The Impact of the Economic and Financial Crises on Agriculture and Food Security in Europe and Central Asia: a Compendium

Technical background paper for the Ministerial Round Table

27th FAO Regional Conference for Europe, Yerevan 13 May 2010
An Assessment of the Impacts of the Global Financial and Economic Crisis on the Agrofood Sector of Central and Eastern European and Central Asian Countries
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This paper is one of a series of occasional technical background papers written for the FAO Regional Office for Europe and Central Asia that aim to present and analyse current policy issues, in particular policy response to financial and economic crises’ impacts on agriculture and rural areas, intended as background material for discussion in preparation for the Ministerial Round Table during the 27th FAO Regional Conference for Europe, Yerevan 13 and 14 May 2010

The views presented in this paper are those of the Authors and do not necessarily reflect the views and position of the FAO Regional Office for Europe and Central Asia.

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THE IMPACT OF THE ECONOMIC AND FINANCIAL CRISIS ON AGRICULTURE AND FOOD SECURITY IN EUROPE AND CENTRAL ASIA: A COMPENDIUM

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I.

AN ASSESSMENT OF THE IMPACTS OF THE GLOBAL FINANCIAL AND ECONOMIC CRISIS ON THE AGROFOOD SECTOR OF CENTRAL AND EASTERN EUROPEAN AND CENTRAL ASIAN COUNTRIES

A. SUMMARY

1. This paper assesses the impacts of the global financial and economic crisis on the agrofood sector of Central and Eastern European, Caucasus and Central Asian countries on the basis of research conducted in Armenia, Hungary, Kyrgyzstan and Ukraine. The objective of the study was to propose policy options to the Food and Agriculture Organization of the United Nations (FAO) and other public authorities (including those in countries represented in the study) which can be applied to lessen the undesirable effects of the current or future crises in the agrofood sector.

2. As the data available to assess the impacts of the crisis on the sector in the region are limited, the research took the form of interviews of stakeholders from all tiers in selected supply chains, plus banks and the government sector, the results of which were analysed in the context of primary economic data. The supply chains were selected as having a significant share in the country’s production output, and/or of its trade. The fact that the choice of supply chains should facilitate the analysis of the impact of the crisis on poor farmers was also taken into account. Wheat was included as a commodity from all countries as it is a major crop which is widely traded internationally. The others were sunflower and grape/brandy (one country each), pig meat and milk (two countries each).

3. The research focused on the effects of the economic downturn, credit constraints, trade and trade credit impacts on production and consumption. Both clear similarities and differences in terms of impacts of the crisis on different sectors in different countries were demonstrated.

4. Stakeholders throughout the supply chain suffered from loss of confidence and sought to cut their costs and reduce their dependence on credit. Arable farmers reduced their use of fertilizers and crop production products and purchases of machinery also declined. Crop rotations were sometimes altered, land lease contracts were terminated and in some cases farm-saved seed was used for sowing. Livestock producers began using home produced feeds, and/or extensified their production.

5. In response to concerns about the financial viability of some of their customers and an increasing tendency to delay payments, input suppliers became more careful about which farmers to supply and most demanded pre-payment or other guarantees. Many input suppliers shortened working weeks, instituted unpaid leave or even cut wages. Animal feed plants reduced costs and reoriented production towards feeds for more prosperous supply chains e.g. poultry in Ukraine.

6. Contractors who normally make forward purchases of grain sought to do so more promptly and buyers aimed to cover their needs from domestic markets. Due to liquidity problems, processors preferred to buy on a daily basis and held smaller stocks. Cheaper, lower quality raw materials were purchased, outdated machinery was disposed of wherever possible and more attention was paid to energy use. Many sought to cut their wage bills but recognized the value of the skills of their employees and tried to retain staff. Similarly, in Armenia, at least, some processors purchased milk at a higher price in order to
safeguard their supplies. Some processors and traders tried to limit risks by diversification, seeking out niche markets or even diversifying into unrelated business activities.

7. Most stakeholders throughout the supply chains postponed their investments. Stronger players, with a view to their future market position, maintained their investments and their marketing activities. Large enterprises acquired their weaker competitors, particularly those with attractive assets. Retail supply chains further increased their shares of sales of private label products in response to the higher price sensitivity of consumers, and often strengthened their market positions. Retailers also tried to delay payments, but this was reported to occur more with national than with multinational companies. Less profitable stores were closed and special price offers became more frequent.

8. Banks cut back substantially on providing credit to the agrofood industry. Already approved credit applications were reviewed and modified, collaterals were re-evaluated, and stricter credit conditions and increased credit charges were imposed in all countries. In general, banks prolonged the process of credit approvals, carried out more cautious risk analyses and shifted decision making to a higher level. Credit applications were more often declined and even customers with high reputation and excellent credit history faced difficulties in accessing credit. Banks preferred customers who managed their risks with derivative market instruments (e.g. in Hungary). Governments implemented a range of measures in response to local circumstances and there was a move towards protectionist measures.

9. The principal causes of changes to the state of the agrofood sector have been: limited credit availability and consequent liquidity problems; high foreign exchange risk; increasing price volatility; the decrease in consumer incomes and remittances; loss of business trust; the black economy; the lack of information available to stakeholders; level of grain stocks; and retail chains.

10. The crisis has exposed all the weaknesses of the sector and can be a turning point insofar as its impacts in the near future may act as a selection force which creates beneficiaries and losers among stakeholders in all tiers of the agrofood sector. Although it is impossible to generalize which parts of the different supply chains gained the most from crisis, in most countries, the banks could certainly benefit, and market and price determining multinational trading companies were expected to strengthen their positions. Subsistence farmers were thought to be less affected by the limited availability of financial resources because these were less dependent on bank loans and less integrated into the supply chain. By contrast, smaller professional producers who are potentially more flexible but who did not have the financial resources to withstand the crisis have been lost, leading to concentration in the sector. Whether retail chains benefited or not, it is difficult to answer yet. The share of private label products has increased which has placed them in an even better bargaining position in the supply chain; however, the margins are usually lower on these products and most of the chains have suffered a drop in demand and turnover.

11. The effects of the world food crisis are likely to be felt long after the most immediate effects of the financial crisis have passed, hence it is necessary for governments to avoid short-term policy responses which conflict with long-term development goals. Several proposals raised by interviewees, such as how to lower interest rates, to modify the tax system or how to crack down on illegal operations, were not within the focus of the study. Others, such as more subsidies, more state intervention including price controls, more protectionist measures and even the creation of state owned monopolies, were, but we do not support them. Governments should distinguish between agro-economic priorities and social policy issues. Our recommendations focus on the establishment of resilient, economically viable, diverse, innovative agrofood chains which are capable of meeting changing market needs such as consumer desire for safe, healthy foods. There is a need to enhance social security safety nets to combat the consequences of the crisis, but as a quite separate issue.

12. In order to create prosperous, vertically and horizontally integrated agrofood supply chains which are more resilient to future financial crises, and to ensure more reliable access to credit we propose that
governments should: target investment subsidies; support initiatives which can ensure more reliable access to credit; avoid the offsetting of debts, taxes and other liabilities; improve technology; encourage horizontal and vertical integration; encourage consolidation, rationalization and specialization; increase spend on innovation and R&D; support marketing activities; support the development of logistics; provide risk management subsidies; improve the transparency of policy making and communication; facilitate the gathering, processing and dissemination of market information; facilitate niche markets for speciality products, educate consumers about agriculture, nutrition and kitchen culture; promote land reform; and support liberalization of the land market.

13. Our recommendations only address what to do, not how to do it. Further research is needed regarding their implementation and the FAO is well placed to drive forward this research agenda.

Key words: financial and economic crisis, agrofood sector, Central and Eastern Europe, the Caucasus and Central Asia

B. INTRODUCTION

Rationale behind the study

14. This paper assesses the impacts of the global financial and economic crisis, hereinafter ‘crisis’, on the agrofood sector of Central and Eastern European, Caucasus and Central Asian countries on the basis of research conducted in four representative countries, namely:

- Hungary, a central European country and a member of the European Union;
- Ukraine, a large eastern European country occupying a strategic position between the European Union and the Russian Federation;
- Armenia, located in the Caucasus region on the border of eastern Europe and western Asia;
- Kyrgyzstan, located in central Asia.

15. The objective of the study was to propose policy options to the Food and Agriculture Organization of the United Nations (FAO) and other public authorities (including those in countries represented in the study) which can be applied to lessen the undesirable effects of the current or future crises in the agrofood sector. As the data available to assess the impacts of the crisis on the sector in the region are limited, the research took the form of interviews of stakeholders in selected supply chains, the results of which were analysed in the context of primary economic data.

16. The research also sought to gather useful country-specific, qualitative information on rural incomes, poverty and food insecurity/malnutrition, on exports and on other factors beyond the supply chain. Factors which were independent from the crisis (i.e. legal environment, weather, etc.) have of course also contributed to the state of the agrofood sector in every country. As far as possible, their impacts have been distinguished from those of the crisis. Although the results of the study are not necessarily applicable to all of the agrofood sectors and countries in the region, they are indicative of the present trends and thus provide an adequate basis for drawing conclusions and recommending policy options.

C. OVERVIEW OF THE FINANCIAL AND ECONOMIC CRISES IN REGION

17. Among developing regions, Eastern Europe and Central Asia has been hit hardest by the global crisis. For several countries, a combination of international support, adjustment programmes, and perhaps even private sector debt restructuring will be needed to avoid large-scale defaults. Growth plummeted from 7.6 percent in 2007 to 4.7 percent in 2008, and was projected to be -5.6 percent in 2009.

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¹ This section is based mainly on text extracted and adapted from the World Bank publication ‘Global Development Finance: Charting a Global Recovery’ dated May 2009 (World Bank, 2009a, see reference list)
(World Bank, 2009b), driven by a collapse in capital inflows, a sharp deterioration in terms of trade, and contraction in both domestic and external demands. **The robust domestic demand that supported growth throughout 2007 and through the first three quarters of 2008 began to wane at the height of the crisis in September 2008.** High levels of foreign currency denominated private sector and household debt, rising unemployment, and broadening recession in trade partner countries contributed to dramatic declines in GDP in several countries in the fourth quarter of 2008. Estonia and Latvia suffered the most adverse impact with GDP falling by 9.5 and 10.5 percent relative to a year earlier, with other emerging markets such as Turkey and Ukraine also recording negative growth.

18. **In several countries with data available for the first quarter of 2009, output deteriorated further on a year-on-year basis.** Economic activity continued to shrink in Hungary (4.7 percent), Lithuania (13.6 percent) and Latvia (17.9 percent), while Romania and the Russian Federation recorded negative growth for the first time (6.4 percent and 9.4 percent, respectively). Poland, the only economy to show resilience, posted a GDP increase of 1 percent.

19. **Europe and Central Asia entered the global financial crisis highly dependent on foreign capital inflows.** For example, Hungary had been sustaining twin deficits (on the current account and the government budget) for several years. **As the crisis took hold in September 2008, key growth determinants for the region started to deteriorate rapidly, unveiling deep vulnerabilities.** Surging commodity prices, which had spurred growth among commodity exporters in the first half of 2008 declined rapidly (not just due to the crisis but also to oversupply), external markets began to collapse and capital flows reversed owing to heightened investor risk aversion. **As a consequence, growth rates between 2007 and 2008 decelerated from 8.8 to 6 percent in private consumption and from 19.3 to 7.7 percent in investment activity.** Weak domestic demand and investment contributed to a slowing in import growth to 9 percent in 2008 from 18.8 percent in 2007, while stress in the external markets reduced growth in exports of goods and services to 3.8 percent from 7.7 percent.

20. **The most vulnerable group of countries within Central and Eastern Europe received shocks through several channels simultaneously.** In the capital markets, external financing continued to decline, with total gross capital inflows (syndicated bank lending, bond issuance, and equity initial public offerings) plummeting from USD 56.6 billion in the second quarter of 2008 to USD 3.9 billion in the first quarter of 2009. **At the same time, spreads for government borrowing on international markets, a key measure of credit risk, widened to unprecedented levels.** Between September 2008 and March 2009, spreads on sovereign five-year credit-default swaps increased from a range of 68 to 270 basis points to 381 to 1 100 basis points.

21. **Despite the initial resilience shown within the Commonwealth of Independent States (CIS), the group has not been spared by the crisis either:** The global crisis has severely impacted the Caucasus and Central Asian countries, and growth for the region was projected to drop from 6.6 percent in 2008 to 1.5 percent in 2009. The energy importers faced a marked slowdown in growth and deteriorating living standards as a result of a sharp drop in remittances from the Russian Federation. A modest recovery for the Central Asian countries as a whole is expected in 2010. Central Asian countries’ energy importers were hit to varying degrees. Armenia, which is more integrated into global markets, was likely to suffer a contraction of more than 15 percent in 2009, while Georgia, Kyrgyzstan and Tajikistan were faring better. The recovery in 2010 is projected to be slow and gradual (IMF, 2009).

22. **Vulnerabilities in the banking sector and a general increase in the risk aversion toward emerging markets affected to different degrees each of the countries in Central and Eastern Europe.** For example, in Bulgaria and Romania spreads almost tripled, while in Croatia, Lithuania and Poland spreads widened by five times or more their levels in mid-2008. As market sentiment started to improve, credit-default swap rates eased in April and May but continued to hover above pre-crisis levels. **The drying-up of capital was amplified by adverse developments in the product markets, where**
record growth prior to the financial crisis had been supported by large trade flows with the Euro Area. Rapidly shrinking consumer demand and investment spending across major West European partners quickly resulted in a sharp contraction in trade. In the last quarter of 2008, real exports contracted by 2 percent in Poland (year-on-year), by 3 percent in Croatia and by 6 percent in Bulgaria and Latvia. In Hungary in the first nine months of 2009 export sales were 23 percent lower than one year before (HCSO, 2009).

23. In Ukraine, spreads on five-year credit-default swaps increased from 443 basis points in September 2008 to a record high of 3 795 basis points in April 2009. In addition to the economic slowdown and financial turmoil, investors’ concerns regarding Ukraine were increased by political difficulties in implementing a sequence of measures necessary to secure disbursements under an IMF stabilization loan agreement. Gross capital inflows to the CIS area fell by 39 percent in 2008, after surging by 84 percent in the previous year. In the first quarter of 2009, flows to all member countries fell to zero with the exception of the Russian Federation (which brought a USD 500 million bond to market and secured a syndicated bank loan of USD 1.35 billion) and Ukraine (which had a USD 7 million equity issuance).

24. The decline in both capital inflows and exports caused double-digit contractions in industrial production at the beginning of 2009 across a range of countries in Central and Eastern Europe. In the first quarter of 2009, industrial production fell by 10 percent in Croatia (year-on-year), by 11 percent in Poland, by 12 percent in Romania, by 18 percent in Bulgaria, by 22 percent in Turkey, and by 24 percent in Latvia.

25. Pressures on the current account and financial distress triggered a sequence of borrowing from the International Monetary Fund (IMF). Hungary (which already had graduated from the group of middle-income countries) and Latvia were among the first to turn to the IMF in 2008, contracting loans of USD 18.1 billion. Serbia followed soon after, with a USD 530 million standby agreement targeted at maintaining market confidence in its economy. In March, Romania had to turn to the IMF for a loan of USD 17 billion after the national currency had lost about 20 percent of its value relative to the Euro over the previous 12 months. At the beginning of April, Poland took advantage of a USD 0.5 million flexible credit line from the IMF, a precautionary facility for countries with sound economic fundamentals, to boost its foreign currency reserves.

26. In the labour markets, unemployment in Eastern Europe and Central Asia increased from 8.3 million in 2008 to 11.4 million in 2009. Also, poverty increased. Instead of falling by 15 million in 2009 as projected before the crisis, the number of people who are poor or vulnerable to poverty was expected to rise by about 15 million (ECA, 2009).

27. The crisis reduced personal income due to rising unemployment at home and abroad, with the latter leading to lower workers’ remittance inflows. Over 10 percent of GDP in Albania and 5 percent in Bulgaria and Romania came from migrant remittances (defined as the sum of workers’ remittances, compensation of employees, and migrant transfers) in 2007. With many migrant workers employed in the European sectors hardest hit by recession (such as household work, construction, and agriculture), receipts of remittances in the Central and Eastern Europe region increased by only 5 percent in 2008, compared with 21 percent in the previous year (i.e. following accession to the European Union).

28. In 2007, international remittance receipts were the equivalent of 46 percent of GDP in Tajikistan, 28 percent in Kyrgyzstan and 34 percent in Republic of Moldova. It is estimated that between two and three million seasonal migrants from Kyrgyzstan, Tajikistan and Uzbekistan have been working in Kazakhstan and the Russian Federation (this amounts to between 350 000 and 800 000 migrants from Kyrgyzstan) (Abazov, 2008). With oil revenue–driven growth slowing in the Russian Federation, the
advance in total remittance receipts for the CIS region decelerated to 7 percent in 2008 compared with record growth of 75 percent in 2007. Surging unemployment in the Russian Federation forced hundreds of migrant workers to return home. In an attempt to cushion severe external shocks from sharply falling remittances, Tajikistan, the region’s poorest country, turned to the IMF in April for a USD 16 million loan under the Poverty Reduction and Growth Facility.

D. SUMMARY OF THE RESEARCH QUESTIONS

29. The research focused on the effects of the economic downturn, indirect or direct credit constraints, trade and trade credit impacts on production and consumption. Credit issues included trade financing, payments, investments and foreign direct investment. Partly through the choice of supply chains and partly through the structure of the interviews, the impact of the crisis on poor farmers was taken into account. The overall research questions addressed in the study were therefore:

- What are the key factors affected by the financial and economic downturn?
- To what degree have the key factors been affected?
- Has the downturn affected different sectors or different parts of the supply chain in different ways?
- What policy options can be recommended?

30. To address these questions, a common framework was adopted for all interviews, as follows:

- What is the current state of the agrofood sector compared with three years ago (i.e. 2006)?
- What are the principal factors causing changes to the state of the agrofood sector?
- What strategies have businesses adopted to cope with these changes?
- How is the situation likely to change?
- Policy responses and recommendations.
- Other issues.

