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Joint Food Security Assessment Mission to Mongolia

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INTRODUCTION

At the request of the Ministry of Food and Agriculture of Mongolia (MoFA), a UN Joint Food Security Assessment Mission visited the country from 2 to 20 October 2006. The Mission was composed of FAO, UNICEF and UNDP experts and worked in close collaboration with national counterpart partners. The overall objective of the assessment was to have a better understanding of food security at national, sub-national and household levels and to make recommendations on activities to address food insecurity. The major components of the Mission included a two-day Technical Consultation on Food Security in Ulaanbaatar (UB) and the assessment of the food security situation using rapid appraisal techniques. The Mission held meetings with relevant institutions, including Government, international agencies, donors, NGOs and the private sector, and reviewed available data and information on food security from different sources. Field trips to selected aimags (provinces) and soums (districts) were organized in four teams covering: 1) Central provinces (Selenge, Darham, Orhon) and "Ger"[1] districts of UB; 2) Western provinces (Uvs and Bayan Olgii); 3) Highlands provinces (Houvsgol, Bulgan and Arkahngai) and 4) Gobi provinces (Dungobi). Overall, the Mission covered 9 aimags and the capital city. During the field visits the Mission met with representatives of the public and private sectors, including traders. In all locations the Mission visited markets and shops, health facilities and schools. Extensive household interviews were conducted in aimag and soum centres, as well as with herder and farmer households in the countryside. Prior to its departure, the Mission had debriefing sessions with Government authorities and UN agencies in the country.

1. EXECUTIVE SUMMARY

With the economy growing at steady rates since 2004 and mining exports soaring, supported by record prices of minerals, the overall economic context is favourable for food security.

At national level, the food security situation is satisfactory. Availability of main food staples (wheat, meat, milk and vegetables) is adequate reflecting the recovery of the agricultural sector in the past three years and increased food imports. Trade liberalization has contributed to improve availability and stability of food supplies. Markets throughout the country are well-stocked with national and imported food products. Prices of most basic foods, except meat, have remained stable or have declined in real terms since 2000. The terms of trade between meat/flour and meat/potatoes have improved benefiting access to food by herder populations.

Average per capita annual consumption of basic foods has been augmenting in recent years and rates of meat and dairy products intakes are high by regional standards. Nutritional indicators show general positive trends, with declines in children malnutrition rates. However, micro-nutrient deficiencies persist.

The bright panorama at national level, nevertheless, hides the vulnerability and food insecurity of large numbers of households in Ulaanbaatar and centres of aimags and soums[2], where about 60 percent of the country's population is concentrated. The livelihood of these populations depends on cash incomes and the main cause of their food insecurity is insufficient purchasing power as a result of unemployment and underemployment. Food insecurity is more severe in winter months reflecting reduced availability of working opportunities and increased cost of leaving due to heating expenses. The cost of heating in the cities is higher in the ger dwellings, where the majority of the poor live, than in apartments with central heating facilities.

There is abundant data on poverty but little information on food security at household level. Exception to this is the food security surveys conducted by NGOs in local areas of intervention. Poverty and food security are not interchangeable concepts. Food security refers to the access to nutritious food and poverty to the inability to achieve acceptable standards of living. However, given the close relation between poverty and food insecure in urban areas, poverty estimates could provide a rough approximation of the magnitude of food insecurity. According to the latest national surveys on poverty, dating back to 2002/03 and defining the poverty line as the cost of the basic food and non-food consumption basket, over one-quarter of the population in Ulaanbaatar, one-third of that in the aimag centres and almost half of that in soum centres are classified as poor.

Despite the higher poverty levels in soum centres, severe food insecurity was observed to be lower than in Ulaanbaatar and capitals of aimags as a result of strong kinship networks. Differences between poverty

[1] Round portable felt structure traditionally used by nomads.
[2] Population living in Ulaanbaatar and capitals of aimags is considered urban, while population in the capitals of soums is classified as rural.

statistics at the national level and at aimag and soum levels were observed by the Mission, pointing to the need to reconcile available information.

Herder population, accounting for two-thirds of the rural population and some 28 percent of the national total, appears to have an overall adequate food security situation. In general, this population has a sufficient intake of food, which includes wheat, meat and milk. Nevertheless, herders show micro-nutrient deficiencies because of poor diet diversification. Farmer population is concentrated in Central provinces where they mainly cultivate wheat and vegetables on commercial basis. Their food security situation is also satisfactory.

At the same time, however, herders and farmers are the most vulnerable group of population due to the high risk of extreme weather changes, mainly "*dzuds*"[3] and droughts, coupled with the lack of livelihood diversification. Large sections of this population can become destitute and food insecure from one season to the other if livestock is lost. This is particularly the case for poor households (commonly defined as those having 25 or less heads), which represent about one-quarter of the total herder population. Poor herders are also subject to temporary food insecurity in early spring, when winter stocks of meat and milk products are exhausted and pastures have not yet regenerated.

While the risks and vulnerability of rural and urban populations are different, there is a logical link between vulnerability in agricultural areas and food insecurity in the cities. The urban food insecure people are often vulnerable herders who lost their animals as a result of adverse weather and migrated to the cities in search of a job but remained unemployed.

Given the dynamics between rural and urban areas, the Mission recommends to strengthen actions to prevent vulnerable groups in rural areas from falling into food insecurity. It also recommends to improve targeting of the vulnerable and food insecure populations and to intensify urban poverty alleviation measures.

The National Plan of Action for Food Security, Safety and Nutrition 2001-2010 remains a sound and comprehensive instrument for food security planning. Its implementation, however, has been hampered by lack of funding both from the public and private sectors, as well as by its holistic approach. The Mission recommends the review, update and prioritization of the Plan with a view to resource mobilization.

In particular, the Mission recommends concentrating efforts on activities aiming to the rehabilitation of the meat and dairy formal markets, as the country has comparative advantages in the production of these products and a large export potential. The development of the meat and dairy sub-sectors will improve food safety of the population in urban centres, reduce imports, increase exports and, above all, contribute to reduce vulnerability and food insecurity by generating employment and providing regular incomes in rural and urban areas. Similarly, the Mission recommends the review of existing project proposals to develop "brand products" at aimag level and their prioritization based on cost-effectiveness criteria.

In order to address the multi-dimensional aspects of food security, the Mission also recommends the setting-up of a Food Security Unit in charge of coordinating activities in this area, including nutrition policies.

In the area of nutrition, the Micro-Nutrients National Strategy should be revisited as its execution has been inadequate mainly due to financial constraints. In particular, it is recommended to distribute iron supplements as part of the ongoing vitamins distribution programme, expand the programme on flour fortification, consider the feasibility of fortifying milk and explore the possibility of escalating the multiple micro-nutrient supplements with "Sprinkles" to "Children Under 5 Programme" started by World Vision International.

There was widespread and strong concern about food safety at all levels and in all places visited by the Mission. Most of the concern was about food imports from China and much less with traditional processing of domestically-produced meat and dairy products. It seems, however, that scientific evidence concerning this problem is still not available. While the Mission recognized the importance to have technical analysis and judgment on food safety issues, it did not have the expertise and equipment required to undertake such a task.

[3] Severe conditions associated with snow and cold.

2. MACRO-ECONOMIC CONTEXT

The overall macro-economic environment is positive. Mongolia's economy has increased at sustained rates for five consecutive years. An expected real GPD growth of 7.5 percent in 2006 followed rates of 10.6 percent in 2004 and 6.2 percent in 2005 (Table 1). As a result of this good performance, the country achieved a per capita income of about US$730 in 2005 which, although still low, is almost twice the level of 2000. While the agricultural sector has recovered from the loss of livestock in 1999-2002, services and mining sectors have been the most dynamics underpinning the overall economic expansion. Growth of mineral production has accelerated since 2004 with a dramatic rise in gold extraction. Generous tax incentives have attracted substantial foreign investment in the mining sector, although the Government announced new regulations last year. Performance of the services sector in 2006 has also been robust driven by an increase in tourist arrivals, an upturn in the restaurants and hotels sector and strong mobile-phone services.

Table 1. Mongolia: Key economic indicators 1998-2006

	1998	1999	2000	2001	2002	2003	2004	2005	2006
Estimated real GDP growth rate (%)	3.5	3.2	1.1	1.0	4.0	5.6	10.6	6.2	7.5
GDP per head (US$)	395	365	379	402	470	523	639	728	-
Total merchandise exports (US$ m)	462	454	536	523	524	616	870	1 065	-
Total merchandise imports (US$ m)	524	511	608	624	691	801	1 021	1 148	-
Total trade deficit (US$ m)	-62	-56	-73	-101	-167	-185	-151	-84	-

Source: EIU.

Total trade deficit has decreased from the high level of US$185 million in 2003 to US$84 million in 2005, reflecting strong export growth of minerals. Copper is Mongolia's largest export earner, accounting for more than 30 percent of total export incomes. Exports of copper concentrates and gold rose strongly in the period January-September 2006 benefiting from surging world metals prices, with quotations of gold reaching a 25-year high in early 2006. The higher mining incomes have improved the country's financial capabilities.

3. GENERAL FRAMEWORK OF FOOD SECURITY

3.1 Mongolia's particular characteristics

Mongolia presents unique geographic, economic, social and cultural characteristics which have important connotations for understanding the food security of different groups of population.

Low density of population: With an area of 1 564 sq km (more than three time the size of France) and a population of 2.65 million (2005), Mongolia has a population density of 1.7 people per sq km, one of the lowest in the world, ranking in the 227th position out of 230 countries, above only of Western Sahara, the Falklands Islands and Greenland[4]. This low density of population is even more marked in rural areas due to the high concentration of urban population.

Extensive pastures: Grasslands and arid grazing cover some 80 percent of the land area, while arable land accounts for less than 1 percent of the total.

Extreme weather conditions: The country's harsh climatic extremes include long, cold, dry winters and short, hot, dry summers. Temperatures during the year fluctuate from as low as minus 50°C in the steppe in winter, to plus 40°C in the Gobi desert in summer. Snowstorms, dust storms, droughts and *dzuds* are frequent. Ulaanbaatar is the coldest capital city in the world.

Landlocked country between China and Russia: Mongolia has 4 677 km of borders with China and 3 543 km with Russia, countries with the highest number of population and largest extension of territory in the world respectively. Access to the sea is through the Chinese port of Tianjin, 1 000 km from the frontier.

Poor transport infrastructure: There are few hard-surfaced roads and tracks are predominant throughout the country. The main Russia-China railway traverses the country but there are no internal lines.

[4] United Nations World Population Prospects (2004 Revision).

Extensive social services: Infrastructure and basic services, mainly transport and electricity, are still insufficient in most rural areas, but the remarkable progress made during the socialist era in the areas of education, health, gender equality and welfare have been maintained in the new political and economic context.

Social relations: An ancient culture based on strong social and family relations persists despite heavy influence of western life-style and rapid urbanization.

While taken individually these characteristics are not intrinsically unique to Mongolia, combined create a Mongolia's context, that is difficult to equate with that of other developing countries and that has resulted in specific features having implications on food security.

3.2 Specific factors related to food security

Traditional nomadic pastoral system in rural areas

As Mongolia's climate and natural resources are mostly suitable for extensive grazing, the agricultural sector is dominated by the herding of livestock with traditional methods, including transhumance. Livestock production is a major economic activity of the country. According to the livestock census of 2005, Mongolia has 30.4 million heads of animals (cattle, horses, camels, sheep and goats), equivalent to some 11.5 animals per inhabitant. With the exception of widespread cropping activities in central provinces (Selenge and Darkhan Uul) and limited vegetable growing elsewhere, most of the rural population is engaged solely on livestock activities. Traditionally, herders do not cultivate the land and their economy and life-style is entirely pastoral. This makes the rural population very vulnerable to a decline in livestock numbers, which will have a large negative impact on households since they have no other alternative sources of income to meet their consumption requirements.

Extreme vulnerability of herders and farmers

The vulnerability of the rural population due to the lack of livelihood diversification is aggravated by the extreme weather conditions of the country. Herders and farmers may loose all their animals or crops from one season to the other as a result of adverse weather and become destitute and food insecure. The combined effects of droughts and *dzuds* in the period 1999-2002 caused the loss of 4.5 million animal heads (in bod[5] units), or some 40 percent of the animal population, and prompted migration to the cities of large numbers of rural people.

Isolation of rural households and communities

Poor road infrastructure, together with the low density of population, has resulted in great isolation of rural communities and herder households that must move seasonally with their animals in search of pastures. Long distances to markets of soum and aimag centres prevent optimal market performance and hamper access to a variety of food by the herder households. Yet herders depend on markets to trade their livestock and animal products in exchange of cereals and other food commodities that they do not produce. Herders without access to transport are reliant on traders' visits and are often price-takers. Remoteness and isolation of the rural population also add to the costs of public provisioning of basic infrastructure and social services.

High concentration of urban population

The difficulties associated with surviving in the countryside if animals are lost have resulted in the continuous migration to the cities of people affected by loss of animals due to natural disasters or animal diseases. Migration to the cities, in particular to the capital, is also prompted by the search of better services, especially in the areas of education and health. About 60 percent of the population of Mongolia lived in urban areas in 2005, concentrated in three main cities of the central region: Ulaanbaatar (38 percent of the total population), Erdenet and Darkham, where unemployment and under-employment rates are high and chronic and temporary food insecurity prevail.

[5] The purpose of the bod scale is to calculate the size of the herd by transforming all animals into equivalent horses. One horse is assumed to be the same as one cattle (cow or yak), 0.67 camels, six sheep or eight goats.

