# S P E C I A L  R E P O R T

## FAO/WFP CROP AND FOOD SECURITY ASSESSMENT MISSION TO KYRGYZSTAN

**7 December 2010**

**FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, ROME**

**WORLD FOOD PROGRAMME, ROME**

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**Mission Highlights**

- Despite a late start of the spring season and the April and June civil conflict, the aggregate 2010 food crop production is estimated at normal levels, although significantly lower than the bumper harvest of 2009. The main wheat crop is put at 866 331 tonnes, similar to the average of the past five years but 18 percent down from 2009.
- Heavy rains in spring resulted in delayed sowing and reductions in the area planted. However, good precipitation in the remaining of the season offset the negative impact on yields of the late start of the planting.
- The reduction in wheat production mainly reflects diversion of land to more profitable fodder crops and lower yields due to shortages and increased costs of agricultural inputs, following the closure of the Kazakhstan and Uzbekistan borders in April.
- Livestock numbers are expected to increase in 2010 due to good pasture conditions and increased fodder crops production.
- The civil conflict had severe impacts on food production of families in the affected areas of Osh and Jalalabad, where houses were destroyed, agricultural inputs lost and livestock looted.
- Cereal import requirement in marketing year 2010/11 (July/June), mostly wheat, are estimated at 358 000 tonnes, slightly lower than in the previous year. Most of this requirement is to be covered on commercial basis.
- Prices of wheat products have sharply increased since July reflecting the surge in international prices, lower domestic production and higher fuel prices. This gives concern over access to food of low-income groups of population, particularly in Osh and Jalalabad.
- A WFP Emergency Food Security Assessment (EFSA) in late July 2010 estimated that 27 percent of the population was food insecure, mostly moderately, including chronically and transitory food insecure. Despite sufficient quantities of staple food consumed, the lack of diet diversity – due to inadequate purchasing power- is the main cause of food insecurity. Assistance requirements for these populations in 2010 include agricultural inputs, micro-credit, capacity building and productive and social safety nets.

## 1. OVERVIEW

Following a request from the Kyrgyz Ministry of Agriculture (MoA) to assess the impact on agriculture and food security of the late start of the spring 2010 season and social unrest in April and June, and to provide technical assistance in rapid crop assessment methodologies, an FAO/WFP Crop and Food Security Assessment Mission was conducted in Kyrgyzstan in July and August 2010. The Mission was to support a crop cutting and assessment exercise conducted in parallel of the regular National Statistical Committee (NSC) survey; estimate the 2010 winter and spring cereal production; assess the overall food supply situation; estimate cereal import requirements for the 2010/11 marketing year (July/June). The assessment of the household food security was based on key results of a WFP Emergency Food Security Assessment (EFSA) on the prevalence of food insecurity and its causes undertook in late July.

As part of the technical assistance component of the Mission, an FAO international consultant provided training in rapid crop assessment to twenty nine NSC and MoA experts from all Oblasts (provinces) in Bishkek (including training in the field) from 12 to 14 July. Subsequently, these experts trained Rayons' (districts) experts who then conducted yield measurement in all Rayons. The crop cuttings started on 18 July and were completed in the main production areas as well as in higher elevations (mainly Issyk Kul and Naryn Oblast) by the end of July.

As part of the assessment component, an international team visited the country from 1 to 21 August to review and consolidate results of the national wide field crop assessment. The team travelled to main crop and livestock production areas to collect opinions from farmers, traders, NGOs, and officials from the decentralized structures of the MoA, the NSC and Oblast administration on the factors affecting production since the beginning of the cropping season last autumn. Prior to field visits, the Mission held detailed discussions with staff from different technical departments of MoA. The Mission also held detailed discussions with NSC authorities on the methods implemented to generate agriculture data at various administrative levels.

To analyse the food security situation at household level, WFP conducted a nationwide EFSA, interviewing 2 000 households randomly selected from 250 localities in each Oblast and Bishkek city and 277 key

informant interviews from the various localities. Key findings are presented in this report while a comprehensive analysis of the EFSA results is published in a separate report1.

Despite a late start of the spring season and the April and June civil conflict, the aggregate 2010 food crop production is estimated at normal levels, although significantly lower than the bumper harvest of 2009. The decline is the result of both lower plantings and yields.

The main factor for the reduction in the area planted to cereals this season was the diversion of wheat land to more profitable fodder crops, in line with the declining trend of the past years. Heavy precipitation in March, combined with lower availability of farm machineries and high fuel prices following the closure of Kazakhstan and Uzbekistan in April, delayed spring sowing by 2-3 weeks and contribute to the reduction in plantings. The area planted to cereals is estimated at 572 383 hectares, 6 percent lower than in the previous cropping season, with the largest declines for spring wheat (-19 percent) and maize (-9 percent). Plantings of potatoes fell by 4 percent.

Despite the excessive precipitation in March, rains were generally favourable for crops in all parts of the country throughout the cropping season. Good precipitation during summer offset the negative effects on yields of the late start of the spring planting. However, yields of cereal crops were reduced by inadequate supply and increased costs of agricultural inputs. The closure of the Uzbek border disrupted fertilizer, fuel and machinery supply, as well as labour migration. Prices of fertilizers, which are mostly imported from Uzbekistan, more than doubled in Osh from May to June, while fuel prices rose by 45 percent between March and June. As a result of the lower use of agricultural inputs this season wheat yields declined by 11 percent from the 2009 good levels and those of barley by 13 percent.

Overall, the Mission estimates the 2010 aggregate cereal production at 1.563 million tonnes (in paddy terms), around the average of the past five years. Wheat production is put at 866 331 tonnes, 18 percent lower than in 2009 but still average. Potato and maize production are estimated at 1 329 049 and 419 474 tonnes respectively, 5 and 14 percent below their levels of 2009.

Livestock numbers are expected to increase in 2010 following above average rains, increased fodder crops production, particularly good pasture conditions and healthy stocks.

At the estimated cereal production level, and taking into account relatively high carry-over stocks, cereal import requirement in marketing year 2010/11 (July/June), mostly wheat, are estimated at 358 000 tonnes, slightly lower than the previous year. Some 336 000 tonnes are expected to be covered on commercial basis and the remainder with food aid, which is assumed to increase this year due to the assistance to vulnerable populations in the conflict affected areas.

While the direct impacts of the April and June events were limited on food production at national level, the impact on households affected by the conflict were severe. The number of houses destroyed in worst affected areas of Osh and Jalalabad was estimated at about 1 900, whereas the number of IDPs is put at 84 000 by the EFSA survey. Families affected had seen their farm machineries and tools lost and their livestock looted. Support in the form of seeds, fertilizers, machinery costs and irrigation canal maintenance is urgently needed in order to assist these families to re-engage in agriculture in the new season.

The wave of violence in southern Kyrgyzstan also resulted in the destruction of marketing infrastructures, including the main market in Osh and numbers of small businesses, seriously undermining trading activities and incomes of the affected populations.

Prices of wheat products have sharply increased since July reflecting the surge in international prices, the lower domestic production and higher fuel prices. This gives serious concern about access to food of low-income groups, particularly in Osh and Jalalabad.

The WFP Emergency Food Security Assessment (EFSA) in late July 2010 estimated that 27 percent of the population was food insecure. While quantities of staples consumed are generally enough to meet calorie needs, intake of dairy products, animal products, pulses, vegetables and fruits, is insufficient and leads to vitamin and mineral deficiencies, higher susceptibility to disease, stunting among young children, and decreased learning and productive capacities. Severe food insecurity was infrequent mainly owing to the seasonal availability of various food obtained from recent or ongoing harvest.

[1]Emergency Food Security Assessment in the Kyrgyz Republic. WFP, August 2010.

Food insecure households share the characteristics of poverty since their major cash resources are below the official poverty line. As such, they are mostly chronically food insecure. However, the civil unrest in June also provoked transitory food insecurity, especially for the estimated 84 000 displaced persons who have lost access to their fields, animals, jobs and markets. Assistance requirements for these populations in 2010 include agricultural inputs, micro-credit, capacity building and productive and social safety nets.

## 2. SOCIO-ECONOMIC CONTEXT

### 2.1 General information

The Republic of Kyrgyzstan is a mountainous landlocked country bordering Uzbekistan (west), Kazakhstan (north), China (east) and Tajikistan (south). Kyrgyzstan is classified as a Low-Income Food-Deficit Country (LIFDC), depending on wheat imports to cover about one-quarter of its consumption requirements. The northern part of the country is more industrialized and characterized by better economic and social indicators than the rest of the country. The north and the south of the country are connected only by high mountain roads. Railway transport between the north and the south requires crossing Uzbekistan. Roads are the main means of transport, accounting for 60 percent of freight-haulage and 80 percent of passenger transport.

Administratively, the country is organized in 7 provinces (*Oblast*) and two cities, the capital Bishkek and Osh city. The provinces are further divided into districts (*Rayon*) and municipalities (*Ayil Okmotu*) which typically comprises several villages and hamlets. The Ministry of Agriculture and the National Statistical Committee have structures up to the Ayil Okmotu level (Annex I).

### 2.2 Population

The 2009 population census estimated the total resident population of Kyrgyzstan at 5.3 million. Kyrgyzstan remains a rural country with 65 percent of the population living in rural areas and this proportion has been stable over the past decade. The average population density is low with 25.6 people per square kilometre. The three southern Oblasts (Osh, Jalalabad and Batken) are the most densely populated and accounts for 43 percent of the total population. Competition over natural resources such as land, water and pastures are higher in the South.

The Kyrgyz Republic is a multi-ethnic country. In general terms, the population of Kyrgyzstan is divided among three main groups: the indigenous Kyrgyz, the Russians who remained after the end of the Soviet Union, and a large Uzbek population mainly in the South. During the last ten years (1999-2009) the Kyrgyz ethnic population has increased from 64.9 to 70.9 percent, whereas the Russian population has decreased from 12.5 to 7.8 percent as many returned to Russia. The Uzbeks represents 14.3 percent of the population. Due to out migration over the past decade, population has grown at a rate of only 1.12 percent annually. Unequal territorial distributions of population by ethnic groups, and unequal access to resources have made the country vulnerable to social conflicts.

### 2.3 Macro-economic situation

The strong economic growth during the period 2003-08 led to a sharp fall in poverty from 64 percent to 32 percent, with extreme poverty decreasing from 28 percent to 6 percent. In 2007 and 2008 the GDP increased at a rate of 8.5 percent. However, in 2008 the economy suffered the impact of the international soaring food prices crisis, which resulted in a surge in inflation due to higher food and energy prices. This was followed by the slowdown of the economic growth in 2009 as a result of the global economic crisis that adversely affected Russia and Kazakhstan, the Kyrgyz Republic's main trading partners and source of remittances. By early 2010 an economic recovery process had started but it was interrupted by the civil conflict in April and June of 2010.

**Table 1: Kyrgyzstan - Main macroeconomic indicators**

| Indicators | 2007 | 2008 | 2009 | 2010 projection |
|---|---|---|---|---|
| Population (million people) | **5.217** | **5.252** | **5.303** | **5.354** |
| Rural population (percentage of total) | | | 65 | 64 |
| GDP per capita (in US dollars) | 726 | 968 | 853 | 840 |
| Share of agriculture production in GDP (percent) | 26.9 | 23.5 | 22.1 | |
| Agriculture growth rate (percent) | 2.0 | 0.8 | 7.4 | -3.5 |
| Consumer prices index (percent) | 20.0 | 20.0 | 6.8 | 10.3 |
| Unemployment (percent) | 8.2 | 8.2 | 8.4 | |
| External public debt (as percent of GDP) | 54.6 | 41.2 | 50.8 | 59.6 |

Source: Joint Economic Assessment (JEA) by WB, ADB and IMF, July 2010 JEA; Socio-economic situation in Kyrgyzstan, Jan-June, 2010, National Statistics Committee, Bishkek August 2010; Adnkronos International (AKI), Bishkek; Ministry of Economy Development, Forecast for 2010, 18 August 2010.

Although during the first quarter of 2010 GDP grew by 16.4 percent comparing to the same period in 2009, recent annual projections point to a decline of about 5 percent in the GDP. Agriculture output is forecast to decrease by 3.5 percent. The budget deficit for 2010 is projected at USD 619 million, or 13.5 percent of GDP.

## 2.4 The political crisis

In April 2010, civil conflict resulted in casualties among the civilian population, severe damage to infrastructure and disruption of agricultural activities in the conflict-affected areas. Kazakhstan and Uzbekistan closed their borders and that with Uzbekistan remained closed at the time of the Mission in July 2010. The political events resulted in the change of government and a referendum of 27 June, in which the population of Kyrgyzstan voted for a Parliamentarian Republic instead of the Presidential system in place since declaration of the independence of the country.

On 12 and 13 June, ethnic violence flared up in Osh and Jalalabad and almost 100 000 ethnic Uzbeks fled to Uzbekistan. Under pressure of local authorities, most of this population returned to Kyrgyzstan for the referendum but the political situation is still tense.

## 2.5 The agricultural sector

### 2.5.1 Overview

Agriculture is one of the most important sectors of the economy and accounts for about one-quarter of the GDP. However, the share of agriculture in the GDP has declined since the mid-1990s, mainly due to the start of large-scale gold mining in the country. The sector is the largest source of employment with about half of the economically active population engaged in agriculture. The agricultural processing industry is one of the most significant, employing over 50 000 people. Some 76 percent of the population classified as poor live in rural areas and depends on agriculture for their living.

