



# Food System Shocks: An Analysis of Impacts on the Well-Being of the Kyrgyz Population

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## Executive Summary

**Food security is a major aspect of the social and economic development of the Kyrgyz Republic.** Agriculture is a backbone sector of the economy in addressing food security issues as a provider of basic food products and a source of employment for the population. However, because this sector grows more slowly than others, agricultural production is characterized by moderate growth, and the production of some products (wheat, sugar) has even been decreasing. Imports of food products are an important factor of food security in the Kyrgyz Republic because there is insufficient domestic production of basic food products, leading to the country's dependence on volatile food prices in external markets. Furthermore, food prices also depend on fluctuations in prices of main production inputs (fuel and fertilizers), which are also imported.

In the past decade the world has faced new challenges in achieving food security. The global food crisis and a sharp increase in fuel prices in 2007 followed by a financial crisis in 2008 increased the number of food insecure people worldwide. The 2010 and 2012 droughts affected the global output of grain crops and had an impact on market prices in many parts of the world, especially in Central Asia. The recent economic instability in the world has caused fluctuations in the domestic currency exchange rate because the US dollar and Russian ruble exchange rates exert their influence on the Kyrgyz economy, impairing the purchasing power of poor families dependent on the market (WFP 2014). The food system of the Kyrgyz Republic has also been adversely affected by these shocks, resulting in higher food prices and lower domestic production due to the increase in prices for production inputs (electricity, fuel, and lubricants) and drastic reduction in credits from Kazakhstan and outflow of capital. Together these have led to slower poverty reduction rates in the period since 2010.

This case study seeks **to develop and justify policy options to prevent and reduce the negative impacts**

**of food shocks.** The study identified the following groups of **stakeholders**: government, the population, and agricultural producers.

The analysis identified **main shocks in the food system**, including natural disasters, increased food and input prices in the domestic and external markets, political shocks, and exchange rate shocks. Natural disasters and increased prices for imported products have the strongest impact on the food situation.

In view of the aforesaid, several **policy options** are proposed. Some of them include **response measures**—such as agricultural insurance and a fund to assist socially vulnerable populations—to the shocks that have occurred. Other policy options are meant **to improve productivity and efficiency of agriculture** and, therefore, **mitigate the impact of such shocks on the food system in the Kyrgyz Republic.**

## Background

The Kyrgyz Republic is an industrial and agricultural country. Agriculture is one of the most important and priority sectors of its economy because it provides both availability and access to food. The share of the Kyrgyz population living in rural areas is 65 percent; about half of the economically active population is engaged in agriculture (National Statistical Committee 2016).

Food security in the Kyrgyz Republic is an integral component of the national and economic security of the country as a whole because issues of food security are closely related to the overall process of social and economic development (Government of the Kyrgyz Republic 2015).

Food security is understood to be the physical availability of food in sufficient quantities, access to this food by households (this includes food produced by households as well as food purchased in the mar-

ket, food received as in-kind gifts, and food obtained through other sources), and the consumption of food in quantities required to meet nutritional needs (National Statistical Committee 2017).

The analysis of food availability in the country builds on a set of components: domestic production (linked to natural resource assessments), food stocks, exports and imports of food, and food aid.

The analysis of land resources in the Kyrgyz Republic has demonstrated that the country belongs to the group of the countries where there is little arable land per person (about 0.2 hectares), while the overall area of arable land has been declining. As a result, arable land per person continues to decrease. Land degradation and reduced soil fertility is another urgent issue.

The year 2010 saw a substantial reduction in the cultivated area compared to 2009 because of climatic (heavy rains, mudflow) and political factors (civil unrest). However, since 2011 the cultivated area has been increasing on average by 1 percent per year. In 2010–15 the average cultivated area was around 1.1 million hectares; a substantial part of this land (49 percent) was planted with cereals as well as fodder crops (on average around 27 percent), potatoes (7 percent), vegetable oil crops (4 percent), and vegetables (4 percent). Wheat is the main cereal in the cropping pattern; however, in recent years the area planted with cereals has dropped because land has been diverted from wheat to more profitable fodder crops and land used for the development of animal husbandry.

The Kyrgyz Republic has substantial water resources, which is beneficial for agriculture development. The key risk associated with water resource use is lower water management efficiency that results from the deterioration of the irrigation systems and their cor-

responding inability to meet the demands of agriculture. Development of irrigation systems is a priority task for agriculture development in the country because it will help improve irrigation in available land and make available new irrigated land for growing crops.