E. FOCUS OF THE RESEARCH

Introduction to the macroeconomy and agrofood sector of each country

31. Agriculture in Hungary has been losing its share of Gross Domestic Product since the change of regime in 1990 because it has developed at a slower rate than other sectors of the economy. In 2008 agriculture, forestry and fishery produced 3.7 percent of GDP, while a further 2.3 percent was contributed by food processing, figures which are close to the developed European Union Member States’ data. The share of GDP of the agrofood industry together with input manufacturers and different supporting services is estimated at over 8 percent. In 2008, 174 000 employees worked in agriculture and 27 000 people in food processing together representing 7.8 percent of the active population. In both sectors employment declined by over 10 percent in five years. There are regions though where the agrofood sector is still one of the major employers. Agricultural and food products account for about 6-8 percent of Hungarian exports and 4-6 percent of imports. In 2008 the value of agrofood exports exceeded EUR 5.7 billion, while the value of imports was over EUR 3.8 billion. The surplus in trade is an important contribution to the state fiscal balance. National self sufficiency is assured for most products, but because of the unstable supply chains and the low competitiveness of food processing, imported products have been increasing their share of the Hungarian market since the European Union accession in 2004. Due to the favourable weather and high prices agriculture performed well in 2008, but in 2009 a strong correction was expected. According to the first official estimates of the Economic Accounts for Agriculture, agricultural output value was forecast to decrease in 2009 by 19 percent as a consequence of 9 percent lower prices and 11 percent lower volume.

32. Ukraine’s agrarian sector is the only branch that has not worsened its performance during the crisis. According to the State Statistics Committee of Ukraine, aggregate output of agricultural products in
Ukraine in all entity categories grew by 3.3 percent over January-September 2009 compared with the same period of 2008, including by 6.1 percent at agricultural enterprises and by 1.4 percent in private farms. Output of plant growing products has increased by 3.4 percent over the first nine months of 2009 as compared with the same period of the previous year (including by 4.1 percent at agrarian enterprises and by 2.9 percent in private farms), mainly due to accelerated rates of harvesting of sunflower and sugar beet as well as owing to greater output of vegetable, fruit and berry products. The total output of animal breeding products during January-September 2009 increased by 3.2 percent as compared with the same period of 2008, including a 9.8 percent rise at agrarian enterprises and 0.9 percent decrease in private farms (SSC, 2009). However, whereas the sector looked rather successful in comparison with the entire Ukrainian economy, agrarian non-governmental organizations, some politicians and agrarian scientific institutions point to considerable problems in Ukraine’s agrofood sector that have aggravated under the crisis and can become yet sharper in the future. These problems concern financing and lending for all the actors of the agrofood supply chain, their operating performance, assets renovation and engagement of investments, expansion of sales markets, etc.

33. **Armenia**, being an in-transition nation, greatly depends on agriculture. The share of agriculture in the GDP for the last five years (2004-2008) averaged about 18.8 percent (Agrolratu, 2009). About 46 percent of employment in Armenia and about 60 percent of income in rural areas was due to the agricultural sector over the past five years. During that period (2004-2008), the average annual growth in agriculture was about 7.4 percent. This helped the case of food self-sufficiency, which in 2008 increased to 60 percent in the country. The local demand for plants, potatoes, main fruits, grapes and veal is 98 percent satisfied by the local production, whereas the self-sufficiency level is quite low for wheat (40 percent), other grains (50-55 percent), poultry (15-17 percent) and pork (50-55 percent). All these just point to the fact that agriculture is critical for Armenia. Specifically, improving agriculture could lead to poverty reduction, food security, increase in quality of life especially in rural areas, stability, and strategic improvement of the other sectors.

34. Although only 7 percent of the land area is of **Kyrgyzstan** is suitable for productive agriculture, at least 80 percent of the country has been classified as range-land suitable for grazing. Agricultural land covers 10.6 million hectares with arable land accounting for 1.1 million ha. Agriculture, hunting and forestry make 29 percent of the total GDP of Kyrgyzstan, with crop production making 58 percent of the total agricultural output (2008). However, agriculture growth thus far has been driven more by the desire of rural households to increase food security then as a response to market incentives. Agricultural reforms led by the Government and supported by various donors have so far focused on creating new public institutions and infrastructure. Productivity is very low, there is a lack of knowledge and technologies at farmer levels, markets are not developed and access to existing markets is limited. Inputs and outputs are limited and vulnerable to changes in prices and demand.

35. In summary, therefore, Ukraine and Hungary are both net exporters and maize and sunflower exports of the latter are significant even on the world market. Both countries are considered to be very vulnerable to the effects of the crisis. Hungary is supported by and in some ways also trapped by the Common Agricultural Policy (CAP) of the European Union. Armenia is an open economy entering the crisis after recent spectacular economic development and the impact of the crisis here might be the most adverse in terms of decline in GDP. The shift from subsistence to market oriented farming is almost finished but the country is still highly dependent on food imports. Kyrgyzstan is a small, closed economy in comparison, where agriculture is based on traditional household farming where the majority of production is for self consumption. In recent years the country’s total agricultural trade has come close to balance. Dairy products account for half of agricultural exports, representing 7 percent of foreign trade; however only 7.1 percent of the milk produced is exported.
F. RATIONALE BEHIND THE CHOICES OF SUPPLY CHAIN

36. It was anticipated that the crisis would have different effects in the different agrofood supply chains in the four countries. Therefore it was planned that the study would cover at least one crop supply chain and one livestock supply chain in each. The supply chains were selected as having a significant share in the country’s production output, or of its trade. The fact that the choice of supply chains should facilitate the analysis of the impact of the crisis on poor farmers was also taken into account. It was also decided that that one commodity for which supply chain information is available from all four countries would be included. The obvious candidate was wheat, a major crop in all four countries which is widely traded internationally. Due to its importance (food security, social aspects, rural livelihoods, etc.) wheat production is one of the few sectors which are subsidized by the Government. As wheat products are a significant component of the household food budget in all four countries, its study would also offer insights into food insecurity and poverty.

37. In Hungary in 2008, wheat production represented 29.5 percent of the total agricultural output. As livestock production in Hungary is dominated by the pig and poultry sectors, part of the harvested wheat (0.7-1.2 million tons a year) is used for feed. Wheat deliveries alone represented EUR 464 million of the EUR 5.7 billion of Hungarian agrofood exports in 2008. Growing grain crops provides more than 20 percent of Ukraine’s gross annual agricultural production output and accounted for 38.6 percent of the export of agrofood commodities in 2009. In 2008, 4.088 million tonnes of wheat were exported (MAPU, 2009). The share of winter wheat production is: agricultural enterprises: 66 percent; personal peasant farms: 21 percent; private farmers: 13 percent and the bread market is tightly regulated. Armenia depends heavily on wheat imports, with the level of self-sufficiency being as low as 31-43 percent (NSS, 2008), and is very vulnerable to price fluctuations. In 2008, the Government developed a programme for wheat self-sufficiency which could be implemented by bringing in high value seeds, providing agricultural machinery and subsidizing lands for wheat production. In Kyrgyzstan wheat occupies about 42 percent of arable land. Over 95 percent of wheat is produced by private farms: in 2008 there were just under half a million farms registered with arable land growing wheat. 650-800 000 tonnes are produced annually in Kyrgyzstan and a further 300,000 tonnes are imported from Kazakhstan and the Russian Federation. Flour and flour goods account for more than 36 percent of household expenses for food.

38. Sunflower in Kyrgyzstan was selected for this study as the crop is produced at the small household level (mostly on farms with less than 5 ha of arable land). Having become a significant support for the poor, which is mostly rural dwellers, homemade sunflower oil production has been increasing from year to year. There are prospects for replacement of imported sunflower oil by locally produced oil but there is a problem that the home-made products are not completely refined. A by-product of production, cake, is used as a fodder additive for livestock.

39. Following land privatization, farmers in Armenia destroyed most of the vineyards and wineries stopped their production. In recent years, however, grape production has been revitalized and grapes are produced not only by individual, small-scale farmers who own 95 percent of the 35 000 ha of vineyards in the country, but also by large farms. The total annual grape supply in the country (160 000-230 000 tonnes) is mainly produced locally and Armenia is 98-100 percent self-sufficient. Most goes to brandy production. Armenian brandy accounts for 90 percent of exports of alcoholic beverages.

40. Pig breeding is one of the most important traditional sectors both in Hungary and Ukraine. In Hungary, pig meat has about a 45 percent share in both meat production and meat consumption. Many smallholders and households are still active in pig breeding and rearing (although the numbers have declined dramatically in recent years) while the processing industry is predominantly supplied by large scale producers. In December 2008, the registered 3.4 million pigs were divided between slightly more than 530 agricultural enterprises possessing two thirds of the livestock and over 260 000 private holders and households with the rest. In Ukraine the share of pork now is equal to about 35 percent (or 620 000
tonnes) of the total production of meat of all kinds. Since 1990, the stock of pigs has declined by two to three times and the structure of pig raising has changed. Before disintegration of the Soviet Union the major part of livestock were concentrated in public sector, while now about 63 percent of pigs are kept in private farms. Issues include ageing of equipment, distortion of infrastructure and meat markets and increased competition from imports.

41. Livestock is one of the major parts of the rural economy in Kyrgyzstan and 87 percent of the territory is occupied by meadows and pastures. Milk is an important element of the diet, with almost 90 percent of households reporting to consume it. Most milk is produced by smallholders who generally own two or three cows and who sell excess production to processors either directly or through local traders or collected by the processors themselves of which there are more than 390 in the country. In Armenia, milk production and milk processing have increased significantly during the last eight years. All 42 former state-owned dairy factories were privatized during the 1990s and many small plants emerged. No single dairy processing company dominates the market. Farmers have gradually integrated into market relations and switched from subsistence to commercial farms.

G. INTERVIEWEE TARGET GROUP

42. Interviews were conducted with representatives from all tiers of each supply chain (Annex 1). Besides agricultural producers, the impacts of the crisis were discussed with input suppliers, processors, integrators, traders and retailers. Participants of the survey were major players in these supply chains with respect to market share, annual income etc. and the interviewees were key informants who were able to provide an overview of the chain. The selection of interviewees was the responsibility of the country representatives, as they have the specific local knowledge, and preference was given to companies that are vertically integrated in the supply chain.

43. Representatives of banks and government officials were also interviewed in each country. The government sector covered those who are related to policy making and implementation, especially government officials, and also decision makers and/or government advisers. Some additional guidelines given to project partners were as follows:

- farmers were to be representatives of business oriented entities;
- a small number of NGOs (e.g. farmers’ organizations) may also be included (possibly one per sector), as may a representative of a consumer organization;
- banks can also include foreign investors and international donor money (if appropriate).

H. RESULTS OF THE RESEARCH

Wheat and sunflower supply chains (four countries)

44. The crisis had no significant impact on grain production in most countries in the 2008/09 crop year. Although it became more difficult to obtain money from the banks even if credit applications were approved, wheat farmers, in general, were still able to finance their business. But consecutive above-average world wheat crops in 2008/09 and 2009/10 boosted supplies while use was constrained by the slow-down in the global economy, deteriorating farmer confidence significantly in comparison with the first half of 2008. However, in most cases, this had more to do with the decline of producer prices or the general macroeconomic environment than with the crisis directly.

45. However, as farmers became less sure of their financial situation (partially due to the decrease of remittances in some countries) and the scant precipitation failed to support crop growth in most regions of Central and Eastern Europe and Central Asia during the last months of the 2008/09 crop year, sales volumes of all inputs, in particular of fertilizers and crop protection products, started going down. In most Central and Eastern European countries, the demand for agricultural machinery was noted to have
dropped back significantly too. In some Central Asian countries, even the purchase of fuel for the harvesting and the following sowing season represented a problem.

46. Due to the limited selling opportunities and to the bearish wheat market outlook, arable farmers favoured further cost saving production technologies in the first half of the 2009/10 crop year. Grain producers began to look for cheaper seeds and agrochemicals and some changed their crop rotation to reduce the need for inputs. Land lease contracts were terminated, mostly on less fertile parcels in marginal areas. The aims at cost savings were not only reflected in the choice of technology but also in production decisions: in the autumn of 2009, winter wheat plantings declined in many of the Central and Eastern European and Central Asian countries.

47. Most market leading multinational input suppliers and traders use EUR or United States Dollars based credits provided by their parent companies with substantially lower interest rates than bank credits in national currencies. The increase in interest rates of parent company credits was described as insignificant during 2008 and 2009. As opposed to the multinationals, domestic input distributors, integrators, processors and traders as well as arable farmers who sell their grain on the market largely depended on external credits. These stakeholders reported the review and modification of already approved credit applications, the re-evaluation of their collaterals, stricter credit conditions and increased credit charges in all countries. In general, banks prolonged the process of credit approvals, carried out more cautious risk analyses and shifted decision making to a higher level. Notwithstanding these changes in the procedures, credit applications were more often declined, even when the value of offered collaterals was several times above that of the credit amount. The funds of some banks shrank to such an extent that even their customers with high reputation and excellent credit history faced difficulties in accessing credits. Banks preferred not to finance grain inventories any more, and even refused public warehouse receipts as collateral (e.g. in Hungary).

48. The bulk of the individual wheat farmers tried to exist without credit. These market players usually took short-term loans from integrators to cover their variable costs but, due to the crisis, these external financial sources became more expensive too. Smallholders use financial lease and bank credits almost exclusively for implementing relatively large-scale investments (i.e. buying a new machine or constructing a new grain store, etc.). Integrators often claimed that, as a consequence of the increasing liquidity problems, low crop prices and weak demand, payments by farmers were overdue by far more than a month. Distributors became more careful about which producers to supply and put tough audit checks in place.

49. Increased foreign exchange risks represented a serious challenge for most businesses in the wheat supply chain of every country. Outside the European Union, notably in Central Asian countries, input prices are often set and credits are often provided in United States Dollars, whereas the revenues of farmers and processors are in national currencies.

50. vertically integrated enterprises with strong business ties and sufficient capital reserves were said to be less impacted by the financial and economic crisis. Agricultural holdings were also thought of as die-hards as their structure allows for expenses and financial flows to be optimized and funds to be redistributed when necessary.

51. In both the Central and Eastern European and the Central Asian region, most stakeholders in the wheat supply chain postponed their investments. However, in the new European Union Member States, farmers and processors tried to complete their already running investment projects partially financed from European Union funds, but within an extended time period, whenever it was possible. Despite the cold investment climate, to secure their future market positions, some of the large agricultural holdings in Ukraine were desperate to spend more especially on the development of their logistics (new river terminals, grain stores, etc.) while well managed bakery firms in Hungary pursued product development
and strengthened their marketing efforts. Large and financially sound enterprises were expected to carry out acquisitions of the weaker ones with attractive regional sales markets, raw materials base, storage facilities, etc.

52. Due to their liquidity problems, processors preferred to buy grains and flour on a daily basis and held smaller stocks, thereby trying to transfer the cost of storage on to stakeholders upstream. To reduce costs, many input suppliers and processors shortened working weeks, sent workers on paid or even unpaid leave, or cut wages. The major agrochemical factories in Ukraine were reported to operate at only half capacity. More attention was paid to energy use and outdated machinery was disposed of whenever it was possible. Millers and bakers turned towards cheaper low quality raw materials such as feed wheat. As a consequence, the quality of most bakery products, in particular of bread in the low price segment declined significantly, especially in Ukraine.

53. While large processors had to cut production, many of the smaller ones were forced to close their businesses\(^2\). Due to the financial and economic downturn, the unfavourable macroeconomic and legal environment, many tried to avoid paying taxes and social contributions (e.g. in Hungary). Processors faced extra difficulties in countries still in transition where the importers of raw materials are few and have a strong bargaining power (e.g. in Armenia), because the decrease in world market prices were not transmitted entirely. Mills in Ukraine tried to limit the increased risks in the flour business by pursuing other, mostly unrelated business activities which are good examples of diversification.

54. As regards grain trading, in 2009, the prompt buying of grains became dominant, while forward contractors preferred deliveries in three to six months rather than 6-12 months as before. This made markets more nervous and greatly increased price volatility. Many of the foreign buyers aimed to cover their needs from their domestic markets as much as possible, thereby minimizing grain imports. Large grain importers in some countries, also within the European Union, became more sensitive to swings in the foreign exchange rates and cancelled tenders more often than before. This made the organizing of logistics very difficult for exporters. In addition, business trust between farmers and traders weakened considerably. With the creditability of buyers declining, and due to their liquidity problems, most suppliers demanded pre-payment or other guarantees. Banks and thus traders too turned their attention from country risk to individual company risk. Regarding risk management, traders, in general, aimed to reduce credit risk on clients, to secure payment conditions and to use credit insurance whenever possible. Traders experienced difficulties in obtaining credit to cover the cost of their stocks, therefore, in most countries, only limited quantities of grain were procured in the 2009/10 crop year and these could be stored for only a short time. Not only were grain prices low but, due to their increased fluctuations, and also because of the exchange rate volatility, banks valued grain inventories of traders considerably below their futures markets quotations.

55. Although traders, due to weakened bargaining position of farmers and integrators, were quite often referred to as winners in the crisis situation, opportunist grain dealers, whose number increased in recent years when prices were high, were expected to go out of business by professional market players, as they were less able to pay to producers and finance inventories even at low prices. This was thought to be beneficial for most of the stakeholders because transaction costs may decline; however, many individual arable farmers could suffer from being cut off from their main source of financing. Indeed, in some countries (e.g. Armenia) buyers’ payments were several months overdue.

56. In Ukraine, local authorities can set limits of profitability for production of lean-formula bread (flour, yeast, salt, water) weighing over 500 g as well as limits of trade mark-ups to the wholesale price of that bread’s producer. About 50 percent of bread made in Ukraine is subject to such regulation.