The importance of agriculture in the economy contrasts with the comparatively small area of arable land, representing only 6.6 percent of total area of the country. The Kyrgyz Republic is mountainous with nearly 90 percent of the territory at altitudes of 1500 metres above the sea level, and more than 40 percent at above 3 000 metres. Mountains and steps are more suitable for livestock grazing. Permanent pastures are plenty and account for nearly half of the total area of the country, providing a competitive edge to the livestock sector. Agriculture is practiced from below 600 metres in the lower lands of Chui (North) and Jalalabad (South), up to 2 400 metres in the higher elevations. Much of the grain production is however concentrated in the lower valleys.

### 2.5.2 Irrigation

One of the country's most significant natural resource is its plentiful water supply, which has enabled it to become a large hydroelectricity producer in Central Asia. Irrigated agriculture covers over 1 million hectares, or over 82 percent of the cultivated land is irrigated**.** About 75 percent of the annual cereal output and nearly all the potato and vegetable production are under irrigation.

Irrigation infrastructures in Kyrgyzstan were mostly built during the Soviet era, mainly in the South (Osh and Jalalabad Oblasts) along the many affluent of the Sir Darya's River which irrigated the Ferghana Valley; in

the Chui Valley along the Chu River; and in Talas Oblast along the Talas River. Less numerous infrastructures were constructed in the eastern part of Issyk Kul and in Naryn Oblasts.

2.5.3 Farm structure

Following the independence from the USSR, a land reform in 1992 distributed land and assets of 400 collective farms (kolkhoz), accounting for 75 percent of the arable land, to the private sector. Over 300 000 peasant entities and farms and various associations and cooperatives societies were established. The remaining 25 of the arable land, previously connected to state farms, was retained as 'reserve' land for seed production and for livestock breeding farms. Some of this land is now being farmed on long–term leases by agricultural enterprises and some other is termed Land Redistribution Fund land and is leased annually.

According to official classification, the agricultural sector now comprises broadly four categories of production units: i) State farms, ii) Collective farms, iii) Peasant farms, including land leased units, and iv) Households plots (*korajai* or kitchen garden).

**Table 2: Kyrgyzstan - Farm structure in 2010**

| Categories of farms | Quantity | Arable land | | Average size per farm (ha) |
|---|---|---|---|---|
| | | (ha) | (percent) | |
| State farms | 71 | 27 500 | 2.2 | 387.3 |
| Land Redistribution Fund | - | 221 400 | 17.4 | - |
| Collective farms | 781 | 62 000 | 4.9 | 79.4 |
| Peasant farms and individual entrepreneurs | 318 815 | 881 800 | 69.1 | 2.8 |
| Kitchen garden/household orchards | 733 909 | 73 000 | 5.7 | 0.1 |
| Arable land of industries, protected areas forest fund, water fund and reserves | - | 10 200 | 0.8 | - |
| **Total** | **1 053 576** | **1 275 900** | **100** | **1.21** |

Source: Land Report, State Registration Service, the Government of the Kyrgyz Republic.

About 90 percent of the food production comes from the small farmers (Table 3). A land market emerged after the land reform, and in the past few years, access to credit resources by using land as collateral is allowed. The reform also led to the establishment of institutions for collective action, such as water users associations that operate and maintain on-farm irrigation facilities and regulate water allocation.

**Table 3: Kyrgyzstan - Food production by categories of farms in 2009**

| Crops | Wheat (%) | Barley (%) | Rice (%) | Maize (%) | Potato (%) | Vegetables (%) | Fruits and berries (%) |
|---|---|---|---|---|---|---|---|
| State farms | 0.6 | 0.6 | 1.6 | 0.3 | 0.6 | 0.0 | 1.5 |
| Collective farms | 6.1 | 7.2 | 0.4 | 1.1 | 0.5 | 1.8 | 0.5 |
| Peasant farms | 90.3 | 86.6 | 95.8 | 82.5 | 71.2 | 60.8 | 30.6 |
| Household plots | 3.0 | 5.6 | 2.2 | 16.1 | 27.7 | 37.4 | 67.4 |

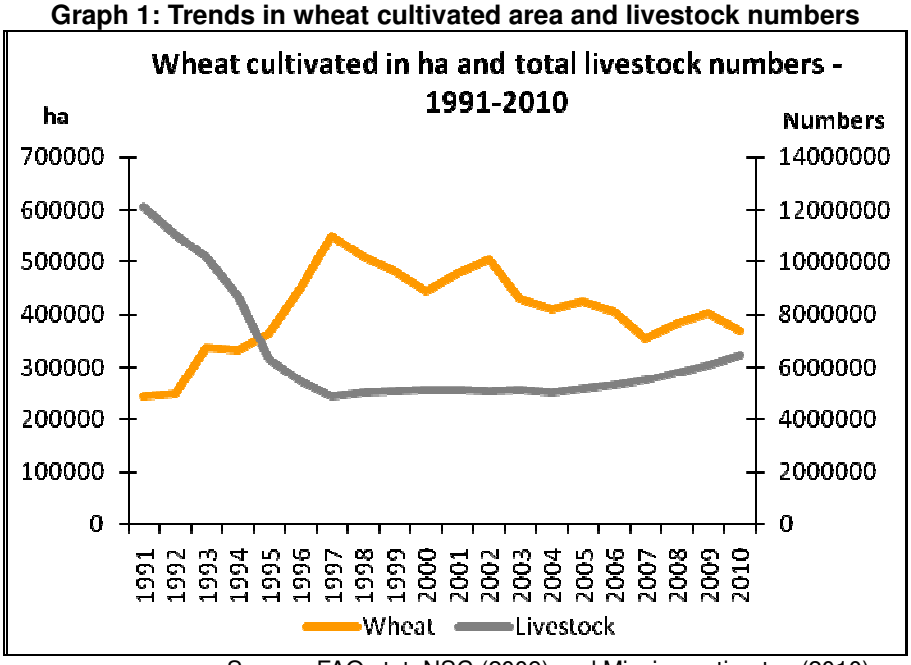
Source: NSC.

2.5.4 Changes in cropping patterns

Wheat is the most important staple in Kyrgyzstan and on average the country imports one-quarter of its consumption requirements, mainly from Kazakhstan. Wheat accounted for 49 percent of the total dietary energy supply (DES) in 2003-05 and the average per capita food consumption of wheat was 160 kg/per year in 2009. However, wheat area cultivated, production and productivity are declining in the past years, raising concerns over national food security. From 2002 to 2010, wheat area decreased by 27 percent (or 236 000 hectares) and wheat production contracted by 292 000 tonnes. This reflects diversion of land to more profitable crops, mainly fodder crops in response to the fast growing livestock economy (Graph 1). The Mission noted that gross income from fodder crops ranged 1.5 to 5 times higher than that from wheat crop. As a result, the area cultivated to fodder crops has increased by 43 or by nearly 90 000 hectares from 2003 to 2010, particularly in Batken, Jalalabad and Osh oblasts, where it has doubled.

However, the area cultivated to wheat increased in 2008 and 2009 as farmers were encouraged by soaring grain prices.

**Graph 1: Trends in wheat cultivated area and livestock numbers**



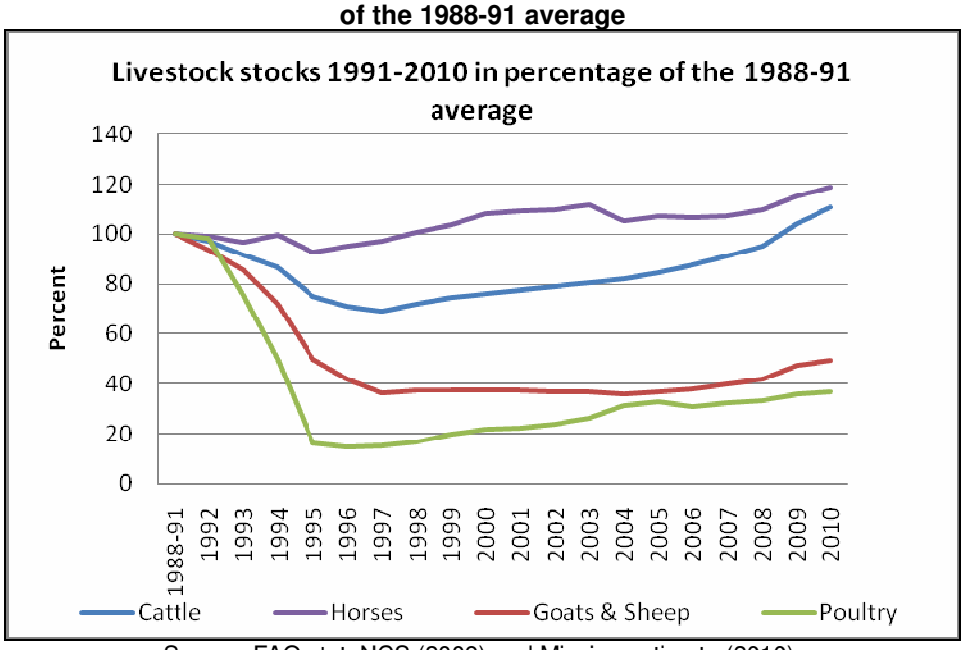

Source: FAO stat, NSC (2009) and Mission estimates (2010).

## 2.6 Livestock and pastures

The livestock sector is one of the most dynamic components of the rural economy. It accounts for about half of the total agriculture sector contribution to the national GDP. Livestock products represent a substantial part of the diet in Kyrgyzstan and account for as much as 20 percent of the total food consumption in Kcal/capita. As of end of 2009, the livestock industry accounted for 4.8 millions sheep and goats, 1.3 million cattle (including yaks), 0.4 million horses and 4.5 million chicken. After the land redistribution of 1991, over 90 percent of the livestock are owned by small scale farmers.

After an initial decline from 1992-1995, livestock has been increasing continuously, particularly in recent years (Graph 2). From 2003 to 2009 the numbers of cattle, horse, sheep and goats increased by 27, 10 and 31 percent respectively. These increases are pressuring the pasture carrying capacity. There is an imbalance in pasture utilization, with under-grazing of distant summer pastures and overgrazing of village/near-by pastures. This situation, together with insufficient quality feed in winter and early spring, has resulted in low livestock productivity. Official data also shows that productivity per capita is stagnated which raises concerns over livestock management.

**Graph 2: Livestock numbers between 1991 and 2010 in percentage of the 1988-91 average**




Source: FAO stat, NCS (2009) and Mission estimate (2010).

## 3. OVERVIEW OF THE IMPACT OF THE CRISIS ON AGRICULTURE

This year's civil conflict in Kyrgyzstan flared up in a backdrop of intense competition over access to natural resources, particularly land, water and pastures which exacerbate ethnic tensions. The tensions are particularly high in the Southern Oblasts where pressures on irrigated land are more acute but by extension in other regions as well. Perceptions of insecurity were not just limited to the time and locations where the conflicts occurred but also in other regions. The WFP EFSA survey conducted in July 2010 shows that amongst respondents, it was in Issyk Kul, Talas and Batken Oblasts that insecurity was perceived as the most pressing constraint. Allocation of land and pasture leases by local government have both resulted in grievances about inequitable access to natural resources. The various impacts of the recent political crisis on the agriculture sector are categorized in direct and indirect impacts.

The direct impacts of the April and June political events have been limited on staple food production at the aggregated level as much of the violence concentrated in urban areas, although a number of municipalities (Aiyl Okmotu) were severely affected. In these areas, most of the direct impacts on agriculture output were related to the fact that minorities did not feel sufficiently secured to access their fields which resulted in:

**Impact at localized level**

- Reductions in the area cultivated.
- Reduced and untimely irrigation of crops.
- Reduced and untimely crop field operations, particularly weeding and.
- Delayed harvesting.

The impacts on rural families directly hit by the violence were severe, resulting in 84 000 displaced people. In Osh and Jalalabab the number of private housed destroyed is estimated at 1 900. Families affected had also their farm machineries/implements looted or burned and their livestock looted or died by the time owners returned from their displacement away from their villages during the weeks that followed the conflict. The humanitarian and food security situation of these families are dire and their agricultural needs high. The Mission anticipates that a proportion of affected households may not engage in agriculture this fall without external assistance. Economic support in the form of seeds, fertilizers, machinery costs and irrigation canal maintenance in order to assist these families to re-engage in agriculture activities for the coming planting season is urgently needed.

The indirect impacts of the April and June events, and in particular the closure of the Kazakhstan and Uzbekistan borders had far more implications on staple food production at national level as agriculture producers are highly dependent on trade with these countries. The Kazakh border is a major route for

livestock, dairy, vegetable and fruits exports to Kazakhstan and Russia and a route for importing wheat, flour, oil and sugar, as well as fuel and machinery spare parts to Kyrgyzstan. The Uzbek border is a major route for the seasonal exports of vegetables and of livestock, as well as imports of nitrogen fertilizer. The disruptions caused are serious and include:

**Impact at national level**

- Disruption of fertilizer and fuel supply.
- Disruption of labour migration from Uzbekistan to southern Kyrgyzstan which traditionally supports harvest of crops manually harvested (maize, sunflower, cotton).
- Disruption of machinery movement from Uzbekistan to southern Kyrgyzstan which traditionally support the wheat harvest.

The temporary closure of the Kazakh border is not expected to have damaged agreements with Kazakh traders. However, the crisis could have more important and lasting damages on formal trade with Uzbekistan. At the time of the Mission, the Uzbek border remains closed although some unofficial imports were taking place, reportedly via Batken Oblast.

The conflict caused also significant disruption of markets. Besides the destruction of Osh central market, many people were afraid of venturing out of their homes and neighbourhoods to access the necessary inputs for production or to sell their produces.