To assess the food security level, nine basic food products are used: bread and bakery products, potatoes, fruits and berries, vegetables and cucurbits crops, sugar, vegetable oil, meat and meat products, milk and milk products, and eggs.<sup>1</sup>

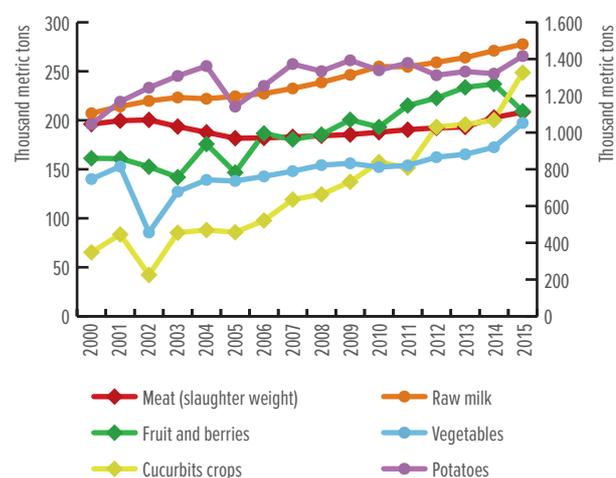
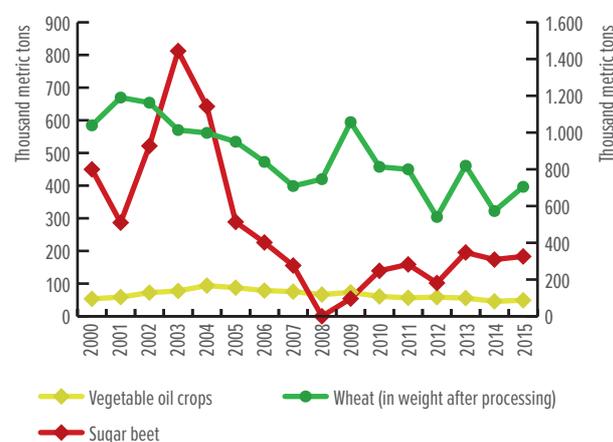
Analysis of domestic production in the Kyrgyz Republic (Figure 1) has demonstrated the steady production of the following food products in 2000–2015: potatoes, vegetables, fruits and berries, milk and dairy products, and meat. Production of these food products is characterized by a moderate upward trend. Production of wheat, sugar beet, and vegetable oil crops is characterized by a downward tendency.

The most stable yield has been achieved in the production of vegetable oil crops, potatoes, vegetables, cucurbits crops, and fruits and berries. Wheat yield and sugar beet yield fluctuate substantially. The productivity of livestock demonstrates a negative trend caused by a shortage of fodder and veterinary aid as well as by the degradation of livestock herds.

For these reasons, the production of basic food products in the Kyrgyz Republic included in the food security analysis does not demonstrate growth trends, even though production of some food products has been decreasing. A subsistence economy and a low level of machinery and equipment use prevail in the country. Smallholder farms produce more than 90 percent of agricultural products, and the small size of these farms is a constraint on productivity, consolidation, and expanding possibilities of processing and marketing of products (WFP 2016).

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<sup>1</sup> This assessment is according to the Resolution of the Kyrgyz Republic Government No. 138, dated March 9, 2009, "On Approving the Regulation on Monitoring and Indicators of Food Security of the Kyrgyz Republic."

**Figure 1: Production of Basic Agricultural Products, 2000–15****1a: Production of Meat, Milk, Fruit, Cucurbits Crops and Vegetables****1b: Production of Vegetable Oil Crops, Wheat and Sugar Beet**

Source: National Statistical Committee, Agriculture of the Kyrgyz Republic, various years. <http://www.stat.kg/ru/publications/sbornik-selskoe-hozyajstvo-kyrgyzskoj-respubliki/>

In recent years the contribution of agriculture to the country's gross domestic product (GDP) has been declining (agriculture contributed 28.7 percent in 2006 but only 14.1 percent in 2015), reflecting the slow rates of the sector's development compared with other sectors.

In 2014, the Kyrgyz Republic was fully self-sufficient in three out of nine food security products that are staple foods for the country, namely, potatoes (by 149 percent), vegetables and fruits (by 140.6 percent), and milk and dairy products (by 110.6 percent). The country's inability to make food products available to the population through domestic production increases food imports.

The dynamics of importing and exporting basic food products are not steady. They depend on demand for these products in external and domestic markets; this demand is determined by many factors, including prices, domestic production, production in food-exporting countries, introduction of customs duties, and so on. The country imports large quantities of wheat, vegetable oil, and sugar for domestic con-

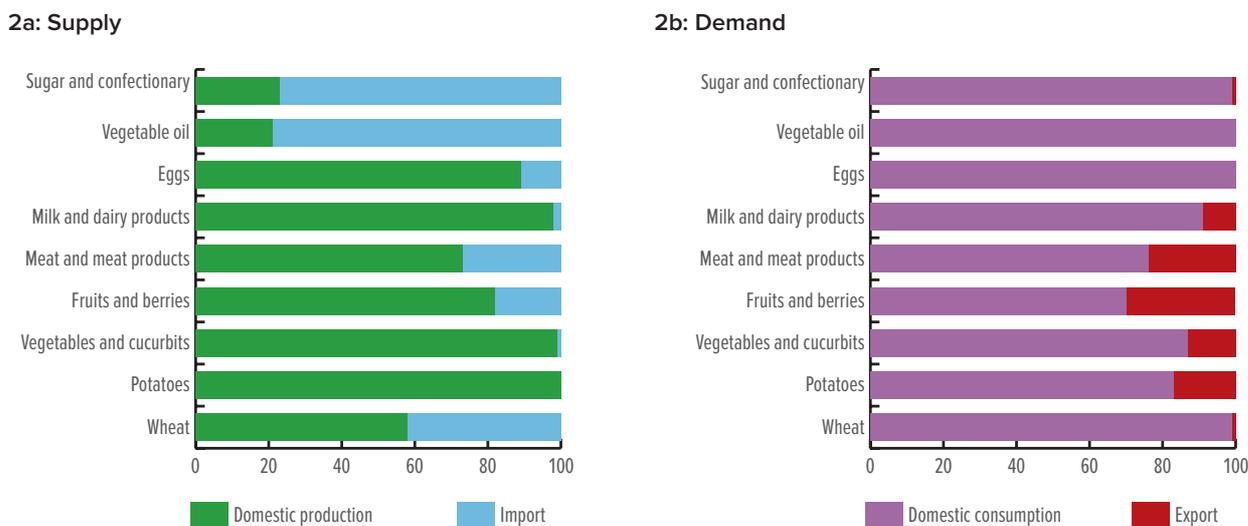
sumption (Figure 2); imports of almost all food products have been increasing, while exports of dairy products and vegetables have been going down. On the whole, such dynamics demonstrate a higher reliance of the Kyrgyz Republic on food imports because domestic production has exhibited only moderate growth and, in some cases, has even declined.