Unique food consumption patterns

The pastoral system of Mongolia is linked to unique food consumption patterns, with high in-take of proteins from meat and milk products. Annual average per capita consumption of meat and milk amounts to 100 kg and 140 kg respectively, well above Asian standards and around those in the developed world. In rural areas, where consumption is even higher, these basic food staples come from the households' own production so that the degree of food self-sufficiency of herders is pronounced. Wheat flour is another important component of the Mongolia diet but consumption of vegetables and fruits is low at national level and almost negligible among the herder population which has resulted in serious micro-nutrient deficiencies.

Seasonality of food consumption

Marked changes in winter and summer temperatures result in distinct seasonality of food availability and consumption. More meat products are consumed in winter, after the slaughtering of animals in autumn, and more milk, dairy products and vegetables are consumed in summer after the rainy season. Spring is traditionally the leanest season of the year, when availability of food decreases and prices of crop and meat products increase. Seasonality also impacts employment in the cities, especially for the poor populations who are dependent on temporary labour. Several productive activities, such as construction and mining, may not be undertaken in winter months and little work is available during this period, reducing thus the amount of money available to purchase food. At the same, extreme changes in temperatures impact also nutritional requirements as a higher caloric intake is required in the cold winter.

Traditional food processing practices

Among the herder population, slaughtering and milking of animals, processing of meat and dairy products, and storage of food products during winter months is done domestically, using traditional practices. This is favoured by the cold and dry weather of Mongolia (same processing methods apply in other parts of the world would result in serious hygienic problems). Meat, milk and dairy products elaborated traditionally are consumed by the households but also sold in the local, regional and Ulaanbaatar markets. At national level, only 7 percent of the milk and 3 percent of the meat produced in Mongolia undergo any form of industrial processing, which has raised concerns about food safety, particularly in the cities.

Neighbouring countries large exporters

Mongolia joined the WTO in 1997. In the prevailing context of world trade liberalization, the fact that the country is locked between two big exporter countries has meant that markets have been flooded by food and non-food products from Russia and China. The lower economic development of Mongolia compared to that of its neighbours, and its considerable smaller population, make more difficult for the country to compete with cheap imported products in several sectors, not least of which is food.

Universal education and health services, extensive safety nets

As a result of an extensive school system, with kindergartens and primary schools (boarding schools) in all capitals of provinces and districts, the ratios of primary enrolment are very high and the rate of literacy in the country reached 98 percent in 2002, well above the average levels in Asia. Unlike in many other countries, the number of graduates in higher educational institutions shows a "reverse gender gap", with 65 percent of graduates in 2004/05 being women. Although availability and quality of health services vary considerably from urban to rural areas, there is universal vaccination coverage and doctors reached nomadic families in remote areas. Mongolia maintains an extensive portfolio of social assistance, including pension payments, disability payments, wedding bonuses and monthly payments for all children under eighteen, which reach urban and rural areas. These records have a clear positive impact on food security and are impressive for a low-income food-deficit country, in particular when considering the physical isolation of rural communities and the nomadic life-style of large sections of the population. In particular, social benefits are a crucial source of income for poor households and, in some cases, the only source of cash income.

Strong traditional culture and community relations

A unique Mongolian cultural identity persists despite heavy influence of urbanization and western life-style. In remote areas, families combine horses and camels with motorcycles and cars for their transport; watch satellite TV and DVDs using solar panels, but at the same time maintain strong traditional social ties. Social cohesion and the importance of family and community spirit are prevalent characteristics of the Mongolian society. Support from kinship networks, both reciprocal and charity based, form an important vector of supply and exchange of food at the household, soum and aimag levels. Some chronically poor households rely

outright on their community's charity to survive. This is particularly noticeable in rural areas, where severe food insecurity is prevented by informal social networks and homelessness is an unknown phenomenon.

4. NATIONAL FOOD SECURITY

Overall, the food security situation at national level is satisfactory, with large availability of basic food staples, improved stability of supplies, declining food prices and relatively high levels of average food consumption.

4.1 Food consumption patterns

Population

According to official statistics Mongolia had a population of 2.562 million inhabitants in 2005 (Table 2). The country has experienced a rapid urbanization process in recent years, with rural population declining from 2001 to 2005. The population of the capital city has increased by almost a quarter in the past five years, growing at an annual average rate of 4.5 percent. By 2005, some 60 percent of the population was considered urban, comprising people living in Ulaanbaatar and in the capital of provinces. Rural population includes mostly nomadic herders and farmers (two-thirds of the rural population) but also people living in the capital of districts.

Table 2. Mongolia: Population (urban and rural) and herder households

	1980	1990	1999	2000	2001	2002	2003	2004	2005
Population ('000 persons)									
Total	**1 574**	**2 149**	**2 374**	**2 408**	**2 443**	**2 475**	**2 504**	**2 533**	**2 562**
Urban	824	1 225	1 391	1 377	1 397	1 421	1 464	1 498	1 543
Ulaanbaatar (UB)	394	575	760	787	813	847	893	929	965
UB in total (%)	25	27	32	33	33	34	36	37	38
Rural	751	924	983	1 031	1 045	1 054	1 040	1 035	1 019
Number of households ('000 HH)									
Total		**449**	**541**	**554**	**560**	**569**	**586**	**596**	**611**
Herder households		75	190	192	186	176	172	169	168
Herder households in total (%)		17	35	35	33	31	29	28	28

Source: NSO.

Food intake and diet

Data on average daily calorie intake varies from 1 921 to 2 570 calories/capita/day, according to different sources[6], while the recommended nutritional intake, dating back to 1997, is 2 700 calories per person per day, which is well above international standards.

Flour, meat and milk products are the main food staples of Mongolia (Table 3). According to estimates made in the framework of the "Household Income and Expenditure Survey/Living Standards Measurement Survey 2002/03", these three products cover some 86 percent of the daily caloric intake (Table 4). Although consumption of animal products is among the highest in the world, cereals are still the main source of energy providing in average 55 percent of the daily intake. Meat and meat products (in terms of meat) and milk and dairy products (in terms of milk) cover 20 percent and 11 percent of the daily caloric intake, respectively. Despite rapid increases in consumption of potatoes, vegetables and fruits in recent years, particularly in urban areas, the diet of Mongolians remains deficient in these products with annual average per capita consumptions of 43 kg, 25 kg and 12 kg respectively, that are well below Asian standards.

[6] "Mongolian Economy and Society 1997", "Nutrition Status of Population of Mongolia 2000", "HIES/LSMS 2002/03", "FAO Food Balance Sheet 2003".

Table 3. Mongolia: Per capita annual food consumption by main food groups (kg)

	2001	2002	2003	2004	2005	Average
Meat and meat products (in terms of meat)	97.2	97.2	98.4	94.8	99.6	97.4
Milk and milk products (in terms of milk)	100.8	100.8	130.8	138.0	140.4	122.2
Flour and bakery products (in terms of flour)	110.4	110.4	114.0	105.6	118.8	111.8
Rice	15.6	15.6	18.0	18.0	26.4	18.7
Potatoes	26.4	26.4	31.2	33.6	43.2	32.2
Vegetables (in terms of fresh vegetable)	16.8	16.8	18.0	16.8	25.2	18.7
Fruit	3.6	3.6	4.8	6.0	12.0	6.0
Vegetable oil	6.0	6.0	8.4	8.4	12.0	8.2
Fish and fish products	2.4	2.4	0.0	1.2	2.4	1.7
Sugar and sugar products (in terms of sugar)	12.0	12.0	12.0	12.0	16.8	13.0

Source: NSO.

Table 4. Mongolia: Composition of per capita daily caloric intake by main food groups (%)

	National	Urban	Rural	UB	Analytical domains		
					Aimag centres	Soum centres	Countryside
Meat and meat products	20	17	23	15	18	22	24
Milk and dairy products	11	7	16	7	7	11	18
Flour and flour products	55	59	52	58	59	55	50
Vegetables	3	4	2	5	4	2	1
Fruits	1	1	0	1	1	0	0
Candy, sugar	6	6	5	6	6	5	5
Tea, coffee, beverages	1	1	0	1	1	0	0
Spices	4	6	2	7	5	3	1
Total	**101**	**101**	**100**	**100**	**101**	**98**	**99**

Source: 2002/03 HIES/LSMS.

Consumption differences in rural and urban areas

There are marked disparities in the consumption patterns of rural and urban populations. Based mostly on self-production, rural people consume in average three to five times more milk and dairy products than people in the cities[7], about 50 percent more meat products and only slightly less flour and flour products. Consequently, the average daily calorie intake in rural areas is estimated to be some 15 percent higher than in urban areas. However, the diet is much more diversified in the cities, particularly in Ulaanbaatar, and includes vegetables, fruits, fish products, eggs and vegetable oils. Consumption of potatoes and vegetables in rural areas is only one-third to one-half of the levels in the cities.

Another difference between rural and urban areas is that nomadic families consumed a wide range of customary meat and milk products (there are over 500 different dairy products) all of which are prepared and stored in the household using traditional processing techniques. In urban areas, about half of the meat and milk products are industrially processed.

There are no substantial variations in the overall composition of the diet by geographical regions. However, the frequency of the meals and the quantities of food consumed change according to the level of incomes and occupation of the family members. In both rural and urban areas, one main meat meal is taken in the evening. During the day, flour and dairy products, accompanied by salted milk tea, are consumed with frequencies that fluctuate from two to more than ten times per day. An important distinction observed by the Mission was in terms of the composition of the tea, by far the most popular beverage in Mongolia. Poor households drink black tea, essentially tea leaves, water and salt, while more wealthy households and herder households drink milk tea which can represent a considerable intake of protein.

Seasonality plays a major role in food consumption in Mongolia. Issues related with seasonality of food availability, prices and consumption will be discussed in section 4.4 of this report.

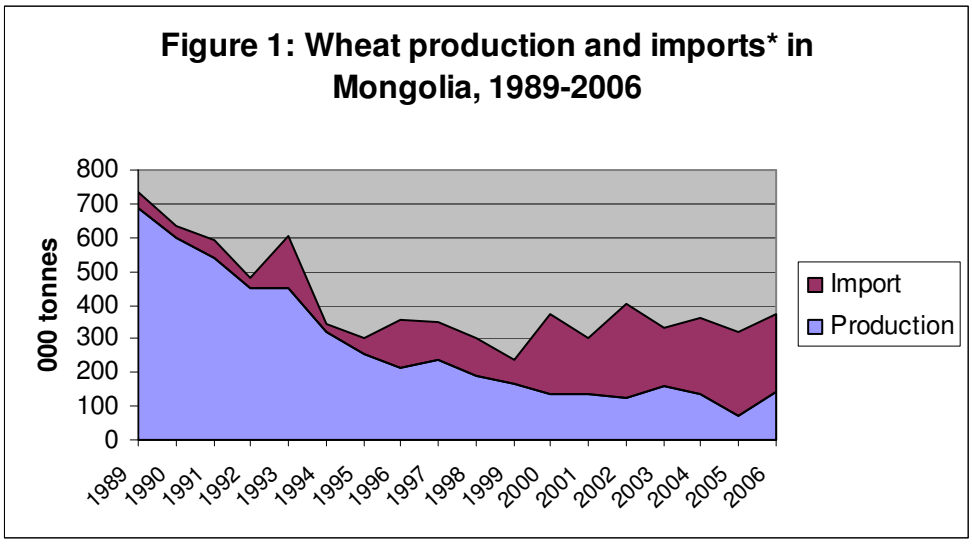
[7] Government of Mongolia-FAO project "Increasing the Supply of Dairy Products to Urban Centres by Reducing Post-Harvest Losses and Re-stocking" 2005.

4.2 Food availability

Production of main food staples have recovered from the *dzuds* and drought-affected levels of 1999-2002. Outputs of meat, milk and vegetables have been increasing steady in the past three years. Wheat production in 2006 has doubled the poor level of the previous year and is expected to cover some 45 percent of the national consumption requirements in marketing year 2006/07 (October/September). Imports of wheat and rice, potatoes, vegetables and fruits have also increased and, despite concerns on food safety, have contributed to improve supplies in remote areas. In general, the Mission found that markets in Ulaanbaatar and the capitals of aimags and soums were well-supplied with national and imported food products.

Wheat

During the socialist period up to 1990, the country was self-sufficient in wheat and an occasional exporter. However, the break-up of the Soviet Union and the subsequent loss of massive Government subsidies resulted in the collapse of the input service system. Wheat production has declined steadily since then and commercial imports and food aid of wheat and wheat flour have increased (Figure 1). In the past five years, domestic wheat output has met an average of 40 percent of the total utilization.



* Imports include wheat flour in wheat equivalent.
Source: 1989-2005, NSO, 2006 Mission's estimate.

As a result of severe drought during the 2005 cropping season, Mongolia gathered only 74 000 tonnes of wheat, the lowest crop on record, while utilization requirements in 2005/06 marketing year (October/September) amounted to 375 000 tonnes (Table 5). The shortfall of 251 000 tonnes was covered by imports. Production of wheat has recovered in 2006 mainly reflecting favourable weather in the major growing areas. The Mission visited the North-Central producing aimags of Selenge, Bulkan, Tov and Darkhan-Uul, where yields have reportedly doubled the levels of last year. The 2006 wheat output is tentatively estimated at 145 000 tonnes and the import requirement in 2006/07 is expected to decrease to 230 000 tonnes.

