monitored with focus on both lower than usual levels of precipitation, high amounts of snowfall, and lower than usual temperatures.
- Prices of key commodities (animal fodder, live animals, meat, wheat flour and fuel) need to be monitored during the winter and spring to assess the impact of rising prices on poorer households.
- The prices of agricultural inputs (seeds, fertilizers and fuel) need to be monitored in preparation for the next planting season.

- Create social protection programmes which specifically address the needs of households who lost their livelihoods and have migrated to *ger* districts, where they have limited employment opportunities and do not benefit from full social welfare schemes.
- Any potential intervention should consider providing access to credit as a more cost effective intervention than in-kind assistance. Access to credit for herders in the late winter and early spring is vital as is access to credit in the spring for farmers.
- Any intervention should prioritize support to already vulnerable populations - agriculture wage labourers who have lost their primary income source and herders with a small number of livestock who may easily lose their livelihoods in case of a *dzud*.

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