An analysis of factors impacting the affordability of food for the population has shown that the most relevant factors include inflation rate, food prices, the social safety net for vulnerable groups of population, and the total income of households (Government of the Kyrgyz Republic 2015).

A low level of agricultural production and low self-sufficiency in food, along with market's dependence on food imports—especially grain and flour imports—make domestic prices sensitive to fluctuations of global prices.

The share of food expenditures in the subsistence wage varies from 63 percent to 71 percent regionally, with food expenditures of the lowest income

**Figure 2: Average Supply and Demand for Basic Food Products, 2010–15 average**



Source: National Statistical Committee. Various years. Information Bulletin of the Kyrgyz Republic on Food Security and Poverty.

quintile (20 percent of the population with the lowest income) being around 60 percent of average per capita income, while food expenditures of the top quintile (20 percent of the population with the highest income) are the lowest and constitute around 30 percent. This means that population with the lowest income is hit hardest by an increase in prices.

Analysis of food product consumption by the population shows that over the past 10 years the diet has been monotonous. Bread and bread products take up around one-third of the dietary intake of the Kyrgyz population. Potato and sugar consumption is also high. The insufficient consumption of meat, vegetables and fruits, and milk and dairy products is the result of the population not being able to afford an adequate, nutritious diet. In recent years, on average the poorest people (the first quintile) have consumed around 1,800 calories per person per day, which is around 85 percent of the calories required by the scientifically substantiated and legislatively approved nutrient and energy standards in the Kyrgyz Republic. Consumption of proteins and carbohydrates below the requirement has also been observed. Undernutrition slows down economic growth and aggravates poverty through direct losses in the productivity of the current population. For

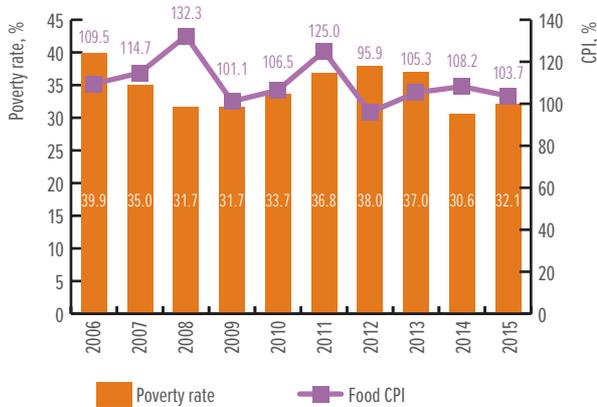
this reason, the poorest population is more susceptible to food shocks, more reliant on social benefits and less dependent on income to get access to adequate quantities of food. Poor households in the Kyrgyz Republic receive a monthly benefit that is paid to low-income families with children. This was 128 Kyrgyz soms per recipient in 2008, and was increased to 873 Kyrgyz soms per capita in 2016.

After becoming independent from the Soviet Union in 1991, the Kyrgyz economy was picking up steam and the poverty rate dropped (from 64 percent in 2003 to 31.7 percent in 2008), infant mortality decreased, and average life expectancy increased. However, economic, political, and climatic factors reversed the positive trend of poverty reduction, and in 2009 poverty began steadily increasing, peaking at 38 percent in 2012 (Figure 3).

## Analysis of Shocks Arising in the Food System

In this case study, *food shocks* means abrupt substantial fluctuations in prices, production, consumption, and the export and import of basic food prod-

**Figure 3: Dynamics of the Poverty Rate and the Food CPI, 2006–15**



Source: National Statistical Committee. Various years. Poverty rate data from 1, Living standard. Dynamic table on poverty rate, <http://www.stat.kg/en/statistics/uroven-zhizni-naseleniya/> Food CPI data from 2, Prices and tariffs. Dynamic table on Consumer price index by types of goods and service (ICCP) <http://www.stat.kg/en/statistics/ceny-i-tarif/>  
 Note: CPI = consumer price index.

ucts, affecting the well-being of the country’s population.