## 4. CROP PRODUTION IN 2009/10 AGRICULTURAL SEASON

### 4.1 Agricultural inputs

#### 4.1.1 Seeds

For the 2010 wheat cropping season, out of 408 000 hectares of the total forecasted wheat planted area by the Ministry of Agriculture (MoA), 271 000 hectares were for the winter planting and 137 000 hectares for spring planting. The targeted seed requirement amounted to about 60 000 tonnes for winter and 30 000 tonnes for spring wheat (the MoA target assumes 100 percent seed replacement by farmers and a high seed rate). The production of seeds in the country supplied 98 percent of the total winter wheat requirements and 99 percent of the spring wheat requirements. Moreover, there were carry-over stocks of seeds that farmers could not marketed in the previous season due to the 2009 bumper crop and the fact that private seed farmers do no longer have agreements with the Government to procure certified seeds. Until 2009, the Government allocated funds for direct seed purchase to ensure provision of good quality seeds to farmers. In 2009 the Government allocated KGS 20-30 million, enough to procure approximately 2 000–3 000 tonnes of seed (equivalent to 3-5 percent of the seed production), for redistribution on credit basis.

Despite the large seed availability, however, the actual seeds utilisation by farmers in the winter cropping season amounted to 64 percent of the requirements, (with a lowest 26 percent in Issyk Kul Oblast), thus resulting in an oversupply of cereal seeds, (Tables 4 and 5).

**Table 4: Kyrgyzstan - Production of wheat seeds for winter planting against 2009/10 MoA planting programme**

| Oblast [1/] | Winter 2009 planting forecast (ha) | Seed planting rate (kg/ha) | Seed require-ment (tonnes) | Seed production (tonnes) | Seed production as percent of the requirement | Seed used by farmers (tonnes) | Seed used as percent of require-ment |
|---|---|---|---|---|---|---|---|
| **Kyrgyz Republic** | **270 300** | **230** | **61 855** | **60 242** | **98** | **39 821** | **64** |
| Batken | 16 300 | 210 | 3 471 | 3 471 | 100 | 3 471 | 100 |
| Jalalabad | 42 400 | 220 | 9 323 | 9 161 | 98 | 5 699 | 61 |
| Issyk Kul | 21 900 | 300 | 6 570 | 6 570 | 100 | 1 730 | 26 |
| Osh | 61 100 | 220 | 13 789 | 13 736 | 100 | 13 509 | 98 |
| Talas | 15 900 | 250 | 3 975 | 3 648 | 92 | 2 125 | 53 |
| Chui | 112 700 | 220 | 24 727 | 23 656 | 96 | 13 287 | 54 |

Source: MoA, Seed Department.
1/ Winter wheat is not grown in Naryn Oblast.

**Table 5: Kyrgyzstan - Production of wheat seeds for spring planting against 2009/10 MoA planting programme**

| Oblast | Spring 2010 planting forecast (ha) | Seed planting rate (kg/ha) | Seed requirement (tonnes) | Seed production (tonnes) | Seed production as percent of the requirement |
|---|---|---|---|---|---|
| **Kyrgyz Republic** | **133 000** | **226** | **30 544** | **30 255** | **99** |
| Batken | 6 700 | 170 | 1 153 | 1 247 | 108 |
| Jalalabad | 5 100 | 220 | 1 021 | 1 021 | 100 |
| Issyk Kul | 55 900 | 250 | 13 733 | 13 758 | 100 |
| Naryn | 22 900 | 250 | 5 732 | 5 111 | 89 |
| Osh | 11 800 | 190 | 2 205 | 2 209 | 100 |
| Talas | 2 500 | 200 | 504 | 504 | 100 |
| Chui | 28 100 | 220 | 6 196 | 6 406 | 103 |

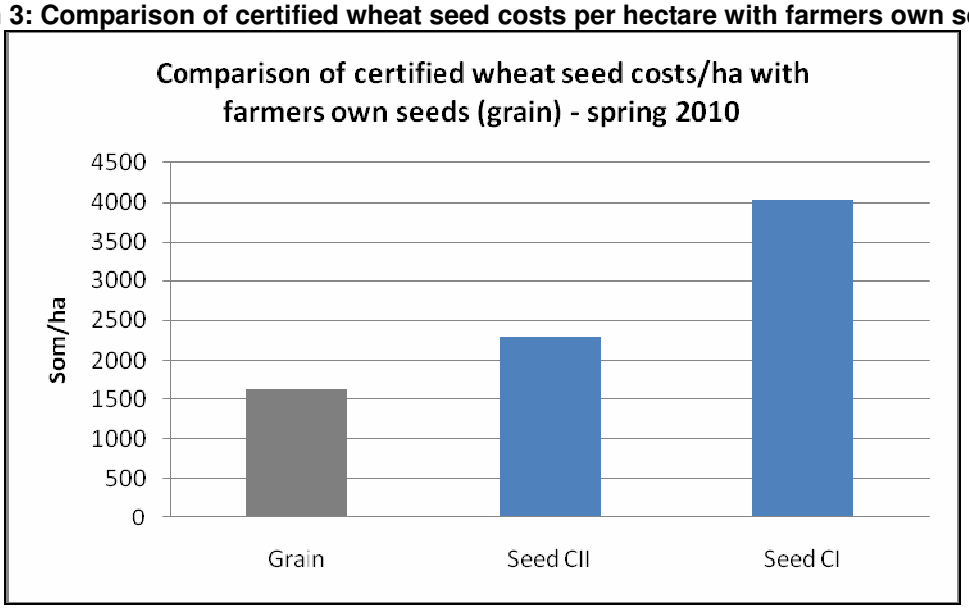
Source: MoA, Seed Department.

The actual seed used as percentage of the requirements shown in Table 4**,** means that famers in various Provinces are replacing their winter wheat seeds on average once every 4 years in Issyk Kul, once every two years in Talas and Chui, twice every three years in Jalalabad and nearly every year in Batken. Given the very low wheat yield levels, the Mission considers these replacement rates as high and that seed use was not a constraint to productivity this season.

The seed rate for wheat in Kyrgyzstan is on average 230 kg/ha (up to 300 kg/ha in Issyk Kul Province) and 200 kg/ha for barley. These rates are much higher than the norms in the region reflecting farmers' attempt to compensate for other factors that negatively affecting productivity, such as inadequate soil preparation and planting practices, reduced use of fertilizers, and harsh winters that result in low seed germination.

Another reason for farmers to invest in seeds regularly despite low yields seems to be related to the relatively low certified seed prices as compared to farmers 'own seed. Graph 3 below shows that considering a higher germination rate from certified seeds as compared to grain, the added cost to procure certified C II seeds is only slightly higher.

**Graph 3: Comparison of certified wheat seed costs per hectare with farmers own seeds[1/]**




Source: MoA, Seed Department, KAMIS and Mission estimate.
1/ Grain at farm gate prices.

The situation for barley seed is similar as for wheat with 98 percent of the requirement being produced in seed farms but 94 percent of actual famers' utilisation. A possible explanation for the higher utilisation rate of barley seeds is that barley is generally cultivated as a fodder crop, sometimes mixed with sainfoin, and harvested green before grain maturity. Therefore, a larger proportion of farmers would procure new seeds for cultivation.

### 4.1.2 Fertilizers

Fertilizers are mostly imported from Uzbekistan that normally accounts for over 95 percent of the supply. Utilisation has increased over the past decade, but remains low and seems to represent a major limiting factor to productivity. The main fertilizer used is Ammonium nitrate which reportedly contains on average 34.5 percent of nitrogen. In term of nitrogen application, the rate is low at 21 kg/ha (2009/10). The amount of phosphorous fertilizer applied is minimal with some 2 000 tonnes imported annually, while Potash is universally unused by farmers. Overall, the total fertilizer application in 2009/10 (legally imported fertilizer) was 78 kg/ha, or less than half the MoA requirements (Table 6). Fertilizer price represents a significant constraint to increase fertilizer use by farmers.

**Table 6: Kyrgyzstan - Fertilizer requirements and utilization in 2009/10**

| Oblast | Total crop cultivated [1/] | MoA Fertilizer requirements (tonnes) | Fertilizer supply (tonnes) | MoA fertilizer requirements (kg/ha) | Fertilizer use (kg/ha) |
|---|---|---|---|---|---|
| **Kyrgyz Republic** | **1 143 802** | **200 000** | **88 976** | **175** | **78** |
| Osh | 170 893 | 28 543 | 19 715 | 167 | 115 |
| Jalalabad | 142 898 | 29 652 | 37 065 | 208 | 259 |
| Batken | 60 295 | 12 597 | 13 265 | 209 | 220 |
| Chuy | 397 831 | 57 330 | 14 070 | 144 | 35 |
| Issyk Kul | 175 566 | 38 092 | 1 848 | 217 | 11 |
| Naryn | 95 621 | 19 205 | 121 | 201 | 1 |
| Talas | 100 698 | 14 581 | 2 892 | 145 | 29 |

Source: MoA, Fertilizer and Agrochemicals Registration Department and NCS (crop cultivated). Data collected from the VAT exemption.
1/ Cereals, oil seeds, tobacco, cotton, potato, pulses, vegetables and fruits.

As of August 2010, at the end of the 2009/10 cropping season, the total fertilizer supply was only 5 percent lower than in the previous year. However, the social unrests in April and June resulted in delayed fertilizer supply for the spring season and higher costs on the market. This was reflected in a 10 percent lower supply

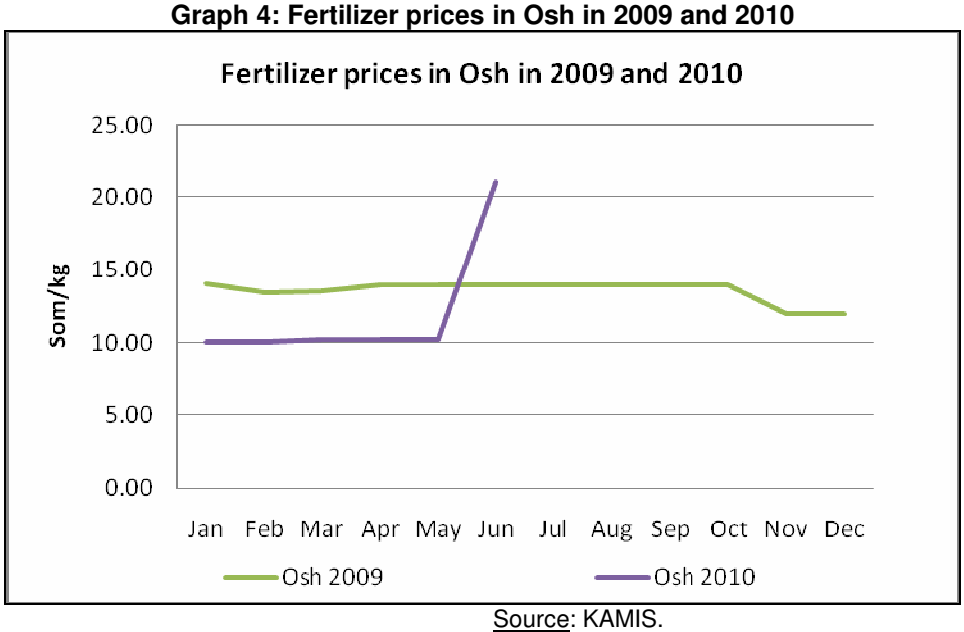
in June as compared to 2009 (Table 7) and in the doubling of fertilizer prices in Osh (Graphs 4 and 5) from a low KGS 10/kg in May to KGS 21/kg in June.

**Table 7: Kyrgyzstan - Fertilizer supply for the 2009/10 winter and spring cropping seasons as proportion of the previous year (2008/09)**

| Oblast | Percentage of fertilizer supply in 2009/10 in proportion of the previous year | | | | |
|---|---|---|---|---|---|
| | 11-Sep-09 | 11-Dec-09 | 16-Apr-10 | 25-Jun-10 | 13-Aug-10 |
| **Kyrgyz Republic** | **116** | **117** | **106** | **90** | **95** |
| Osh | 102 | 102 | 95 | 67 | 68 |
| Jalalabad | 148 | 149 | 112 | 102 | 112 |
| Batken | 102 | 107 | 82 | 102 | 92 |
| Chui | 108 | 110 | 136 | 125 | 126 |
| Issyk Kul | 96 | 96 | 60 | 68 | 62 |
| Naryn 1/ | - | - | - | - | - |
| Talas | 103 | 103 | 106 | 92 | 160 |

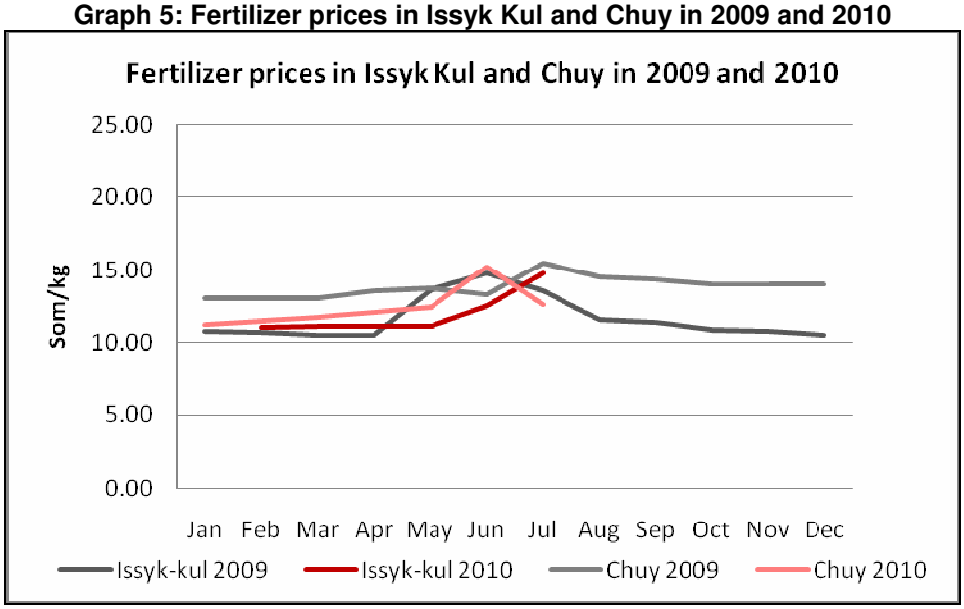
Source: MoA, Fertilizer and Agrochemicals Registration Department and NCS (crop cultivated). Data collected from the VAT exemption.
1/ Quantities of fertilizers supplied in Naryn are insignificant.