\(^2\) As for the sunflower sector in Kyrgyzstan, where processing is extremely fragmented about 60 percent of the oil mills had been closed within 18 months since 2008
I. GRAPE/BRANDY SUPPLY CHAIN (ARMENIA)

57. Farmers were generally affected by the higher prices of inputs. Those who were able to market their produce stated that prices were much lower in 2009 compared with 2008. However, there were many farmers who were not able to sell because of the limited demand by processors. Moreover, the processors often failed to make timely payments and farmers needed to obtain loans to continue farming and the availability of these was limited by the banks. Hence, most of the farmers used up all their personal funds living at a subsistence level.

58. Due to the crisis, processors and traders were affected by an approximately 30-50 percent decline in the sales volume of cognac and other processed goods. All the grape processors sell over 90 percent of their production outside of Armenia, particularly to the Russian Federation, hence the decline in sales volume was mainly a result of reduced foreign demand. One the one hand, the AMD depreciation helped most of the grape processors as a large portion of their products was exported. On the other, many processors stated that their costs increased due to high raw material prices, high inventory costs and expensive credit. Many small companies which were not major players went out of business or were on the verge of bankruptcy, while the big players in the market were surviving with hope. The outlook for the sector as a whole was uncertain and largely dependent on the global economic situation. The long-term outlook for those that survived the crisis was good, however, because of the vanished small-scale competitors from the market.

J. PIG MEAT SUPPLY CHAIN (HUNGARY AND UKRAINE)

59. Although the pre-crisis situation of the pig breeding sector was different in Hungary and in Ukraine the perception of the crisis was similar and at most points in the chain the impact has been somewhat less so far than most stakeholders expected. In Hungary a significant increase in pig prices, 14 percent in the first half of 2009, and the demand driven market put producers in a favourable position. The compound feed price dropped by 24 percent and energy prices by 7 percent. Even though veterinary products are partly imported, as in Ukraine, producers paid only 8 percent more for them at the start of 2009 than a year previously. The input suppliers interviewed had not noticed a big decrease in the domestic demand for their products but they did note astonishing price volatility and an unpredictable income situation. The perceived problem was the solvency of some domestic buyers, apparently because the banks were not financing production. On the other hand, expensive or lacking financial sources did not allow suppliers to finance producers as before. Their response to the crisis was not to supply customers who were considered to be a risk, as well as cost-cutting.

60. In Ukraine the situation was slightly different. Input suppliers to the pig breeding sector, producers of compound feed and suppliers of veterinary preparations found themselves in a difficult position. Before the crisis, their services were used mainly by small pork producers and households. Large pig-breeding complexes had their own veterinary units and compound feed plants. However, the sudden devaluation of the Ukraine Hryvnia (UAH) slashed demand from small pork producers in early 2009. This concerned both veterinary preparations, which are almost completely imported, and mixed feeds that include valuable imported components and additives (minerals and vitamins, proteins, amino acids). A move by small entities away from mixed feeds to simple grain in pig raising made feed plants alter their recipes towards lower costs and poorer quality. However, even those products did not secure much increase in demand. As a result, feed plants curtailed production, shut down, cut staff or moved workers to part-time work, and reoriented towards production of feed for poultry.

61. Hungarian pig farmers were expecting serious consequences when the economic-financial crisis developed but in fact seasonality, i.e. the classical pig cycle, had a stronger impact than the crisis. There was a significant deficit in the market and feed prices had declined, resulting in higher prices and higher margins for pig farmers in the first three quarters of 2009. Though prices were at an acceptable level,
buyers began to delay their payments, thereby weakening the liquidity of pig farmers towards input suppliers who were requiring prompt payments. In order to avoid using credit, some farmers extensified their production and owed more to input suppliers. Concerning streamlining of operations and cost cutting in production, adjustments in such a short time were not possible for pig farmers. However, on the input side salaries were frozen and people were laid off. The feeding of on-farm produced grain and scraps became more common. Whenever possible farmers preferred cash transactions because money transfers had been delayed. Investments were postponed, even European Union regulated compulsory investments for manure storing and handling, which are the conditions of future operation. Those who were not capable of financing these investments were expected to quit farming in 2009. The pig stock in June 2009 was 14 percent less than a year earlier, 10 percent less enterprises and 20 percent less individual farms were holding pigs than in the previous year. By contrast, the number of pigs raised by private households was thought to have increased. Those who endure believed if the necessary investments can be completed, their competitive disadvantages will not become greater. There were worries that stakeholders operating illegally would benefit from the crisis. Interviewees were not aware of any specific government policy measures which had been taken in response to the crisis.

62. Livestock changed in the opposite way in Ukraine. The pig population as of 1 October 2009 had increased by 8.0 percent over the previous year, to 7.462 million. The growth of pork output by Ukrainian agricultural producers was promoted by a considerable decrease in meat imports due to the dramatic devaluation of the Hryvnia. Besides, controls on meat smuggling were rather tough. As a result, imported pork, which created competition in the domestic market, decreased. This secured a growth in meat prices and a higher demand for meat produced by domestic manufacturers. Despite the decline in people’s purchasing power, pork prices in Ukraine remained high: as of 1 October 2009, the purchase price of pigs in live weight was 10-15 percent higher than 12 months earlier. A drop in demand in early 2009 was temporary and was rather easily survived by most producers, especially agroholdings. The profitability of pig farming was minus 27-20 percent in 2007-2008 whilst in 2009, positive profitability (2-4 percent) was forecast for the entire branch. Agricultural enterprises and complexes could increase their pig population in Ukraine, as of 1 October 2009 the number was 17.4 percent greater to the same date last year. Rural households also reacted flexibly. Cheap feeds encouraged pig population growth in household backyards. As of 1 September 2009 the pig population in households had increased by 1.6 percent compared with the same period of 2008.

63. The crisis impacted the supply of raw materials for Hungarian processing. Processors reported that not only the pig market but also the entire meat sector was in a better and more stable situation than the crisis would suggest. It seemed that the consumption of basic food did not decrease to the same extent as of other products, therefore the drop in consumption had a smaller effect on producer prices. The supply of live slaughtering pigs had been decreasing in Europe independently of the crisis and prices jumped from HUF 240 to 330 per kg in the year to August 2009. The peak producer price was unrealistic and in the Hungarian pig market live-pig imports started to increase again in the second half of 2009.

64. The vast majority of processors agreed that retailers’ private label products undoubtedly benefited from the changes in consumer behaviour (consumers had become even more price sensitive). In the retail chains, the share of private label products was growing and was thought to have reached 60 percent of the total sales. Although it was recognized that banks have had to re-evaluate credits, none of the processing companies in the survey had been significantly affected, but they consider that they had good credit histories. Some processors who already struggled before the crisis failed at the end of 2008. Retailers tried to delay payments a bit more often. Processors cut back on spending where possible, but invested in improving efficiency. They laid off some employees but recognized that if they were to expand production in the future, it could be extremely difficult to find skilled and experienced work force on the labour market. The increase in the rate of VAT was to the advantage of the illegal market players in the food supply chain. Processors and traders also claimed that in Hungary the retail sector was in favour of the financial crisis because they had a stronger negotiating position with the suppliers.
65. Due to the decline in people’s income and aggravation of the economic situation in Ukraine, meat demand and consumption in 2009 declined by about 5-10 percent. Additionally a sharp shift towards less expensive poultry meat occurred. An especially acute diminution in demand for meat was seen in the first ten months of 2009 which caused a decline in pork output. By the middle of the year, people adapted themselves to the new conditions and the demand for pork slightly increased. Processing enterprises found themselves in a somewhat worse position relative to pork producers. First of all, demand for products in more expensive and more profitable segments had dropped. On the other hand, meat products in the low-price segment and, to a considerably lesser extent, in the medium-price segment, became highly sought after in 2009. The devaluation of the Hryvnia, together with higher energy prices, resulted in a considerable increase of costs of meat product output (almost 50 percent of raw meat and all ingredients such as spices, additives, casing, etc. for sausage production were imported). However, processing enterprises could not adequately increase prices of their products as a change of prices of cheap meat products was subject to endorsement by the State Price Inspectorate (c.f. also wheat). As a result, the profitability of processing enterprises fell to a minimum. According to managers of processing enterprises, most pork producers supplied pigs for processing only against prepayment, while retailers delayed payments for meat products sold.

66. In response to the crisis, suppliers tended to replace quality meat with cheap chicken products and reduced support personnel. Their product range also changed. For example, the output of prepared meat products decreased by 30 percent (because people cook much more foodstuffs at home). According to estimates by Ukrmyaso National Association of Meat and Meat Product Makers, up to 50 percent of meat-processing enterprises were expected to be shut down in 2009 because of shortage of finance. Small and medium-sized enterprises facing a lack of floating assets could be especially affected.

K. MILK SUPPLY CHAIN (ARMENIA AND KYRGYZSTAN)

67. The dairy supply chain was largely impacted by the crisis. Dairy farmers and processors were affected by higher input prices and declining demand in both local and international markets. The price of milk and dairy products at the retail chains did not drop as compared with 2008, while the procurement price for milk from farmers went down at least two times. Interviewees claimed that to alleviate the adverse affects of the crisis, no significant policy measures were introduced.

68. In Armenia, the crisis had perhaps the most impact on agricultural producers. Most of the dairy farmers operated at a loss. The price of milk declined by about 20 percent relative to 2008 and there was still a large surplus in the market. It was not only the case that farmers were paid less for milk, but payments were delayed by up to three months. Farmers looked for alternatives to make a profit from their cattle, thus most of the remaining cows were held rather for the production of calves. This was more cost efficient and farmers hoped to profit more from meat than from milk. Without any government support dairy farmers were thought to give up production in large numbers, threatening the whole dairy supply chain which has strategic importance in the country. In Kyrgyzstan, smallholders, who produce the bulk of the milk and who generally own two or three cows, complained about the price of milk falling two times in 2008-2009, and that even direct sales at local markets were often unprofitable. Whilst there may be regional differences, households generally consume about 40 percent of their milk production and sell the remaining 60 percent (during the summer). During the winter, with yields falling heavily, most households consume all their own milk. The sector employs some 1,400 workers, principally in a number of large dairy farms around Chui Oblast, which supply 80 percent of exports. These large farms were also impacted by the crisis.

69. Although the milk prices declined in Armenia compared with last year, some of the processors, being socially responsible, purchased milk at higher prices than the competitors. Many milk processors stated that their cost increased due to the high cost of utilities, raw material prices and interest rates. In addition, the raw material prices increased in AMD as a result of the 3 March exchange rate policy. The
major investment most of the interviewed firms consider was the acquisition of modern technology that was energy efficient and will cut utility costs. On top of all the problems already threatening the operations of processing firms, actions by government were not matched with what is needed under the current crisis situation. However, they were optimistic about the future.

70. There are more than 390 dairy processing enterprises in Kyrgyzstan but the sector was dominated by several medium and large enterprises. These companies processed 85-88 percent of the milk which came onto the market and the remaining share is processed through small local companies. Generally, in the past few years, the output of the dairy industry had been decreasing. Exports of milk decreased in 2008 in comparison with 2006 almost six times. The stakeholders most affected by the global financial and economic crisis were thought to be dairy farmers. Traders and processors also experienced problems but their losses were partly covered by farmers.

71. The demand for Armenian dairy products on the export markets decreased. Russian Federation, the main export destination of Armenian dairy products, was highly impacted by the crisis. The restriction of dairy products shipped to The Russian Federation through Georgia as a consequence of the recent war created additional problems for Armenian dairy exporters. Dairy products had to be transported either through Iran or by air which increased transport costs significantly.

L. RETAILING

72. As a consequence of the crisis, consumer purchasing power declined drastically in many countries in the region. This is illustrated by the example of Tesco Global Kft. in Hungary where FMCG (fast moving consumer goods) sales dropped by 12 percent year on year in November 2009. In Ukraine, one out of every five retail chains, including giants like Velyka Kyshenya, had to close their less profitable stores as a consequence of increasing accounts payable, growing energy prices, rents and credit charges, and dearer utility services. On the other hand, most of the discount chains (e.g. Ukrainian Retail, ATB-Market, etc.), targeting consumers with average or below average income levels, and some of the large multinational retail chains, offering a wide choice of private label products or pursuing an aggressive expansion policy, were able to strengthen their market positions. Nota bene: retail chains targeting high income level consumers, such as Yeritsyans and Sons in Armenia, were less impacted by the economic downturn because the preferences of the social strata they provide service for changed little. In Armenia, the demand for flour decreased by 20-30 percent.

73. Price is the most important factor in the purchasing decisions of consumers, and it became even more so in the crisis. Thus, in general, the crisis impacted first the demand of goods/brands which can easily be substituted by less expensive alternatives. Many food products belong to this category and, in general, consumers at least in Central and Eastern Europe are believed to be less loyal to brands than their Western European counterparts. For these reasons, and also because competition was very tough due to the presence of many retail chains in some of the countries, the choice of relatively cheap food products increased and special price offers became more frequent. Consequently, suppliers of low priced mass products had to deliver greater volumes while others needed to change their production structure. The demand for private label products increased considerably, and these will definitely have a larger share of turnover in the future. It was also underlined that, due to the crisis, consumers were spending less on high value added processed goods, while the demand for basic foods (e.g. flour, sugar, many lower value added bakery products, fruits and vegetables) remained rather stable.

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3 Food product sales represent about 70 percent of the turnover of Tesco in Hungary. According to CSO data, the total food and non-food turnover of the retail sector in Hungary was 3.5 percent lower year on year in the first half of 2009

4 According to SSCU data, the total turnover of the retail sector and the restaurant business declined by almost 20 percent year on year to UAH 144.6 billion during January-August 2009
74. Quite often, the calls for tenders by multinational retail chains for the production of private label food products are international. Experience in Central and Eastern Europe showed that suppliers in Poland and the Czech Republic were less affected by the crisis than in Hungary or Slovakia, where the impacts were more severe either due to the macroeconomic instability, or to the introduction of the euro. Retailers claimed that contract terms and conditions with suppliers did not alter, and stakeholders were expecting no major changes in front and back margins in the near future. It was pointed out that in some sectors, production and processing had long been facing difficulties, and thus the decline of production and sales was only partly due to the crisis.

75. In some countries, protectionist and even nationalist rhetoric has inevitably gained some popularity. For example in Hungary, to increase the proportion of domestically produced goods on the shelves of retail chains, and to regulate contract conditions, a new Ethical Codex was drafted by the Ministry of Agriculture and NGOs, and signed by most of the stakeholders. However, the initiative did not prove to be effective, and thus remained a mere symbolic step towards farmers and the processing industries battered inter alia by the crisis, mainly because the Codex failed to provide a clear definition of ‘domestically produced’ goods. (It was also heavily criticized by the Hungarian Competition Authority). Notwithstanding the failure of efforts like this, the preference of domestic goods by consumers increased in 2009, mainly due to the devaluation of the national currencies. This trend was observed in Hungary as well as in Ukraine.

76. In many countries (including Armenia, Hungary, Kyrgyzstan and Ukraine), the direct marketing of agricultural goods increased substantially. This was particularly true for milk and basic dairy products, in which case the declining purchasing power of the consumer and the oversupply on the dairy market shortened the distribution chain, especially in rural areas. Another development has been a reversal in the decline in the number of pigs kept by rural households as part of a move towards greater economic self-sufficiency, and this has negatively impacted on retail sales.

M. BANKS AND LENDING INSTITUTIONS (FOUR COUNTRIES)

77. Owing to the varying degrees of integration into the world economy of the four countries in the study, the different ownership profile of the banks and the contrasting fiscal approaches of national governments, in this section developments in the four countries are reviewed separately.

78. Banks in Hungary tended to lower their credit/deposit ratio. They looked more carefully at the total credit portfolios of enterprises and required a much higher share of own sources (at least 10-15 percent for the financing of 20-25 percent of a project), even when an investment was supported from European Union funds. The placing of investment credits declined by 5-10 percent. The total debt of the agribusiness sector had dropped by around 5-10 percent by mid-2009, but started to increase again in August. Credit conditions were made tougher and the maximum amount of credit per hectare land was cut from HUF about 100 000 (EUR 374) to HUF 70 000 (EUR 262). Credit costs increased markedly, by 2.0-2.2 percent. to 12-14 percent. With the devaluation of the HUF, there was an increase in loan defaults, especially with those in foreign currencies (e.g. CHF). Banks cleared their portfolios and lowered their operational costs by quitting their less profitable activities and cutting their staff. Many did not take on new customers but they were not worrying about the crisis radiating to the agrofood sector. According to the interviewees, small enterprises will be excluded from credit granting in the future. Banks reckoned the market environment would be unpredictable for the next two to three years, thus the returns on most investments could be judged as rather dubious.

79. Ukrainian banks and other financial institutions became hostages of a credit boom in foreign currency in 2006-2008. Hryvnia devaluation caused failure to repay loans by many bank clients. This in turn led to banks in many cases not being able to return deposits. As a result, in late 2008 a moratorium on deposit refund obligations was introduced. Despite this measure, a number of banks went bankrupt. In
2009, banks provided UAH 3.3 billion (EUR 0.3 billion) worth of new loans to agrarian sector enterprises. Interest rates on bank loans increased to 16.5-30.0 percent (including loans for agricultural enterprises). The number of banks willing to grant credit to the agrarian sector decreased and the ones who still provided such loans demanded more rigid conditions. Due to the crisis, many agrarian sector borrowers faced debt servicing problems. According to the Ministry of Agrarian Policy of Ukraine, more than 3,400 applications on loan restructuring, amounting to almost UAH 12 billion (EUR 1 billion), had arrived from agrarian sector enterprises as of late summer 2009. Although bank revenues grew by 41.9 percent in the first eight months of 2009 compared with the same period of 2008, their expenditure increased by 88.9 percent. As of 1 September 2009, losses of Ukrainian banks amounted to UAH 20.5 billion (EUR 1.7 billion), whereas the same period in 2008 saw a profit of UAH 6.9 billion (EUR 0.6 billion). Of Ukraine’s 15 largest banks, only seven showed a profit in the third quarter of 2009.