Table 5. Mongolia: Wheat supply/demand balance 2001/02-2006/07 (October/September) ('000 tonnes)

	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07 (forecast)
Total supply	**402**	**374**	**389**	**406**	**375**	**395**
Production	139	123	160	136	74	145
Imports	243	191	209	236	251	230
of which food aid	44	43	41	39	35	35
Total utilization	**402**	**374**	**389**	**406**	**375**	**395**
Food use	292	297	303	312	318	325
Other uses [1/]	50	58	51	45	37	45

Source: FAO/GIEWS food balances and Mission's estimates for 2006/07.
1/ Other uses are mainly seeds.

Supply of wheat flour is adequate throughout the country. The Mission could verify that markets were well-stocked with Mongolian and Russian flour. Apparent per capita consumption of wheat has remained stable in the past five years and is forecast at around 117 kg/person in 2006/07.

Although food security does not imply food self-sufficiency, production of wheat is a key issue in Mongolia's food security. Wheat is the main crop in the country and wheat flour is the major food staple, covering approximately 59 percent and 52 percent of the daily caloric intake in urban and rural areas respectively. In particular, wheat flour is essential in the diets of the extreme poor populations of the cities who could not afford to buy meat and milk products. Therefore, there is Government concern about the role of domestic production in assuring adequate food availability and in reaching higher levels of self-sufficiency. At the same time, however, there is need to assure stable supplies of wheat flour at affordable prices. The problem is complex and relates to the cost/benefit of rehabilitating the wheat sector, the wheat production potential of the country and its comparative advantages and competitiveness vis-à-vis neighbouring countries.

Rice

Imports of rice, which is not produced in the country, have been increasing in recent years averaging 20 000 tonnes per year in the period 2000-2005. However, consumption of rice remains limited when compared to wheat.

Livestock

With over 30 million camels, horses, cattle, sheep and goats, livestock production is one of the country's key economic activities. Livestock accounts for 85 percent of the agricultural sector output, which according to preliminary official data for 2005, accounts for about 22 percent of the national product, second only to the trade sector, and is by far the first source of employment attracting 40 percent of the labour force. Besides providing a large part of the country's food supplies, the livestock is also the main source of fuel for cooking, heating and transport in rural areas.

Despite the end of the Government's intervention in the livestock sector in 1991, the number of animals increased during the 1990s mainly as a result of higher mobility of herds after the Socialist period. The severe *dzuds* and droughts of 1999-2002 resulted in the loss of about 10 million of animals (Table 6). The sub-sector has recovered since 2004 and preliminary estimates indicate that the numbers of livestock in 2006 are similar to the 1999 levels. This reflects successive years of favourable weather conditions, investments in response to good cashmere and wool prices and in the dairy farming, as well as low animal take-off as part of risk minimization strategies by herders. It is worth to note, however, that in bod terms numbers are considerably different than in 1999. The 2005 bod units are 3 465 000, or 30 percent lower than in 1999, mainly due to higher numbers of goats. Both, the composition of the herd and the high number of animals are giving concern about pressure on pasture resources and over-stocking. This is particularly the case when considering the limited availability of hay and fodder, which makes the survival of animals in harsh winters basically dependent on autumn pasture conditions and herding skills.

Table 6. Mongolia: Livestock numbers, output and trade of animal products

	1980	1990	1999	2000	2001	2002	2003	2004	2005
Number of livestock ('000 heads)									
Total	**23 771**	**25 857**	**33 569**	**30 227**	**26 075**	**23 898**	**25 428**	**28 028**	**30 399**
Camels	592	537	356	323	285	253	257	257	264
Horses	1 985	2 262	3 163	2 661	2 192	1 989	1 969	2 005	2 029
Cattle	2 397	2 849	3 825	3 098	2 070	1 884	1 793	1 841	1 964
Sheep	14 231	15 083	15 191	13 876	11 937	10 637	10 756	11 687	12 885
Goats	4 567	5 126	11 034	10 270	9 591	9 135	10 653	12 238	13 267
Main livestock output ('000 tonnes)									
Total meat (slaughter, weight)	**234**	**249**	**289**	**311**	**226**	**204**	**153**	**199**	**193**
Beef	71	66	105	113	67	61	44	52	49
Muttons and goats	116	132	129	120	105	95	81	98	95
Milk	226	316	467	376	290	277	292	329	335
Eggs (million units)	21	38	10	7	8	4	7	16	21
Imports (tonnes)									
Milk Powder		1 038	365	346	1 385	835	n.a	n.a.	n.a.
Major meat exports									
Meat ('000 tonnes)		24	15	17	20	23	15	8	8
Intestines ('000 rolls)		2 164	1 025	870	368	316	223	278	295
Edible meat offal (tonnes)			3 151	812	3 430	1 629	887	6	404

Source: NSO.

Meat

The country is self-sufficient in meat and has an exportable surplus. Most of the meat consumed in the country is processed in rural households and in soum and aimag centres using traditional techniques. The formal meat industry collapsed with the privatization of livestock in 1991 and while production of meat increased steadily until 2000, exports of meat, intestine and edible offal products fell by one-third. Following the severe loss of animals in 2000-2002, meat output declined sharply from 2001 to 2003. Despite some recovery in past years, production of meat has remained well below the levels of the 1990s and exports are very limited. This is mainly attributed to herders' behaviour aiming to build up their animal numbers to pre-1999 figures, but also to changes in the herd composition in terms of size (larger number of small animals).

As a result of the lower availability, average consumption of meat in 2005 is estimated to be 17 percent lower than in 2000, although it remains high by international levels.

Milk

The bulk of the milk consumed in rural areas (245 kg per person per year) is in the form of customary dairy products. Only a small proportion of the total milk produced in the country is processed by the formal dairy industry, which coupled with modern consumption tastes developed with the urbanization process, has resulted in the fact that most of the milk consumed in cities is imported, in spite of the large domestic supplies.

Similar to the rest of the food sector, the dairy industry collapsed during the abrupt transition from State to private ownership in the early 1990s and by the end of the decade Mongolia was importing three-quarters of its processed milk and dairy products. The decline of the national herd in 2000-2002 resulted in the plummeting of the milk production and the import of almost all the milk sold in urban markets. Total milk production has been recovering since then and by 2005, production, at 335 tonnes, was 21 percent higher than in 2002. The formal milk and dairy sub-sector is also reviving, supported since 2004 by a Government/FAO project, and the component of domestic produced milk in the formal processed milk has increased from some 3 percent in 2003 to about 7 percent in 2005.

Overall, urban and rural markets are well stocked of milk products from imported and domestic sources. While availability is higher in rural areas, increasing concern is being raised about the quality and safety of the informally produced milk.

Potatoes and vegetables

Mongolia also produces potatoes and vegetables but the planting areas are very small related to wheat crop. Cabbage, carrots, cucumbers and red peppers are popular. Similar to wheat, potato and vegetable growing is concentrated in the Central provinces and the capital city, that together account for about 60-70 percent of the country's total output.

Along with most other food industries, the sub-sector collapsed in the early 1990s. By 2002 production of potatoes and vegetables was only one-third of its level in 1989 and imports increased steadily (Table 7). While recovery in production has been considerable in recent years, far more impressive has been the increase in imports in recent years. Imports of potatoes, mostly from China, have increased from 9 000 tonnes in 1999 to 41 000 tonnes in 2005. Concern about the quality and safety of the Chinese imported vegetables and fruits is widespread in the country and there is a clear market preference for locally-grown products, despite their higher prices.

The remarkable increase in supplies of potatoes and vegetables has translated into higher consumption levels, particularly in urban areas, and among poorest population that cannot afford animal products.

Table 7. Mongolia: Production and imports of potatoes, vegetables and fresh fruits ('000 tonnes)

	1989	1990	1995	1999	2000	2001	2002	2003	2004	2005
Potatoes										
Production	155.5	131.1	52	63.8	58.9	58	51.9	78.7	80.2	82.8
Imports			2.9	9		22	36	40	38	41
Vegetables										
Production	59.5	41.7	27.3	39	44	44.5	39.7	59.6	49.2	64.1
Imports	2.7	2.1	2.6	3.9		8.6	12.3	14.8	21.0	17.6
Fresh fruits										
Imports	3.4	3.5	2.6	8.4		12.7	18.7	23.3	22.9	22.5

Source: NSO.

Fruits

Limited quantities of fruits, such as watermelons and various types of berries, are also grown on a small scale in urban gardens[8]. Imports have increased in recent years improving availability and consumption, mainly in urban areas.

4.3 Markets and access to food

Marketing system and markets integration

Markets in Mongolia have a particular importance for access to food since the majority of the population lives in urban areas and are buyers of food. In rural areas, herders are self-sufficient in meat and dairy products but need to acquire all other food products, in particular flour, an important component in their diets.

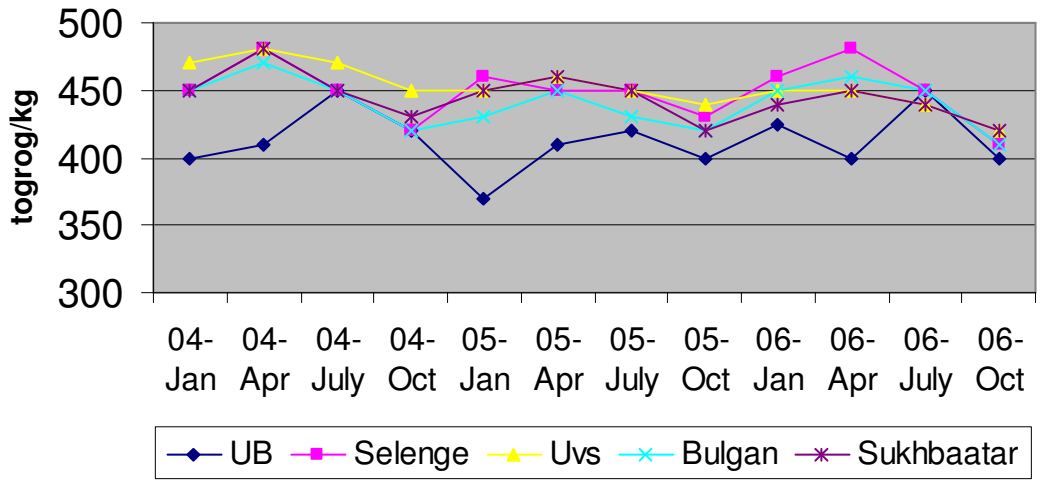
Imports of cereals (wheat, wheat flour and rice), potatoes, vegetables and fruits have increased considerably since trade liberalization in the early 1990s, and international markets are playing a significant role in Mongolia's food supply. Following its accession to the WTO in 1997, Mongolia took measures to liberalize foreign trade, including the reduction of tariffs which were bounded at a ceiling of 20 percent for the majority of goods. Since 2002, the country has applied a 5 percent customs duty rate on all imported goods, with the exception of wheat flour and certain vegetables that are subject to a 15 percent seasonal tariff from 1 August to 1 April of each year.

The main food market is in the capital Ulaanbaatar but there are markets in all aimag and soum centres including those in remote locations. Regional markets are generally well-integrated with Ulaanbaatar and international markets. However, integration varies greatly according to commodity. For the main staple flour, Ulaanbaatar is a major consumption (final destination) and wholesale market. Substantial quantities of domestically produced and imported flour from Russia and Kazakhstan arrived directly into Ulaanbaatar and then are distributed to other markets in aimag and soum centres. As a result, both Mongolian and Russian flour prices have the lowest quotations in Ulaanbaatar. However, price disparity between markets is small, as illustrated in Figure 2 showing wheat quotations in Uvs, Bulgan, Selenge and Sukhbaatar, located in the

[8] Each household has an area of about 0.7 ha.

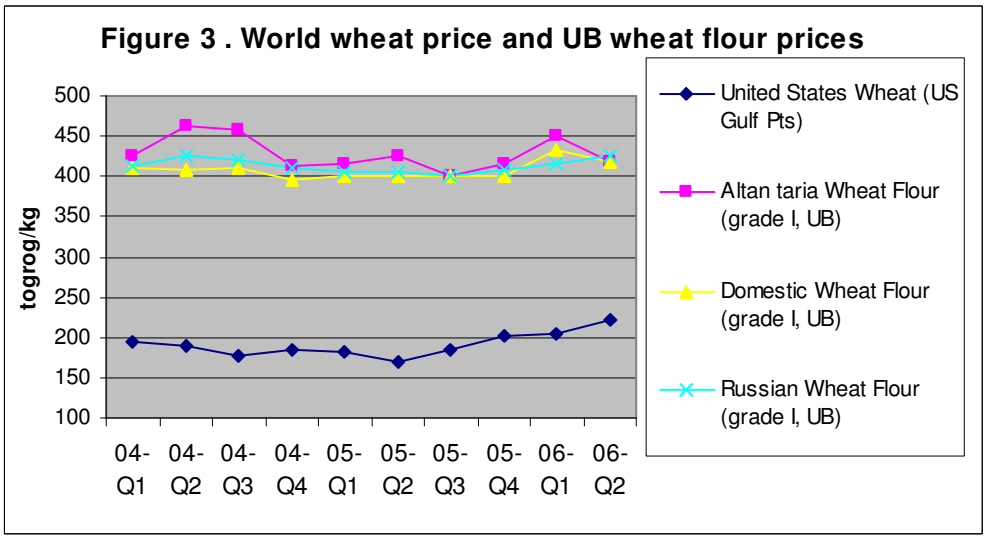
West, Highland, Centre and East regions respectively. Price differentials are mainly due to transport costs and traders' margins, indicating integration with the Ulaanbaatar market and, in border areas, with neighbouring countries markets. Prices of wheat follow movements in the international markets (mainly Russia), with domestic production having limited impact on market flour prices. This was evident in marketing year 2005/06 (October/September) when despite a sharply reduced wheat harvest, prices of flour and bread remained stable (Figure 3).