The authors’ interviews with the experts identified key reasons for shocks in the food system:

- ✓ A decline in agricultural production and its extensive nature
- ✓ The deteriorated agriculture infrastructure, and disrupted inter-farm economic links
- ✓ Increased area of degraded agricultural lands (including arable lands and pastures)
- ✓ Inefficient use of water resources
- ✓ A decline in seed production and animal husbandry
- ✓ A difficult phytosanitary and anti-epizootic situation

- ✓ Disrupted crop rotation
- ✓ Technical and technological lagging behind of agro-business
- ✓ Reduced productivity of the crop farming and animal husbandry sectors

The analysis of the Kyrgyz Republic’s food system identified the following main types of shocks:

### Natural Shocks (Mudflow, Droughts, Floods)

Agricultural production in the country is very susceptible to the impact of natural disasters and climatic conditions. In recent decades the Kyrgyz Republic has faced an increase in the number of natural disasters caused by changes in the climate, such as higher temperatures and lower precipitation rate. Most likely these will increase the frequency and severity of floods and droughts. Given the geography and topography of the country, damage from disasters caused by climate change is estimated by specialists to vary between 1 and 1.5 percent of the country’s GDP (GFDRR 2011).

Heavy rains make it difficult to access fields, delay the sowing period, and also cause mudflows and floods that damage crops and irrigation systems. The consumer price index was 19.2 percent higher in December 2010 than it had been the previous year. Unfavorable conditions in the Kyrgyz Republic and in grain-producing countries, which triggered a ban of grain exports in Russia and a ban of sunflower oil and cereal exports in Kazakhstan, is one of the reasons for higher prices. For example, heavy rains in 2010 resulted in a delay in sowing by two to three weeks, but good precipitation during the subsequent months offset potential negative effects on yields of the late start of planting. For this reason, no substantial reduction in production was observed.

Drought in the Kyrgyz Republic also affects the production of agricultural output. Furthermore, droughts in those countries that are main suppliers of food to the Kyrgyz Republic, such as Russia and Kazakhstan, also impact food security in the country. The 2012 and 2014 droughts had a negative impact on grain crop production in many countries of the world. In the period between 2010 and 2015, domestic production of wheat in the Kyrgyz Republic dropped by more than 20 percent, resulting in higher imports of wheat and higher prices for flour.

### Rising Food and Input Prices in the Domestic and External Markets

Food imports make food prices sensitive to price fluctuations in global markets—especially wheat prices, which are particularly important because wheat is a staple food in the Kyrgyz Republic. The production of agricultural products requires inputs (such as fuel and lubricants, and fertilizers); most inputs are imported, and therefore input price fluctuations also impact food prices. A global economic crisis and a sharp increase in fuel prices in 2007 followed by a financial crisis in 2008 pushed up food prices by 32.3 percent compared with 2007, when the inflation of food prices was also high (14.7 percent). Given the heavy reliance of domestic consumption on imports, the 2008 global food crisis adversely affected the output of agricultural producers and the urban population, hindering further poverty reduction. In 2012 the poverty rate went up to 38 percent before declining to 32.1 percent in 2015. Some of the factors that impacted food prices in 2010 were the growing prices for fuel and lubricants due to export customs duties, introduced on April 1, 2010, for oil and refined products exported from Russia to the Kyrgyz Republic, as well as an increase in global prices.

### Political Shocks

Political shocks mean border closures and the introduction of export duties and other factors that cause a reduction of the production, export, and import of food.

In 2010 the borders with Kazakhstan and Uzbekistan were closed because of the civil conflict; the closure of the border increased costs of agricultural inputs and disrupted the supply of fertilizer, fuel, and machinery as well as labor migration from Uzbekistan to the southern the Kyrgyz Republic (FAO and WFP 2010). The closure of the borders with neighboring countries practically blocked the export of agricultural products. Membership in the Customs Union also led to a tightening of the checkpoint regime on the borders. The civil conflict lowered investment activity, and capital outflow amounted to US\$118 million in 2010,<sup>2</sup> which was almost half the incoming foreign direct investment.

To protect their domestic markets, Russia and Kazakhstan introduce export duties for wheat from time to time. This also has an impact on food prices in the Kyrgyz Republic.

### Exchange Rate Shocks

The country pursues the policy of the floating exchange rate, which means that the exchange rate of foreign currencies—in particular, the US dollar—to-som exchange rate—is set based on demand and supply in the domestic foreign exchange market. At the same time, it does not mean that the central bank does absolutely nothing in this regard. In conformity with monetary policy, during the periods of sharp fluctuations of exchange rates, the National Bank of the Kyrgyz Republic mitigates such fluctuations by undertaking interventions in the foreign

<sup>2</sup> Информация об итогах социально-экономического развития Кыргызской Республики за 2010, Приложение к постановлению Правительства Кыргызской Республики от 19 января 2011 года № 14 (in Russian).

exchange market and regulating liquidity of foreign exchange market participants. To smooth out sharp fluctuations of foreign currency exchange rates, the National Bank has foreign currency reserves, including gold that accounts for 10 percent of the reserves.

The economy of the country is very susceptible to fluctuations in the som-to-dollar exchange rate and the som-to-ruble exchange rate. The remittances of labor migrants are an important source of household income, enabling the population to purchase food staples and manufactured goods (WFP 2016); any slowdown of economic growth in Russia and ruble depreciation will deteriorate the purchasing power of the population in the Kyrgyz Republic.