80. The crisis reached Armenia through the real economy instead of the financial markets. Even so, all interviewed banks and lending institutions claimed that credit was less accessible than pre-crisis. In fact, most banks in Armenia stopped providing consumer credit. Banks tried to deal with increased default risk by raising interest rates, applying stricter conditions to potential debtors and giving preference to short-term loans. Although the number of depositors decreased, most banks were able to provide more loans to agribusinesses because the Government provided funds specifically for the sector at a lower interest rate. In March 2009, the introduction of the floating exchange rate depreciated the AMD by about 20 percent. Although Armenian law prohibits it, banks provided credit mainly in United States Dollars and required loan payments in either United States Dollars or AMD equivalent. Therefore, many debtors had difficulties in making payments. There were also other discrepancies between the law and practice: banks provided the designated government loans to the agricultural sector at much higher interest rates. Although market conditions were tougher, the basic market structure remained unaltered. However, banks expect changes in the sector within a year or two, when big banks can resume their planned investments, potentially acquiring smaller banks.

81. Interviewed banking institutions in Kyrgyzstan cited the devaluation of the national currency, increase in the inflation rate, low rate of transfers from nationals living abroad as well as repayment of credit to financing institutions as major problems for the sector. In response to these, banks toughened their deposit policy and raised credit rates. The latter were increased to 22 percent for agricultural activities and to 27 percent for processing and other sectors in 2008. Credit conditions were also tightened: while previously only credit history was deemed relevant, clients had to go through The Central Collateral Registration Office if the amount of a loan exceeded KGS 30,000 (EUR 450). An important measure to help agriculture was to provide subsidized loans for farmers through banks. The interest rate of these loans was 22 percent, but if a farmer repaid the credit in time he received a 10 percent interest compensation. Credit was given in KGS in order to avoid exchange rate risk.

N. GOVERNMENT SECTOR (FOUR COUNTRIES)

82. Governments in the four countries adopted different approaches to mitigating the effects of the crises in the agrofood sector. In Hungary, membership of the European Union limited the space for manoeuvre. Ukraine introduced some short-term measures. Armenia was very exposed to external factors whilst the Government of Kyrgyz thought that the country may be less exposed to the crisis. In most if not all countries the communication of the existence of these measures to the supply chains was an issue.

83. Officials in Hungary shared the view that the financial and economic crisis impacted the agrofood sector significantly; however, to a lesser extent (at least in the first half of 2009) than some other sectors of the national economy. The negative effects of the crisis had been amplified by the inflexibility of the decision making and administration system of the European Union, and the inefficiency and the weak communication of the national administration. Although most of the stakeholders appeared to be unaware of any agrofood sector specific action taken by the Government in response to the financial and
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84. Agriculture in Ukraine was without any productive support until March 2009 when a law, *inter alia*, encouraging banks to roll over loans to agricultural producers came into force. To increase demand for grain, in late 2009 the Government formed a financial pool used by the Agrarian Fund (a state organization supervised by the Ministry of Agrarian Policy) to accomplish intervention purchases of grain, and established a Stabilizing Anti-crisis Fund. All the measures were mainly short-term: producers obtained a financial resource at the Agrarian Fund’s expense to secure current agricultural works, money from the Stabilizing Fund went to subsidize compensation of bank loans for agricultural producers, cattle-breeding, agricultural machinery leasing, implementation of some investment projects, and partial reimbursement of expenses incurred for sowing of spring crops.

85. The Government in Armenia set up several programmes intended to intensify the support to producers of agricultural products although in late 2009 the level of financing from the state budget was less than 40 percent of the projected level. They included seed development; plant protection; agricultural animal vaccination; state support to agricultural land users; provision of agricultural animals by the government on different payment terms; credit to agricultural enterprises and small-scale agricultural traders; credit for the economic development of rural areas; and requirement for dairy producers to include the proportion of milk powder and natural milk in the labels (to encourage consumer selection of natural products). The Armenian Government is perceived to have neglected the sector in its policy making over a period of years, even although it publicly stresses the importance of agriculture. The Ministry of Agriculture expressed intentions of helping the sector overcome the crisis, but the Government appeared to favour the residential construction sector.

86. In Kyrgyzstan, the Government initially announced that the global crisis would hit the economy. Later, it judged that as the country was not fully integrated into the global economy, it would not be hurt significantly. However, several actions were adopted to mitigate the impact of the crisis and ensure food security including a new Law on Food Security, several resolutions on socio-economic development, discussions with Kazakhstan and the Russian Federation on waiving quarantine on import of dairy products, and the Ministry of Agriculture initiated VAT exemption from home based processing of dairy products. Additional credit resources were provided to Aiyl Bank (former Agricultural Financial Corporation, recently established as a bank) for on lending to farmers and the state AgroProdCorporation (a state joint stock company set up in 2008 to regulate prices for wheat through market activities) bought wheat directly from farmers to offset their credits. However, interviewees in the supply chain claimed not to have noticed any significant support. For example, the wheat procurement mechanisms were not clear and transparent, whilst AgroProdCorporation is becoming a dominant player in the wheat sector and is pushing small and medium size mills out of market.

O. GENERAL DISCUSSION AND CONCLUSIONS

Current state of the agrofood sector

87. The crisis affected Eastern-Europe and Central-Asia only with some delay. The negative impacts were felt first in the construction, metallurgy and car-making sectors and until now more strongly than in...
the agrofood sector. The effects of the crisis on agriculture are still masked by the good conditions in the 2007/2008 season and in previous years. The reaction of stakeholders will be apparent only later due to the uninterrupted biological nature of production. Not only was the arrival in the region late but it is now obvious that the recovery will also be slower than in the developed world, in India and in China. The economies of the latter showed the first early signs of growth in the third quarter of 2009, thanks to the enormous and effective monetary and fiscal stimuli, whilst the downturn in Eastern Europe and Central Asia is continuing. As the demand for agricultural products is linked to purchasing power either on the domestic or on the export markets, it is still questionable what legacy the crisis will leave on the sector and on rural society.

88. Growing unemployment, wage cuts, increased payments for loans, a shift to part time working as well as declining remittances from citizens working in more developed countries have led to a decline in overall consumption in the region. The decline was strongly driven by the psychological effect; initially people reduced their expenditure more than their income dictated. As food has a relatively low price elasticity, the drop was less in the case of food products than other goods, and occurred to a different extent with different food items. The contraction was more noticeable for products with higher value added (e.g. Armenian brandy). Consumers are now even more price sensitive and demands for more expensive goods have been replaced by less expensive alternatives. Both feed and industrial non-food use of agricultural products are lower as a result of the slowdown. The usage of biofuels was expected to expand less rapidly as the sector matures.

89. The prices of agricultural commodities have declined from their peak in 2007 and early 2008. There is some agreement that this peak was caused by a number of temporary phenomena, such as a decline in global stock levels, poor weather conditions in core grain producing countries, temporary trading restrictions in some countries and, according to some analysts, the activity of market speculators investing in commodity futures. Input prices increased in parallel with the prices of products, but their decline appears to be much slower. In countries which are depending strongly on imported inputs (like Armenia and Kyrgyzstan), this price increase has been even more harmful due to the devaluation of their national currency. As a result, input usage has dropped in the region and many farmers have been forced to extensify production.

90. Not only were the price changes adverse for farmers, but sales opportunities are now rare, too. This is in part a clear consequence of the lower demand, but it is also due there being fewer solvent and reliable partners. As increasing numbers of farmers, integrators and traders faced liquidity problems or went into liquidation leaving behind unpaid claims, business trust evaporated. Fewer transactions are now made and many of them on different terms than previously. Dairy and wheat farmers in Kyrgyzstan, dairy and grape farmers in Armenia and wheat farmers in Hungary all claimed that they had suffered increasing difficulties to market their products. Stocks in the supply chains have accumulated; wheat stocks at the end of the 2009/2010 crop year are estimated to be the highest in eight years, for instance. Dairy farmers turned to making cheese, processors invested in extending product shelf life, and underpriced imported milk powder pushed out dairy farmers.

91. Although agricultural trade was influenced by the crisis less than international trade overall, it could not provide as much help to reduce imbalances than it could in previous years. Trading flows were disturbed by unpredictable currency changes and by protectionism, sometimes hidden in the form of sanitary and food safety measures. Exchange rate change have helped exporters in Hungary and Ukraine and promoted domestic food processors, but the overall long-term impact on national economies in the region is judged by experts as rather damaging.

92. Banks pulled out of financing agriculture when the crisis intensified and credit availability and credit conditions are now poor in all four countries in the research. As all market oriented enterprises in the region can be considered “new” compared with other parts of the world, they are financially less
stable and their dependence on credits is relatively higher. Due to the lack of financing, investments were postponed, trading flows have slowed, and the financing of stocks and purchasing of inputs have become more expensive. Shifting from subsistence to market oriented farming is now extremely difficult but by contrast financially strong companies and holdings, and well organized integrations have developed steadily and have extended their market share.

Principal causes of changes to the state of the agrofood sector

93. In recent decades, the agrofood sector has become not only more globalized through international trade (as it sources and sells across the globe) but also more integrated into the modern financial system. Consequently it is more subject to the exogenous fluctuations originating in the macro-economy. Impacts of the crisis on the specific agrofood sectors and countries have come to depend on the strength of their linkages to the financial system and the global economy (OECD, 2009).

94. Hence the state of the agrofood sector is mainly determined by the general macroeconomic, legal and social/cultural environment in each country, although in the countries of the European Union the CAP is a major influencing factor. In the following we only focus on factors which are either derived from or have gained weight and importance due to the global crisis. These we believe to be as follows.

95. The crisis is one of confidence rather than the result of any abrupt change in the underlying dimensions of the economy: population and income growth, resource constraints and the world wide application of advancing technology that changes the relative values of labour, capital and land (RuSource, 2008). This lack of confidence is most clearly expressed through limited credit availability and consequent liquidity problems. Credit stimulates business and drives the economy. Reduced credit availability puts increased pressure on cash flow, sets back demand and trade, and hampers investments. The high level of interest rates impairs the competitive position of domestic enterprises both in the domestic and foreign markets. The consequences are the decline of production and services, the loss of jobs and increasing poverty. It could further weaken the food security of importer countries as they may become more dependent on financially stronger external suppliers, ultimately contributing to the strengthening of protectionism.

96. Differences between countries in their susceptibility to the crisis and in the responses of their governments have contributed to high foreign exchange risk which can scare off foreign capital from a country and obstruct growth prospects. In short, this risk impacts on the income of domestic enterprises while increasing trade volatility and slowing down investments. Furthermore, increasing price volatility, i.e. the greater amplitude and speed of price swings, affects the income of all stakeholders of a particular supply chain. Dependence on commodities coupled with high volatility of prices results in significant fluctuations in trade. In general, trade volatility worsens income distribution, raises poverty and impedes economic growth and domestic investment.

97. The economic slowdown and global credit crunch have had serious implications for migrants and their families. The decrease in consumer incomes and remittances sent by migrant workers to their families at home (described in Section 1.2.) suppress demand, thereby contributing to the shrinking of the economy and to the decline in production and services. Incidentally, the higher competition for jobs and economic resources by returning migrants can lead to social and political tensions in many local communities and increasing pressure on already fragile healthcare and social welfare infrastructure in many local communities (Abazov, 2008).

98. The crisis has directly impacted on the behaviour of stakeholders in the supply chains. There has been a loss of business trust as market transactions have shifted from a trust and credit base towards a cash base. This lack of trust weakens contract relations, renders integration and concentration, and impedes investments and technical progress. In a crisis situation, market players value trust more than property or money. Also, in order to make competitive offers and to remain in business, more
stakeholders try to operate illegally. As with the lack of business trust, the black economy makes integration, concentration and professional consulting in the supply chains more difficult, as well as efficient representation and assertion of interests. Black marketers exercise huge pressure on buying and selling prices thereby forcing legally operating competitors out of business. The lack of information available to stakeholders in the supply chains restricted their ability to understand how the crisis was developing and therefore how to effectively adapt their business strategies. For example, farmers in Armenia faced two major challenges in the crisis: overestimation of demand of certain crops that encouraged risk-taking in purchase of inputs and problems with monopolies of wholesale purchasers and access to markets.

99. The economic slowdown resulted in a lower level of grain consumption in 2008/09, especially for feed and industrial uses (IGC). At the same time, consecutive above-average world wheat crops boosted the level of grain stocks. These were projected to fall slightly in the mid-term but the ample supply outlook should maintain them at comparatively higher levels thereby depressing prices.

100. Most of the discount retail chains, targeting consumers with average or below average income levels, and some of the large multinational retail chains, offering a wide choice of private label products or pursuing an aggressive expansion policy, have very strong market positions. Due to their bargaining power, retail chains have already or will soon become the ultimate price setters in most of the agrofood supply chains in most regions. The strong push towards mass production represents a huge challenge for the suppliers in many countries and has led to calls for restructuring.

Effects on stakeholders in the supply chain

101. Most of the negative effects on stakeholders were discussed in the previous section but little has been said about who may benefit from the situation. The crisis has exposed all the weaknesses of the sector and can be a turning point insofar as its impacts in the near future may act as a selection force which creates beneficiaries and losers among stakeholders in all tiers of the agrofood sector.

102. Although it is impossible to generalize which parts of the different supply chains gained the most from crisis, in most countries, the banks could certainly benefit a lot because (1) governments, especially in Europe, do not let banks go bankrupt, (2) banks not only enjoy support but have a chance to clean their portfolios and get rid of their troubled customers and (3) they could and have well overpriced the actual risks. Besides banks, market and price determining multinational trading companies were expected to strengthen their positions. This is due to their reputation, credit history, own equity, liquidity, ownership and to the speed at which they can react to market developments.

103. Subsistence farmers were thought to be less affected by the limited availability of financial resources, the rise in credit charges, the increased volatility of the exchange rates, etc. because these were less dependent on bank loans and less integrated into the supply chain. By contrast, smaller professional producers who are potentially more flexible but who did not have the financial resources to withstand the crisis have been lost, leading to concentration in the sector as larger companies, especially those whose input suppliers and buyers are few but financially stable, strengthen their positions. The crisis has strengthened the polarization within the agrofood sector. In addition, credit access of businesses, the level of integration, production structure and management skills were also factors which made a difference in exposure to the crisis.

104. Whether retail chains benefited or not, it is difficult to answer yet. Undoubtedly, the share of private label products has increased which has placed them in an even better bargaining position; however, the margins are usually lower on these products and most chains have suffered a drop in demand and turnover. Are private labels the big winners of the crisis? The question cannot be answered with a simple 'yes' or 'no'. According to one survey, more than 70 percent of the consumers were convinced that the crisis will last longer than one year which means that they continued to adapt their
purchasing behaviour accordingly. It is too soon to know how strong the shift back to more premium products will be. In many countries (including Hungary, Ukraine, Armenia, Kyrgyzstan), the direct marketing of agricultural goods has increased substantially; however, currently there are no guarantees that with the economies on the rise again, the demand for that will not shrink.

**Impacts on rural poverty**

105. Poverty and food security were improving strongly in Eastern Europe and Central Asia before the food and financial crises periods hit the region. In the first half of 2008, the region was confronted with rising food prices as the consequence of the worldwide food crisis. In the second part of the same year, effects of the worldwide financial crisis started to become apparent. Although the food and financial crisis developed from different underlying causes, they are interacting through their implications for financial and economic stability, food security, and political security. The financial crisis and the accompanying slow down of the economy reversed the increase in commodity prices (caused by the food crisis), yielding benefits for the food security and poverty of net consumers of food. However, at the same time, lay-offs across all sectors of the economies coupled with a decline in agro-industrial capacity use, a reduction in real wages and employment rates and a decline in remittances from migrant workers have negatively affected the income of households in the region and increased poverty and food insecurity.

106. Thus the financial crisis has caused an increase of overall poverty in the region, as reflected in the responses of the interviewees. The year 2009 even saw a small rise in the number of low-tech subsistence farmers (e.g. in Ukraine) to compensate for lost income through wages. This analysis is supported by Philippe Le Houérou, World Bank Vice-President for Europe and Central Asia who stated “The global financial and economic crisis has literally hit home in many parts of Emerging Europe and Central Asia … What started as a financial crisis has become a social and human crisis. The global crisis has come on the heels of the food and fuel crises, which had already weakened people in the region by reducing their purchasing power. Today, rising poverty and joblessness are pushing households into poverty and making things even harder for those already poor.”

107. In addition to the direct impact on household income, the crisis has also negatively affected government budgets. Preliminary data from a few countries found a significant decrease in the number of social security beneficiaries between June 2008 and June 2009, the period when more households have become vulnerable. This could have a negative impact on government spending on social assistance programmes at a time when these programmes in fact need to be expanded (IMF, 2009).

**Response strategies adopted by businesses, banks and government**

108. Stakeholders throughout the supply chain suffered from loss of confidence and sought to cut their costs and reduce their dependence on credit. Arable farmers reduced their use of fertilizers and crop production products and purchases of machinery also declined. Crop rotations were sometimes altered, land lease contracts were terminated and in some cases farm-saved seed was used for sowing. Cuts in the use of inputs were particularly high in countries where the lower value of the currencies increased prices. Livestock producers began using home produced feeds, and/or extensified their production. Cattle farmers in Armenia fed the milk they produced to calves.

109. In response to concerns about the financial viability of some of their customers and an increasing tendency to delay payments, input suppliers became more careful about which farmers to supply and put tough audit checks in place. Most demanded pre-payment or other guarantees, partly to minimize risk and partly so as not to finance producers as in the past. Many input suppliers shortened working weeks, instituted unpaid leave or even cut wages. Animal feed plants reduced costs and reoriented production towards feeds for more prosperous supply chains e.g. poultry in Ukraine.
110. Contractors who normally make forward purchases of grain sought to do so more promptly and buyers aimed to cover their needs from domestic markets, thereby minimizing imports and exposure to exchange rates. Due to liquidity problems, processors preferred to purchase on a daily basis and held smaller stocks, thereby trying to transfer the cost of storage upstream. Cheaper, lower quality raw materials were purchased, outdated machinery was disposed of wherever possible and more attention was paid to energy use. Many sought to cut their wage bills, but recognized the value of the skills of their employees and tried to retain staff, as retention as part of any future expansion could be difficult. Similarly, in Armenia, at least, some processors purchased milk at a higher price than their competitors in order to safeguard their supplies. Some processors and traders tried to limit risks by diversification, seeking out niche markets or diversifying into unrelated business activities.