**Graph 4: Fertilizer prices in Osh in 2009 and 2010**




Source: KAMIS.

**Graph 5: Fertilizer prices in Issyk Kul and Chuy in 2009 and 2010**




Source: KAMIS.

The closure of the Uzbek and Kazakh borders in April resulted in the re-routing of the fertilizers supplies. Fertilizers that were normally imported from Ferghana town (Uzbekistan) by train to Osh and then to other parts of the country, were re-routed to Bishkek via Tashkent (Uzbekistan) and Kazakhstan at much higher transport costs, particularly to supply farmers in southern Kyrgyzstan. Russian traders in the North, which provide a much smaller proportion of the market (<5 percent), reportedly lowered imports because of security concerns. The closure of the Uzbek border in April also reduced the informal fertilizer imports, although the amount of fertilizer informally seeping through the border from Uzbekistan is unknown.

Most of the fertilizer was normally supplied by OshKrastek, a private company with long established links with Uzbekistan's fertilizer manufacturers. After the June events in the South, OshKrastek ceased its operations for legally related issues. The company left a substantial void in the fertilizer importation and distribution network. Smaller companies based in Osh secured a 5 000 tonnes contract in July with a fertilizer's manufacturer near Tashkent and other newcomers succeeded in importing some fertilizer. However, the delayed imports are also reflected in stocks by August 2010 which could not be marketed.

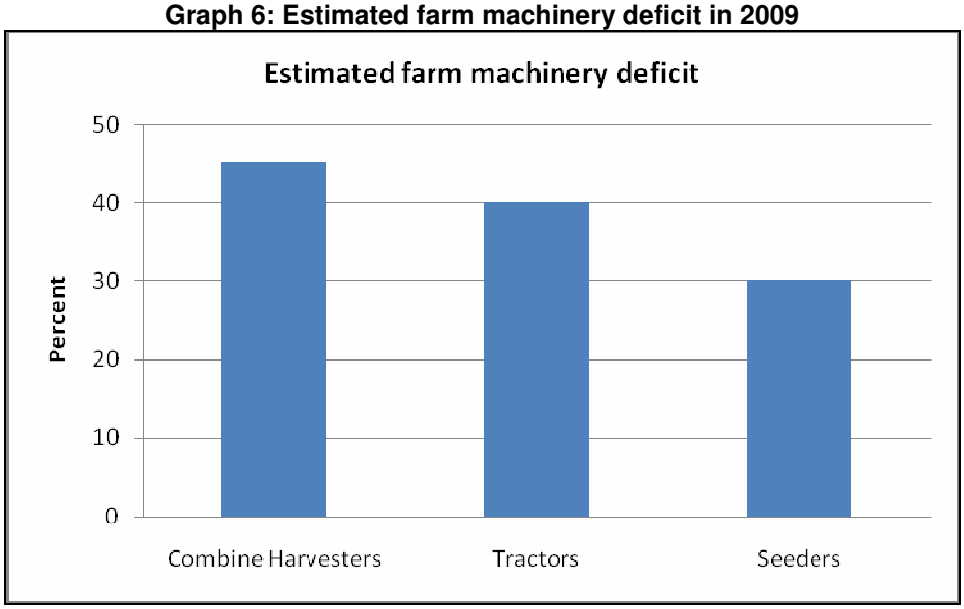
Despite the unsold stocks available, the Mission is concerned for a further reduction of fertilizer use in the forthcoming 2010/11 cropping season due to the disruption of the distribution network, including the destruction of the Osh bazaar.

### 4.1.3 Machinery

The main farm operations are in general almost entirely mechanised in the northern part of the country (with the exception of potato harvest), whereas in the South, manual farming activities are more common. Cereals are almost entirely harvested using combine harvesters and machinery represents the most important cost for producing staple crops.

Due to the large number and the limited size of small peasant farms, replacement and maintenance of machineries have become a major challenge. Replacement is negatively affected by the limited access to credit and conditions that impose repayment in short periods, unsuitable for farm machinery. The lack of replacement has resulted in severe machinery deficits at time of farm operations, as well as in high costs of utilization. The acute machinery deficit was estimated in 2009 at 45 percent for combine harvesters and 30 percent for seeders (Graph 6). An FAO and WB study (2009) indicated that land preparation in the Kyrgyz Republic costs 55 percent more than in neighbouring Kazakhstan (after adjusting for fuel subsidies).

**Graph 6: Estimated farm machinery deficit in 2009**

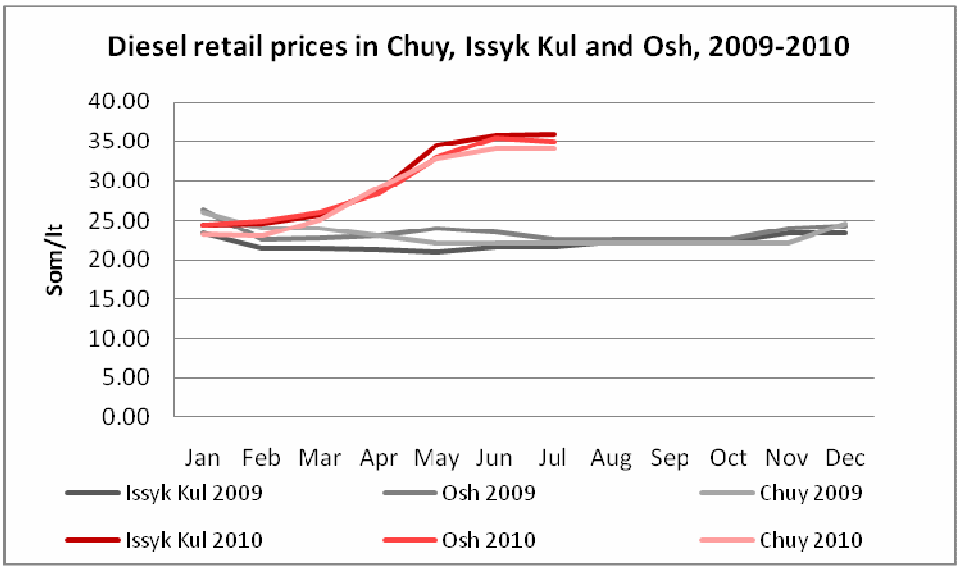



Source: FAO, 2009.

Overall, the poor state of machinery is limiting agricultural productivity owing to sub-optimal land preparation, seeding and losses at harvesting. The FAO and WB study also estimated that productivity losses at 15 to 25 percent above the normal losses.

During the 2009/10 agricultural season, the chronic insufficiency of farm machinery was aggravated by a sharp increase in prices of diesel**.** Graph 7 shows that diesel prices were at around KGS 24/lt in January, started to rise since March to reach an average of KGS 35/lt in July, (46 percent increase). High fuel prices negatively affected land preparation for the spring crops as by April prices had already increased by 20 percent. Lack of spare parts amplified because the closure of international borders further increased machinery services costs. These factors contributed to the reduction of the area cultivated with spring crops this year.

**Graph 7: Diesel retail prices in Chuy, Issyk Kul and Osh Oblasts in 2009 and 2010**




By the time of the Mission, diesel prices remained abnormally high, rising concern about the negative effects on the forthcoming winter crop.

#### 4.1.4 Credit

In most cases farmers applied for short term resources as micro financing. The volume of credit has expanded almost four times in the period of 2004-2008 but the share of the agriculture sector in the total volume of micro credits provided by the banking sector remains very low at 3.5 percent. The leading institutions providing micro credits are Aiyl Bank (covering 10-15 percent of farmers' requests for micro credit), Agakhan Foundation and dozens of others. The interest rates of those credits are high varying from 18 up to 59 percent, with an average of 39 percent.

Following the April and June events there was a temporary suspension of credit for a short period, when bank and microfinance institution branches were closed and there was a moratorium on registration of collateral. Aiyl Bank, however, reports that the interruption was short and did not significantly affect disbursements.

As an emergency assistance following the civil disturbances, the Russian RosselhozBank has agreed to provide a USD 30 million credit line, at an interest rates of 1 percent, to two Kyrgyz banks - RSK and Aiyl - which in turn will lend in KGS at interest rates ranging from 9 to 18 percent to support farmers and agriculture processors that were affected during the events.

### 4.2 Weather conditions

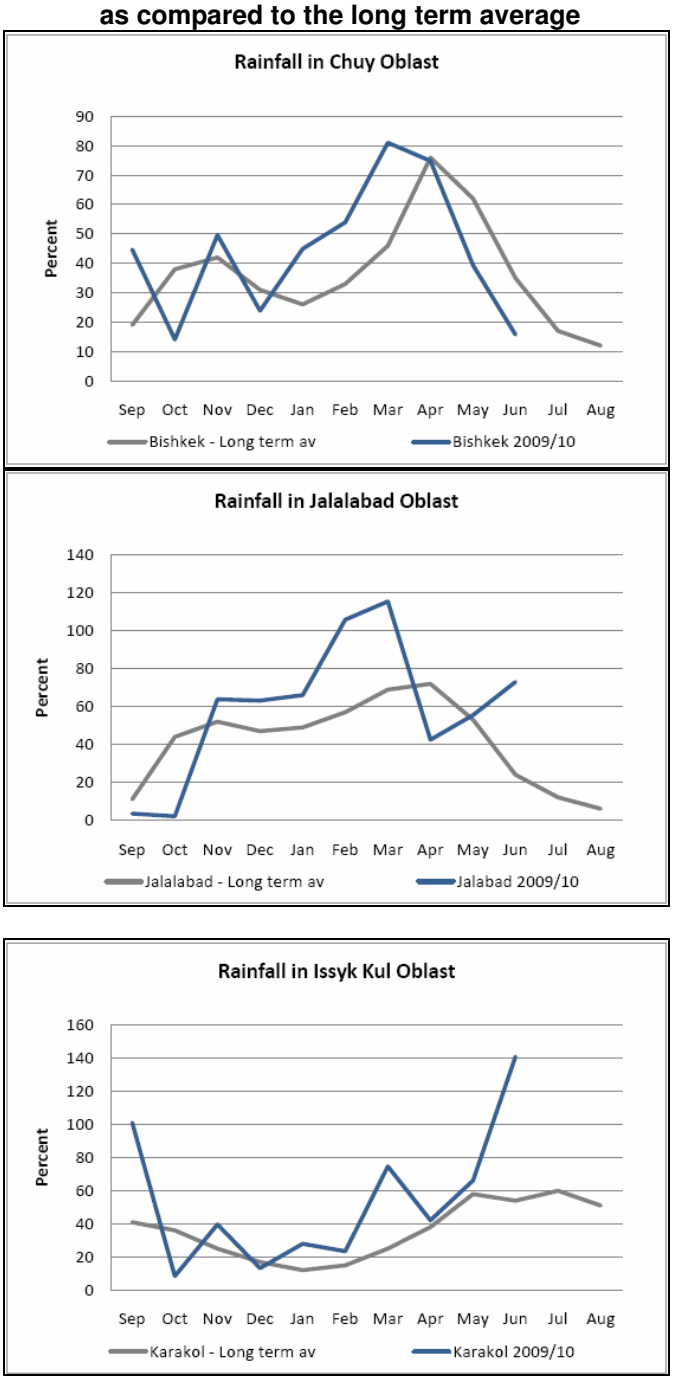
#### 4.2.1 Rainfall

In general, rains were above average from September 2009 to June 2010 in most locations, with the exception of the month of October which was dry across the country. Good rainfall during autumn favoured crop planting of winter crops. A delay in the start of the winter rainy season in the South (Jalalabad Oblast), was largely compensated but abundant rainfall in November and December (Graphs 8, 9 and 10).

Spring precipitation has been universally above average in the country. Heavy rains at planting time resulted in wetter soil conditions and longer than normal snow cover in higher elevations which delayed farm operations by 2-3 weeks. However, rains were above average in most locations through the summer which resulted in higher than average river water discharge and good water availability for crops. The good precipitation offset possible yield reductions due to the late start of the spring season. The abundant spring rains also benefited pastures conditions.

Analysis of remote sensing Normalized Difference Vegetation Index (NDVI) confirms the rain pattern during the season.

**Graphs 8, 9 and 10: Rainfall in 2009/10 agricultural season as compared to the long term average**




4.2.2 Localized frost, landslides and floods

Severe frost affected crops in Issyk Kul Oblasts between 12 and 14 May 2010, particularly spring planted grain, fodder crops and fruit trees. Three Rayons (Jeti Ogus, Aksa and Tyub Rayons) located on the eastern part of Issyk Kul were affected. The frost had limited damages on potato production as planted tubers had not germinated and were still well covered with soil. Issyk Kul Aiyl Okmotu's administration estimated that a total of 38 135 hectares of crops were adversely affected by the frost, some of them with total crop losses but most with yield reductions.