Exchange rate shocks also impact the export of agricultural products. For example, in 2015 the som depreciated in value, and the National Bank of the Kyrgyz Republic stepped in to stop currency depreciation. However, its efforts undermined the exports of the country because domestic products became more expensive in the external market and exports fell by 21 percent compared to 2014.

## Stakeholder Groups and Their Responses to Food System Shocks

To study the key stakeholders' response to shocks in the food system, we employed a survey method. This is an analytical research tool that relies on experts' opinions to collect data on events covered by this case study. The survey was based on a questionnaire developed specifically for this exercise. The respondents were specialists from the Ministry of Economic Development of the Kyrgyz Republic and from the Ministry of Agriculture of the Kyrgyz Republic, and agricultural producers (heads of peasant farms and members of the Union of Cooperatives of Kyrgyzstan). The respondents were asked questions such as: What types of shocks in the food system

would you identify? What are the main causes of such shocks? What measures did the government undertake? What was the response of agricultural producers? What was the situation food consumers found themselves in?

Most experts interviewed believed that the main causes of food shocks were the country's specific natural conditions and its dependence on food imports.

The next section elaborates on the causes and motivation of the actions taken by stakeholders (government agencies, the population, and agricultural producers) as well as their responses to the shocks arising in the food system in the Kyrgyz Republic.

### Government

*The Government of the Kyrgyz Republic and its agencies are key stakeholders in improving the food system and the well-being of the country's population.* Poverty reduction, increased incomes, and better access to high-quality and safe food in sufficient quantities in line with recommended nutritional consumption norms will help substantially reduce state budget expenditures spent on treatment of diseases caused by undernutrition. *In addition, the government acts as a coordinator of various stakeholders.*

Although the food system in the Kyrgyz Republic has a high resource capacity, it is characterized by relatively low efficiency and low competitiveness.

Key government policies seeking to reduce shock impacts on the food system in the Kyrgyz Republic were primarily aimed at ensuring an adequate level of food production to meet the growing demand of consumers. Another and no less important task was to guarantee access for each citizen to food products in quantities sufficient for a healthy and active life.

In response to highly inflated food prices in 2008 and 2009, the Government of the Kyrgyz Republic adopted Law No. 183 of August 4, 2008, “On Food Security in the Kyrgyz Republic,” which set forth key policies to ensure food security in the country based on minimum standards of food consumption. These policies include the purchase of wheat from domestic producers and distribution of wheat flour among vulnerable populations; the strategic stockpiling of food; subsidized credits to farmers; the introduction of seasonal export duties for wheat and wheat flour; and support measures to acquire agricultural machinery and modernize the seed sector.

The government, represented by the National Agency of Antitrust Regulation, cannot regulate food prices because there are no monopolists among agricultural producers, and because prices are primarily set by markets. In 2009 the Government of the Kyrgyz Republic adopted Resolution No. 242, “On Price Regulation for Selected Socially Important Goods.” This resolution aimed to contain the increase in prices for socially important goods (flour, bread, milk, vegetable oil, butter, meat, sugar, rice, pasta, eggs, potatoes, coal, Ai-80 and Ai-92 grades of gasoline, diesel fuel, and liquefied gas) and to ensure economic availability and affordability of food products for socially vulnerable populations. According to this resolution, implementing agencies are responsible for monitoring prices, arranging fairs to enable producers and suppliers to sell socially important basic goods, creating proper conditions for conducting fairs, and carrying out public awareness and outreach activities to inform general population and entrepreneurs about efforts to contain the increase in prices for socially important basic goods.

In addition, the Government of the Kyrgyz Republic used other measures—the so-called market management policies, for example, which are price controls by administrative orders. Because most production is concentrated in the private sector, the government, essentially, cannot influence prices. However, if prices for socially important goods increase by 20

percent or more in several months, the government has the right to introduce state regulation and freeze prices. Nevertheless, as experience shows, the effect of such measures is rather short term. At the same time, these government measures intended to regulate prices had a destabilizing effect on the food system, because companies often responded to such measures by hoarding stocks, which pushed prices up even higher: the effect in this case is the opposite of what is expected or intended.

Tax reduction for producers, especially grain producers, was widely used as a policy measure aimed at boosting production. Production subsidies, primarily for grain production, were provided to strengthen incentives.

It may be concluded that in the periods of various shocks in the food system in the Kyrgyz Republic, the government responded to high food prices by adopting a variety of policies. However, prompt actions to ensure food supply to domestic markets and reduce costs of domestic consumers had only a limited effect. At the same time, it is important not to forget the medium- and long-term need to increase food production and the international implications of a one-sided choice of national policies. As a consequence, the emerging trend of dependence on imports continues to push up prices while the social safety net is lagging behind and the government is unable to stay ahead of the issues and addresses them as they arise. Therefore, despite the measures taken to improve the food system, it remains very susceptible to the impact of various adverse shocks. In the future, such shocks in the food system may lead to an acute crisis and the poor would be the first to suffer from it.

The experts believe that the existing food security management system in the Kyrgyz Republic is inefficient, first because of a lack of attention to food system development at the policy level. Tools for rapid response to inflation and food shocks are weak, and there are large social groups that are at risk of lacking access to food. However, the country’s leader-

ship is aware that solution of these issues requires the development of a smoothly running and flexible system of governmental regulation that includes ensuring the production, affordability, quality, and safety of food products (IDK-Эксперт 2014).