Figure 2. Wheat flour prices in selected markets



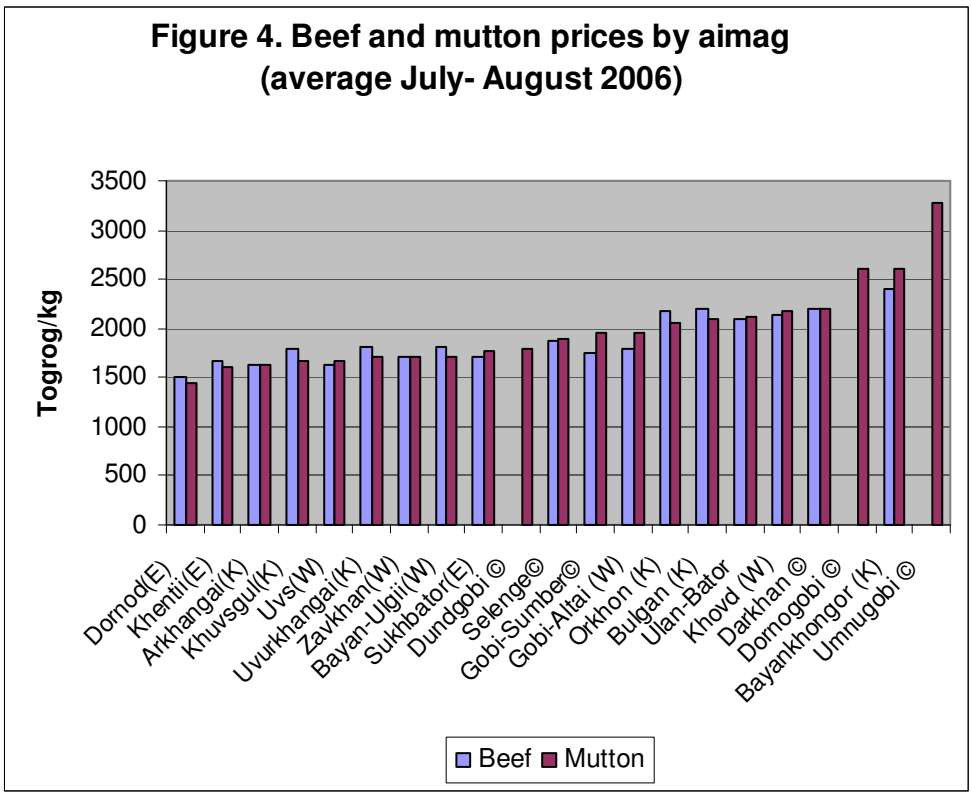
Source: Mercy Corps/USAID in Mongolia.

Figure 3 . World wheat price and UB wheat flour prices



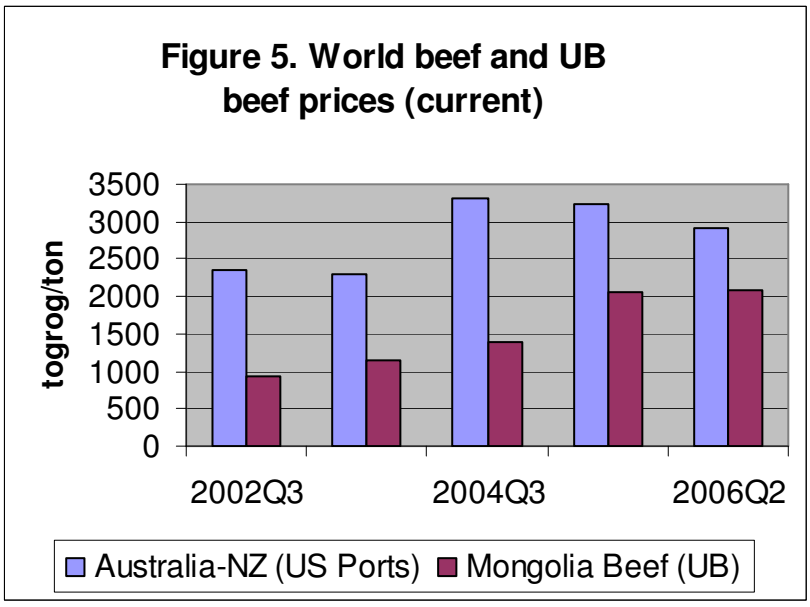
Source: Mercy Corps/USAID in Mongolia; IFS.

With a small percentage of the country's meat production processed in major abattoirs (mainly for the export market), the major meat marketing channel is through direct sale by herders to wholesalers. Carcasses are then transported to the cities and sold in the markets by retailers. Another important, although not quantified source of marketing, is the gift of animals or carcasses from rural families to relatives and friends living in the cities. The amount of meat entering the markets of the main cities of Ulaanbaatar, Darhan and Erdenet is difficult to estimate. In general, there is a lack of formal processing and storage facilities and limited control of hygienic conditions. The Mission could verify adequate supplies of meat in all aimags centres, but there were large variations in meat prices according to different regional markets. As shown in Figure 4, quotations range from 1 500 togrogs/kg in Donrnod (East region) to more than 3 000 togrogs/kg in Omnugobi (Central and Gobi regions), indicating lack of market integration. Many private herders in distant locations cannot sell their animals and products or are reliant on traders' visits and often price-takers.



Source: Ministry of Trade and Industry of Mongolia.

Mongolia has been a net meat exporter and meat prices in domestic markets are well below those in the world market (Figure 5), highlighting the potential of the country as an exporter, but also the difficulties to import in times of crisis. The domestic meat market is mainly influenced by domestic supply and demand, and is not well integrated into world markets as shown the price differences in Figure 5. Another feature that reflects this lack of integration is the fact that in several aimag and soum markets all meat cuts are sold at the same price.



Source: IFS; Ministry of Trade and Industry of Mongolia.

Market disintegration is even more striking in the case of milk, as reflected by the fact that most of the milk processed in the formal sector (and consumed in urban areas) is imported. The lack of collection points and processing infrastructure prevent the connection of producers and consumers and have resulted in consumption levels of milk 4 to 5 times higher in rural areas.

Prices of food staples

Trade liberalization has had beneficial effects and prices of basic food in real terms have declined in the past five years (Table 8). Only meat prices have been increasing due to lower animal off-take. While the decline in prices of basic food has generally favoured access to food, the largest reductions have been in prices of flour products and vegetables, which are the main staples of the low-income groups of the population. The changes in food prices have also resulted in an improvement in the terms of trade between meat/flour and meat/potatoes, favouring access to these products by herder populations.

Table 8. Annual average prices of main food in Ulaanbaatar (in real terms at 2000 prices)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Grade 1 flour (kg)	445	458	384	347	351	329	289	288	357	299
Bread (Atar)	267	297	277	262	250	246	242	234	234	228
Rice (kg)	579	488	433	427	413	419	413	394	467	506
Mutton (kg)	1 091	1 008	995	918	1 135	1 071	981	1 177	1 252	1 521
Beef (kg)	1 171	1 044	1 021	918	1 103	1 094	1 069	1 249	1 352	1 681
Milk (lt)	377	459	459	476	459	486	426	420	367	349
Kefir (lt)	416	527	508	505	475	515	458	447	406	399
Butter	3 598	4 298	4 519	4 095	3 798	3 507	3 377	3 302	2 977	2 762
Sugar (kg)	705	721	620	618	558	603	568	486	453	451
Green tea (2 kg)	2 632	2 912	2 766	2 522	2 534	2 331	2 134	1 703	1 564	1 861
Apple (kg)	738	671	647	617	587	681	658	664	674	583
Potato (kg)	327	376	334	317	380	349	355	345	264	337
Cabbage (kg)	524	458	461	473	511	470	451	435	372	360
Carrot (kg)	679	808	709	693	724	548	518	427	322	465
Turnip (kg)	404	625	375	364	734	382	579	444	342	526
Onion (kg)	700	834	807	849	1 089	447	427	456	366	311
White salt (kg)	327	358	353	304	282	260	242	194	173	179
Vegetable oil (lt)	1 850	1 886	1 718	1 684	1 536	1 028	1 099	1 191	1 164	1 146
Eggs(units)	132	155	153	155	128	108	100	85	84	107

Source: Statistics Department of Ulaanbaatar City.

4.4 Stability of food supplies

Due to the harshness of Mongolia's winter, there is marked seasonality in food availability in both rural and urban areas. More meat products are consumed in winter and more dairy products during summer. Also generally unreported is the spike in vegetable and wild fruit and nuts' consumption in autumn, following the harvest (see Food Security Calendar in Annex 1). Various flour products such as noodles and simple breads are consumed throughout the year. The hungry period in rural areas is early spring when winter stocks of meat and dairy products are exhausted and pastures have not yet regenerated. Temporary food insecurity is likely in that period among the poorest sections of herder households, but those with large numbers of animals consume meat and milk products all year round. In urban areas, variations on food consumption are less pronounced due to the more diversified diet and better access to markets. However, prices of meat and vegetables show large increases in spring months, while those of milk rise in winter. Poor families in urban areas depending on seasonal labour experience food insecurity in winter months when there are less working opportunities and the limited incomes/savings of the family incomes have to compete with expenditure on heating. Overall, liberalization of trade has contributed to improve the stability of food supplies. Potatoes, vegetables and fruits can be consumed all year round and flour prices remain stable.

Despite the fact that seasonality of food availability is well recognized in Mongolia, there are no systematic data on characteristics and impact of this seasonality on food security at regional, sub-regional or household levels. Winter food security is under researched, largely due to the serious logistical challenges of conducting surveys in winter. The laudable exceptions to this are the household food security surveys conducted by Action contre la faim and World Vision International, although the size of the country means that findings which are applicable to one aimag/soum may have little to no application in another region.

4.5 Utilization and nutritional aspects

Besides availability, stability and access to food, optimal utilization is another important factor for a healthy nutritional status. Sufficient access to food (at the household level) is in itself no guarantee for actual sufficient food consumption. People's nutritional behaviour can be inadequate due to, for example, limited or

incorrect nutritional knowledge. Incorrect nutritional behaviour can lead to unbalanced diets with little variety, causing people to become deficient in certain micro-nutrients.

Even if people are aware of what constitutes a balanced diet, the nutritional situation can still be threatened by the environment, e.g. food grown on soil that is poor in iodine and zinc is generally deficient in these minerals. Infants, pregnant and lactating women, chronically ill and the elderly are generally more vulnerable to nutrient deficiencies. Crucially, health care and hygiene in the household also have an effect on the nutritional status.

Nutritional status: an indicator for measuring progress on food security and MDGs

Based on the 2005 UNICEF/NSO Multiple Cluster Indicator Survey 3 (MICS), progress has been made in Mongolia in reducing malnutrition in children under five since 2000. In terms of overall trends, this corroborates the findings of the 2004 UNICEF/MoH Nutrition Survey[9]. Using data collected in 2005, MICS 3 notes that acute malnutrition has dropped from 5.5 to 2.2 percent. Severe stunting was reduced from 8.5 to 5.9 percent, and the percentage of underweight has dropped from 13 to 6 percent.

The MICS preliminary report ascribes this decline in malnutrition rates to "various health and nutrition policies, growth monitoring and supplementation programmes in place, coupled with economic growth and improvements in access to clean water and sanitation"[10]. Growth monitoring for children under two was introduced in 2000, and allowed health care workers to address weight loss in children more accurately and earlier. Reporting and data collection within the health districts has also improved significantly since 2000. Associated growth monitoring training has also improved awareness of nutrition issues within the healthcare community.

MICS highlights the connection between maternal education and household wealth: 13.5 percent of underweight children had mothers with no education, and 9.1 percent were within the poorest quintile. Therefore, the highest rates of vulnerability within the MICS sample are most likely to be among children with mothers with no education from poor households in the western aimags[11]. However, MICS does not disaggregate between ger and non-ger urban population, or between migrant and non-migrant urban populations. Analysis of information divided along these lines would provide an important indication of the correlation between urban food insecurity, maternal education and income levels.

Geographically, MICS indicates that underweight prevalence is highest in the western aimags at 28 percent overall, although the percentages of the eastern regions are comparable at 26.9 percent. The 2004 survey also notes that the underweight prevalence in rural areas is twice as high as it is in urban settlements; this difference is especially marked in children under two.

In some areas the Mission visited, growth monitoring coverage was upwards of 90 percent, but in others it was less than 70 percent (e.g. Tolbo soum, Bayanolgii). Public information as to the functioning and importance of growth monitoring also needs to be reinforced: one interviewee interpreted the record of her child's healthy growth as illustration of his increasing weight loss by inverting the values on the x and y axes.

During the Mission in the Highlands it was realized that no specific nutritional treatments or funds were available at Family Doctor's Practice for children identified as severely underweight or growth-faltering, only wasted children were referred to the local hospital. In the Huvsgul the only recourse health practitioners had was to reiterate the information in the child growth pamphlet and conduct a cooking demonstration. The futility of this latter activity became evident when the Mission visited the home of a severely underweight child in Delgermurun soum, Moron, Huvsgul. Although the child was being well cared for by the family, they simply could not afford to purchase milk or other special foods for the child.