Above average rainfall in spring resulted in land slide and floods in several villages of Osh and Jalalabad Oblasts, affecting crops and irrigation infrastructures. The Aiyl Okmotu's administration estimated that a total of 1 357 hectares in Osh and 1 374 hectares in Jalalabad were directly affected by these hazards.

## 4.3 Cereal and other food production

### 4.3.1 Area planted

The Mission estimates the cereal area planted in 2009/10 cropping season at 572 383 hectares, a reduction of some 6 percent compared to the 2008/09 cropping season (Table 8). The decrease is mainly due to lower plantings of the spring irrigated wheat and maize crops (-19 percent and -9 percent respectively). However, plantings of the rainfed wheat were favoured by abundant spring rains. The aggregate area planted to wheat (winter and spring seasons) is estimated to have declined by 8 percent from last season. By contrast, the area to paddy crop increased by 5 percent due to good irrigation water availability in Batken and Osh Oblasts. (Table 8)

The main factors for the reduction in cereal plantings, in order of importance, were: i) diversion of land from cereals to fodder crops in response to lower prices this season; ii) late start of the spring 2010 season due to above average rains; iii) higher fuel, machinery services and fertilizer prices at sowing time; iv) late frosts in Issyk Kul Oblast; v) land slide and flood damages in Osh and Jalalabad; vi) insecurity for minority groups in particular in Jalalabad, Osh, Batken and Chui Oblasts.

### 4.3.2 Yields

Yield estimates are based on the crop cutting exercise conducted as a part of the Mission, preliminary data obtained from the regular NSC data generation system, and the Mission's field observations.

Overall, cereal yields declined significantly from last year's good level, mainly due to inadequate supply of fertilizers this season (-11 percent for wheat, -13 percent for barley, -5 percent for maize). Yield reductions are generally higher in the oblasts directly affected by the violence and insecurity, namely Chuy, Osh and Jalalabad. Incidence of pests has generally not been higher than normal this season.

The crop cutting exercise confirmed the relatively low yield of wheat (2.35 tonne/ha) and barley (2.03 tonne/ha) but comparatively very high for maize (5.86 tonne/ha). It is probable that in a situation of short fertilizer supply, farmers would apply nitrogen fertilizer in priority on maize fields where higher return is obtained. Therefore, maize yield reduction is lower than for other cereal crops. Potato yield is anticipated to reduce by only -1 percent, possibly as manure is applied on this crop which could offset to some extend the shortage of mineral fertilizer. Pulses yield is anticipated to increase by 2 percent.

### 4.3.3 Main staple food production

The Mission forecasts the 2010 aggregate cereal at 1 563 million tonnes, a decline of 16 percent from the bumper harvest of last year as a result of plantings and yields. The main wheat crop is put at 866 331 tonnes, 18 percent below the level of 2009 but still marginally higher than the average of the past five years (Table 8). Maize, barley and potato productions are estimated lower than last year by 14 percent, 12 percent and 5 percent respectively. By contrast, the output of pulses increased this year mainly reflecting larger plantings.

**Table 8: Kyrgyzstan - Area cultivated, yield and production for food crops 2008/09 and 2009/10**

| Oblast, Rayon | 2008/09 | | | 2009/10 | | | Difference 2010/2009 (percent) |
|---|---|---|---|---|---|---|---|
| | Area (ha) | Yield (tonnes/ ha) | Production (tonnes) | Area (ha) | Yield (tonnes/ ha) | Production (tonnes) | |
| **Wheat** | | | | | | | |
| **Kyrgyz Republic** | **402 002** | **2.63** | **1 056 655** | **369 283** | **2.35** | **866 331** | **-18** |
| Batken | 22 403 | 2.28 | 51 085 | 21 592 | 2.28 | 49 331 | -3 |
| Jalalabad | 48 269 | 2.83 | 136 677 | 38 964 | 2.45 | 95 638 | -30 |
| Issyk Kul | 77 491 | 2.63 | 203 591 | 65 344 | 2.40 | 156 826 | -23 |
| Naryn | 23 134 | 2.12 | 48 940 | 15 278 | 2.10 | 32 084 | -34 |
| Osh | 73 369 | 2.42 | 177 372 | 70 509 | 2.40 | 169 222 | -5 |
| Talas | 16 768 | 2.68 | 44 916 | 14 882 | 2.59 | 38 523 | -14 |
| Chuy | 140 358 | 2.80 | 393 553 | 142 545 | 2.28 | 324 427 | -18 |
| Osh city | 210 | 2.48 | 521 | 169 | 1.66 | 280 | -46 |
| **Barley** | | | | | | | |
| **Kyrgyz Republic** | **123 598** | **2.34** | **289 671** | **125 046** | **2.03** | **254 250** | **-12** |
| Batken | 7 100 | 1.46 | 10 392 | 7 429 | 1.50 | 11 167 | 7 |
| Jalalabad | 1 973 | 1.80 | 3 542 | 1 772 | 1.89 | 3 354 | -5 |
| Issyk Kul | 21 378 | 2.25 | 48 168 | 21 301 | 2.20 | 46 862 | -3 |
| Naryn | 8 971 | 2.17 | 19 490 | 10 196 | 2.10 | 21 412 | 10 |
| Osh | 6 114 | 1.42 | 8 706 | 5 855 | 1.19 | 6 961 | -20 |
| Talas | 1 017 | 1.82 | 1 847 | 1 159 | 1.83 | 2 119 | 15 |
| Chuy | 77 008 | 2.56 | 197 462 | 77 299 | 2.10 | 162 329 | -18 |
| Osh city | 37 | 1.74 | 64 | 35 | 1.31 | 46 | -28 |
| **Maize** | | | | | | | |
| **Kyrgyz Republic** | **78 800** | **6.18** | **486 638** | **71 584** | **5.86** | **419 474** | **-14** |
| Batken | 6 205 | 5.84 | 36 237 | 6 553 | 5.82 | 38 137 | 5 |
| Jalalabad | 25 275 | 5.88 | 148 676 | 23 534 | 5.78 | 136 028 | -9 |
| Issyk Kul | 8 | 3.75 | 30 | | | | -100 |
| Naryn | 116 | 5.13 | 595 | 114 | 5.20 | 593 | 0 |
| Osh | 15 566 | 6.76 | 105 280 | 13 731 | 5.80 | 79 638 | -24 |
| Talas | 6 608 | 6.10 | 40 296 | 5 088 | 5.98 | 30 426 | -24 |
| Chuy | 24 395 | 6.21 | 151 486 | 21 765 | 5.97 | 129 938 | -14 |
| Osh city | 627 | 6.44 | 4 038 | 799 | 5.90 | 4 714 | 17 |
| **Rice (Paddy)** | | | | | | | |
| **Kyrgyz Republic** | **6 268** | **3.30** | **20 710** | **6 468** | **3.11** | **20 094** | **-3** |
| Batken | 2 013 | 2.73 | 5 491 | 2 532 | 2.97 | 7 521 | 37 |
| Jalalabad | 2 712 | 3.53 | 9 568 | 2 425 | 3.31 | 8 025 | -16 |
| Osh | 1 543 | 3.66 | 5 651 | 1 511 | 3.01 | 4 548 | -20 |
| **Pulses** | | | | | | | |
| **Kyrgyz Republic** | **40 994** | **1.74** | **71 278** | **42 099** | **1.78** | **74 773** | **5** |
| Batken | 1 804 | 1.78 | 3 208 | 1 730 | 1.40 | 2 421 | -25 |
| Jalalabad | 1 079 | 1.88 | 2 033 | 811 | 1.45 | 1 177 | -42 |
| Issyk Kul | 680 | 1.71 | 1 160 | 147 | 1.80 | 265 | -77 |
| Osh | 264 | 1.07 | 283 | 263 | 1.10 | 289 | 2 |
| Talas | 36 766 | 1.73 | 63 662 | 38 628 | 1.80 | 69 530 | 9 |
| Chuy | 401 | 2.33 | 932 | 520 | 2.10 | 1 091 | 17 |
| **Potato** | | | | | | | |
| **Kyrgyz Republic** | **87 075** | **16.00** | **1 393 137** | **83 562** | **15.90** | **1 329 049** | **-5** |
| Batken | 2 120 | 13.68 | 28 995 | 2 204 | 13.80 | 30 411 | 5 |
| Jalalabad | 6 930 | 14.25 | 98 741 | 7 017 | 13.91 | 97 616 | -1 |
| Issyk Kul | 34 605 | 16.32 | 564 916 | 32 874 | 16.32 | 536 658 | -5 |
| Naryn | 6 113 | 14.54 | 88 883 | 5 558 | 14.10 | 78 368 | -12 |
| Osh | 9 835 | 15.26 | 150 086 | 9 972 | 15.06 | 150 172 | 0 |
| Talas | 16 256 | 16.90 | 274 750 | 15 522 | 16.85 | 261 590 | -5 |
| Chuy | 11 012 | 16.68 | 183 725 | 10 226 | 16.75 | 171 264 | -7 |
| Bishkek city | 27 | 7.40 | 200 | 27 | 14.00 | 378 | 89 |
| Osh city | 177 | 16.05 | 2 841 | 162 | 16.05 | 2 592 | -9 |

Source: NSC and Mission estimates (rounded numbers).

#### 4.3.4 Other crops

The 2009 total production of other cereals such as oat, rye triticale, millet and buckwheat is estimated at 4 000 tonnes, a 10 percent reduction from last year's level. The contribution of these crops to the total staple food production is minimal (0.2 percent).

### 4.4 Livestock

The livestock rearing systems practiced for sheep and goats and for a major proportion of the cattle, include seasonal transhumance to intermediate and high mountain pastures (*jailoo).* The migration begins in April/May and finishes in September/October. Winter carrying capacity determines the size of the household breeding flock/herd, which in turn depends on a variety of home-produced feeds including the poorer quality wheat, maize and barley grain; as well as by-products such as straw and bran to supplement winter grazing and locally-produced meadow and lucerne/sanfoin hay.

This year, due to above average rainfall in spring and summer, pastures both near villages and higher elevation pastures are in particularly good conditions. In addition, fodder crop cultivated area has increased by 2 percent this year, reflecting to higher profitability of fodder crops.

At the time of the Mission, vaccination campaigns were on-going and no major diseases were reported this year. Observations taken during Mission transects confirm cattle, horses, sheep and goats to be in excellent body condition. Further, transhumant patterns were normal in most areas, upward migration has been timely, although some disruptions were reported due to ethnic tensions, particularly in the South.

Following above average rainfall, increased fodder crops production, particularly good pasture conditions, and generally healthy stocks, the Mission anticipates that the livestock numbers will increase this year by 6 percent for cattle, 3 percent for horses and 4 percent for sheep and goats.

## 5. FOOD SUPPLY AND DEMAND ANALYSIS

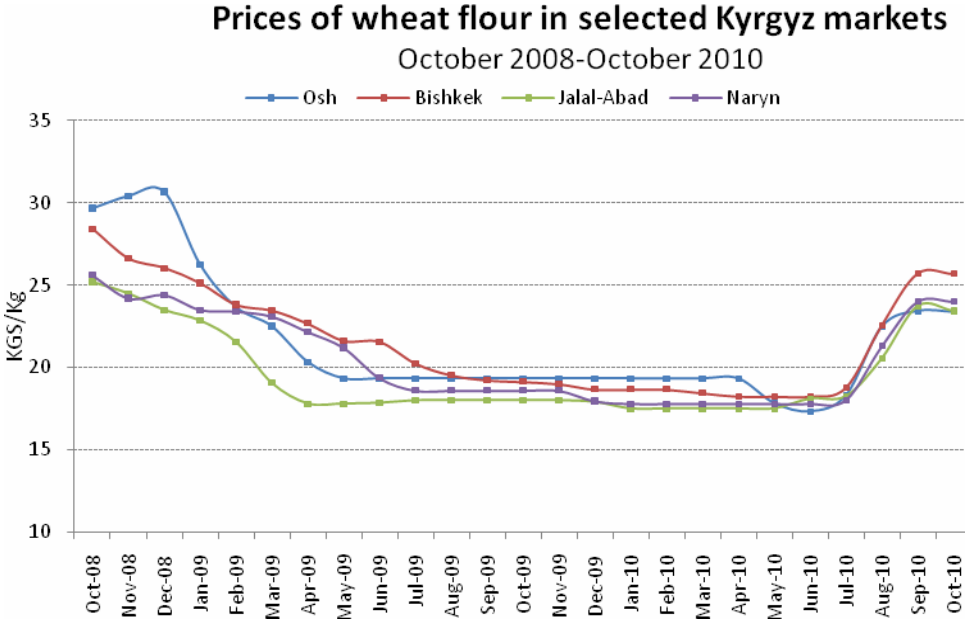
### 5.1 Food prices

The country is heavily dependent on imports of basic commodities such as wheat, fuel, fertilizers, and machinery and is therefore vulnerable to market shocks.

The wave of violence in April and June of 2010 in southern Kyrgyzstan resulted in the destruction of market infrastructures, including the main market in Osh and numbers of small businesses. The closure of borders with Uzbekistan and Kazakhstan caused a sharp increase in prices of agriculture inputs. Fertilizer prices more than doubled in Osh from May to June and fuel prices increased by 45 percent between March and June (Graphs 4, 5 and 7). High fuel prices have not only negatively affected cultivation, but have pushing up general inflation and in particular food inflation. Official statistics indicate that food inflation accelerated since April reaching 5.2 percent in the period January to July 2010, which compares with 6.8 percent in 2009.