## The Population

A key segment of the stakeholder group is the population of the Kyrgyz Republic, which should have access to adequate and sufficient food in line with recommended nutritional consumption norms. A large percentage of population is the poor. They usually spend the largest part of their meager budget on food because of reduction of income accompanied by inflationary food price increases. Higher retail and wholesale food prices reduce consumption of expensive protein products and lower access to food for a large part of the country's population. This leads to higher morbidity caused by undernutrition or low diet diversity.

High and volatile prices for food products are among the main threats to food security for poor and vulnerable households because they put additional economic pressure on people who are already spending large portions of their incomes on food. Domestic prices for main products (such as wheat flour, sugar, and vegetable oil) are sensitive to global prices for food because of the strong dependence of the country on imports.

Consumer purchasing power depends on food prices and rural household income from, predominantly, subsistence farming, wages, and social transfers. These factors, in turn, determine consumer access to food. Subsistence farming rather than paid work is the most common type of activity for rural households, although, in addition to agricultural income, other sources of income are non-farm wages and salaries.

Shocks in the food system of the Kyrgyz Republic have led to a more active level of agricultural production in household plots. But the marketability of products from household plots tends to be low, while increased output of agricultural products in this segment in the most severe crisis years means that survival issues became very urgent for households that tried to address them by producing food in their plots and *dacha* gardens,<sup>3</sup> mostly for individual consumption.

The economic and social development of the Kyrgyz Republic is hampered by a slowdown of economic growth rates and a specific social structure characterized by predominance of peasantry and “in-between” urban groups. The country is suffering from a very high unemployment rate (8 percent).

## Agricultural Producers

As of January 1, 2016, there were 505,100 agricultural companies; around 54 percent of such companies (271,100) are peasant smallholder farms. The largest share of agricultural products (58.6 percent) is produced by these farms. The remaining output is produced on household plots (37.5 percent), while state and collective farms account for 2.2 percent of output.

On average, a smallholder farmer owns from 2.3 hectares (in the Batken region) to 12.4 hectares (in the Naryn region) of agricultural land. For this reason, smallholder farms cannot implement efficient technologies of tillage or introduce crop rotation and build processing facilities.

Peasant smallholder farms have also been severely affected by sharp swings in food prices in agricultural commodity markets. Moreover, they have had to compete with import product suppliers in the domestic market.

<sup>3</sup> A *dacha* is a summer cottage or country house in Russia or other parts of the former Soviet Union.

High levels of prices, production risks, and uncertainty as well as limited access to risk management tools have prevented farmers from investing funds into more productive new technologies that would allow them to produce commercial surplus for sale in the market. For example, the political shocks of 2010 reduced investment flows from Kazakhstan and Russia, and credit resources became less affordable. A lack of adequate infrastructure, high storage and transportation costs, and high competition in the market were not conducive to product surplus either. Because of all these constraints, most smallholder farmers are unable to integrate into organized markets and take advantage of trade opportunities when the situation changes. Generally speaking, farmers can increase their presence in the markets if certain conditions prevail—for example, stable prices, affordable credits, efficient infrastructure, and rural advisory services that enable them to sell their products, which will be absorbed by the market at optimal costs. However, remote locations and inadequate production resources make integration into modern marketing channels too expensive and limit quantities of surplus product that smallholder farmers can or are ready to sell.

Other factors have also led to instability of production by peasant farms. These include the limited access of agricultural producers to goods and services that determine the level of production, such as credits, agricultural machinery, protection of plants and animals, high-quality seeds, and highly productive pedigree animals and quality pedigree stock, as well as a shortage of good-quality and nutritious fodder and other problems of market sales related to a poor system of product certification and inadequate marketing support. There is also a lack of steady economic links between agricultural producers and processing companies that would support beneficial and long-term cooperation; a lack of necessary incentives for producing nutritious food (enriched flour and food made out of it, iodized salt, nutrient additives). And there are big issues in the system of ag-

ricultural production management related to the inefficient performance of regulation and distribution functions as well as issues associated with the provision of adequate incentives to enhance efficiency of production.

Political shocks pushed up input prices and disrupted supplies of inputs (temporary closure of the borders with Uzbekistan resulted in a shortage of labor during seasonal work, while closure of the borders with Kazakhstan disrupted the supply of fertilizer, fuel, and machinery) and also reduced investment attractiveness of the country to its neighbors. Because of low technological development, agricultural production was very susceptible to natural shocks, which also caused heavy losses.

Despite state support measures, access of rural agricultural producers to financial resources continues to be a big problem. The issue of credit collateral limits access to bank credit. So far, small landholdings cannot be used as collateral because the land market in the Kyrgyz Republic is not yet operational.