With regards to stunting, although improvements have been made in its overall incidence, stunting still is the most prevalent form of undernutrition in Mongolia. Current prevalence is 21 percent and has declined 4 percent since 2000. Stunting is a result of malnutrition over prolonged periods and has adverse effects on children's cognitive and behavioural development. Stunted children demonstrate limited catch up growth and

[9] It should be noted that both the Preliminary MICS Report and the Final 2004 Nutrition Survey Report have been released within weeks of each other in September 2006. However, as MICS 3 represents 2005 data, this represents the most up to date data and has been used here.
[10] NSO/UNICEF Multiple Cluster Indicator Survey 3 Preliminary Report.
[11] NSO/UNICEF.

they tend to grow into stunted adults. In fact final adult height is largely predicted by height at two years of age[12].

MDG and undernutrition

Given that Mongolia's target in meeting MDG 1 is to reduce prevalence of underweight children to zero by 2015, Mongolia would appear to be on track to attain the MDG, with a possibility that this would be achieved prior to 2015. If the trend indicated by the 2004 survey continues, Mongolia will also attain the World Fit for Children Target on child malnutrition[13]. It is imperative to note that reduction and prevention of undernutrition is one of the prerequisites to achieving not just MDG 1 but rather its prevention is a prerequisite for other MDGs such as primary education, child mortality, and HIV/AIDS, malaria and other diseases[14]. The significance of undernutrition to MDGs is highlighted in the table below.

Millennium Development Goals	Relevance of undernutrition to MDG
Goal 1: To eradicate extreme poverty and hunger.	Malnutrition erodes human capital through irreversible and intergenerational effects on cognitive and physical development.
Goal 2: To achieve universal primary education.	Undernutrition reduces the chances that a child will go to school, stay in school and perform well.
Goal 3: To promote gender equality and empower women.	Barriers to women and young girls in gaining access to food, health and care resources may result in malnutrition among women and their children.
Goal 4: To reduce child mortality.	Hunger and undernutrition are the underlying causes of roughly half of the 10 million preventable child deaths occurring each year worldwide.
Goal 5: To improve maternal health.	Maternal stunting, anaemia and lack of iodine pose serious health problems which in turn are associated with risk factors for maternal mortality.
Goal 6: To combat HIV/AIDS, malaria and other diseases.	Undernutrition may compromise antiretroviral therapy, increase the risk of HIV transmission and hasten the onset of symptomatic AIDS and premature death.

Source: Global Plan of Action: Ending Child Hunger and Undernutrition, UNICEF/WFP, Version 1, 2006.

Although malnutrition per se is relatively low; the survey found that 4.2 percent of women were underweight, with higher prevalence in Ulaanbaatar than in aimag centres.

Micro-nutrients

Nutrition-related problems in Mongolia are frequently a result of multiple micro-nutrient deficiencies. Young children and women of reproductive age are frequently affected because nutrient needs are particularly high during periods of maximum growth such as during pregnancy, lactation and early childhood. Micro-nutrient deficiencies have detrimental impact on the physical development and mental and learning capacity of populations, and consequently, on the socio-economic development of the community and Mongolia as a nation.

Despite impressive gains in the nutrition sector noted by the 2004 UNICEF/MoH Nutrition Survey, micro-nutrient deficiencies continue to be common and widespread.

[12] Mendez, M.A. and Adair, L., Severity and Timing of Stunting in the First Two Years of Life Affect Performance on Cognitive Test in Late Childhood, *Journal of Nutrition,* 129, 1999.

[13] "Reduce child malnutrition among children >5 by at least one third, with special attention to children >2, specifically: 1) Reduce by at least one third the proportion of children under five who are stunted, 2) reduce by at least one third the proportion of children who are underweight".

[14] Global Plan of Action: Ending Child Hunger and Undernutrition, UNICEF/WFP, Version 1, 2006.

Micro-nutrient	Prevalence of deficiency in Mongolia in 2004		Consequences of micro-nutrient deficiency
	Children 1/ (%)	Women (%)	
Vitamin A	n.a.	n.a.	Eye lesions and blindness; substantial increase in mortality from measles, diarrhoea, decreased haemoglobin synthesis.
Anaemia Iron	21.4 22.3	14 13.7	Impaired cognitive and motor development. Impaired work capacity.
Goitre 2/ Iodine 2/	13.8 52.9	n.a. 61.5	Increased still-births. Cretinism. Decreased motor and impaired mental function.
Vitamin D	41	41.1	Rickets. Severe bone deformation.
Zinc	n.a.	n.a.	Impaired growth. Impaired immunity. Increased infections. Stunting.
B12	n.a.	n.a.	Impaired growth and cognitive function.
Folate	68.4	90	Neural Tube defect.
Multiple micro-nutrients	-	-	Believed to contribute to childhood stunting.

Source: 2004 UNICEF/MoH Nutrition Survey unless noted otherwise.
2001 UNICEF/MoH/CDC Nutritional Consequences of the *Dzud* in Mongolia.
1/ Children 6-59 months with the exception for goitre and iodine.
2/ Children 8-12 years old.

Iron deficiencies are commonly understood to be a result of dietary practice. Twenty one percent of children under 5 suffer from anaemia, with a further 37 percent classified as having only marginal intake. Children under 2 are 2.5 times more likely to be anaemic and it is highest among children 6-11 months old at 39.6 percent and 34.4 percent in 12 to 17 month old children. According to WHO, this anaemia prevalence is of "high" degree.

Prevalence of iron deficiency among 6 to 23 month old children was 30.6 percent. The impact of iron deficiency in this age group is long-lasting as it can result in learning problems affecting social development and educability, hence in the long run impacting the nation's socio-economic output.

During Mission's discussions, anaemia was reported as a health problem by some health staff. However, no supplements were available for treatment. Majority reported the last supply of iron supplements for children under 5 was 3 to 4 years ago. Currently, it appears that WVI is one of the few agencies which provide iron syrup for their program areas.

Vitamin D: Forty one percent of children under five have low reserves of Vitamin D, and 20.8 percent have two or more symptoms of rickets such as soft fontanelle, bowed legs, hard swollen joints. The prevalence of symptoms of rickets was higher in Western, Highland/Khangai, Eastern and Ulaanbaatar than in Central.

From the 2004 survey, only 15.6 percent of children under 2 had received a preventive dose of Vitamin D within the last 12 months. Interviews with all health personnel, from national to the local health facility, reported rickets as a public health problem. However, supply of Vitamin D supplements (preventive and curative dose) was poor to none across all aimags assessed by the Mission. Health facilities in one location visited (Tolbo soum, Bayanolgii) had not received Vitamin D in three years.

The findings of the 2005 World Vision/Nutrition Research Centre Survey of two districts of Ulaanbaatar and Dornod aimag found anaemia rates of 30.1 and 34.2 percent in the urban locations, and 23.2 percent in Dornod. Some 49.9 percent of the urban sample had one symptom of rickets, and Vitamin D supplementation coverage was poor: only 17 percent of children took any supplement, and the majority of that was for two months or less.

Vitamin A: Supply was reported during Mission's assessment to be by and large stable and reliable by all health personnel interviewed. However, national coverage, as reported by 2004 UNICEF/MoH Survey, is at a very modest 51.6 percent; highest coverage of 54.4 percent was in the Western region and lowest in Central at 48 percent. Considering that the Mission visited health facilities a week prior to a Vitamin A campaign, in

Highland region, only a few health facilities mentioned the upcoming campaign but none of the mothers interviewed seemed to be aware of the bi-annual Vitamin A supplementation.

Zinc and other micro-nutrient deficiencies have been suggested to negatively affect growth and may be one of the factors contributing to stunting. Zinc deficiency can not be rectified by increased food supply alone.

Iodine deficiency: Mongolia has recently been classified as being a low IDD (iodine deficient) country, having successfully reduced the incidence of goitre from 21.4 percent in 1999 to 13.8 percent. However it should be noted that because of the weaknesses inherent in the use of thyroid size as an indicator of current iodine status, to evaluate the impact of IDD elimination accomplished through salt iodization programs are best guided using the results of urinary iodine (UI) for the assessment of iodine status[15]. In order to eliminate iodine deficiency disorders in a population, WHO suggests that median urinary iodine levels should be ≥100μg/L, and that no more than 20 percent should have values <50μg/L. From the 2004 MOH/UNICEF Survey 52.9 percent of children (8 to 11yrs old) had iodine level <100μg/L, only 14.8 percent had adequate (200-300 μkg/L) iodine content indicating sufficient consumption of iodized products. Amongst the women of childbearing age, 18.7 percent had less than 50 μg/L and 31.2 percent had 50-99 μkg/L. Only 38.5 percent of women consumed an adequate amount of iodized products.

The Survey reports that some 74 percent of households now consume iodized salt. An assessment of the local markets during the Mission revealed an enormous variety and quality of salt available. Of the many households visited by the Mission, particularly in Highland region, many continued to use brown salt. All families were aware of benefits of iodized salt; however, their main reason for not purchasing/using iodized salt was cost.

Low micro-nutrient intake is also a factor for women of reproductive age. Among women, only 22.9 percent of mothers received any vitamin supplements, with 31.7 percent of pregnant mothers classified as Vitamin D deficient, and 14 percent anaemic[16]. While there has been a slight decline from the pre-Survey estimate of 17 percent prevalence of anaemia, the Survey highlights the low reserves of iron, folic acid, Vitamin B12 and Vitamin D.

The WVI/NRC study findings on women's intake of micro-nutrient supplementation suggest that the current mode of distribution and information dissemination is not working well. Only 15 percent of urban mothers with children under two took any iron supplements, and in any case only did so for two months. For Vitamin D, less than 10 percent took any supplements[17].

Health facilities interviewed by the Mission, reported adequate supplies of iron supplements for pregnant women through the support of reproductive program by UNFPA. At the household level, women interviewed reported receiving "some supplements" during their pregnancy, unfortunately were not able to say what it was or why they were given the supplements. Compliance under these circumstances could be low.

Breast-feeding and complementary feeding[18]

Despite a generally high level of cultural acceptability of breast-feeding, statistics indicate that rates of exclusive breast-feeding over the first six months remain lower than might be expected at 57 percent. Compared to the 2000 MICS Survey, breast-feeding rates have remained relatively stable (2000 recorded 55 percent exclusive breast-feeding for the first six months), despite the increased flow of milk substitutes and baby food into Mongolia. The report attributes this to running awareness campaigns in all mass media to raise the awareness of the benefits of breast-feeding and the potential harmful effects of milk substitutes, and partly by introducing the National Code on Breast Milk Substitutes [2005], which seeks to regulate how the products can be marketed.

Rates of introduction of complementary feeding are also below standards, with only 57 percent of children ages 6-9 months receiving breast milk as well as soft foods. At the age of the most intensive child growth, the variety, quality and composition of complementary food are inadequate and fail to meet the growing child's nutritional needs. According to the UNICEF/MoH 2004 Nutrition Survey, the first complementary foods introduced tend to be semolina and meat broths with flour (zutan and bantan). However, the frequency of

[15] According to WHO criteria, a population median urinary iodine level <100μg/L suggests insufficient intake and at least mild iodine deficiency; a median level <50μg/L suggests moderate deficiency; and a median level <20μg/L suggest severe iodine deficiency.
[16] UNICEF/MoH.
[17] NRC/WVI, "Current Nutritional Status among Children, Mothers and Pregnant Women" (Survey of Chingeltei, Khaan-Uul and Dornod aimag), 2005.
[18] NSO/UNICEF.

meals provided and the serving size per meal are far below MoH recommendations. Only 22.2 percent of weaning children consume the recommended amount of food per day. Hence, as complementary feeding is introduced, rates of malnutrition increase.

It should be noted that rate of exclusive breast-feeding to 4 months is 79.7 percent[19]. From Mission's discussions with mothers of children less than 2 years old, complementary feeding was introduced when the baby was 3 to 4 months, even though most were aware of the new guidelines. The early introduction of complementary feeding may be a reflection that the decision is not solely made by the mother. Therefore, before more awareness campaigns are initiated, it is imperative that qualitative research is conducted to understand the circumstances around ceasing exclusive breast-feeding before 6 months and to understand the dynamics of who the influential family members are in this decision.

Health status and health seeking behaviour

In Highlands, the main health problems reported by health facilities, for both children and adults, were kidney and urinary tract problems.

Interviews with female-headed households, often poor, revealed that women usually did not seek medical assistance for their aliments, primarily due to the expected expenses, instead traditional remedies[20] were practiced. In a number of households, traditional remedies were also practiced on children. It was also shared with the Mission that even if the child was taken to a local health facility often the medication prescribed was too expensive to purchase.

Monitoring health activities

Health managers at aimag and soum centres reported that one of their main constraints was limited resources available to monitor activities at lower administrative levels; generally each soum is visited only once a year. It was expressed that more regular visits would enable better supervision, technical support and more reliable data. For example, one aimag was not confident in the monthly data received from the soums.

Food fortification

The consumption of iodized salt has risen considerably over the past five years, from 46 percent to 74.4 percent; this figure rises to 93.1 percent in cities. In 2003, the Government of Mongolia passed a law prohibiting the importation of non-iodized salt. However, salt mines, pans and lakes are not uncommon in some aimags and such that salt can be produced at zero cost. Iodized salt usage is considerably lower in areas of Mongolia where people are unaccustomed to paying anything for salt and/or producing their own. For the poor families encountered by the Mission, the higher cost of iodized salt was a major deterrent.