Prices of basic food have increased markedly since the beginning of July. National average prices of wheat flour that had been stable since mid-2009, reached KGS 24.66/kg in September, 35 percent up from their June levels. Prices of bread have followed a similar trend with average prices moving from KGS 28.45/kg in June to KGS 32.35/kg in September. Prices of wheat products stabilized at those high levels in the first weeks of October.

Food prices are not regulated by the Government. Kyrgyzstan normally imports 25 to 30 percent of its annual wheat consumption requirements, mostly from Kazakhstan which has accounted for 95 percent of the commercial imports in the past two years. The increase in prices of wheat products mainly reflects the surge in international wheat prices at the beginning of July following reduced cereal harvests in the Black Sea region and subsequent export ban by the Russia Federation. By mid-October, the benchmark Black Sea export wheat price was 69 percent higher than in early July. Other factors behind the increase in wheat prices have been the decline in domestic production this year, and the sharp increase in fuel prices.


Prices of wheat flour in selected Kyrgyz markets
October 2008-October 2010
Osh
Bishkek
Jalal-Abad
Naryn
KGS/Kg
35
30
25
20
15
10
Oct-08
Nov-08
Dec-08
Jan-09
Feb-09
Mar-09
Apr-09
May-09
Jun-09
Jul-09
Aug-09
Sep-09
Oct-09
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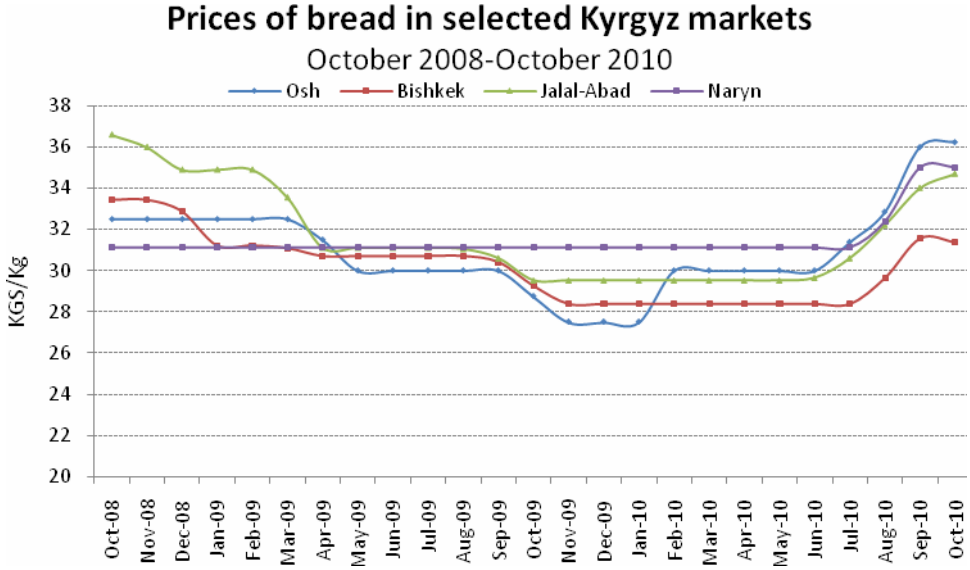
Prices of bread in selected Kyrgyz markets
October 2008-October 2010
Osh
Bishkek
Jalal-Abad
Naryn
KGS/Kg
38
36
34
32
30
28
26
24
22
20
Oct-08
Nov-08
Dec-08
Jan-09
Feb-09
Mar-09
Apr-09
May-09
Jun-09
Jul-09
Aug-09
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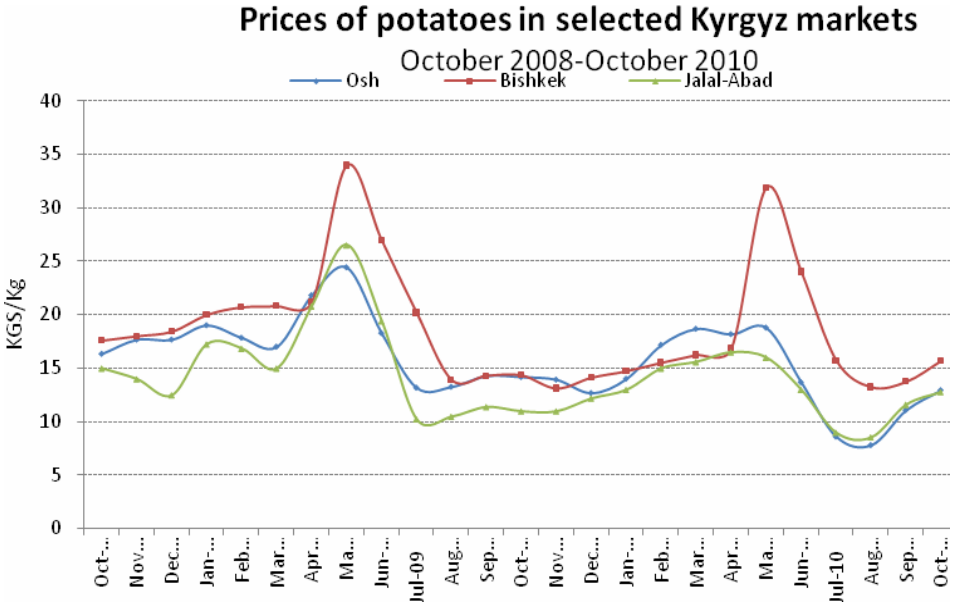
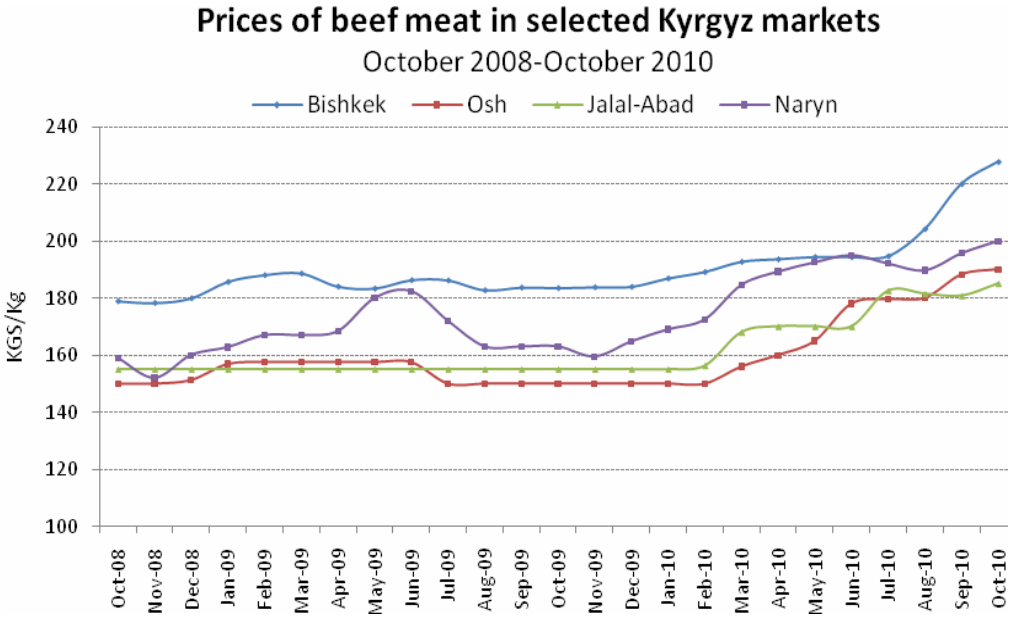
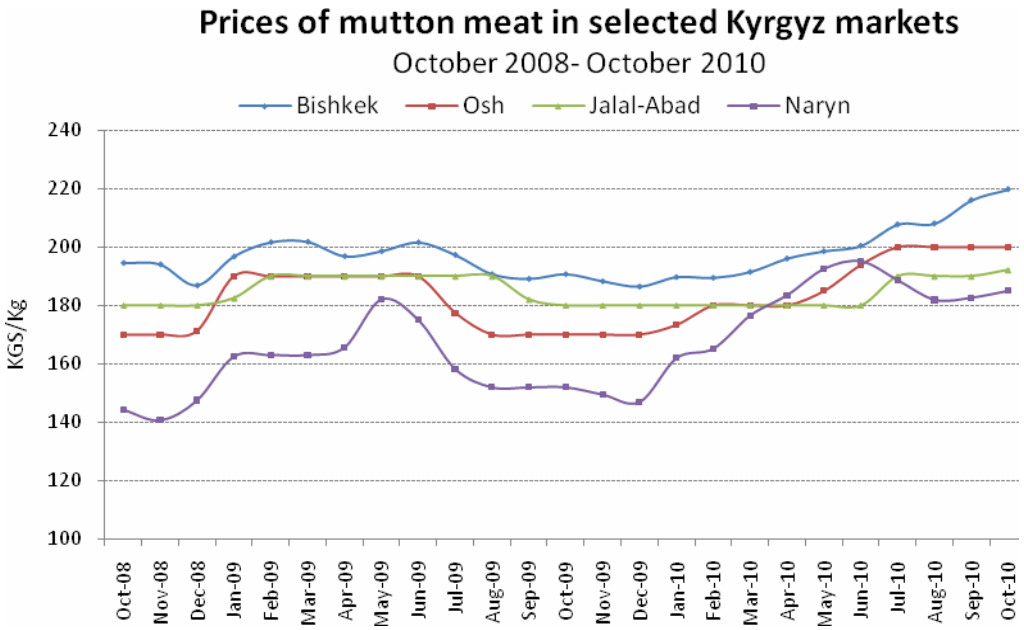

Prices of potatoes in selected Kyrgyz markets
October 2008-October 2010
Osh
Bishkek
Jalal-Abad
KGS/Kg
40
35
30
25
20
15
10
5
0
Oct-...
Nov-...
Dec-...
Jan-...
Feb-...
Mar-...
Apr-...
Ma...
Jun-...
Jul-09
Aug-...
Sep-...
Oct-...
Nov-...
Dec-...
Jan-...
Feb-...
Mar-...
Apr-...
Ma...
Jun-...
Jul-10
Aug-...
Sep-...
Oct-...

Prices of mutton and beef meat, on the increase since the beginning of the year, have also strengthened in recent months and are at high levels. Potatoes prices have seasonally increased but are still at relatively low levels.




## 5.2 Overall food supply situation

The 2010 wheat production fell 18 percent from last year but was average, while carry-over stocks are high following the 2009 bumper crop and large imports in the past seasons. The food supply situation in marketing year 2010/11 (July/June) is therefore expected to remain satisfactory at national level. However, the recent trends in food prices give concern about the access to food of low-income groups of population who expend a large proportion of their incomes in food and who have seen their incomes reduced by the recent political instability in the country. The food security situation of these populations needs to be closely monitored and supported, in particular in the southern Oblast of Osh and Jalalabad.

### 5.3 Cereal balance for marketing year 2010/11 (July/June)

**Population -** A mid 2010/11 marketing year population (December 2010) of 5.354 million persons has been used in the balance, based on information from the National Statistics Committee of Kyrgyzstan.

**Opening Stocks –** Following the 2009 bumper crop and large volumes of imports in past marketing years, carry-over stocks are assumed to be at relatively high levels. This was confirmed in discussions with Government officials at the time of the Mission.

**Human consumption –** Wheat is the main cereal consumed as food, together with minor quantities of rice and maize. GIEWS cereal balances for Kyrgyzstan show that apparent consumption of wheat has been rising in the past years, based on increased imports of higher quality wheat and wheat flour, mainly from Kazakhstan. An annual per capita consumption of 160.3 kg of wheat has been assumed in marketing year 2010/11. Adding relatively small-consumed quantities of rice, barley and maize, the total per caput cereal consumption is assumed at 164.4 kg/annum.

**Feed use –** Taking into account that wheat produced in Kyrgyzstan is of poor quality, it is expected that at least 20 percent is used for animal feed. Most of the maize and barley productions is used as feed.

**Other uses**:

- **Seed requirements** are calculated by using seed rates of 230 kg/ha for wheat, 200 kg/ha for barley, 25 kg/ha for maize, and 80kg/ha for rice, together with the average areas planted in the past three years.
- **Post-harvest losses** are assumed at 12 percent of production including handling and storages losses.

- **Cereal import requirements –** About 90 percent of the wheat processed by local mills is imported from Kazakhstan and used in nearly all baked goods. According to exports by destination reported to GIEWS, imports of wheat and wheat flour in marketing years 2008/09 and 2009/10 (July/June) amounted to 522 747 tonnes and 362 000 tonnes respectively. Using the above mentioned wheat consumption rates, and assuming an small drawdown in stocks, import requirements of wheat in marketing year 2010/11 are estimated at 352 000 tonnes, slightly below the previous year's volume. Almost all these requirements are to be covered on commercial basis. Food aid is assumed to increase from the previous year due to humanitarian assistance in zones affected by civil conflict in the first half of the year. Minor quantities of rice are also anticipated to be imported.

- **Closing Stocks -** A drawdown of cereal stocks from their opening levels is anticipated particularly for maize and barley.