111. Most stakeholders throughout the supply chains postponed their investments, even if, as sometimes in the case of pig farmers in Hungary, these were demanded by the European Union, although efforts were made to complete ongoing investments particularly if co-financed by public sector funding. Stronger players, with a view to their future market position, maintained their investments and their marketing activities. Large and financially sound enterprises acquired their weaker competitors, particularly those with attractive assets such as real estate or good customer bases.

112. Retail supply chains further increased their shares of sales of private label products in response to the higher price sensitivity of consumers, and often strengthened their market positions. Retailers also tried to delay payments, but this was reported to occur more with national than with multinational companies. Less profitable stores were closed and special price offers became more frequent.

113. Banks cut back substantially on providing credit to the agrofood industry. Already approved credit applications were reviewed and modified, collaterals were re-evaluated, and stricter credit conditions and increased credit charges were imposed in all countries. In general, banks prolonged the process of credit approvals, carried out more cautious risk analyses and shifted decision making to a higher level. Credit applications were more often declined and even customers with high reputation and excellent credit history faced difficulties in accessing credit. Banks preferred customers who managed their risks with derivative market instruments (e.g. in Hungary).

114. Governments implemented a range of measures in response to local circumstances and there was a move towards protectionist measures. The European Union reported that some 223 potentially trade restrictive and distorting measures, affecting around 5.2 percent of European Union exports, were taken by the European Union’s main trading partners in the year to October 2009 (Agra Europe, 2009).

Assessment of future changes

115. Due to the central role of international trade in agriculture, the prospects of the sector depend on future global economic trends. Continued weakness in the general economy will further dampen commodity prices over the next two to three years, which should then strengthen with economic recovery. The reduction in agricultural prices, production and consumption, associated with lower incomes is likely to be moderate, as long as economic recovery begins within two to three years (OECD, 2009). The following factors could potentially have a negative impact on output and productivity in the region (Swinnen and Van Herek, 2009):

- an overall decrease in investments, because banks provide less credit to individual house-holds and (foreign and domestic) investors reduce their investments in the agrofood sector;
- a decrease in demand for higher value agricultural products and a switch to basic products due to a decrease of the household’s disposable income. Demand for higher cost livestock products, such as beef, pork and dairy, would be the most seriously affected;
government interventions could be positive if they boost investments. However, one should be careful it does not lead to a (partial) reversal of reforms in the agricultural sector, which could have a negative effect on efficiency.

116. Thus the recovery of consumer demand could play a key role, especially for high value-added food products. In Ukraine, for example, retail representatives expect greater consumer confidence already in early 2010; as a consequence, Auchan, a recent entrant to the Ukrainian market plans expansion in the near future. However, even with the return of demand to normal levels, the market structure will not stay unaltered: Armenia could see significant mergers between retailers, along with the disappearance of many small businesses.

117. In the coming ten years, the prices of agricultural commodities will remain at a higher average level than over the past decade, and will continue to remain volatile. This analysis suggests that income from farming and the price of food to consumers are likely to be subject to some fluctuation, and some uncertainty, this year and in the years ahead. This can only partly be attributed to the impacts triggered by the economic downturn, as there are other structural changes at play which will provide a stronger and longer lasting influence on farm management and farming income (CAP2020, 2009).

118. In the cereals and oilseeds supply chains, a consolidation process was foreseen to begin at the end of 2009 as a result of the bankruptcies and mergers at virtually all tiers. As the economies of Central and Eastern Europe and Central Asia rebound, the area sown to cereals and oilseeds is expected to expand again in the next five years, especially in the CIS countries.

119. On the production side, there is clearly room for optimism. Due to the relatively bearish wheat market tone during the first months of the 2009/10 season, winter wheat plantings declined in some countries in the region in autumn of 2009. However, as their economies rebound, the wheat area is expected to expand in the next five years, especially in the CIS countries. Although stocks were projected to fall slightly in the next five years, the more ample supply outlook should maintain them at comparatively higher levels (IGC). The planting of new, higher yielding varieties and the more intensive use of inputs will continue to boost global productivity in the next five years, with the strongest gains expected in the CIS countries. However, this growth could be hindered by land overuse and a lasting preference toward inexpensive but low-quality inputs (seeds and fertilizers).

120. The outlook for pig producers is relatively encouraging in Ukraine. Experts forecast a slight increase of pork output, mainly owing to pigs of bacon and meat breeds reared by specialized pig-breeding complexes. Hungarian pork breeders calculate with higher demand and prices, although the European Commission projects falling pig prices on the European market until May 2010.

121. As a consequence of the liquidity crunch and due to the loss of trust, it will be more difficult to reach deals and there will be more breaches of contracts and more bankruptcies in the short term. In the long term, a more selective financing of the agricultural businesses can be expected and the rigorous screening of the financial situation of the partners will not be eased, resulting in the decrease in investments referred to above. Government measures (loan compensations, direct subsidies, bank regulations) can be effective in easing credit accessibility and raising long-term investment attractiveness.

122. Relationships between surviving businesses will certainly be stronger but, in general, business trust will be restored only slowly. Farmers are expected to be more economical in the use of agricultural services (e.g. machinery, etc.) and more input suppliers and agricultural service providers may quit. Mergers are likely as small businesses both in production and retail exit the market. Market and price determining multinational trading companies could strengthen their positions, especially in the oilseeds markets. This is not only due to their reputation, credit history, own equity, liquidity, ownership, etc. but also to their access to information, to their structures and capabilities which makes them more efficient in processing and evaluating information, and to the speed at which they can react to market developments.
Thus, officials in Hungary, for example, expect agriculture to become more specialized, a process which will include a further rapid decline in the number of semi-subsistence farms.

**P. POLICY RECOMMENDATIONS**

123. The relationship between the worldwide financial and economic crisis and other issues affecting agriculture and food security is clear. The first Millennium Development Goal states that the United Nations "is to eradicate extreme hunger and poverty" and "agricultural productivity is likely to play a key role in this if it is to be reached on time". According to David Nabarro, coordinator of the UN Secretary-General's task force on the global food security crisis, the economic crisis further "complicates and exacerbates the situation ... price volatility and a global credit crunch are discouraging new planting and new investment, while food prices in many poor countries remain at historically high levels" (EurActive, 2009).

124. Thus, in formulating policy recommendations, the financial crisis must be considered in the overall context of food security and poverty. We note that governments are claiming to give high priority to stabilizing the macroeconomic and legal environment. However, Philippe Le Houerou, whilst recognizing that the financing needs in Emerging Europe and Central Asia are the highest of any region of the world, recently stated that “as the impact of the stimulus packages dissipate at the global level, the private sector will need to take over as the engine of economic recovery and growth” (ECA, 2009).

125. By contrast, given the entrenched nature of global poverty, the arrival of peak oil, and the evidence that climate change is not only ‘real’ but will, in the long term, also have a major impact upon food provision, there is growing concern that the world food crisis will deepen over the next decade (Lawrence, et al., 2009). Thus there is no doubt that when the most immediate effects of the financial crisis have passed, these issues will still remain to be addressed though government and trans-national interventions. Recommendations relating to these wider issues are beyond the scope of this report, but it should be stressed that it is necessary to avoid short-term policy responses which conflict with long-term development goals.

126. On the basis of the foregoing, we have sought to identify what steps governments could take, in addition to stabilizing the macroeconomic and legal environment, in order to make the agrofood sector less exposed to future financial crises. It is not our place to offer recommendations to governments on how to lower interest rates, to modify the tax system or how to crack down on illegal operations although these issues were regularly raised by interviewees. However, governments need to agree on common goals in order to be better prepared for future shocks to the global food system, such as another financial crisis, and to devise coherent policies to achieve them, to monitor progress, to identify best practices and to draw up contingency plans.

127. In all four countries, several measures have already been implemented but many interviewees were not aware of, or did not perceive, the existence of these government responses. When they were aware of them, they frequently criticized them as being ineffective or incorrectly targeted. Equally, many stakeholders, with the exception of multinationals, called for measures such as more subsidies, more state intervention including price controls, more protectionist measures and even the creation of state owned monopolies, which we understand (as they arise from each respondent’s particular vision of the situation and his/her perception of possible political solutions) but cannot support. They are examples of the short-term policy responses which can have negative impacts of rural poverty. Where governments do intervene in the market, they must ensure that they minimize the risk of causing market distortions.

128. A deteriorating economic situation may provide an excuse to increase protectionism and, for example, to delay the implementation of legislation and other efforts geared towards making progress towards environmental sustainability. Any price movement due to the increased volatility of the market
should not be interpreted as a trend, but it may encourage protectionist responses amongst governments. Protectionist measures are not a way out of the crisis situation and are not able to avert the occurrence of crises in the future.

129. Similarly, state intervention, especially in pricing agricultural commodities, and state owned monopolies can discriminate against rural areas. Governments often keep prices of basic grain at such artificially low levels that semi-subsistence producers cannot accumulate enough capital to make investments to improve their production and are effectively prevented from getting out of their precarious situation. When a government monopolizes trade, farmers may find that they are free to grow cash crops for export but, under penalty of law, are only able to sell their crops to government buyers at prices far below the world market price. The government then is free to sell the crop on the world market at full price, pocketing the difference. This creates an artificial "poverty trap", from which even the most hard-working and motivated farmers may not escape (EurActive, 2009).

130. Governments should distinguish between agro-economic priorities and social policy issues. Our recommendations focus on the establishment of resilient, economically viable, diverse, innovative agrofood chains which are capable of meeting changing market needs such as consumer desire for safe, healthy foods, perhaps coupled with issues such as lower environmental impact farming and improved animal welfare. In the longer term, rising food prices and an efficient and productive agrofood chain, the latter encouraged into existence in part by effective government measures, could, as envisaged by David Nabarro, help rural communities in some countries in the region to escape poverty by increasing farmers’ incomes. We recognize that governments need to enhance social security safety nets to combat the consequences of developments such as the reduction in remittances and the return home of migrant workers, but as a quite separate issue.

131. Our recommendations, based on the frequent observation of interviewees that companies with adequate financial reserves for one to two years are not suffering from the crisis, and the ideas in the country reports, are as follows:

- **target the limited funds for investment subsidies** at the professional viable enterprises with a long-term business plan. Increased investments have been a major driving force behind the recent economic growth in the agrofood industry. However, as national budgets tighten, there will be implications for agricultural spending. The economic downturn may add further impetus for policymakers to re-evaluate the uses to which agricultural expenditure is put, and to re-focus it where it might provide the greatest level of benefit;

- **support initiatives which can ensure more reliable access to credit.** Access to credit was viewed as the key issue by many interviewees and the problem was compounded by a reduction in asset values which reduced stakeholders’ capacity to borrow money. We agree that governments were right to avoid direct crediting to agricultural producers and processors in terms of loans, rather to use banks as the means of increasing financing for the agrofood sector. To maximize reliable access to credit, initiatives may include expanded credit guarantee funds and support for credit insurance in order to improve the financial circulation within the agrofood supply chains. Other possibilities include credit warrants, credit unions, cooperative banks, microcredit, an insurance system against natural disasters and better information about the availability of credit;

- **avoid the offsetting of debts, taxes and other liabilities.** Offsetting of debts etc. is never applied to the general population and the implementation of such measures in response to the financial crisis would further weaken business trust and increase political and legal risks perceived by stakeholders, would nurture corruption and weaken social integrity;

- **improve technology.** Many parts of the agrofood supply chain in the region are undercapitalized. This can lead directly to production losses. For example, many wheat farmers in Armenia ascribe around 15 percent crop loss to worn-out machinery. The greatest technical challenge to avoid
soaring food prices is to develop and introduce more productivity increasing (or at least stabilizing) farming technologies that are sustainable. New technology can increase gross value added (GVA) throughout the supply chain, ensure compliance with Health and Safety and other regulations, as well as allow new market opportunities to be exploited through new products. Government cofinancing should take into account not just the needs of the beneficiary but also the potential impact of the investment on the wider local economy;

- **encourage horizontal and vertical integration** along the agrofood supply chains in order to facilitate cooperation between stakeholders, to strengthen business relations and restore business trust, to reduce transaction costs and to increase bargaining power. The means for achieving this include changes to the legal environment, preferential taxation, co-financing aid for investments, state guarantees, etc.;

- **encourage consolidation, rationalization and specialization**, particularly but not only within the processing industries, in order to create viable market players which can competitively supply retailers with respect both to quantity and quality of products. In addition to full-scale mergers, farm associations, grain procurement cooperatives and export groups can strengthen the negotiating positions of their members through collective purchasing and selling. Capacity building measures are needed to help their establishment, plus changes to the legal environment and co-financing aid. Less formal cooperation could include the setting up of representative farmers' associations whose members could benefit from shared services. Such cooperation could be encouraged with tax incentives;

- **increase spend on innovation and R&D**. All tiers in the supply chain must continue to innovate both in terms of new products and production systems to maintain their economic viability and to access new markets. Whilst such innovation can often be led by the private sector, substantial investment in public sector agricultural research and development is also required, particularly in developing countries. Technological support to farmers and other stakeholders, including advisory services and effective animal and plant breeding programmes can help to strengthen the entire agrofood industry. Measures to promote information and technology transfer, particularly from the public to the private sector, are a crucial but frequently neglected component of this process;

- **support marketing activities** to strengthen the market position of the domestic processing industries. Tax simplification could encourage new entrepreneurs into the market;

- **support the development of logistics** to lessen the costs of handling, storing and transporting goods and thereby increase the competitiveness of the supply chain;

- **provide risk management subsidies** to farmers to help them to cope with increasing price volatilities. Governments should encourage the use of derivative market instruments such as commodity futures and option contracts, for example to manage the price risks which have increased due to the volatility of the markets. Before this happens, they should ensure that stakeholders have more information about the use of these instruments and also create an environment where market participants can accumulate the necessary capital to cover the costs of using such instruments and where regional commodity futures markets could perhaps emerge which would be able to attract liquidity (contract volume);

- **improve the transparency of policy making and communication** in order to restore government credibility. The process could be facilitated by involving NGOs in the decision making process. The trading environment for all stakeholders in the supply chain would be encouraged by more helpful public administration, respect for existing laws by public officials and other stakeholders, and transparency in government and government measures. Investors should not be faced with unnecessary political risks through unnecessary government intervention. Measures aimed increasing quality standards for imports and exports, and stronger food safety regulations in general are to be welcomed, but such regulations should not simply be a 'front' for trade barriers;
• facilitate the gathering, processing and disseminating of market information, and create reliable and accessible databases, thereby making shorter and more efficient the decision making and adjusting process of enterprises. Improved market information services will help stakeholders to respond more quickly and effectively to any future crises, and could possibly be delivered through greater use of ICT;

• facilitate niche markets for speciality products. The consumer shift to cheaper products has clearly benefited own label brands and may have strengthened the position of the major retailers, who can call on strong negotiating positions and economies of scale, in the agrofood chain. However, some stakeholders have already responded to the crisis by exploiting ‘niche’ market opportunities. Support for producing goods with ‘added value’, bearing in mind the longer-term trend towards safe, healthy foods mentioned above, may help smaller players in the supply chain to exploit new business opportunities;

• make more effort to educate consumers and children about agriculture, nutrition and kitchen culture. Whilst it might seem inappropriate to look beyond the issues of poverty and basic food security at a time when these are increasing, the gradual ‘westernization’ of the diet has attendant health issues such as obesity. Healthy eating, including the greater consumption of so-called ‘functional foods’ can have both social (e.g. greater life expectancy) and economic (a healthier workforce) benefits;

• promote land reform. The process of land reform and land registration needs to be completed as secure tenure of farm plots is essential to allow farmers to invest with confidence in machinery and other equipment and if necessary to use the land as collateral in return for credit. Achieving this objective requires:
  • establishing a uniform state land cadastre in each country where this does not yet exist and creating a uniform state system of registration of titles for immovable property including for land plots;
  • creating conditions for development of mortgage lending on the security of land;
  • providing conditions for free purchase and sale of agricultural land plots;

• support liberalization of the land market. Several countries are amending their national laws to encourage the purchase or lease of farmland abroad, or to attract foreign land investors. In our research, interviewees in different countries held conflicting views on liberalization, particularly with respect to foreign ownership. Gana (2009) stated that “Land rights alienation to foreign companies represents a major threat for farm and rural households (and) will increase the actuality and relevance of issues such as land rights, tenure systems, land reforms, land conflicts and struggles”. We do not agree that it is a “major threat”. Liberalization can provide access to investment capital which can revitalize the economic performance of primary agricultural production which in turn is the basis of agrofood supply chains which can employ large numbers of people and contribute considerable GVA to the economy. Hence we support liberalization of the land market implemented by each government in the form most appropriate to local conditions.

132. The key messages arising from the research are (a) the need to create prosperous, vertically and horizontally integrated agrofood supply chains which are more resilient to future financial crises; and (b) to ensure more reliable access to credit. Our recommendations, while focusing on these issues, only address what to do, not how to do it. Inevitably their implementation would need to be adapted to fit with local needs and further research is needed regarding this. Such research should be conducted in the international sphere to allow cross-border identification and exchange of good practice. The FAO is uniquely well placed to drive forward this research agenda.
Q. REFERENCES


IGC (various). Selected International Grain Council reports.


II.