Vitamin A and D milk fortification is not common practice in Mongolia, although some milk production in Ulaanbaatar is fortified with calcium. Milk commercially produced outside the capital is not fortified and a large proportion of milk is produced or processed within the household for own consumption, and is, therefore, unfortified.

Currently first grade flour is fortified at seven mills nationwide with the support of the ADB, and supply in major centres is relatively constant. However, flour imports from Russia and China are not necessarily fortified; soum and aimag markets within proximate distance of major trading points in the neighbouring countries often have substantial quantities of unfortified flour for sale. In spot checks on household flour supplies, WVI/NRC found that 33.2, 50.2, (both urban locations) and 47.3 percent (aimag) of flour consumed was fortified[21]. The legal framework on flour fortification (and fortification for imports) has not yet been developed, which is a major contributing factor to the weak enforcement mechanisms necessary to ensure a regular supply of fortified flour.

From market assessment and discussions with households and flour mill producers currently, fortified flour is sold at a higher price than unfortified flour. From the households interviewed in the Highland region, the majority were unaware that fortified flour was available or what its benefits were. All households reported to purchase the cheapest available flour on the market, i.e. unfortified flour. In Bulgan, the difference between fortified and unfortified flour, for a 25kg bag, was almost 5 000 togrogs, produced by the same mill. If the benefit of fortified flour is to reach the neediest then price control needs to be enforced and monitored.

[19] MoH/UNICEF Nutritional Status of Mongolian Children and Women, 3rd National Nutrition Survey Report 2004.
[20] Such as drinking mother's urine.
[21] NRC/WVI.

Overweight/Obesity issues

Despite the positive trends in malnutrition, nationally there is increasing incidence of overweight children under five. Some 9.6 percent of children are overweight, including children from the richest households, children of mothers with university education and children living in Ulaanbaatar.

The UNICEF/MoH 2004 Survey notes a rise in the rates of obesity and overweight in women, with higher prevalence in the countryside. The survey classifies 26.5 percent of women as overweight, and 8.1 percent as obese. Compared to the 1999 national survey data on overweight and obesity, the number of overweight/obese mothers of children under five has almost doubled over the past five years. While data for the population of all women aged 15 to 49 are not available, this would nonetheless suggest that while Mongolia may be making good progress in addressing issues associated with being underweight, additional attention may need to be focused on the implications of a more overweight population.

Water/Sanitation

The pressure on Mongolia's water resources is considerable. In addition to the daily requirements of the human and animal population, water resources are increasingly being used in the formal and informal mining sector with varying degrees of responsibility and regulation. In urban areas, weak infrastructure in the ger districts means that residents frequently have to transport water by hand from water kiosks, tankers, streams and rivers. Access to water is generally uneven, and may be seasonally variable; depending on the source, water may be plentiful in summer and difficult to source in winter (or vice versa). Many water sources freeze up for months at a time during winter, rendering households dependent on secondary sources which may be of lesser quality.

In the capital, apartment residents consume 240-450 litres of water a day, whereas ger residents consumed 8-10 litres[22]. In rural areas, water access is a critical factor in seasonal population movements in search of pastureland. The Mission was informed that in the Highland region some herders have not moved to their winter camp due to lack of water. Also, the number of new wells and rehabilitated wells are not enough to support pastoralist livelihoods.

The NSO/CIAD study found that 'water supply is the largest common problem for all survey sites and for all kinds of groups- men, women and mixed'[23], and was the prevailing concern amongst soum dwellers and outlying herder households. Some 54 percent of the rural population have access to safe drinking water, as compared to 70 percent in Ulaanbaatar[24].

Sanitation standards in Mongolia are also in need of considerable improvement. There is little difference between rural and urban access to sanitation facilities, at 34 and 42 percent respectively. UNDP estimates only 28.2 percent of Mongolians have access to improved sanitation.

In general, the ratio of users to latrines does not meet WHO standards, and latrines construction rarely is of a Ventilated Improved Pit model or better[25]. Determining access to improved sanitation does not regularly take into account the distance the facilities are located from the household or building, with the result that even the figures mentioned above may be optimistic. Sanitation-related issues are mitigated somewhat by freezing winter temperatures, which diminishes the spread of diseases related to poor sanitation. On the whole, water and sanitation issues have not as yet been incorporated into any discussion of food security issues, and any important correlations between food insecurity and water/sanitation are not well researched[26]. However, the combination of poor sanitation and groundwater contamination is clear. During the spring snowmelt, when accumulated waste flows into major water sources such as rivers, sharp increases in morbidity, especially gastro-intestinal related diseases, have been recorded by WHO.

[22] UNCT *Common Country Assessment*, 2005.
[23] NSO/CIA.
[24] UNICEF, *Midterm Review Report,* 2005.
[25] Mission's field observation. School No. 3 in Bayankhongor aimag capital has more than 3 100 students and teachers, and six functioning latrines for the whole campus.
[26] Due to the timing of the MICS data collection (autumn-winter 2005), the sampling was generally drawn from people in soum and aimag centres, who may have more regular access to 'improved' sources of water such as water kiosks and public taps. Therefore, the MICS figure of 71.6 percent (p. 26) having access does not tell the whole story. The same holds true for the sanitation figure.

Gender issues

Some 15 percent of all Mongolian households are female headed, equivalent to 70 300 households[27]. According to the World Bank Poverty Report nationwide, female-headed households comprise around fifteen percent of the total households and a similar share of the poor. Many of whom are single, widowed, divorced or separated. Of that total 42 435 female headed households have four or more children under the age of 16[28]. In Ulaanbaatar, the proportion of poor women was double that of men (44 to 21 percent)[29].

Despite being more prone to poverty than males, Mongolian traditional culture tends towards a degree of equality between men and women[30]. Within the rural household, women have equal access to resources and decision-making, but generally less in community affairs[31]. Mongolian traditional livelihoods require a substantial amount of arduous labour: men's work is concentrated on maintaining the herds in countryside, whereas women's responsibilities are centred on the ger. Women are responsible for all childcare, food preparation and house-cleaning, but also for rearing young animals in spring, milking all animals, preparing all dairy products[32].

Women in soum or urban centres are more likely to be employed than their rural counterparts. Those without permanent employment are usually dependent on piece or temporary work. Also, to be employable a poor female-headed household, with children under 5 years old, must first find affordable childcare. In the highland such households were interviewed and their predicament worsened as they were excluded from the very trainings they much needed because there was no childcare. Other households had no choice but sometimes to leave the children unattended and pray for their safety until the carer returned. For such households, the vicious cycle of being trapped in poverty, surviving on social welfare, under-nourished and food insecure is certain to continue.

[27] NSO.
[28] Ibid.
[29] UNCT.
[30] NSO/CIAD.
[31] Ibid.
[32] Ibid.

Food Safety

Based on guidance from the Ministry of Food and Agriculture from the earliest discussions of this Mission, care was taken to make clear the difference between food security as a concept, and food safety, which deals with hygienic and quality standards for food. The elaboration of the conceptual framework of food security was the opening topic at the Technical Consultation held in Ulaanbaatar on 3-4 October 2006. It is especially salient to make this distinction because both phrases translate identically in Mongolian.

Despite making this distinction between the two concepts, at every stage of the Mission, from the Technical Consultation, through follow-up meetings in the capital to the field work, the prevailing preoccupation of most informants was specifically food *safety*, not food security. In particular, concern was raised on numerous occasions about imports from China, specifically fruit and vegetable imports, but also extended to Chinese imports across the board. Imports from Russia were considered much less risky, and only few mentions were made to risky hygienic conditions of domestic produced food.

The basis for this concern did not appear to be based on any scientific evidence, or ill effects. Medical personnel interviewed had not recorded any cases of illness or infection which resulted from eating poor quality imports. In fact, WHO studies on the quality of food in Mongolia have not found any evidence of pesticide residues or other contamination.

Nevertheless, the general concern with food safety among the Mongolian public should not be ignored or discounted. There is general concern by Mongolian consumers in purchasing food past its expiry date.

Local food inspection of meat and milk was highlighted to be effective as demonstrated in Arkhangai during the Mission's visit to various markets in Bulgon and Husvkol. Some of the vegetables and fruits such as tomatoes, watermelons and grapes, were rotten and should not be permitted for sale.

From a hygiene point of view, there are legitimate concerns about food safety in Mongolia, as pertains to imports, but also to domestic production. Meat and milk production is potentially subject to contamination, especially given the crude level of primary food processing.

Regrettably, the Mission was not equipped to adequately address food safety with the attention it deserved. A comprehensive review of this issue would have required a set of technical skills which the Mission members did not have at their disposal. Moreover, given the range of other issues which the Mission was tasked to examine, focusing unduly on only one element seemed an inappropriate use of resources given the time constraints the Mission faced.

In order to address the public's concerns on food safety, a comprehensive review of the national system of inspection is required. This should focus not only on those food products which hold the public's interest (such as fruit and vegetables imported from China), but also Mongolian domestic production, specifically meat and milk products. In addition, it should be recognized that public concern on this issue will not be allayed by scientific evidence alone. The Government should move to improve public awareness of food hygiene measures, in particular with reference to food preparation and cleanliness.

5. WHO ARE THE VULNERABLE AND FOOD INSECURE?

The satisfactory food security at overall level hides the vulnerability and food insecurity situation of large numbers of population. However, there is lack of information on food security at household level, with the exception of surveys conducted by World Vision International and Action contre la faim in local areas of intervention.

Pending a comprehensive appraisal of the livelihoods of vulnerable populations that allows a better understanding of the specific reasons for food insecurity, and in order to gain an improved knowledge of who are the vulnerable and food insecure, the Mission broadly distinguished two groups of population: i) herder and farmer households whose livelihoods depend exclusively on agricultural activities and ii) poor households living in the cities whose livelihoods depend on cash incomes and employment.

Poverty and food insecurity

Before discussing food insecurity in Mongolia, it is worth to note that food security and poverty, while intimately linked, are not interchangeable terms. As discussed in the "Technical Consultation on Food

Security" at the start of the Mission, Food Security is "the physical and economic access at all times to sufficient, safe and nutritious food to meet the dietary needs and food preferences for an active and healthy life". Poverty, as defined by the World Bank, is "lack of or inability to achieve a socially acceptable standard of living".

5.1 Herders and farmers

Herders represent about two-thirds of the rural population at the national level. The number of herders declined with the *dzuds* of 1999-2002 and by 2005 herder households accounted for 28 percent of the total households. When compared with the increased number of animals in the country, this indicates a concentration of assets in the rural sector.

The composition and size of the herd vary according to ecological conditions and pasture type, as well as with the level of wealth of the households, but basically all herder households are engaged exclusively in livestock activities with no livelihood diversification. Herders are self-sufficient in meat and milk products but buy wheat flour, covering about half of their energy intake, and other basic food products such as salt, sugar, potatoes and vegetables. Their consumption of vegetables is limited and that of fruits is negligible. During its field visits, the Mission met some herder families believing that consumption of vegetables results in health problems. Herder households derive their cash incomes from selling live animals, wool, milk, meat, and skin and hides, either through wholesalers or directly in the markets of the aimags and soums. However, because a high degree of food self-sufficiency, nomadic life-style, use of animals for transport, and use of animal dung for heating and cooking, herder households have relatively limited cash incomes.

It is commonly accepted that the minimum number of heads to cover food and other basic requirements in a sustainable basis is 100. A herd of 150-200 heads allows the family to engage in commercial production, including the use of private veterinarian services. A household with less than 20-30 animals is considered to be poor. According to available statistics from NSO, about one-quarter of the herder population falls into the latter category. Poor herder households obtain additional food by working for larger herders.

Table 9. Grouping of households by number of private livestock, by group number of livestock

	1991	1999	2000	2001	2002	2003	2004	2005
Total	**288 933**	**269 950**	**268 732**	**256 550**	**243 234**	**236 210**	**229 437**	**225 391**
<10	65 013	28 669	31 361	33 797	33 183	29 897	28 010	24 280
11-30	71 609	35 970	40 436	43 082	42 796	39 341	34 295	32 214
31-50	50 859	31 874	35 041	36 030	36 165	32 396	28 930	26 919
51-100	63 836	61 347	63 096	60 195	55 905	52 871	48 860	46 138
101-200	31 878	67 840	59 821	51 383	46 051	47 393	47 946	49 498
>200	5 738	44 250	38 977	32 063	29 134	34 312	41 396	46 342
	Percentage in total							
<10	23	11	12	13	14	13	12	11
11-30	25	13	15	17	18	17	15	14
31-50	18	12	13	14	15	14	13	12
51-100	22	23	23	23	23	22	21	20
101-200	11	25	22	20	19	20	21	22
>200	2	16	15	12	12	15	18	21

Source: NSO.

Overall, the Mission found that the food security situation of herder population is adequate and there are not severe hunger problems in the countryside areas. Although with much less frequency than families with large number of animals, poor households also consume meat, milk and flour products.

The Mission interviewed several poor households with a herd size of 20-30 livestock (mostly goats) who were eating milk and meat products although in limited quantities. However, in the Highlands provinces consumption of poor herder families was more reduced than in other regions and the main staple appeared to be flat bread (*bin*). Temporary food insecurity among poor herders is also common in early spring due to the marked seasonality of food availability in rural areas.

Despite a general better access to adequate amounts of food than other groups of population, herder households present frequently micro-nutrient deficiencies derived from their low consumption of vegetables and fruits.