**Table 9: Kyrgyzstan - Cereal balance sheet, 2009/10 marketing year ('000 tonnes)**

| | Wheat | Rice (milled) | Maize | Barley[1/] | Total |
|---|---|---|---|---|---|
| **Domestic availability** | **1 392** | **14** | **449** | **338** | **2 193** |
| Opening Stocks | 526 | 1 | 30 | 80 | 637 |
| Domestic production | 866 | 13 | 419 | 258 | 1 556 |
| **Total utilization** | **1 744** | **20** | **449** | **338** | **2 551** |
| Food use | 858 | 14 | 5 | 3 | 880 |
| Feed use | 173 | 0 | 382 | 218 | 773 |
| Other uses | 193 | 5 | 52 | 57 | 307 |
| Closing stocks | 520 | 1 | 10 | 60 | 591 |
| **Import requirements** | **352** | **6** | **0** | **0** | **358** |
| Commercial imports | 330 | **6** | 0 | 0 | 336 |
| Food aid | 22 | 0 | 0 | 0 | 22 |

1/ Includes minor quantities of oats.

# 6. HOUSEHOLD FOOD SECURITY

## 6.1 EFSA Survey: context and methodology

WFP has assessed food security in Kyrgyzstan since 2008, using data collected by the Kyrgyz Integrated Household Survey (KIHS). In view of the violent civil unrest in April and June 2010 in several oblasts of the country, an update of the situation was felt necessary as results of the 2010 KIHS would not be available before 2011.

The nation-wide Emergency Food Security Assessment (EFSA) was designed to provide statistically representative household food security data at national, rural, urban and oblast levels with the aim of: (i) estimating the current degree of food insecurity and coping capacities; (ii) comparing with KIHS updates which are using different food security indicators; (iii) supporting decision-making on food security assistance interventions throughout the country for the next 12 months; and (iv) informing the set-up of a sentinel-based light Food Security Monitoring System to complement the KIHS.

Data were collected between 26 and 30 July 2010 among 2 000 households selected from 250 localities in each oblast and in Bishkek town and 277 key informants interviewed from the various localities. The degree of household food insecurity was assessed by combining food consumption patterns with the amount obtained from the 2 main sources of cash[2], as indicator of economic access to food.

## 6.2 Results of the survey

### 6.2.1 Prevalence of food insecurity

More than a quarter of households were food insecure (27 percent) mostly moderately (23 percent). The overall prevalence of food insecurity is close to the prevalence estimated from previous re-analyses of the KIHS (33 percent food insecure) but severe insecurity is lower (20 percent in KIHS). The difference is explained by the use of distinct indicators to assess food consumption and economic access to food. The EFSA is believed to have underestimated the prevalence of severe food insecurity due to good dietary diversity rendered possibly by the large seasonal availability of food from own production. Conversely KIHS would tend to overestimate the severity of food insecurity.

This would represent 1 387 430 food insecure persons at the time of the assessment. Most of the estimated 84 010 IDPs in Osh and Jalalabad oblasts are expected to be among the food insecure, given the high level of food insecurity found in the Rapid EFSA conducted early July in these two oblasts.

Food insecurity was more likely to affect rural than urban households. The highest prevalence of food insecurity was in Osh oblast (55 percent), followed by Yssyk-Kul, Talas, Batken and Jalalabad Oblasts. The best food security situation was in Bishkek town and Chuy Oblast.

### 6.2.2 Profile of food insecure people

Food insecure households are mostly large families, including under-5 children as well as vulnerable members such as pregnant/lactating women and chronically sick individuals. In Osh and Jalalabad oblasts, they are likely to have suffered heavy damage to their housing. Rural food insecure households own less land and animals. Urban food insecure households often lack regular employment or a steady source of income. The main livelihood characteristics of food insecure households are summarized in Table 10.

[2] More than 3/4 of households had 2 income sources only. On average the first source of cash provided 69% of total cash obtained and 2nd source of cash provided about 31 percent of total cash.

**Table 10: Kyrgyzstan - Main livelihood characteristics of food insecure households**

| Livelihood assets | Characteristics of food insecure households |
|---|---|
| **Human and social** | • Headed by an adult older than 60 years of age, especially if woman<br>• Include under-5 children, pregnant or lactating woman, and/or chronically sick member(s);<br>• Large family size (7 or more) – 3 or more children<br>• IDP: house destroyed or severely damaged by violence last April or in June; also living in temporary shelter/tent in their house compound; |
| **Physical and natural** | • Likely to use wood or animal dung as main cooking fuel;<br>• No food stocks, or stocks for less than 2 weeks;<br>• No access to garden or land for cultivation and to fertilizer;<br>• Lost/decreased harvest and low duration for own consumption (3 months or less) for those who can cultivate;<br>• No animals (may have been lost in recent unrest) or less than 9 poultry, less than 9 sheep, less than 4 cattle;<br>• No/small stocks of animal fodder/feed<br>• No (may have been lost in recent unrest) petty trade stock, or shop<br>• Impaired access to markets and/or to workplaces |
| **Financial assets** | • Only 1 member able to earn cash;<br>• Loss of life or health problems of a bread-winner;<br>• Reliance on charity, sale of crops, sale of vegetables, irregular unskilled wage labour and pensions/allowances as main sources of cash and income, providing low, unreliable and/or unsustainable income. |

6.2.3 Causes of food insecurity

Lack of means to produce enough food and insufficient cash to purchase diversified food explain inadequate food consumption. While quantities of staples consumed are generally enough to meet kilocalorie needs, intake of dairy products, animal products (dairies, meat, eggs, fish), pulses, vegetables and fruits is insufficient (especially in winter and in pre-harvest time), leading to vitamin and mineral deficiencies, higher susceptibility to disease, stunting among young children, and decreased learning and productive capacities.

Food production of food insecure households is limited by low acreage, difficulties to procure agricultural inputs, lack of manpower, as well as inability to pay for veterinary services and animal feed. Unemployment, under-employment and low education levels prevent food insecure households from obtaining stable and well-paid occupations. Recent harvest of major staple (wheat, potato) and ongoing harvest of vegetables and fruits at the time of the assessment enabled many rural households to rely on their own production for food consumption and to decrease the share of food typically purchased on markets. However, rural households still bought about half of their food and urban households the majority of it.

Food expenditures represented about half of the 4 main expenditures of households at this time of the year and probably more when food stocks are exhausted. The share of harvest kept for family consumption would not last more than 3-5 months for food insecure households. Humanitarian assistance was not a major source of food. It contributed to about 10 percent -13 percent of the wheat, oil and sugar consumed. However, it seemed correctly targeted to the food insecure and is expected to help them access other items, particularly nutritious but expensive food such as animal products.

The purchasing power of food insecure households has deteriorated. Although prices of food have gone down compared to 2008, they still remain higher than the average for the last five years. Wheat and bread prices had started to increase in July, reflecting the rise of wheat price on international markets, effects of the Russian ban on exports, lower harvests in other major wheat producing countries, including Kazakhstan, and lower domestic wheat harvest. Pensions, allowances and salaries have augmented in past months but not sufficiently to compensate for the rise of prices of food, fuel and other productive inputs and to lift food insecure households out of poverty. Many of the poorest are also excluded from social assistance.

Food insecure households rely on irregular and low-paying sources of cash: sales of crops or vegetables, independent work, irregular unskilled wage labour, pensions or charity. Most of the cash thus obtained is low, meaning that these households remain below the official poverty line.

Lack of assets and savings also prevent food insecure households to cope with shocks such as bad weather affecting harvest, animal disease, mudslide, violence and insecurity, and health problems. Even though not frequently, a very large proportion of severely food insecure households (40 percent) engaged in strategies that entail risks for the health and nutritional status of vulnerable members, including spending days without eating, skipping meals and reducing health expenditures. About 1/3 of food insecure households used strategies that jeopardize their future livelihoods such as excessive sale of animals, consumption of seed stocks or sale of productive assets. Reflecting the overall general hardship and economic depression, 1/5 of food secure households also employed these strategies.

### 6.3 Food security outlook in the next 12 months

Macro-economic prospects are pessimistic for the rest of 2010, with a negative 3.5 percent GDP growth and a decrease of GDP per capita to USD 826. Projections for 2011 are optimistic however, with GDP growth anticipated at 7.1 percent. Many farmers are likely to face hardship due to decreased agricultural output as a result of the April and June 2010 civil unrest and augmentation of petrol and diesel prices that translate into higher fertilizer and other agricultural production costs. Unemployment rates will also rise due to physical damage to businesses and business closure in Osh and Jalalabad oblasts, and drying up of tourism in Yssyk-Kul oblast, although reconstruction activities in the south may somewhat alleviate the situation.

Wheat and bread prices are expected to augment sharply as a result of higher wheat price on international market and from the suspension of wheat exports from Russia. This may lead to both shortages and rocketing prices which will seriously hurt Kyrgyz households, since bread is the main staple. Poor and food insecure farmers are net buyers of wheat and will not benefit from a price increase.

Pensions and wages were raised recently and a rebound of remittances from migrants took place in the first quarter of 2010. Together with the forecasted slowdown of inflation, this may ease somewhat the economic situation of households. Nevertheless, poverty is expected to rise given the projected economic contraction. Given the strong association between poverty and food security, the latter is also expected to worsen.

The conditions in Osh and Jalalabad oblasts remain highly volatile with a continuation of low intensity ethnic conflict, sporadic security coverage and deep scars left by the violence. The poverty and social impacts of the events will not be fully reversed by the reconstruction of infrastructure or the payment of compensation for lost livelihoods. The Government is taking measures to replace lost official documents in order to facilitate access to assistance, to provide cash compensation for affected families and rebuild houses. Food insecurity among IDPs had reached alarming levels early July 2010 and is likely to deteriorate as pre-crisis livelihoods will not be recovered before the winter. The food security situation of residents in affected areas is also anticipated to deteriorate as access to jobs, fields and markets remain difficult.

In addition, Kyrgyzstan remains highly susceptible to natural hazards (e.g. earthquake, mudflows, landslides, snow storms etc.) which can cause heavy losses of lives, livestock and crops, and damage to infrastructure. The population's resilience capacity is limited by the low asset base and lack of opportunities to diversify livelihoods.

## 7. CONCLUSIONS AND RECOMMENDATIONS

A combination of short- and medium-term interventions is necessary to address both urgent agriculture, food security and nutrition needs, and the underlying factors of food insecurity. Donors have pledged USD 1.1 billion at the end of July 2010 to help the Government and the private sector to: (i) cover essential public expenditures and services, (ii) support housing, livelihoods, social protection and other social programmes, (iii) rebuild destroyed private commercial and public buildings, and (iv) support agriculture and security-related programmes. Strengthening of the social assistance system, employment and a package of nutrition interventions are also key to tackle underlying causes of poverty, food insecurity and malnutrition, and decrease risks of further civil unrest. The Government, with donors' support, has a direct responsibility in strengthening the social assistance system, generating employment, and providing a package of nutrition interventions to tackle underlying causes of poverty, food insecurity and malnutrition, and decrease risks of further civil unrest.

At household level, food security assistance is understood as a range of support activities, including agricultural interventions, productive safety nets (e.g. employment in times of low seasonal work opportunities and community asset creation), income-generation activities, and social safety nets such as food and cash transfers, school feeding and assistance to specific vulnerable groups such as those affected by HIV/AIDS and tuberculosis.

## 7.1 Recommended food security interventions at macro-level

- *Support to the agricultural sector*

The Kyrgyz Republic faces substantial challenges to re-establishing the agriculture sector as the driver for growth and increased food security that it was in the late 1990s. The preconditions for this are increased investments to enhance productivity. Unfortunately, investment in the agriculture sector is dropping to concerning low levels and the insecurity experienced in 2010 has severely affected trade with Kyrgyzstan neighbours. This has serious implications for the supply of key agriculture inputs, namely fertilizers, fuel and machinery spare parts. In 2010, the effects of these disruptions were moderate given that they occurred toward the end of the cropping season considering stocks that prevailed in the country. The priority for the coming cropping season is to ensure supply of inputs such as fertilizer, fuel and agriculture machinery spare parts are reaching farmers on-time and at competitive prices.

Given the rapid evolving situations in the agriculture sector, the Ministry of Agriculture requires analytical supports to plan adequate interventions. Priority analytical gaps were identified in the following areas:

- Food security, including forecasts
- Key determinants of growth in the agriculture sector
- Underlying factor of farm productivity, farm consolidation
- Market development, sub-sector value-chain performance
- Research and extension

- *Expansion of coverage and amount of benefits provided by the formal social assistance system*

Most of the food insecure households rely on pensions and benefits as their main, regular, source of cash. However, up to 2/3 of the poorest households are excluded from the system, due to lack of documentation and resources to apply for the benefits, and the amounts transferred are too low to lift households out of poverty and food insecurity. The Government, with support from donors, has the prime responsibility to improve the social protection system. Capacity building to government and private institutions to better analyse food security and target food insecure households with social assistance will be valuable as well as advocacy to expand the coverage and amount of social benefits.

- *Monitoring of the food security situation*

WFP is planning to undertake a follow-up Rapid EFSA before the winter in violence-affected areas of Osh and Jalalabad oblasts, to gauge the extent of recovery and adjust needs that were estimated early July. The results of the nation-wide EFSA should be used to establish a light Food Security Monitoring System (FSMS) to complement the government's Kyrgyz Integrated Household Survey by providing early warning of changes in household food security and nutritional situation. It is suggested to pilot the FSMS in Osh or in Yssyk-Kul oblast, considering the high prevalence of household food insecurity there, and to expand the FSMS to 4 oblasts in 2012.

## 7.2 Recommended food security assistance at household level

In view of the absence of improvement expected in the next 12 months, food security assistance is required especially in the winter and pre-harvest months for the estimated 1 387 430 food insecure persons. These comprise households who are chronically food insecure as well as households who have become food insecure due to the civil unrest and economic depression, or natural disasters.