IMPACTS OF THE GLOBAL ECONOMIC AND FINANCIAL CRISIS ON FOOD SECURITY IN EASTERN EUROPE AND CENTRAL ASIA

BY WILLIAM H. MEYERS AND GULJAHAN KURBANOVA

A. HIGHLIGHTS

- In the first half of 2008, the world faced the highest food price levels in 30 years which soon thereafter was combined with the global economic and financial crisis. Both of these phenomena threatened global food security. Food prices were up as much as 40 percent from their 2007 level and 76 percent from 2006.
- In 2009 domestic prices have declined from their peaks in most countries, but the declines have been small and real prices are typically 19 percent higher than they were before the price surge.
- As a result of the global financial and economic crisis, domestic and foreign trade declined around the world and severely depressed economic growth and the purchasing power of consumers, unemployment increased and incomes, including remittances, diminished and poverty increased. FAO estimates that the number of hungry people increased by a further 100 million in 2009 and reached 1.02 billion people. As global food production has accelerated in recent years, this increased food insecurity is primarily due to reduced affordability and accessibility.
- The region of focus in this paper includes a wide range of economic conditions from low income (Kyrgyzstan, Tajikistan and Uzbekistan) to lower middle income (Armenia, Azerbaijan, Georgia, Republic of Moldova, Ukraine and Turkmenistan) to upper middle income (Belarus, Kazakhstan, Russian Federation and Turkey), so poverty and food security conditions vary widely. Malnutrition continues to prevail in some parts of the region.
- Satisfaction of world demand necessitates achieving crop production growth by increasing the productivity of the land already being farmed. This means a reversal of declining global agricultural productivity growth since the Green Revolution of the 1960s and 1970s.
- It is estimated that cereal production in the region experienced a 50 percent increase from the beginning of this decade to 2008/09, though it might be lower in 2009/10 than in the record crop year 2008/09. Nevertheless, the region that was 15 percent of world grain net imports in the late 1980s was 13 percent of world net exports in the last four years.
- The levels of both national and international investment and research activity in the agricultural sector have to increase through the use of different instruments and through the development of a more favourable agricultural investment environment.
- Safety net measures should be developed or improved to cushion the biggest impacts of market and financial shocks in order to limit the long-term consequences of the duel crises on vulnerable households.
- The enabling environment for farms and agribusiness should be enhanced to develop or improve financial services, technical support services, information services and risk management tools. This requires government action as well as private sector engagement.
- Rural development is not the same as agricultural development and it needs targeted attention, including provision of rural development support systems and social infrastructure to enhance
infrastructure investment, rural development, income opportunities and quality of life for rural inhabitants.

B. ABSTRACT

133. The food crisis and financial crisis have lead to social unrest in scores of countries, including some in Eastern Europe, Turkey and Central Asia, and have added more than 140 million people to the number of hungry and undernourished in the world that reversed progress toward the Millennium Development Goals (MDGs) hunger target. The food crisis peaked in 2008 and was followed by the global economic and the financial crisis of 2009. The latter has severely depressed economic growth and the purchasing power of consumers, while also impacting food and agricultural markets through depressed demand, declining credit availability and increasing food insecurity. All of these shocks are more severe for low income populations, especially in food deficit areas.

134. Agricultural markets are traditionally very volatile due to weather variation and very inelastic short run supply and demand. Since the end of World War II, inelastic demand for food, volatility of real agricultural prices has been going together with yield declines due to poor weather and decreased investments in the sector. At the same time during the last years the market behaviour is linked to the growing interdependence of energy and agricultural markets.

135. It is clear that rising commodity prices have more impact on food prices of consumers in low income countries than on those in high income countries. Aside from the higher share of income spent on food, the commodity price itself is a larger share of the household food cost in a low income country. The food import bills have grown faster in developing countries and it is estimated to increase by nearly 35 percent from 2007-2008 and 32 percent for Low-Income Food-Deficit Countries (LIFDCs). The scarcity of trade financing during the current financial crises only compounds this problem.

136. Food security has three main dimensions that include sufficient availability, accessibility, and stability of access which is fragile in periods of shortage and financial stress. Therefore, it is useful to understand to what extent each of these factors is expected to be a persistent influence on markets and prices, a temporary or a very uncertain one. A similar understanding is needed for the macroeconomic crisis and recovery. The different pathways by which the financial crisis can impact food security are elaborated. It includes the obvious direct income and employment effects of an economic decline or stagnation, a big toll on credit and financing needed for production and trade of food and agricultural products. The unusually uncertain path of recovery, if that is what happens, is an added threat to already vulnerable populations.

137. Conditions in the Commonwealth of Independent States (CIS), Turkey and Georgia vary greatly, so countries are classified and analysed in groups according to the World Bank classification. Within this region there is a range of economic condition from low income (3) to lower middle income (6) to upper middle income (4) and even one country which is classified as a highly indebted poor country, so conditions obvious vary widely.

138. To meet the challenges and exploit the opportunities of this dual crisis, national and international policy actions are being recommended. These include the provision of social protection or safety nets to protect the citizens and especially the most vulnerable populations, risk management tools for farmers, policy actions on agriculture and agriculture commodity trade, investments and research and development (R&D) in related areas. The international community, governments as well as the private sector have a role in exploiting such opportunities.
C. INTRODUCTION

139. The paper discusses the many dimensions of food security and the pathways through which the food price crisis and the financial crisis could impact food security. Next, the anatomy of the food price crisis is explored and the various factors evaluated to see how many of them may be persistent or temporary and to assess the future prospects for more price stability or volatility. The anatomy of the macroeconomic crisis is discussed and the possible impacts of this crisis on food security in Eastern Europe, Central Asia and Turkey (hereafter EE, CA and Turkey). The food security status of the region and of individual countries is evaluated and the means by which the dual crises could influence this status. Finally, policy challenges and opportunities in this risky economic environment are explored.

Food security: What is it and how is it jeopardized?

140. Food security has many dimensions that include sufficient availability, means of households to access adequate food through self production or other sources, health and knowledge to appropriately utilize acquired foods, and stability of access in periods of shortage and financial stress. It does not mean that food is produced in the same country or in close proximity to the point of consumption, though local production is one means to improve food security and becomes more important when poor infrastructure constrains the proper functioning of markets.

141. A nation achieves food security for its citizens when all of its people have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life at all times. There are several aspects of the recent food and financial crises that can prevent a country from achieving food security or can move a population from being food secure to being food insecure. In short, these conditions increase the vulnerability of those at the margin of food security or food insecurity. During such crises, the pathways from food security to food insecurity for a household could include one or more of the following:

- Reduction in the quantity and/or quality of food purchases
  - High food prices
  - Loss of employment or reduction of wages and income
  - Market disruption or policy reaction that impairs availability
- Reduction in food production
  - High prices of feed and other inputs
  - Lack of credit access
- Reduction in the quantity and/or quality of food aid
  - High food prices
  - Decline of government/international donor financial resources
  - Macro instability, market disruption or policy reaction that impairs availability.

142. In the discussion that follows, attention will be given to each of these pathways and how they are actually or could be affected by the food and financial crises.

Anatomy of the food price surge and retreat

143. Agricultural markets are traditionally very volatile due to weather variation and very inelastic short run supply and demand. Also, rapid technological change since the end of World War II has combined with inelastic demand for food to generate declining real agricultural prices (Figure 1). Consumers have been the ultimate beneficiaries of agricultural technology, while farmers have had to continually grow in size as well as to improve technological and financial practices to offset price declines. Governments in high income countries adopted various support and protective trade policies to protect their farmers from these price declines, which often contributed further to low prices. This long-
term decline in real prices has periodically been interrupted by price spikes that were mostly caused by yield declines due to poor weather.

144. Since the beginning of 2006, the world has seen the largest surge of commodity and food prices since the early 1970s (Figure 2), and it seems unlikely that prices will soon return to the lower levels of the early part of this decade. This price surge has again raised the age-old Malthusian question of whether food production can keep pace with growing demand. Historically, the main driver of production has been technological progress, and the drivers of consumption have been population growth, which increases the number of mouths to feed, and income growth, which increases the quality and quantity of food consumed per person. Changing diets that accompany both increased incomes and increased urbanization generally lead to more meat consumption and hence more direct and indirect grain consumption per person.
The Impact of the Economic and Financial Crises on Agriculture and Food Security in Europe and Central Asia: a Compendium

Figure 1. Real annual prices of grains and soybeans 1960 to 2008, USD 2,000

Source: USDA prices deflated by gross domestic product deflator.

Figure 2. Nominal monthly prices of selected food commodity groups 1990 to 2008

Source: FAO.
A new and significant factor in the growth of grain and oilseeds consumption since the early 2000s was the rise in petroleum prices combined with policies in a number of countries to stimulate increased biofuels production related to environmental and farm support objectives. These changes increased profitability of investments in biofuel capacity and increased the use of existing capacity, resulting in more grains and oilseeds being used as feedstock for biofuel production. More fundamentally, the rise in the size of the biofuel industry induced by higher crude oil prices and government policies has formed a much stronger link between fuel and food markets that can contribute both to the higher level and the higher volatility of food prices.

Examination of grains and oilseeds world markets indicate that the rate of production growth has been slowing since the 1970s (Table 1), though the new millennium saw a rebound partly in response to higher commodity prices. Comparing growth rates in yield over each decade from 1960-2007, there was a slowdown in yield growth rates in the 1970s, a partial recovery in the 1980s then a significant decline from 1990 onward. According to the Intergovernmental Panel on Climate Change (IPPC), natural disasters may be more frequent and extreme now and in the future due to climate change (IPPC 2007, page 299), so adverse weather may have contributed to slowing average yields. Since 1980, grain area was also declining until the end of 1990s, so production growth slowed to less than one percent per annum during the 1990-2000 period then rebounded.

It may be hypothesized that the slowdown in the 1990s could be primarily due to the large decline in production that occurred in the Former Soviet Union during the very difficult adjustments in first decade of the transition from planned to market economy. In order to assess this hypothesis, the same calculations were made with and without the FSU 12 (Table 2). It is clear that the decline in grain production in the region did contribute substantially to the slowing of global grain production growth, although the growth rate of grain production also slowed in the rest of the world without FSU 12. It is also clear that this region contributed significantly to the remarkable rebound of grain production in the 2000/01 to 2009/10 (estimated) period.

Table 1. Exponential growth rates in area, yield and production of grains and oilseeds

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<tbody>
<tr>
<td>Yield</td>
<td>2.7</td>
<td>1.9</td>
<td>2.1</td>
<td>1.23</td>
<td>1.56</td>
</tr>
<tr>
<td>Area</td>
<td>0.5</td>
<td>0.9</td>
<td>-0.5</td>
<td>-0.41</td>
<td>0.47</td>
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<tr>
<td>Production</td>
<td>3.3</td>
<td>2.8</td>
<td>1.6</td>
<td>0.82</td>
<td>2.03</td>
</tr>
<tr>
<td>Consumption</td>
<td>3.3</td>
<td>2.6</td>
<td>1.7</td>
<td>0.94</td>
<td>1.70</td>
</tr>
<tr>
<td>Grains and Oilseeds</td>
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<tr>
<td>Area</td>
<td>1.6</td>
<td>1.3</td>
<td>-0.03</td>
<td>0.18</td>
<td>0.79</td>
</tr>
<tr>
<td>Production</td>
<td>4.0</td>
<td>3.0</td>
<td>2.0</td>
<td>1.29</td>
<td>2.32</td>
</tr>
<tr>
<td>Consumption</td>
<td>4.1</td>
<td>2.9</td>
<td>2.0</td>
<td>1.31</td>
<td>2.05</td>
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</table>

Source: Calculated from PSD database, USDA.

In summary, the 1980s consumption growth rates for both grains and total grains and oilseeds have declined, suggesting that declining growth in population has been dominating the effect of income growth on consumption (Alexandratos, 2008). However, grain and oilseed production growth rates slowed even more than consumption growth rates. Sustained reductions in buffer stocks are the hallmark of an imbalance in supply and demand, where consumption grows faster than production. Such reductions
in grain stocks laid the foundation for the price shocks that arrived in the 2006-2008 period (Meyers and Meyer 2008).

Table 2. Exponential growth rates in grain production with and without the FSU 12 countries

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<tr>
<td>World</td>
<td>3.28</td>
<td>2.81</td>
<td>1.63</td>
<td>0.82</td>
<td>2.28</td>
</tr>
<tr>
<td>FSU 12</td>
<td>3.74</td>
<td>0.97</td>
<td>2.10</td>
<td>-5.93</td>
<td>3.57</td>
</tr>
<tr>
<td>World less FSU 12</td>
<td>3.21</td>
<td>3.09</td>
<td>1.58</td>
<td>1.41</td>
<td>2.19</td>
</tr>
</tbody>
</table>

Source: Calculated from PSD database, USDA.

D. PREAMBLE TO THE PRICE SURGE

149. In the years leading up to the price surge, consumption of the five major grains exceeded production and by large amounts in three of those years (Figure 3). As a consequence, ending stocks of grain were drawn down to 40 percent of 1998/99 levels. The stock-to-use ratio reached record low levels (Figure 4) for total grains, coarse grains and wheat. It was also the lowest since the 1972 price surge for maize. Likewise, the vegetable oil stock-to-use ratio reached the lowest level since 1972, though for oilseeds in general the stocks situation was not as dire.

Figure 3. World production and consumption of maize, wheat, rice, sorghum and barley

Source: PSD database, USDA

150. A longer run contributor to the tightening conditions in the early part of this decade was the slowing rates of grain production growth. The international research investments of the 1960s were deliberate policy actions to enhance agricultural productivity in developing countries and resulted in the high yielding Green Revolution wheat and rice varieties that spurred yield growth and enhanced multiple cropping opportunities with shorter growing seasons. Along with continuing public and private agricultural research and development (R&D) in industrial countries, these improved technologies supported grain yield growth of 2.4 percent and production growth of 3.1 percent annually from 1960-1980. Yield growth in the 1980s remained relatively high, but grain area declined. From 1990 until 2000 world grain production grew an average of less than one percent annually and yields a mere 1.2 percent per annum (Table 1).
Several factors contributed to the relatively slow production growth and stocks decline in the last two decades. The key market factor was declining real prices for an extended period that reduced market incentives to invest and produce. It was interrupted only by short-lived price surges in short crop years in 1988/89 and 1995/96. So, grain area declined (Figure 5) while yield growth was also slowing.

On the policy side, production support and trade barriers in some developed countries insulated these producers from world price fluctuations and stimulated more production than market signals would justify. Fortunately, these support levels (especially support tied to production) as measured by the Organization for Economic Co-Operation and Development (OECD) producer support estimate (PSE) have been gradually declining during negotiations for the Uruguay Round Agreement on Agriculture (URAA) and since its adoption in 1994.

Furthermore, national stocks policies and price support stocks also were reduced or disbanded in the pre and post-URAA era. The large decline in US grain stocks after 1986/87 was primarily due to elimination of the Farmer-Owned Reserve Programme and other policy changes that essentially eliminated government owned stocks as well. One may conclude that even if agricultural and food trade liberalization was progressing slowly after the URAA, many countries have seen less need for price support or buffer stocks or to build national food security reserves, as trade was expected to offer an improved alternative for offsetting domestic shortfalls.

Source: PSD database, USDA.

151.

152.

153.
Figure 5. World grain area relative to real price of wheat and maize

Source: PSD database, USDA.

154. An important policy factor in slowing yield and production growth rates, especially for rice and wheat (Figure 6), is that national and international public investment support for agricultural R&D has slowed in developing countries and even in developed economies since the 1990s (Van Braun, et al., 2008). It has been well established in numerous documents of the World Bank, FAO and IFPRI that investment in agriculture has been lagging in developing countries especially. Pardey, et al. found that growth in public agricultural R&D spending, which was critical to the Green Revolution, declined by more than 50 percent in most developing countries from 1980 onward and even turned negative in high-income countries from 1991 onward. There were important exceptions in China and India (World Bank, 2007), but national governments and international organizations mainly have neglected these investments, despite the high rates of return that have been demonstrated in past R&D projects. The international component of this neglect is clearly seen in official development assistance (ODA) data from 1980 to 2007, where ODA for agriculture declined while the total ODA increased, and the share of ODA allocated to agriculture (Figure 7) declined from more than 10 percent to less than 5 percent (FAO, 2009a).

155. Finally, it is part of the normal behaviour of commodity markets that a shortfall in production results in a drawdown of stocks and more volatile price behaviour. In this regard, the relatively modest price increases and stock declines of 2002/3-2003/4 are similar to those of 1988/89-1989/90 and 1995/96 (Figure 8); but unlike the two previous periods, production in subsequent years was not sufficient to meet growing consumption and also rebuild stocks. So when the next shortfall occurred in 2006/7, stocks were not adequate to buffer it. As already noted, the demand for agricultural commodities is very price inelastic, so even in the face of rising prices, consumption growth remained strong.
Figure 6. Exponential growth rates for yields the previous ten years

Source: Calculated from PSD database, USDA.

Figure 7. Evidence of declining international assistance to agricultural development

Source: OECD.
E. PERFECT STORM

156. Given the tight market situation in the middle of this decade as represented by low stock levels, there was no possibility for the market to absorb, without substantial price increases, a series of developments that all worked to increase demand or limit supply. This combination of events is illustrated in the conceptual model of Figure 9, where there were several factors that shifted demand to the right, while supply shifts to the left were caused by bad weather in some countries and rising petroleum prices that were increasing production and transport costs. By itself, these supply and demand shocks would increase price from \( P^0 \) to \( P^1 \), but then the shift in biofuel demand (\( Db1 \) to \( Db2 \)) added another shift in demand raising price from \( P^1 \) to \( P^2 \).
157. These shifts are enumerated below:

- depreciation of the United States Dollar (Figure 10) increased purchasing power of many importing countries and drove up the United States Dollar price of commodities;
- rising petroleum prices (Figure 10) not only increased production costs and transport costs for commodities; but combined with policies in a number of countries to stimulate increased biofuels production related to environmental and farm support objectives, they increased profitability of investments in biofuel capacity and stimulated the increased use of existing capacity resulting in more grains and oilseeds being used as feedstock for biofuel production;
- grain production shortfalls occurred in Australia and the European Union two years in a row and to a lesser extent in Canada and Ukraine, while India produced more but exported less (Figure 11). Normally, these would not be such big market shakers, especially as world production actually increased slightly more than consumption. But in the face of record low stocks and continuing strong demand (Figure 3), the price response in grains was dramatic;
- there was not a similar shortfall in oilseeds markets, but shifting of cropland from oilseeds to grains, especially in the US, quickly brought the price boom to oilseeds.
In reaction to the rising international prices and in order to safeguard domestic consumers, numerous exporting countries banned, taxed or otherwise limited exports of grains and oilseeds and numerous importing countries reduced import tariffs, subsidized consumers or increased...
imports as precautionary measures. An FAO survey of 77 countries (Figure 12) found that 67 percent of those in the ECA region took action to reduce price transmission to consumers and 33 percent imposed export restrictions in some form (FAO, 2009a). These policy actions, of course, increased the pressures on world market prices, and even some emergency food aid purchases by the World Food Programme (WFP) were delayed by these measures.