Moreover, due to the risk of natural disasters, mainly *dzuds* and droughts, and the lack of livelihood diversification, herders are the most vulnerable group of population. Rebuilding a herd in the aftermath of major animal losses takes many years. Herders with limited number of animals may loss all their assets from one season to the other, becoming thus destitute and food insecure. Without a minimum number of animals to ensure a sustainable subsistence, it is almost impossible for a family to survive in the isolation and harsh conditions of Mongolia's countryside. Once the reduction of the herd passes the point of self-sustainability, herder households have no option but to migrate to the cities. At the moment they migrate, however, they cease to be considered herders.

Farmers are concentrated in the Central region, close to the major cities. They are mostly commercially oriented cultivating wheat and vegetables for urban markets. Farmers with small and marginal lands have progressively abandoned agriculture production during the past decade and there has been a concentration in the farming sector. The food security of this group of population is also adequate but, as herders, they are extremely vulnerable to extreme weather changes, mainly droughts and frosts.

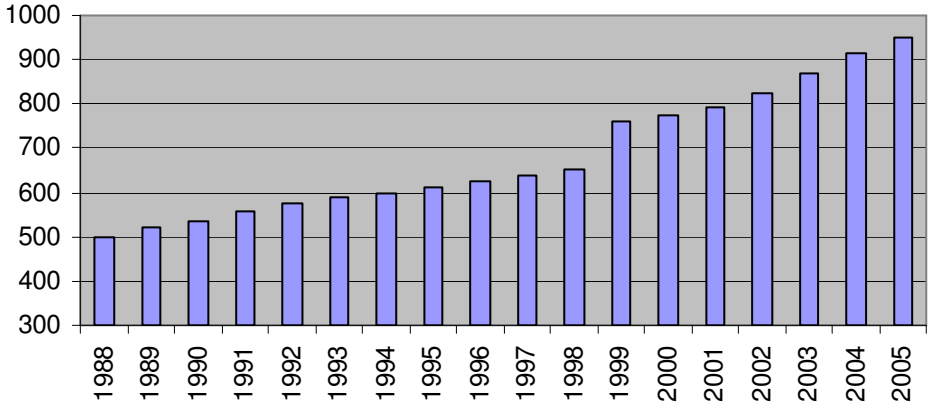
The findings of the Mission regarding food security of agricultural populations would seem to contradict conclusions of the "Households Income and Expenditure Survey/Living Standards Measurement Survey 2002/03", which is the most recent household survey at national level and forms the basis for, inter alia, the 2006 World Bank poverty assessment. Data from that survey led to the conclusion that more poverty is found in rural than in urban areas and that herders and farmers are the poorest groups of population. In the specific case of herders, the Mission's findings refute the linkage between food security and poverty which, as discussed before, are different concepts. Methodological issues[33] in relation to household surveys may also account for differences in the conclusions. Besides, the year in which the survey was conducted, immediately after the *dzuds* of 1999-2002, reflects a reality that has significantly changed in recent years.

5.2 Poor population in the cities

Population living in the cities includes people in Ulaanbaatar and the aimag capitals (urban population), and about one-third of the rural population who is in the soum centres (the size of soums typically varies from some 1 100 to 5 000 inhabitants). All these populations have basically no animals or have very limited numbers, and rely on cash incomes in order to purchase food in the markets. The number of people living in the cities has increased rapidly in the last decade, while population in the countryside has been declining. The population of Ulaanbaatar has doubled from some half a million in 1988 to close to 1 million in 2006.

The Mission found close relation between poverty and food insecurity in the cities. Poor households are food insecure due to lack of purchasing power. They cannot afford to consume meat or milk and their diets are based on flour products, potatoes and vegetables. The poorest have also an instable access to food as coping mechanisms include skipping the number of meals per day or having them once every two days.

Figure 6: Ulaanbaatar population, 1988-2005



Source: Based on data from Statistics Department of Ulaanbaatar City.

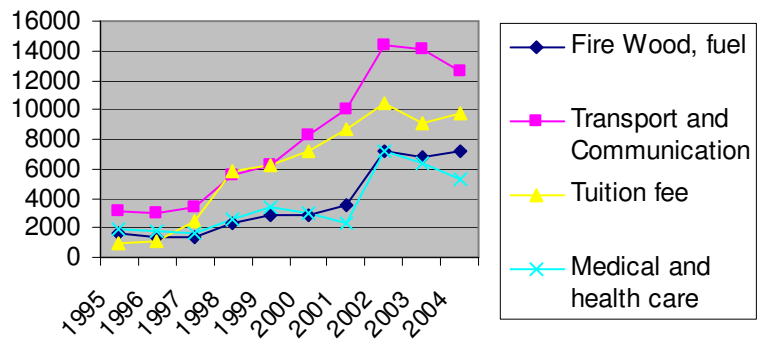
[33] Household income and expenditures surveys seem in general to capture better the situation in urban than in rural areas. This is more marked in the case of Mongolia given its peculiar geographic and socio-economic characteristics.

Unemployment is the major cause of urban poverty. The poor in Ulaanbaatar and in the soum and aimag centers are mostly people who either lost their jobs or who migrated from the countryside looking for working opportunities but could not find employment. The main reasons for migration into the cities are loss of livestock due to natural disasters (pushing factors), and the search for better services mainly in the areas of education and health (pulling factors). Pushing factors appear as having more weight in the migration process. Figure 6 shows that the population growth in Ulaanbaatar is associated with the *dzuds* and drought of 1999-2002, which prompted an annual growth rate of 5.6 percent. The main places of origin of the Ulaanbaatar immigrants in the period 1999-2005 are areas that suffered the largest losses of livestock in each region.

In general, rates of unemployment and underemployment are very high in the cities. Lack of education and skills of migrants from the countryside to soum and aimag centres and to Ulaanbaatar, make it very difficult for them to find a job. The poor households derive their living from temporary jobs, provision of services, social benefits, gifts from wealthier families, and remittances from relatives abroad. Seasonal labour patterns prevail and during colder months, little to no working opportunities may be available. Seasonal occupations vary according to the main economic activities in different provinces, but typically they include construction, harvesting of vegetables, making of hay, and informal mining. Other income generating activities are: cleaning, making and selling bricks, small trading business (such as selling cigarettes by unit), during collection for food bartering, and scavenging. Social assistance payments in the form of pensions, maternity and child allowances, as well as disability payments, represent a key income stream for the poor households. However, in Ulaanbaatar and other main cities, some people have difficulties to be officially registered as residents and, therefore, do not qualify for social benefits and services such as health care. Food provided by relatives in the countryside represents a key source of food supply, particularly in winter and spring. The extent of both private and public transfers in Mongolia is impressive, with four out of five households nationwide either giving or receiving some sort of transfer[34].

The pressure on the cash the urban households are able to earn is augmented by the higher cost of living they face. During the long and harsh winter, heating is a need as great as food. The cost of firewood required to heat a ger, where most of the poor people in the cities live, is well above that of heating a two-room apartment with centralized facilities and as a result the poor have higher heating expenditures. This, coupled with the seasonality of temporary jobs, results in more food insecurity during the winter months. Prices of firewood (in real terms) have been increasing steadily in the last decade, but those of tuition fees, transport and communication, have augmented even faster (Figure 7). The increasing cost of living in the cities, only partially compensated by stable or declining prices of basic food staples, has made poor households more vulnerable to food insecurity.

Figure 7: Some household expenditure in Ulaanbaatar (real term in 2000 price), 1995-2004



Source: Based on data from Statistics Department of Ulaanbaatar City.

[34] HIES-LSMS 2002-2003.

5.3 How many people are food insecure?

Given the close correlation found between poverty and food insecurity among the population living in the cities, studies on poverty can provide a rough approximation of the number of the food insecure population. The HIES-LSMS 2002-2003 defines the poverty line as the level of income sufficient to cover the cost of the basic consumption basket (providing 2 100 kilocalories per person per day) and basic non-food items (including housing and energy consumption). This poverty line was set at togrogs 24 743 per month per person in 2002 prices, equivalent to US$0.73 a day. Those classified as poor in 2002 represented about 27 percent of the total population in Ulaanbaatar, 34 percent of that in the aimags centres and about 45 percent of that in the soum centres. The Mission observed, however, that despite significant lower economic activity and higher poverty levels in soum centres, severe food insecurity was lower than in aimag centres and in the capital reflecting stronger kinship networks. These informal networks are a vital element in the food security of poor households, particularly in small communities. Herders play an important downstream role in the system by providing food supplies to relatives in soum and aimag centres. Households with an income of 40 percent below the poverty line are classified as being absolutely poor and entitled to receive social benefits. Most of the food insecure people are likely to be in this group but numbers were not readily available to the Mission. In all cities, the most vulnerable are in general street children, poor female headed households, and households with one parent sick or disabled.

5.4 Vulnerability and food insecurity links

Urban households engage in a series of different activities to meet their needs and coping mechanisms include the working in a number of jobs simultaneously. In contrast to herder populations, urban households are more immediately likely to be food insecure, but may have a wider range of options to allow them to cope with shocks.

While the vulnerabilities and risk of rural and urban populations are different, there is a logical link between vulnerability in agricultural areas and food insecurity in the cities. The urban food insecure people are vulnerable herders who lost their animals and migrated to city areas in search of a job but remained unemployed.

6. RECOMMENDATIONS

6.1 General recommendations

- ***Establishment of a National Food Security Unit***

Food security covers a wide range of issues involving different sectors and institutions. In order to achieve success, strategies to eliminate food insecurity have to tackle their underlying causes by combining the efforts of those who work in diverse sectors. It is, therefore, recommended that a specific Food Security Unit be established in the country. This Unit should create national inter-sectoral coordination mechanisms for information sharing, assessment and monitoring of the food security situation, as well as to ensure the concerted implementation, monitoring and evaluation of food security policies, plans and programmes. To increase its efficiency, the Food Security Unit should have not only coordination functions but also implementation capability.

The Food Security Unit should apply a multi-stakeholder approach to national food security to identify the roles of, and involve all, relevant stakeholders, including, inter alia, Ministry of Food and Agriculture (MoFA), Ministry of Health (MoH), Ministry of Social Welfare and Labour (MoSW), Ministry of Trade and Industry (MTI), National Emergency Management Authority (NEMA), State Inspectorate, international specialized agencies and development organizations (UNDP, UNICEF, FAO), NGOs (ACF, ADRA, CHRD, Mercy Corps, World Vision) and the private sector (Union of Mongolian Food Producers). Aimag and soum governments should also be involved to assure the participation of local communities in all aspects of planning and execution of food security activities. The new Unit should build on existing institutions and, based on the level of commitment demonstrated in the course of this mission, the Mission recommends that such a Unit be established under the aegis of the Ministry of Food and Agriculture.

- ***Set-up a Food Insecurity and Vulnerability Information System based on available information***

The Mission observed lack of national data on food security at household level. At the same time, aimag and soum governments have their own statistical offices with ample and updated information on population, productive resources, livelihoods, poverty levels, and nutritional status of the local people. All the soums visited by the Mission had classifications of the population by poor and poorest strata. However, the numbers

were not always compatible with those derived from the national statistics, pointing to the need of reconciliation of the information. Similarly, sub-districts offices in Ulaanbaatar have detailed and disaggregated data on vulnerable groups of population. The available information at decentralized level should form the basis of a food insecurity and vulnerability information system that identifies, locates, measures, characterizes and monitors the vulnerable and food insecure population. The system should be part of the above proposed Food Security Unit.

- ***Review and prioritize the National Food Security Plan with a view to resource mobilization***

The National Plan of Action for Food Security, Safety and Nutrition 2001-2010 is a sound and comprehensive document that remains a valid instrument for food security planning. Pending the release of the five-year progress report being prepared by MoFA, the Mission considered that, despite positive developments in several areas such as flour fortification, milk sector rehabilitation and vegetable production, the implementation of the plan has been limited, with low impact on remote aimags and soums. The main reason for this appears to be the lack of adequate funding from both the public and private sector. The assumption that liberalization and a free market environment will prompt substantive private investments in economic activities identified in the plan has not materialized. This has been, in part, the result of financial constraints, including reduced bank loans for industrial activities, high interest rates and short periods of repayment.

The holistic approach of the Food Security Plan has also been a limitation to its implementation. The document contains 14 discrete objectives and 46 strategies, with no clear sense of which were the most pressing, which have already been accomplished and which are redundant. The Mission recommends the updating and prioritization of the Plan with a view to seek financial support by bilateral, multilateral and international donor agencies for effective implementation of key projects and programmes. As mentioned above, if the targets set out by the Government in the national plan are to be met, there is a need to draw together the know-how of the civil society and the private sector and to ensure the awareness and capacity of local governments and communities. The proposed Food Security Unit has an important role to play in ensuring the mutual collaboration and coordination among different stakeholders.

- ***Review the economic and financial feasibility of the wheat sector's rehabilitation***

Production of wheat is a key issue in Mongolia's food security as discussed in section 4.2 of this report. Although food imports account for only 10 percent of the country's total imports, wheat is the main crop in Mongolia and wheat flour is the major food staple, in particular, for extreme poor populations of the cities who cannot afford to buy meat and milk products. Therefore, there is Government's concern about reaching higher levels of self-sufficiency and, at the same time, assuring stable supplies of wheat flour at affordable prices. The problem is complex and needs to be addressed by undertaking a comprehensive review of the sector. This review should focus on the country's potential to produce wheat, the competitiveness of domestic wheat vis-à-vis that of neighbouring countries, and the cost/benefit of rehabilitating the sub-sector.