Foreign trade volumes impact many economic and social variables, which, ultimately, determine the status of food security and nutrition of the population, including growth, income, poverty rate, inequality, food prices, and state budget. Because the Kyrgyz Republic has been opening its economy for international trade in agricultural products, it has become more susceptible and potentially vulnerable to unexpected changes in global agricultural markets. For example, a sharp and unexpected increase in imports may become a constraint on agriculture development. Even if such events are temporary, producers are ill-prepared to counter market risks, and a surge in imports may disrupt domestic production and generate potentially destructive consequences for local farmers and agricultural workers because prices for the products of domestic companies may plunge, income may drop, and the effect will spill over to other sectors of economy, potentially affecting food security. For example, low-income farmers

who have used up almost all their resources to survive and who do not have access to the social safety net may be severely affected by such price shocks in the longer term.

Higher dependence on international markets has made the Kyrgyz Republic more vulnerable to short-term market upheavals. These can be caused by shocks leading to a reduction in stocks and an increase in consumer prices, and shocks caused by import surges and a subsequent reduction in producer prices.

As a result, domestic production in sectors competing with import products was severely hit. A reduction in prices for agricultural products is perceived as an impediment to the development of the agricultural economy, which reduces the attractiveness of investments in technologies aimed at improving productivity; it also has a negative impact on food security. Nonetheless, experience has shown that such periods of lower prices are followed by periods of high and volatile prices and then lower prices come back again. Unexpected surge in prices may pose a serious threat to food security.

## Policy Options

To reduce negative consequences of shocks in the food system, early warning methods need to be developed. These are methods that would help avoid negative developments in the food market such as a threat of food shortage, a surge in food prices, and so on. The government should develop a response system, and the ministries and agencies would be required to provide day-to-day information on food prices and prepare accurate short-term projections. It is important that this effort be systemic for the government to be able to take preventive measures.

We used this case study as a basis for developing and justifying a list of policy options to improve the

food system in the Kyrgyz Republic and reduce its susceptibility to various shocks.

### 1. Create a government-supported system of agricultural insurance

Agriculture in the Kyrgyz Republic is rather heavily dependent on natural conditions; that is why it is susceptible to natural risks that cause substantial harvest losses to farmers. The Ministry of Agriculture and Land Improvement of the Kyrgyz Republic estimates that the total damage sustained by farmers in 2010 exceeded 303.8 million Kyrgyz soms; natural disasters (floods, mudflows), especially in the south of the country, occur more and more frequently and damage caused to agriculture increases every year. Basically Kyrgyz farmers did not receive any compensation for the damage.

The law “On Specific Features of Crop Insurance” was adopted in 2009; however, in the absence of a regulatory and legal framework that would govern the establishment and operation of the agricultural insurance fund, there is no state insurance available to farmers in the country today.

Insuring against agricultural production risks could mitigate the impact of natural shocks through the partial or full compensation of crop losses. Another advantage of insurance is that it provides a better financial situation for agricultural producers in terms of their creditworthiness because financial institutions give preference to those agricultural producers who guarantee that they can keep some of their income when natural disasters and crop losses occur.

Creating a state agricultural insurance fund, supported by contributions made by the farmers and payments from the state budget, could address this issue.

To put in place the mechanism of agricultural insurance, it would be necessary to:

- ✓ convince agricultural producers that agricultural insurance has economic benefits;
- ✓ develop insurance rules;
- ✓ ensure that insurance rates are affordable—this means that most agricultural producers should be able to afford to make insurance payments to the insurance fund; and
- ✓ have a transparent, easy-to-understand, and guaranteed system of payments when the insurance case arises.

Another important issue to be considered is whether insurance should be mandatory or voluntary. It is advisable that insurance be voluntary at first, and cover only main crops; in due course mandatory insurance of main crops could be introduced. This approach to setting up the insurance fund would be more efficient.

## 2. Establish a state fund for providing assistance to vulnerable groups of population in case of food shocks

As data on food expenditures for five quintiles (the first quintile is the poorest population; the fifth quintile is the richest population) provided by the National Statistical Committee demonstrate, the size of the single social benefit to low-income families per person per month is no more than 42 percent of the total food expenditures of the households from the poorest quintile (WFP 2016). The single social benefit supports households with low food security so that their deficit in food consumption is reduced, but it fails to provide a minimum budget for purchasing nutritionally rich food. All this means that benefits paid to poor households are not adequate to ensure food security of household, and when food prices go up, such benefits do not improve the diet, and dietary nutritional characteristics may be worsened by food shocks. That is why, if the state fund that would assist vulnerable groups of population as a response to

food shocks were to be established, it could make one-off payments when such shocks arise.

## 3. Develop cooperation and create conditions for farmers to enter the common agricultural market

Currently, subsistence agriculture is predominant in the Kyrgyz Republic, resulting in extensive increase in production, mostly by expanding areas under cultivation. More than 70 percent of agricultural products are produced by smallholder farms. As a consequence, when prices for food or certain food products increase, one-off measures to increase agricultural output are taken. For example, in order to have successful planting and harvesting, more than 500 million Kyrgyz soms in state support were allocated to agricultural producers in 2009 after the 2007–08 crisis. The support received from the government resulted in increased production of all crop farming products compared with 2008; wheat production increased substantially by 41 percent.

One of the ways of to increase productivity in agriculture is to move away from subsistence farming to commercialization and to create producers of agricultural commodities. Today all land is owned by smallholder farms, each having from two to three hectares; most farmers do not pursue the task of selling their product; they produce for their own consumption and sell only surplus.

It is necessary to consolidate and merge farms to provide more opportunities for agricultural production.