- During this time period, there was increased activity in futures markets by financial investors (non-commercial traders), who may have been diversifying their portfolios or expecting greater returns than in alternative investments. It may well be the case that non-commercial trading (e.g. institutional investors or index funds) drove futures contract prices higher than they would otherwise have been and later contributed to their rapid decline. These investors were buying and selling contracts but never took ownership of the product, so the argument is that they may increase short-term volatility but there not much evidence that they have influenced season average price by moving supply or demand.

- Long-term demand growth driven by population and income growth is also important in this story, especially in cases where demand is growing faster than supply (Table 1). However, demand is seldom a factor that is a market shock, because it develops in a more predictable manner. A fast emerging new demand component, such as biofuels, could be an exception. But even in this case, plant construction takes time and is well known by market agents, so it was no surprise to the market.
As already noted above, there are differences and similarities in how the price surges played out for different commodities, which are compared in Figure 13. In particular, a starting point in January 2003 is used to indicate when a monthly price increased by more than a certain percentage of the January 2003 level. Crude oil first hit the 50 percent increase level in late 2004 while rice reached that level of increase six months later, then remained stable for nearly three years (Table 3). Maize reached the 50 percent increase level in late 2006 but did not have another major increase until early 2008. Oilseeds, palm oil and wheat prices started the surge a bit later in mid-2007 and continued to increase to their peaks in early to mid-2008. Barley price also began to rise in mid-2007 but did not go as high nor increase as quickly as others. Maize and soybeans were last in getting to more than 150 percent above January 2003 levels and barley never got that high. The maximum increase in the monthly average of crude oil price...
(306 percent in July 2008) was much higher than for most agricultural commodities, though rice had an even higher and slightly earlier (408 percent in April 2008) peak.

**Figure 13. Differing patterns of monthly price developments among commodities**

![Diagram showing monthly price developments among commodities](image)

*Source: Calculated from IMF commodity price database.*

159. Looking at this main period of the price surge from crop year 2005/06 to 2007/08, a few conclusions can be made on some of these differences in price developments and factors behind them. All these price surges occurred after the crude oil price increases and United States Dollar depreciation were already well underway, and we know from the impacts they have on demand and supply that both of these factors contributed to the price surges of all these products. At least these two factors are common to all cases, though the impacts would certainly have different magnitudes. The United States Dollar depreciation is quickly translated into increased purchasing power in all currencies that appreciated relative to the United States Dollar and into the higher United States Dollar prices of traded commodities; but petroleum price has more impact on maize and vegetable oil prices, as higher petroleum prices stimulate greater biofuel investment and production. As demand for maize and vegetable oils increase, it raises the prices of maize and oilseeds, induces shifts in cropland from other crops to these as well as substitution on the demand side for feed and food and thereby increases prices of other crops. Petroleum price increases also raise production costs of all crops; and increased crop prices raise production cost for livestock and dairy, so over the period of two years or more these impacts permeate throughout the agricultural industry. Likewise, the higher petroleum prices increase processing and transport costs, and over time this raises the farm to retail margins, including international shipping costs, and the cost of food.
Table 3. Differences in speed and level of monthly price increases from January 2003

<table>
<thead>
<tr>
<th>Price greater than X% over January 2003</th>
<th>Crude Oil</th>
<th>Rice</th>
<th>Maize</th>
<th>Barley</th>
<th>Palm Oil</th>
<th>Soybeans</th>
<th>Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater than 50%</td>
<td>10/04</td>
<td>04/05</td>
<td>11/06</td>
<td>06/07</td>
<td>04/07</td>
<td>07/07</td>
<td>07/07</td>
</tr>
<tr>
<td>Greater than 100%</td>
<td>04/06</td>
<td>02/08</td>
<td>02/08</td>
<td>03/08</td>
<td>11/07</td>
<td>12/07</td>
<td>09/07</td>
</tr>
<tr>
<td>Greater than 150%</td>
<td>10/07</td>
<td>03/08</td>
<td>06/08</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Greater than 200%</td>
<td>03/08</td>
<td>03/08</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Maximum % over January 2003</td>
<td>306%</td>
<td>408%</td>
<td>171%</td>
<td>118%</td>
<td>166%</td>
<td>166%</td>
<td>194%</td>
</tr>
<tr>
<td>Month of maximum</td>
<td>07/08</td>
<td>04/08</td>
<td>04/08</td>
<td>07/08</td>
<td>03/08</td>
<td>07/08</td>
<td>03/08</td>
</tr>
</tbody>
</table>

Source: Calculated from IMF commodity price database.

F. POSSIBLE PERSISTENCE OF FACTORS

160. One important question is whether the current price surge will ultimately lead back to the long run declining real price path or will leave real prices on a higher long-term path. So now attention is turned to the task of looking ahead. If this was a perfect storm, it has passed, short run commodity prices have been declining; and the question is whether and how the future may be different or similar to this volatile period. By definition, a perfect storm is a rare event; and that also seems to be the case here. It does not mean such a price surge cannot happen again, but it is not the norm. Since early to mid-2008, monthly and daily petroleum and agricultural commodity prices, except rice, have fallen from their peaks to levels that existed in 2007 or earlier, so is it time to exhale or will the slightest weather event or market shock send them into orbit again? This question is addressed by looking at each of the major factors and assessing whether it is likely to be persistent, temporary, or completely uncertain.

161. Yield and production shortfalls – poor weather and disease are generally considered to be temporary setbacks and have usually been a one year phenomenon and very seldom more than two. The natural disasters may be more frequent and extreme now and in the future due to climate change according to IPPC (IPPC, 2007, page 299), but this factor is expected to be sporadic and short-lived even if the frequency of production setbacks were to be higher than in the past. In 2007/08 world grain production increased nearly six percent split almost evenly between area growth and yield growth. In 2008/9 grain production increased another 5 percent and was the largest crop ever, and stocks increased 25 percent over this two year period. High prices are already doing their work of inducing increased planting and higher yields, though they are being partially offset by production costs, such as fertilizer and fuel that rose with energy costs.

162. Export restrictions and import barrier reductions – most of the export restrictions have already been removed or reduced. It is anticipated that most of these export and import measures were seen as temporary safeguard measures and would not be maintained for a long time. China has kept export restriction measures mostly by eliminating the value added tax rebate, which has the effect of charging the same VAT on export and domestic sales. Argentina also maintains its export taxes, though further increases were successfully blocked by farmer protests. Most of the other export restrictions were temporary in nature and are now suspended. Argentina and other exporters who tax or restrict exports to dampen domestic grain prices have thereby also constrained the incentives for their producers to increase production. The same holds for importers who tried to dampen the transmission of rising internal prices to their domestic markets. In the past, WTO has focused mainly on measures which depress world prices, such as export subsidies and import tariffs or restrictions; and the disciplines regarding limiting exports or enhancing imports are weak or non-existent. There is weak language discouraging export restrictions in Article 12 on Disciplines on export prohibition and restrictions of the URAA, so it is not likely that any
of the recent measures could be successfully challenged (Sharma and Konandreas, 2008). Thus, in the event of another food price surge, there is little except diplomatic pressure to prevent similar trade disruptions from happening again.

163.  *Dollar depreciation, petroleum price and the financial crisis* in late 2008 and early 2009 the dollar appreciated and oil prices declined substantially, continuing the parallel movement that we have seen during most of this decade (see Figure 10). However, after this short period there was reversal again as oil prices increased and the dollar depreciated. As emphasized in the foregoing analysis, these are very important factors in determination of commodity prices and in explaining the price surge. However, they are in the “uncertain factor” category, because it would be difficult to predict which way they may move and when. The crisis in financial markets just added another level of risk and uncertainty to this highly volatile mixture and has added trade financing to the list of market disruptions. The widespread slowdown in economic activity around the world certainly depresses demand and reduces the likelihood of higher oil prices.

164.  “Speculative” activity – the participation of non-commercial traders may be as erratic or uncertain as currency and petroleum prices, so it is likely that this aspect of market behaviour will continue as in the recent past. Their participation diminished when oil and commodity prices declined, but it increased again when commodity prices strengthened.

165.  *Low stocks and stock/use ratios* – the 2009/10 grain harvest is expected to be slightly below the record of 2008/09, but stocks are still expected to increase about one percent more. However, even if this projection proves to be correct, it would not bring grains stocks to a very comfortable level of over 25 percent stocks to use ratio such as existed during 20 years from 1982 to 2001. So this likely to be is a medium-term issue that may take years of average or better than average production or some as yet unexpected drop in consumption growth.

166.  *Investment deficit in agriculture* – as already mentioned, declining real prices may have contributed to the investment deficit even in developed countries. Though the market incentives are clearly better in the current situation, this investment deficit will be a long-term problem. It takes decades to see the returns to agricultural R&D, because part of the deficit is the lack of institutional capacity that takes time to build. Short-term response to higher prices will be limited, meanwhile, to increased land and input use and expanded exploitation of currently existing technologies.

167.  *Long-term demand growth* – clearly a persistent factor, the rate of growth in demand for feed, food, seed and industry (excluding biofuels use) will depend upon population and income growth rates and is the most stable part of the market picture. The main uncertainty will be the downturn in economic performance due to the current financial market crisis, which could temporarily reduce pressures on commodity prices.

168.  *Biofuel production and support measures* – the existence and growth of this industry is a persistent factor, as there is every expectation that it will continue to grow over time and its growth will be strongly linked to the price of petroleum as well as to various government support measures. The only recent policy change in the United States was to reduce the blenders’ tax credit from USD 0.51 to 0.45 per gallon. While the highly elastic demand for biofuel feedstocks might be thought of as a price stabilizer, the tighter linkages between highly volatile petroleum price and commodity prices as well as short run structural and policy constraints may add to commodity price volatility. Determining which factor is playing the primary role is highly dependent on the short run market context, such as the level of petroleum prices and whether or not the US biofuel mandate is binding, which did happen briefly for the first time in 2009. While the effect on commodity price levels may be clearer, the net effect on price volatility remains uncertain. The European Union also has not changed biofuel policies, but they are
under review and it is not yet clear yet how current targets would be achieved or how strictly they will be enforced.

G. IMPLICATIONS FOR THE FUTURE

169. A rather rapid transition has been described from the decades-long period of falling real prices of grains and food more generally to a new market environment in which commodity and food prices are, higher, more volatile and more tightly linked to petroleum prices. Much of the market behaviour seen during the past few years is linked to the growing interdependence of energy and agricultural markets. This market behaviour and the conditions surrounding it are likely to continue, and the prospects of returning to the patterns of the previous decades are less likely.

170. World markets have turned around and many commodity prices have declined significantly from their peaks, but are still well above what they were before the price surge\(^5\). Even so, there could be a repeat of such price shocks at almost any time, so we should not be complacent. Moreover, rising commodity prices have more impact on food prices of consumers in low income countries than on those in high income countries. Aside from the higher share of income spent on food, the commodity price itself is a larger share of the household food cost in a low income country. An example in Table 4 illustrates how a 50 percent increase in a commodity price would translate into an increase from 10-10.6 percent in the share of income spent on food in a high income country, while the same commodity price increase leads to an increase from 50-60.5 percent in the share of income spent on food in a low income country. Likewise, the food import bills have grown faster in developing countries (FAO, 2008c). The food import bill of developing countries and for LIFDCs. increased by nearly 36 percent from 2007 to 2008. This is after another sharp rise the previous year. The scarcity of trade financing during the current financial crises only compounds this problem.

171. The market conditions that have developed since 2005 and that seem likely to continue, even if food price increases have abated somewhat, raise challenges and offer opportunities. The challenge is how to provide social protection or safety nets for the most vulnerable populations that have been thrust into a much more desperate financial situation because of sharply higher food prices. The opportunity is that higher prices offer a chance to increase incomes from food production in many rural areas where agriculture is the main source of income and employment. To meet these challenges and exploit the opportunities, national and international policy actions are being recommended (FAO, 2008a, World Bank 2008, von Braun, et al., 2008). However, before visiting these suggested remedies, the financial shock and its implications are analysed.

\(^5\) See annex Box 1 for some indications of food prices in 13 countries covered in this paper
Table 4. Impact of Food Commodity Prices on Consumers’ Food Budgets

<table>
<thead>
<tr>
<th></th>
<th>High-income countries</th>
<th>Low-income food-deficit countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Base Scenario</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>USD 40 000</td>
<td>USD 800</td>
</tr>
<tr>
<td>Food expenditure</td>
<td>USD 4 000</td>
<td>USD 400</td>
</tr>
<tr>
<td>Food costs as % of income</td>
<td>10%</td>
<td>50%</td>
</tr>
<tr>
<td>Disaggregate retail food spending (staples versus non-staples)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staples as % of total food spending</td>
<td>20%</td>
<td>70%</td>
</tr>
<tr>
<td>Expenditures on staples</td>
<td>USD 800</td>
<td>USD 280</td>
</tr>
<tr>
<td>Expenditures on non-staples</td>
<td>USD 3 200</td>
<td>USD 120</td>
</tr>
<tr>
<td>II. Scenario: 50% price increase in staples, partial pass through on staples</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assumed % pass through</td>
<td>60%</td>
<td>60%</td>
</tr>
<tr>
<td>Increase in cost of staples</td>
<td>USD 240</td>
<td>USD 84</td>
</tr>
<tr>
<td>New cost of staples</td>
<td>USD 1 020</td>
<td>USD 364</td>
</tr>
<tr>
<td>New total food costs</td>
<td>USD 4 240</td>
<td>USD 484</td>
</tr>
<tr>
<td>Food costs as % of income</td>
<td>10.6%</td>
<td>60.5%</td>
</tr>
</tbody>
</table>


Anatomy of the macroeconomic crisis and recover

172. There are relatively few countries in the world where the estimated 2009 decline in real GDP is – 6.0 percent or more, and many of these are from 13 countries considered in this paper (Figure 14). There were two major elements to the financial and economic crisis that has impacted the global economy and the economies of countries in this region. One was financial contagion arising from the collapse of US financial markets and the second was the severe recession that followed, which curtailed consumption and severely slowed demand facing exporting countries. Impacts on individual countries differed depending upon to what extent their economies and financial institutions were integrated with global financial and/or global economic markets and the extent to which their economic growth was dependent on exports. This discussion will begin with the most recent estimates of the economic impacts on GDP growth rates for each country, then differences in impacts will be analysed relative to these two sources of economic effect.
Figure 14. Real GDP Growth in 2009: The contrast in impacts among countries

Source: Shelburne, 2009

173. Though the region covered in this paper had a real GDP growth performance that was as well or better than most other regions in the decade before the 2009 financial crisis (Figure 15), the economic collapse in 2009 is estimated to be harder than in any other region. However, there were substantial differences within the region, with four or five countries estimated to retain positive growth in 2009, two dropping below -3.0 percent and two dropping below -6.0 percent, including the Russian Federation, while two countries are estimated to drop more then -12 percent (Figure 16). There are reasons for such big differences in the economic performances that will be discussed, but an overriding factor for the CIS aggregate is that the Russian Federation comprises more than 75 percent of the CIS economy (Georgia and Mongolia are included by IMF for consolidation in the CIS aggregate), so what happens in the Russian Federation economy has an overriding impact on the CIS total. Moreover, the Russian economy has differing impacts on the other economies in the region, and those more dependent on remittances are particularly influenced by the Russian Federation economic performance.

174. Most countries had fairly robust growth in 2008, with exceptions being Georgia and Turkey (Table 5). Countries that are expected to have positive growth in 2009, based on three sources of October 2009 estimates, are Azerbaijan, Kyrgyzstan, Tajikistan, Uzbekistan, and possibly Turkmenistan. Azerbaijan and Turkmenistan (according to two of the three forecasts) are buoyed up by their strong linkages to oil and gas exports that have not suffered as much as other exported goods. The other three countries are currently the poorest countries in the region (Figure 17) and, as such, are less tightly linked to the global economic and financial system than are the others. So they have felt less of the impacts of the financial collapse and export declines that followed.
Figure 15. Comparison of CIS real GDP growth rates with selected other regions

Source: Shelburne, 2009

Figure 16. GDP growth rates in order of highest to lowest projected growth in 2009

Source: LINK Global Economic Outlook, UN DESA, October 2009
Table 5. Comparison of UN Project LINK, IMF and EBRD forecasts of real GDP

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Armenia</td>
<td>6.8</td>
<td>-15.0</td>
<td>-15.6</td>
<td>-14.3</td>
<td>1.0</td>
<td>1.2</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>10.8</td>
<td>6.0</td>
<td>7.5</td>
<td>5.0</td>
<td>7.0</td>
<td>7.4</td>
</tr>
<tr>
<td>Belarus</td>
<td>10.0</td>
<td>-3.0</td>
<td>-1.2</td>
<td>-3.0</td>
<td>1.5</td>
<td>1.8</td>
</tr>
<tr>
<td>Georgia</td>
<td>2.1</td>
<td>-4.0</td>
<td>-4.0</td>
<td>-5.5</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>3.2</td>
<td>-2.0</td>
<td>-2.0</td>
<td>-1.3</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>7.6</td>
<td>1.0</td>
<td>1.5</td>
<td>1.5</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Moldova</td>
<td>7.2</td>
<td>-8.5</td>
<td>-9.0</td>
<td>-8.5</td>
<td>1.5</td>
<td>0.0</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>5.6</td>
<td>-7.0</td>
<td>-7.5</td>
<td>-8.5</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>7.9</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Turkey</td>
<td>1.1</td>
<td>-4.9</td>
<td>-6.5</td>
<td>-6.0</td>
<td>2.2</td>
<td>3.7</td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>10.5</td>
<td>-3.0</td>
<td>4.0</td>
<td>6.0</td>
<td>8.0</td>
<td>15.0</td>
</tr>
<tr>
<td>Ukraine</td>
<td>2.1</td>
<td>-13.2</td>
<td>-14.0</td>
<td>-14.0</td>
<td>0.4</td>
<td>2.7</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>9.0</td>
<td>7.0</td>
<td>7.0</td>
<td>7.0</td>
<td>7.0</td>
<td>7.0</td>
</tr>
<tr>
<td>World</td>
<td>1.9</td>
<td>-2.2</td>
<td>-2.3</td>
<td>na</td>
<td>2.4</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Source: IMF, EBRD and LINK for Turkey and World; Shelburne for all other countries.
The economic crisis has impacted the countries of this region through a withdrawal of capital from these markets, diminished export earnings (Figure 18) due to lower commodity prices and lower demand for exports arising from reduced economic activity in the region’s main export markets (UN DESA, 2009). On a percentage basis, the export earnings decline of net fuel exporters and net fuel importers was similar, but the value decline was far greater for the net fuel exporters. Countries that were more integrated with global financial markets and had benefited from significant capital flows from FDI and bank credit (often denominated in foreign currency) saw a large reversal in capital flows in response to the global credit crisis. This led to depreciation of many currencies in the region relative to the Euro and United States Dollar, and many currencies also depreciated relative to the Russian Federation Ruble (Figure 19). Such currency depreciation is helpful in restoring export growth and mitigating declining remittance revenues.