An estimated 339 760 currently food secure households are also considered at risk of becoming food insecure in the next months due to the forecast deterioration of the economic situation, increased hardship in winter time when food stocks are exhausted and additional expenses for heating and education are incurred, as well as use of severe coping strategies that may affect health and nutrition in the medium-term. Livelihood support to protect food security in this group would be valuable, particularly in the agricultural sector and for job creation in periods of low employment opportunities (see below).

Food security assistance for food insecure and vulnerable households includes:

- *Agricultural inputs and technical assistance*

The EFSA found that three-quarters of rural households and one-quarter of urban households have access to garden or land and own animals. Agricultural assistance should be geared in priority towards smallholder farmers whose productivity is low for lack of access to inputs. This includes farmers in the areas recently affected by civil unrest, whose economic capacity to purchase seed, fertilizer and pay for machinery services has decreased and who will not be able to plant for the next season to the same extent as usual.

Peasants which have been directly hit by the violence in the South require urgent assistance. The humanitarian, food security and agricultural needs of these families are substantial. Economic support for these families to re-engage in farming activities for the coming planting season is urgently needed. In the form of seeds, fertilizers, machinery costs and irrigation canal maintenance is urgently needed

- *Employment and productive safety nets*

Food insecure households lack opportunities to secure a regular, well-paid job and rely on irregular, often seasonal, sources of income. While economic growth (see paragraph 11.2) is essential to create jobs and raise wage levels, unemployment and under-employment can be alleviated through the launch of public works and temporary job creation in periods of slack occupation (e.g. post-seasonal agricultural activities). These works can benefit communities as well through the creation or rehabilitation of infrastructure such as rural roads, schools, water and sanitation systems, irrigation systems, and local markets. Food- or cash-for-work activities can be suitable mechanisms for this purpose.

- *Micro-credit*

The micro-credit sector is dynamic in Kyrgyzstan and has grown in recent years. They are often the sole source of credit for small farmers who cannot provide the collaterals require by banks. However, the interest rates are often high. Support to micro-credit institutions and access to credit at favourable terms for smallholders and small entrepreneurs would facilitate their economic access to inputs for agriculture and small businesses.

- *Capacity building*

Food insecurity is also associated with low education levels, which contribute to limit opportunities for skilled and better-paid occupations. Vocational skill trainings could help upgrade education levels for youth and adults already out of the formal education curricula.

- *Social safety nets*

Food insecure households, especially those severely food insecure, have limited access to land, animals and manpower. This limits their capacity to benefit from agricultural support and to participate in productive safety net activities. These households mostly depend on low amounts of formal social assistance. Until coverage and amounts are increased, they need food and/or cash transfers to improve their food consumption, prevent a deterioration of the health and nutritional status of vulnerable household members, and reduce the use of strategies that jeopardize their livelihoods.

- *School feeding and assistance to specific population groups*

Food insecure households are typically large families including at least 2 school-aged children. Complementary support to the government's school feeding programme could improve the nutritional quality of children's snack and encourage regular school attendance, provided other constraints (lack of teachers, poor school facilities) are also addressed. Chronically sick individuals affected by tuberculosis or HIV/AIDS living in food insecure and poor households could also benefit from food and/or cash assistance, as per programmes implemented by agencies elsewhere in the region.

WFP has been implementing a Vulnerable Group Feeding (VGF) programme since 2009, targeting between 250 000 and 333 000 individuals in 6 oblasts. WFP also assisted some 532 400 IDPs, host family and resident individuals in July/early-August 2010 in violence-affected areas of Osh and Jalalabad oblasts. A cash transfer proposal has been prepared to complement food rations distributed to the poorest and severely food insecure households in these areas. Other agencies are also implementing cash transfers projects.

WFP already targets chronically food insecure households in 6 oblasts through its VGF programme and could consider expanding it to additional locations and oblasts. ‘Newly’ food insecure households represent those who have lost their house, animals and safe access to land, pasture, markets and jobs. Most of them are currently located in violence-affected areas of Osh and Jalalabad oblasts, but others have been hit indirectly by the civil troubles through business closure and economic downturn, such as in Yssyk-Kul due to losses incurred during the traditional touristic season.

The choice between food and cash transfers (conditional or unconditional) depends on safety and accessibility of markets and risks of inflation.

## ANNEX I

### National Statistical Committee's procedures in generating agricultural data

The Kyrgyz Government expends very substantial resources to generate agricultural data on a regular basis and the National Statistical Committee (NSC) is the mandated institution to collect process and disseminate these data. The current NSC data collection method is an adaptation from the former system implemented during the Soviet period in which data were obtained from each of the lowest territorial units, the collective farms. Although the agriculture statistical method would benefit from reforms, NSC generally produces reliable data, providing a sound basis for analytical work on the sector policies and strategies. The crop cutting exercise conducted this year with FAO support confirmed the consistency of NSC yield data. For food security, a major weakness is the absence of forecasting systems which delays response to evolving situations. The scope and coverage of NSC agricultural data is wide. The data availability by far exceeds the available analytical capacity of line institutions as only a small fraction of the data are actually utilised for analysis. As collective farms were privatized, the farms' administrations were transformed in villages' administrations, the so-called Aiyl Okmotu. There are currently 440 Ayil Okmotu's from were agricultural data are generated. Therefore, in order to compile agricultural data (and other sectors' data), NSC has a wide network of offices and expertise at central, Oblast (7 Oblast and 2 cities) and Rayon levels (in 40 Rayon and 20 towns). At Ayil Okmatu's level, one full time statistician is responsible for data collection and compilation. Local statisticians report technically to NSC, but are employed by the Ayil Okmatu's administration.

NSC provides methodological guidelines to each Ayil Okmatu's statistician in the form of a comprehensive manual written both in Kyrgyz and Russian. Farm sampling, data collection and expansion from the sample to the population are fully the responsibility of the local statistician at Aiyl Okmotu's level. Data on cultivated area and production as well as socio-economic indicators are collected on a monthly basis as farm operations are performed. Data on yield are collected by interviews two weeks before the actual harvest for production data. To generate Aiyl Okmotu's estimates on area cultivated, the total land registered for each type of farms is used to expand the data from the sample. NSC is responsible for maintaining the list of registered farms. Aiyl Okmotu's production estimates are generated by multiplying the total areas cultivated by crop with the average crop yields. Average crop yield is estimated by calculating the yield obtained from each type of farm operators.

Data are aggregated from Aiyl Okmotu to Rayon, to Oblast and to national levels. Data are computerised either at Aiyl Okmotu's or Rayon levels, depending on the availability of computer facilities and transmitted electronically from one level to the other by email. Each NCS office has a full time IT/data manager. NCS reports agriculture area and production at Rayon level. Other indicators are reported at various administrative levels. Rayon level NCS office provides training and technical backstopping to Aiyl Okmotu's statisticians. Lack of human resources and logistics limit the supervision capacity on the data collection process at Aiyl Okmotu's level.

Since 2009, NCS conducts annually crop cutting exercises to measure biological yield on wheat and maize fields using a 1 x 1 metre frame, a thrashing bag and a portable scale. The methodology was introduced by NSC for implementation in each Ayil Okmotu over concerns that the village administrations are at times influencing the procedures at the lowest administrative level. The data from those crop cutting exercises are therefore not used to generate statistics, but rather to verify and validate data collected from interviews at Ayil Okmotu's level.

Sampling and data method for type of the four agriculture production units differs significantly:

- **For peasant farms**, data are collected on a sample randomly selected from a list of peasants registered by the NSC. There are currently 262 000 peasant farms registered at NSC. The list is continuously updated. Peasant farms are group in four strata on the basis of their land size:

    - 0-5ha: 10 percent of the farms sampled (one every 10 names on the list, etc.)
    - 5-10ha: 20 percent of the farms sampled
    - 10-20ha: 25 percent of the farms sampled
    - 25-150 ha: of the farms 44 percent sampled

The Aiyl Okmotu's statistician will draw a sample on his updated list every year to conduct the interviews. The sampling is however unnecessarily large and too large for realistic implementation particularly in the densely populated South. Aiyl Omkatu's covers large territorial units and distance to the selected farms is a challenge to achieve the proposed sample size. Local statisticians are to decide on a realistically implementable sample and selection of easily accessible areas seems to be the practice (purposive sampling).

- For the **household plots** (*korajai*) production, estimates are made from a sample of 50 000 households for interviews out of 734 000 *korajai*, drawn from a list established during the 2002 agriculture census. Data expansion and aggregation follow the same procedures as above.

- Each **State Farms and Collective Farms** are obligated to submit monthly reports to the Rayon NSC office on area cultivated and production as well as other indicators. These farms are registered by the Ministry of Justice, but NCS is mandated to maintain the list up to date. NCS provides the farms with a mandatory reporting format. To generate estimates, the Rayon NSC offices compile the information from all State and Collective Farms. The data are subsequently aggregated from Rayon to Oblast and to national levels.

**Livestock** data are collected and estimates are generated following the same procedures as above. The farm list includes additional farms which are specialised in animal husbandry. There are two reported set of figures for livestock inventories:

- The official one from the National Statistics Committee (NSC) with data collected through enumerators in the various Aiyl Okmotu.

- The ones used by the State Veterinary Services (SVD), which are approximately 30-40 percent higher than those published by the NSC. These figures are based on reports from the Veterinary Services in the field.

Part of the discrepancies is explained by the data collection period; livestock data from the NSC are collected in December whereas SVD data are generated from vaccination campaigns conducted in May the following year when off-springs for the new season are accounted for.

**Table A1: Kyrgyzstan - NSC agriculture and livestock data collection and dissemination schedule for key indicators**

| Data | Data collection period | Report title | Date for the release of the reports |
|---|---|---|---|
| Area and Production by crop | From March 1 to June 25 | Report on crop area cultivated and comparison with the previous year | June 30 |
| | From July 1 to December 25 | Report on harvesting process, yield and winter crops planting | Monthly reports |
| | From 1 July to December 25 | Final report on crops harvesting, yield and production | January (following year) |
| Agriculture, all indicators | From March to December 25 | Annual agriculture statistical report | August (following year) |
| Livestock Products | Throughout the year | Production of main types livestock products | Monthly report, Final report by May 30 the following year |
| Livestock Numbers | December 1 to December 15 | Results of the cattle, small ruminants and poultry counting | December 31 |

In several countries taxation can impede in the data collection method. This is not the case in Kyrgyzstan as there are reportedly no taxes on agriculture production and data collected for statistical purposes can therefore not be used for taxation. Farmers and livestock producers are exempted from income tax. The land and irrigation water taxes are applied by unit of land - each production unit has received from the land reform

- irrespective of the use of this land or the production obtained. Similarly, for livestock, a tax on pasture is perceived by a community pasture committee only for animals actually using village or summer pasturelands (*jayloo*).

NSC follows a strict data collection and dissemination schedule (see **Table A1**). NSC agriculture reports are generally released less than one month after the end of the data collection period.

The strengths of the Kyrgyz agriculture information system are numerous:

- The NCS in Kyrgyzstan expends substantial resources to generate agricultural data and the NCS professionals are conducting their tasks diligently. The Mission could appreciate the work conducted at all administrative levels.
- The scope of the agriculture survey is large and includes a long list of indicators including various socio-economic indicators on both crops and livestock production. The data generated inform well on the sector and in fact exceeds the analytical capacity of the institutions responsible to support the sector such as the Ministry of Agriculture.
- Some important data for the Ministry of Agriculture were missing, such as disaggregation between irrigated and rainfed cultivation and an agreement between both institutions have been found to fill such gaps.
- The time to release data on area and production from the end of the data collection period is relatively short.

The identified weaknesses are:

- The data collection system is costly, the sample size is unnecessarily large and indicators are far too many to be collected on a monthly basis. It is questionable whether the country needs such a wide diversity of indicators being reported so frequently at the lowest administrative level, the Aiyl Okmotu's to adequately monitor the performance of the sector and inform on policies and strategies.
- The chances for computation errors in the current system are numerous as in each of the 440 Aiyl Okmotu, the local statisticians are to draw samples, conduct the interviews and calculate expansion factors for each of their respective administrative unit. Then, data are aggregated at each level of the administration up to the national level, which represents other possibilities of errors.
- The lists of farms used by the NCS are likely to be incomplete as it is difficult to maintain such list complete and up to date and therefore agriculture outputs might be under-estimated. On the other hand, head of Aiyl Okmotu are reported to interfere at times in the data process to demonstrate better results on their administrative division.
- For food security, a major weakness is the absence of crop forecast early in the season. This limits the ability of the Government to provide timely responses to adverse factors in the season. Interviewing a sub-set of producers before the release of area cultivated data would allow generating forecasts with limited modifications in the current data collection system.
- Time to release data on other indicators than area and production takes time (8 months delay to the following year).
- Databases are not readily accessible to interested institutions, researchers.
- GIS and data mapping is not sufficiently developed to better report on agriculture data in a format easier to use for decision makers.

More fundamentally, NSC data collection method does not make use of low sample statistical systems, which can generate accurate and timely estimates in a more cost effective manner. In particular, testing methods such as the Area sampling Frame – in which land instead of farms is sampled – could provide better estimates by correcting bias inherent to the current NSC method and simplify procedures. In Kyrgyzstan, the old state and collective farms and their boundaries could be used as Primary Sampling Units-PSUs, which simplifies the construction of an Area Frame. However, although low sample statistics can provide timely, accurate and cost-effective data at higher administrative levels, it may not provide estimates at the lowest administrative level.