To help small farmers enter the common agricultural market of the country, the government must support the organization of fairs and expand the network of markets where farmers can sell their products.

Furthermore, the government should provide annual budget subsidies to farmers who expand the area planted in wheat and who increase their cultivation

of quality grains and sell such grains, first of all, under public procurement quotas. One of the measures to support these farmers could be a signed contract that would provide advance payments of 50 to 60 percent before sowing begins. Seeds, fuel and lubricants, necessary agricultural machinery, and so on should be provided (sold) to such farmers as a priority group.

Food export is affected by inadequate certification of domestic agricultural products and by processed food that does not meet sector needs. Cooperation among farmers and links between agriculture and the processing industry need support. Today Kyrgyz farmers tend to form, mostly, consumer cooperatives or agricultural product and service cooperatives, as they are called, using a fraction of total cooperation capacity, mostly in the form of the shared use of agricultural machinery and, in some cases, joint procurement of fertilizers and seeds. Storage, processing, marketing, and selling are handled by an actively developing market of intermediaries. Intermediaries appear to harvest crops themselves, load them in big trucks, and take them to export, while farmers do only farming and, as a consequence, receive only a small share of the value of their products. Without claiming to participate in all links of the added-value chain, cooperatives, nevertheless, could win a part of the market to earn more and retain revenues for their members, which is the rural population. Cooperatives are primarily organizations that help economically vulnerable people arrange a joint farm without intermediaries, equitably distributing profits and democratically managing the process. So it is important for cooperatives to become key allies of the government and international partners in achieving social goals of agribusiness and regional development as well as job creation in rural areas.

#### 4. Implement a contracting system in agricultural production

The country needs to address not only the issue of production but also the issue of sales of the output and compliance with certain standards.

Contractual agreement is a type of purchase and sale contract—it is a contract that regulates relationships related to the purchase of agricultural products grown or produced by agricultural companies or peasant smallholder farms.

As a result of signing these contracts, farmers know in advance what they have to produce, in what quantities and of what quality; they could even get some advance payment, which would have a positive impact on agriculture development. Such contracts could be beneficial for the development of the processing industry. For example, Kyrgyz agricultural producers could supply beans, tobacco to the armed forces of the members, which would mean guaranteed supplies under contractual agreements prepared in advance.

#### 5. Encourage specialization under the Eurasian Economic Union

Under the Eurasian Economic Union, certain specialization is inevitable because of geography and available resources. No country, even the largest and most developed, can be highly competitive in all areas. Member countries of the Eurasian Economic Union may specialize in producing food products based on their own specific climatic conditions, existing resources, and potential. Each Eurasian Economic Union country, with the help of other members, should create strong modern clusters and enterprises that would compete with products from third countries, which will increase exports.

As noted earlier, in recent years, the area planted in cereals has been reduced because wheat land has been diverted to more profitable fodder crops. Besides, domestically produced wheat has low gluten, which is another reason for wheat imports. Given all these factors, the government should support specialization under the Eurasian Economic Union and divert some planted areas to those crops and plants that are more suitable to the country's climate, more

competitive in foreign markets, and can increase the volume of the country's exports.

## Assignment

The assignment is to identify causes, motivation, and response of the stakeholders to shocks arising in the food system; and to analyze policy options and develop the most optimal system of policy measures that would meet interests of all stakeholders to the maximum extent possible while allowing the country to avoid or substantially reduce the susceptibility of its food system to potential shocks in the future.

## Conclusion and Recommendations

The overview of the food system in the Kyrgyz Republic showed that the trend of basic food outputs has not been positive and, in fact, the output of some foods has been declining. Self-sufficiency has been achieved for three staple foods: potatoes, vegetables and fruits, and milk and dairy products. The inability of the country to provide home-grown food to its population leads to imports of necessary food products. The country imports large quantities of wheat, vegetable oils, and sugar for its own consumption; imports of almost all products have been increasing; and the export of dairy products and vegetables has been decreasing.

This analysis of the food system in the Kyrgyz Republic has identified the following main shocks in its food system: natural shocks (mudflows, droughts, floods, etc.), increased food and input prices in the

domestic and external markets, political shocks (border closure, customs duties), and exchange rate shocks. The experts believe that the impact of such shocks is stipulated by problems that have accumulated in the country's agriculture—namely, the extensive nature of the agricultural sector development, disrupted inter-farm economic links, land degradation, inefficient water management, and so on.

Causes and motivations of various stakeholders such as the government, population, and agricultural producers, along with their responses to the shocks arising in the food system in the Kyrgyz Republic, were examined.

Policy options for transformations in the country were developed and proposed. Their main objective is to contribute to the development of the food system and reduce its susceptibility to various shocks.

A forecast of changes in the situation that would result from the proposed policy options enables us to recommend those options that are the most productive and efficient in the face of limited budget funds in the Kyrgyz Republic. These recommended options are to create a government-supported system of agricultural insurance; establish a state fund for providing assistance to vulnerable groups of population in case of food shocks; implement a contracting system in agricultural production; and implement a sustainable rural development policy.

It should be noted that all developed policy options are forward-looking. They require a phased approach in implementation and will help achieve a positive effect in the development of the country's food system and reduce its dependence on various shocks arising in the future.

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