- ***Establish a FAO office in Mongolia***

Being FAO the lead technical UN agency in food security matters, the Mission recommends that a FAO office be established in Ulaanbaatar. The presence of FAO in the country will facilitate coordination and implementation of food security activities and will play a catalytic role in resource mobilization.

6.2 Specific recommendations

Regarding the prioritization of specific areas of intervention related to food security, the Mission, in line with its observations and conclusions, recommends concentration of efforts in the following areas:

- ***Intensification of pastoral risk management activities***

Herder households are extremely vulnerable to natural disasters and in case of livestock loss their sole coping mechanism is migration to urban areas. The great shortage of unskilled labour opportunities in the cities underlines the need to maintain herder populations in the countryside to avoid that they fall into food insecurity. The recovery in animal numbers in recent years has increased herders vulnerability. Preliminary estimates point to a number of heads around the 1999 record level of 33.5 million, but with more goats in the herd composition. The unrestricted increase in animal numbers and the fact that goats are far more devastating on the natural environment than other animals, are giving concern about pastures overstocking and survival of animals in case of harsh winter conditions. This is particular the case when considering that

fodder production is very limited in relation to the number of animals. In all aimags and soums visited by the Mission, Governors indicated that fodder reserves were insufficient or negligible.

Risk reduction has been recognized as a cost-effective strategy to protect livelihoods. The Mission recommends intensifying actions to prevent and coping with potential effects of *dzuds*, droughts and other shocks. Above all, there is need to avoid degradation of grasslands by adopting a sustainable pasture management. Grazing management principles are well known in Mongolia but, since the early 1990s, have been largely ignored. Other risk preparedness activities include, inter alia, appropriate dissemination of weather related early warning information; raising awareness among herders about the need to take measures for winter survival (such as construction of animal shelters and hay making); and maintenance of fodder and veterinarian supplies reserves at soum and aimag levels.

- ***Improve targeting of food insecurity in the cities and intensify urban poverty alleviation measures***

The Mission found that food insecurity was largely confined to poor population in the cities. The food insecurity and vulnerability information system recommended above should lead to a better identification of the affected population and to an improved understanding of the reasons for their food insecurity, weather related to adequacy and stability of household income or health conditions and sources of nutrition, for example. In turn, this will allow to better target the population facing food insecurity and to develop specific and adequate remedial actions to alleviate urban poverty (microfinance, safety nets, vegetables gardens, provision of basic social services, etc). The participation of the local communities in project design and implementation will result in greater ownership of the food security activities.

- ***Revive the dairy and meat formal markets***

Because of its abundant pastures and large livestock herd, Mongolia has comparative advantages in the production of milk and meat and a large export potential. Interventions in these sub-sectors are thus likely to have higher cost-effectiveness and more rapid impact than in other areas. This does not mean, however, that other activities in the area of agriculture production, such as production of vegetables, should be neglected.

Dairy sub-sector

Despite the high domestic production of milk, only some 7 percent of the total is processed by the formal industry. Most of the processed milk consumed in urban areas is imported. Hygienic conditions and quality of traditionally processed raw milk and milk products, accounting for half of urban consumption, is questionable. In order to rehabilitate the dairy sub-sector, the Government launched a “white revolution” programme in 1999 but progress was limited due to financial and human resource constraints. Since 2004 efforts to revive the industry have been intensified with the assistance of a Ministry of Agriculture/Government of Japan/FAO project, being implemented in two aimags comprising the largest cities in the country. The first results have been very positive with a three-fold increase of milk collected and processed in the past two years. Safe, practical and affordable technologies and systems for profitable dairying have been developed in close collaboration with the private sector. The Mission recommends expanding the activities of the project at national level, replicating and tailoring the dairy commercial units developed to other aimags centres. The development of the formal dairy market will improve food safety of the population in urban centres, raise quality standards for prospective exports, reduce imports, and, above all, will contribute to reduce vulnerability and food insecurity by providing regular incomes for herders and farmers and generating jobs in urban areas.

Meat sub-sector

As in the milk sub-sector, only 3 percent of the meat produced in the country is processed by the formal industry. Most of the meat consumed in urban areas is processed with traditional techniques under uncertain hygienic conditions, which has raised concern about food safety. The industry is characterized by obsolete, inefficient technologies and equipment resulting in high losses along the producer-consumer meat food chain. Prices of meat have increased sharply in recent years. Exports of meat are limited and well below the levels of the early 1990s. The rehabilitation of the meat sub-sector will have positive impacts on food security at various levels. It will increase meat production and reduce pastures overstocking in parts, decrease prices of meat and raise meat consumption in urban areas, improve food safety, increase export of value-added products, and expand employment opportunities and incomes in both rural and urban areas.

- ***Develop selected "brand products"***

The upgrading of production facilities for niche products is a major potential growth area for Mongolia. "Brand products" have already been identified at aimag and soum levels. The Mission recommends the review of the project proposals to develop "brand products", their prioritization based on cost-effectiveness analysis, and the selection of the most profitable and with larger impact on poverty reduction for fund raising.

In particular, the Mission was positively impressed by the initiative to expand buckthorn berry production in the Uvs aimag, for which basic studies are well advanced. The Mission also recommends that the potential to produce camel milk-based products for urban markets and for export in the Gobi provinces be explored.

6.3 Nutrition and food utilization recommendations

- ***Multi-sectoral coordination***

  - Nutrition is a multi-dimensional field and needs an integrated national policy that acknowledges both social and physiological aspects of food and nutrition security. Such a policy should be the collective responsibility of all relevant sectors: agriculture, finance, education, health care, water, sanitation and hygiene, and social welfare. This should complement the State Policy on Public Health, the National Plan of Action on Food Supply, Safety and Nutrition, and the National Programme of Action for the Development and Protection of Children.

  - The challenges facing Mongolia in achieving the MDG Goal on malnutrition are considerable and a sustained multi-sectoral attention is required.

  - Health facilities need to be appropriately equipped to treat malnourished children and monitoring and technical support needs strengthening.

- ***Control of micro-nutrient deficiency***

  - The Ministry of Health has formulated a comprehensive strategy on micronutrient deficiency control and technical and financial support by the donors is essential for its implementation.

  - Due to significant price variation between fortified and non-fortified flour (almost 5000 togrogs for a 25kg bag of fortified flour), price control needs to be enforced and monitored. Social marketing on awareness and availability of fortified flour for *aimag, soum* and *baghs* (the smallest rural administrative unit) needs to be expanded.

  - Food fortification of vitamins A and D and iron needs to be done as a measure to eliminate micronutrient deficiency in a sustainable manner.

  - The possibility of subsidizing salt production so as to provide price parity with mined salt needs to be a priority concern to sustain Universal Salt Iodization (USI).

- ***Promote exclusive breast-feeding***

  - It is alarming to note that the current rate of exclusive breast-feeding for the recommended period of 6 months is only 38.3 percent. Concerted effort should be made to educate and encourage mothers to continue exclusive breast-feeding for full six months.

  - The implementation of the National Code on Breast Milk Substitute needs to be closely monitored

- ***Research, monitoring and evaluation***

  - At present, the Mongolian RDI is equivalent to 2 700 Kcal. This is higher than international standards, but has been justified as necessary given the extreme cold of the Mongolian climate. MoH needs to work closely with UNICEF and WHO in determining whether the current threshold is appropriate, or requires revision taking into consideration the seasonal variation in caloric intake.
  - Monitoring of overweight and obesity prevalence needs to be collected through the health system's information networks and linked to the WHO chronic disease project. Public

information on diet and the risks related obesity needs to be included in ongoing public health campaigns.
- Further study on the consumption patters of Mongolian diet will shed more light in defining a strategy for advocacy and programme communication in promoting consumption of a more diversified and balanced diet.

6.4 Other recommendations

Other projects and programmes that would support the agricultural sector and improve food security in Mongolia, and which the Government is particularly interested in developing, are:

- Conservation Agriculture, which will include the following activities:
  - Mechanization of the crop land through supply of modern equipment, such as tractors, combine harvesters and etc.
  - Rehabilitation/construction of greenhouses, including seed supply, fertilizers.
  - Soil analysis and seed multiplication laboratories.
  - Rehabilitation/construction of small irrigation system in main cropping land area.

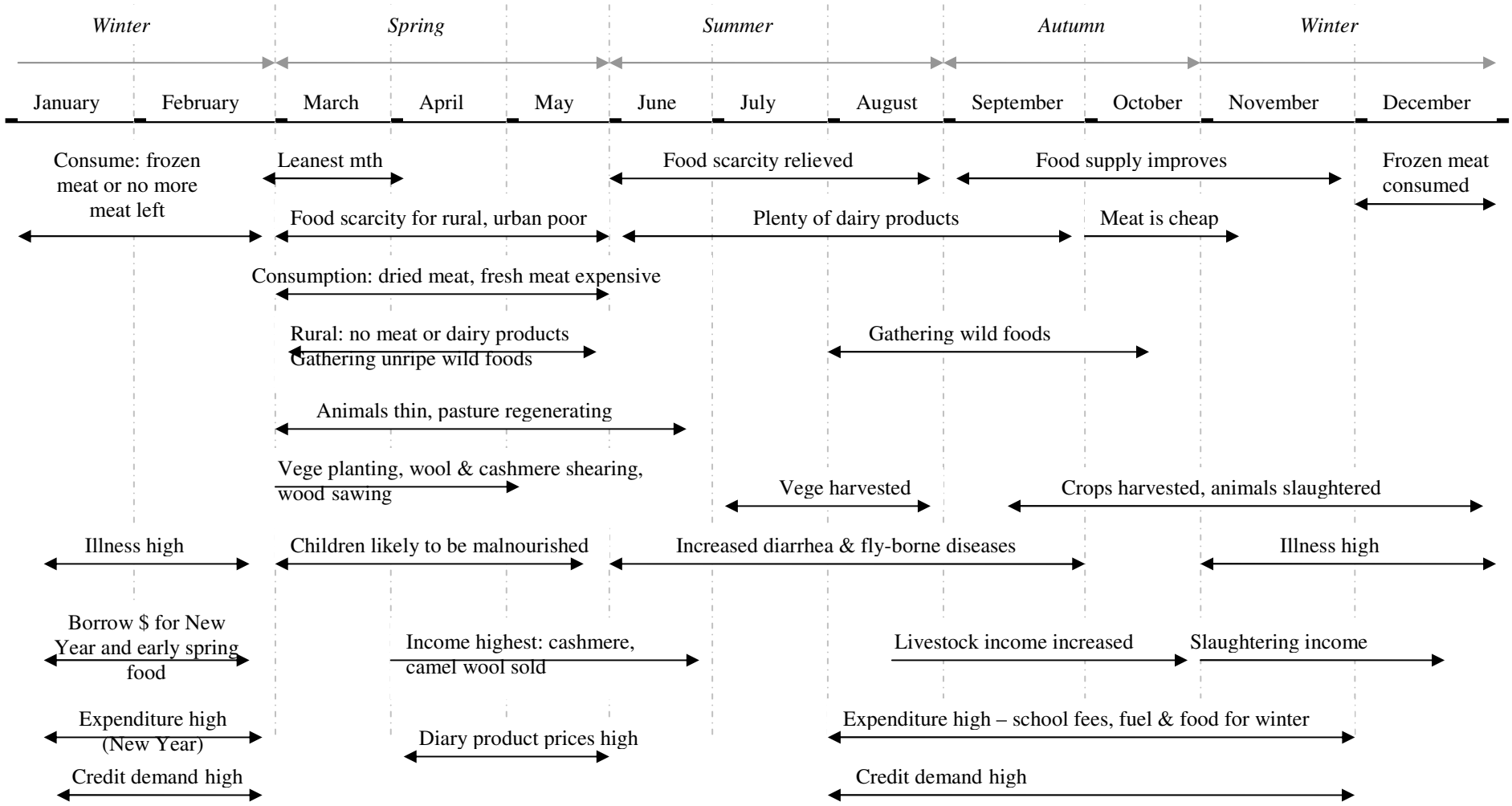
- Development of Seed Sector in Mongolia for self production of quality declared seeds:
  - Improved seed processing, storage and delivery capacity.
  - Increased the national capacity to expand in country production of Quality Declared Seed (QDS) to international standards. The capacity to screen various crop varieties and produce foundation seed for cereals will be strengthened. This will help to bring about the rapid expansion of seed production capacity and to avoid prejudicing standards; a national seed quality control programme will also be introduced with seed laboratories and crops of National Seed quality monitors.
  - The programme will include the drafting of appropriate seed legislation, including seed testing, plant quarantine, labelling and packaging regulations for quality seed as well as standardized seed certification scheme.
  - The project will also establish a contract seed production and distribution network in various provinces and will promote national private sector enterprises to enter into seed business. It is proposed to construct the first of a planned nation-wide network of laboratories. The laboratories will conduct all the standard tests for quality seeds, namely moisture content, germination percentage, physical purity and seed health. They will be staffed by technicians and supervised by the national professional regional Seed Monitor. Specific training for all staff in seed testing protocols and record keeping will be provided by the project through study tours to the European institutes and or technical trainings/workshops. To ensure that the benefits for the greater availability of QDS flow through to the general farming population, substantial extension and training programmes will be taken to demonstrate the yield increase and greater food security achievable through the use of improved seed varieties.

- Modernization of irrigation and drainage systems. A comprehensive assessment of the modernization of irrigation and drainage systems needs to be carried out in order to propose appropriate strategies and likewise, techniques required.

- Multi-credit projects.

Annex 1

MONGOLIA – FOOD SECURITY CALENDAR



Source: Participatory Poverty Analysis, ADB 2005.