Source: IMF data and projections, October 2009

Bank lending to emerging economies dropped the most, reversing from USD 400 billion inflows of 2007 to net outflows in 2009. The Russian Federation and Ukraine were among the most severely impacted by such reversals of capital flows (UN, October 2009)
Unemployment increased substantially as economies declined, and is expected to reach 10 percent in the Russian Federation by the end of 2009. As the number of migrant workers in the Russian Federation from other countries of the regions is substantial, the spill overs to the region in the form of reduced remittances are significant. Remittances account for 20 percent or more of GDP in four CIS countries and up to 45 percent of GDP in Tajikistan (Figure 20). According to Shelburne, remittances out of the Russian Federation declined by 31 percent by the second quarter of 2009, so those countries where remittances are a large share of GDP would be heavily impacted by that, as most of the effected workers are or were in the Russian Federation.
Figure 19. Exchange rate movements in 2009 relative to the Euro in selected countries

Source: Shelburne, 2009
177. With very few exceptions, the GDP forecasts for 2010 around the world are positive, and this is also true of the 13 countries in this region (Figure 21). Some estimated recovery rates are very weak, and some are rather strong; but given the severity of the recession in most countries, the projected recovery is weak (Table 5). It is clear that a worse crisis was averted by stimulus programmes of many governments that sought to fill the large consumption gap left by the drop in private demand. Among countries in this region, the UN estimates that the share of GDP targeted to fiscal stimulus was as high as 13.8 percent (Kazakhstan). Not all countries had the financial capacity to respond with adequate stimulus, though the greatly increased IMF support approved by the G-20 has helped to fill this gap. The mild global real GDP growth forecast by UN LINK for 2010 is 2.4 percent, but there is a wide range in country prospects from 8.7 percent for China to 0.6 percent for the European Union. A few of the energy-exporting countries covered in this paper are at the high end of this range, but most are projected to have a weak recovery.

178. There is, indeed, concern among macroeconomic analysts that there are numerous risks associated with these forecasts. First of all the stimulus actions of governments that helped to avert a worse crisis and supported the recovery cannot be sustained very long. There is a risk that if these are aborted prematurely, there could still be another recession, a so called double dip or W-shaped recovery. Another factor that has helped turn around the global economy is that the rapid shedding of inventory that accompanied the global recession has been replaced with inventory building that helped to turn around industrial production and trade in recent months. But this also may not be sustained if it is merely adjusting for the overshooting of inventory shedding. Other concerns are that credit constraints remain an impediment to growth and unemployment is still expected to rise into 2010 and may be very slow to decline thereafter in such a weak recovery as is currently foreseen. Rising protectionism could be another
threat to recovery, as the number of trade protection measures recorded by WTO has been rising; but so far they are few and of low intensity.

**Figure 21. Real GDP Growth in 2010: Differing rates of recovery among countries**

![Map showing Real GDP Growth in 2010](image)

Source: Shelburne, 2009

179. This recovery is not expected to be driven by a resurgence of consumption in the United States and other developed countries, as has so often fuelled recoveries in the past. However, the economic resilience of India, Indonesia, North Africa, and China, which rebounded strongly in the 2nd and 3rd quarter of 2009 and is expected to achieve relatively good growth during 2009, is one of the few encouraging upside signals and more likely to support the recovery. Unfortunately, the recovery of the global economy and the economies of the 13 countries in this region is still subject to significant downside risk.

**Possible effects of the food price and macroeconomic crises on food security**

180. As was stated at the beginning of this paper, the pathways from food security to food insecurity for a household could include one or more of the following. Now attention is focused on each of these pathways and how they are actually or could be affected by the food and financial crises:

- Reduction in the quantity and/or quality of food purchases.

181. This aspect of food security is really about economic access to sufficient quantity and quality of food. Higher prices of food or reduced income or market disruptions can all impair access to food that may be available but is not economically accessible.

High food prices

182. As elaborated in Section 3 of the paper, the price surge has abated, at least for now, and most food prices, except sugar, are much lower than in 2008. This surely relieves some of the pressure created by the food price surge, but it is good to recall that food world grain prices are still 40 percent or more above the average in the 2000-04 period. Moreover, food prices in individual countries may have seen less of a decline, because of local conditions or market imperfections. Recent FAO analysis finds that bread prices
remain well above pre-food crisis levels and several are still 30-50 percent higher than in 2006 (Figure 22 and Annex Box 1).

Loss of employment or reduction of wages and income

183. As the financial and economic crises hit this region, unemployment naturally increased in every country, but the large increase in unemployment in the Russian Federation also had significant spill over effects on labour markets of other countries in the region through remittances. This region includes several remittance dependent economies (RDEs), seven CIS economies with remittances greater than four per cent of GDP.\(^7\) It was noted in Section 4 above that estimated remittances out of the Russian Federation declined by 31 percent by the second quarter of 2009, so this would seem a significant further shock to economic wellbeing of the RDEs over and above the direct impacts of economic slowdown and unemployment. One factor that moderates this impact is that this remittance decline is measured in United States Dollars, so the depreciation of Russian Federation Rouble against the United States Dollars explains part of the remittance decline. Also, according to Figure 19 above, all the currencies of the region depreciated more than the Russian Federation Rouble, so remittances in terms of national currency would have declined less than what would be measured in Russian Federation Roubles and the United States Dollars. Despite these caveats, it is clear that purchasing power has been significantly curtailed and poverty has increased as a result of unemployment and declining remittances\(^8\).

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\(^7\) RDEs in this region consist of Armenia, Azerbaijan, Georgia, Kyrgyzstan, Republic of Moldova, Tajikistan and Uzbekistan

\(^8\) In the Philippines, Capistrano and Sta.Maria 2007 show that remittances and the number of overseas workers both have a significant impact on overall poverty. They find that a 1 percent increase in the share of remittances in GDP leads to a 2.55 percent reduction in the incidence of poverty, which implies that reducing remittances shares of GDP can as well increase the incidence of poverty. Though the study was in a country outside the CIS region, similar linkages may apply in CIS cases.
Figure 22. Examples on bread prices: Kyrgyzstan and Tajikistan

Source: FAO

Market disruption or policy reaction that impairs availability

184. During the food price surge, a number of grain exporting countries, including some in this region, curtailed exports or taxed exports in order to protect domestic consumers. Such actions necessarily constrain access to these commodities in importing countries, which include five countries in this region that are significant net importers of grains and also RDEs.

- Reduction in food production

185. This aspect of food security is about availability. Whether the food be produced in the country or imported, the availability is dependent on changes in supply.

High prices of feed and other inputs

186. High prices of products stimulate more production, and high prices of inputs depress production. Both have been seen during recent years. When grain prices rose in 2006/07 and beyond, there was a significant production response around the world, including in this region, and especially in the Russian Federation and Ukraine and to a lesser extent in Kazakhstan. As input prices, such as fertilizer, surged in
2008, and weather was less favourable, the surge in global grain production is expected to slow in 2009. Similarly, higher grain prices have increased the cost of meat and dairy production and slowed their production growth.

187. It is significant that the exporting countries of this region have been contributing to global food availability as production and exports have increased substantially during the last decade (Figure 23). Turkey is excluded for part of this analysis, because it has been at times a significant exporter, but has mostly been a significant importer of grains in the last decade. So imports of the other importers has increased in recent years (Figure 24), but is expected to decline in 2009, due to good harvests in several countries. So the net effect on the rest of the world is that export growth far exceeded import growth from this region, including Turkey, and reached 45 million tons in 2008/09 crop year (Figure 25). It is very significant that this region which accounted for about 15 percent of global grain imports from 1987 to 1990, has accounted for more than 13 percent of global grain exports from 2005 to 2008.

Lack of credit access

188. The financial crisis has reduced the availability of production credit to farmers just as it has to other business enterprises and thereby has the potential to slow production growth. Likewise, trade finance is constrained because the financial crisis exacerbates a shortage of liquidity to finance trade credit, and the credit crunch and economic slowdown have made banks averse to financial risk (ICTSD, 2008).
Figure 23. Grain net exports of exporters excluding Turkey, 1,000 tonnes

Source: USDA, PSD database October 2009

Figure 24. Grain net imports of importers excluding Turkey

Source: PSD database, USDA.
Figure 25. Growth of net exports from the region, including Turkey

Source: PSD database, USDA.

- Reduction in the quantity and/or quality of food aid

189. Five of the countries in this region, Armenia, Azerbaijan, Georgia, Kyrgyzstan, and Tajikistan are significant food aid recipients, so these aspects could influence food availability and accessibility in this region.

High food prices

190. High food prices reduce the quantity of food aid that can be purchased and delivered with a fixed budget, which is frequently a constraining factor.

Decline of government/international donor financial resources

191. The global economic slowdown and recession has constrained the financial resources that can be provided to national and international food aid programmes.

Macroeconomic instability, market disruption or policy reaction that impairs availability

192. Macroeconomic instability can impact the availability of financing for food aid and the ability of recipient countries to manage its distribution. Export constraints imposed by countries during the food price crisis, which impaired trade during the price surge in 2008, also disrupted the food acquisition logistics for WFP.

193. The summary of the pathways by which the food and financial crises have impacted different aspects of food security indicate that it occurs both through impacts on poverty (economic access to food) and impacts on food availability, through prices, production and trade. These impacts on food security are not only a reflection on what has happened in the recent past, but also reflect what could happen again in the future. It is not yet certain that the global economy and economies of this region will emerge from the financial and economic crisis without another setback. Also, it is entirely possible that we will have another food price shock, as we have had in the past, though the timing and scale of it are unknown. So
the duel crises have also revealed the increased vulnerability of low income populations to economic and food insecurity and the need for policies that can be proactive in the event of other economic or food market shocks.

Underlying structural issues for countries in this region

Food insecurity or hunger of a population can be measured in many ways, and it is useful to have different measures to reflect differing dimensions of food insecurity (Table 6). The “FAO” measure is undernourishment, which is the percent of the population for which caloric availability is less than the minimum dietary energy requirement. The “MDG 1” refers to the Millennium Development Goal 1, target 1C, which is to halve between 1990 and 2015 the proportion of people who suffer from hunger. So if this ratio is 0.5 or less, such as in Armenia, Azerbaijan, and Georgia, the target is already met. If it is between 1.0 and 0.5 as in Tajikistan and Turkmenistan, some progress has been made, but if it is higher than 1.0, as in Uzbekistan, it means the situation has gotten worse rather than better. The “GHI” is the Global Hunger Index of the International Food Policy Research Institute (IFPRI), which is the simple average of the percent of undernourished (FAO), the prevalence of underweight in children under five years and the under five mortality rate. As with the FAO statistic, a lower number is better. “DES” is the average dietary energy supply for the country based on availability. Finally, the “GDP” is the IMF Figure of GDP per capita in 2008. For this comparison, countries are grouped using the World Bank income category designation for July 2009, which often but not always corresponds to food security status. Kyrgyzstan has a relatively high DES (especially given its GDP level), and therefore is below the FAO threshold of 5.0 percent and is not reported. Two of the LMI countries and all of the UMI countries also fall below that threshold of 5 percent and are therefore not reported.

Table 6. Measures of Food Insecurity from different sources

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</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>ratio</td>
<td>%</td>
<td>Kcal/day</td>
<td>USD/cap</td>
</tr>
<tr>
<td>Low Income (LI)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>&lt;5</td>
<td>*</td>
<td>&lt;5</td>
<td>3 110</td>
<td>951</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>26</td>
<td>0.8</td>
<td>18.5</td>
<td>2 180</td>
<td>795</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>13</td>
<td>2.8</td>
<td>7.5</td>
<td>2 470</td>
<td>1 027</td>
</tr>
<tr>
<td>Lower Middle Income (LMI)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Armenia</td>
<td>23</td>
<td>0.5</td>
<td>9.2</td>
<td>2 290</td>
<td>3 685</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>11</td>
<td>0.4</td>
<td>7.9</td>
<td>2 580</td>
<td>5 349</td>
</tr>
<tr>
<td>Georgia</td>
<td>12</td>
<td>0.3</td>
<td>6.1</td>
<td>2 500</td>
<td>2 924</td>
</tr>
<tr>
<td>Republic of Moldova</td>
<td>&lt;5</td>
<td>*</td>
<td>&lt;5</td>
<td>2 840</td>
<td>1 693</td>
</tr>
<tr>
<td>Ukraine</td>
<td>&lt;5</td>
<td>*</td>
<td>&lt;5</td>
<td>3 120</td>
<td>3 910</td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>6</td>
<td>0.7</td>
<td>6.3</td>
<td>2 770</td>
<td>3 606</td>
</tr>
<tr>
<td>Upper Middle Income (UMI)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belarus</td>
<td>&lt;5</td>
<td>*</td>
<td>&lt;5</td>
<td>2 890</td>
<td>6 235</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>&lt;5</td>
<td>*</td>
<td>&lt;5</td>
<td>3 190</td>
<td>8 719</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>&lt;5</td>
<td>*</td>
<td>&lt;5</td>
<td>3 100</td>
<td>11 807</td>
</tr>
<tr>
<td>Turkey</td>
<td>&lt;5</td>
<td>*</td>
<td>&lt;5</td>
<td>3 340</td>
<td>10 479</td>
</tr>
<tr>
<td>*not provided</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: SOFI, 2009 FAO, Global Hunger Index, 2009 IFPRI, IMF
195. Because of the sensitivity of vulnerable populations to increased food prices or declining incomes, it is very likely that either higher prices or lower incomes could increase the prevalence of food insecurity, slow or reverse the progress towards target 1C of the MDG 1, or increase the global hunger index for one or more of these countries. In fact, analysis by Ivanic and Martin (2008) found that higher food prices can increase poverty and therefore food security for those who are mostly buyers rather than producers and sellers of food, while the same higher prices improve incomes of those producers who sell most of their production. The balance really depends on the individual situations. Of course, direct income losses caused by loss of employment or decline in wages increase poverty and also would increase the prevalence of food insecurity.

196. The most commonly used policy measures to mitigate macroeconomic shocks are social protection or safety net measures. These are more prevalent in European countries than in the United States except for the very large food stamp programme for low income families, for example, and they are even less prevalent in lower income countries, where budget resources are more of a constraint. These measures range from unemployment benefits to food subsidies to retraining and relocation assistance. In response to the financial crisis and subsequent recession, many governments launched extraordinary fiscal stimulus packages to prevent a larger economic collapse. These ranged from 12-14 percent of GDP in China, Kazakhstan, Thailand and Saudi Arabia, to 1 percent of GDP in the Russian Federation and many other countries. The Philippines, where remittances were more than 11 percent of GDP in 2007, also included in its stimulus programme a special assistance to Overseas Workers.

Policy recommendations for a risky economic environment

197. The risky economic environment that has been outlined in this paper places countries and their citizens in a more vulnerable situation than has been seen for a long time. For countries in this region, it may remind some of the huge economic and social adjustments that accompanied the transition reforms and restructuring that occurred in the last decade of the 1990s. However, for most countries in this region, that economic decline and subsequent adjustment was even larger than what is now foreseen in the coming years of this recovery. Such significant adjustments in economic structure and performance always bring with them both opportunities and challenges. These are briefly outlines relative to the agricultural and rural economies of this region.

Opportunity – increase availability and access

198. The higher commodity prices can stimulate more production in the region and more income and employment for farm and rural populations. In most countries of this region, the higher prices in the mid part of the decade have already stimulated an increased production response. The comparison of grain production the last two years compared with the three years average from 1999/00 to 2001/02 show exceptional production growth in all but a few countries of the region (Table 7), most countries improved much more than the world average and all countries together realized a total of 50 percent increase in production. The expected production in 2009/10 crop year is even higher for many countries in the region, though it is expected to decline from the record 2008/09 level for others. Some recommended policies would reinforce the production growth that the market signals are already incentivizing.

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9 See annex boxes 3 and 4 for examples of food security conditions and coping strategies in Kyrgyzstan and Tajikistan

10 Neda (2009) said that OFWs abroad and those returning would be assisted through enhanced reintegration services and livelihood assistance. In fact, there would be a “payback package” for OFWs which include the setting up of a PhP250 million support fund, skills training to avail of in-demand jobs in other parts of the world, and setting up of Department of Labor and Employment (DOLE) and Overseas Workers Welfare Administrations (OWWA) desks in the provinces to match OFWs’ skills with available jobs.
Table 7. Changes in total grain production from 1999/2001 to 2008/06 and estimated for 2009/10.

<table>
<thead>
<tr>
<th>Country</th>
<th>Average 08/07 and 07/06 versus 99-01</th>
<th>2009/10 versus 2008/09</th>
<th>2009/10 versus previous 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>USDA %</td>
<td>FAO* %</td>
<td>FAO* %</td>
</tr>
<tr>
<td>Armenia</td>
<td>44</td>
<td>-13</td>
<td>-2</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>77</td>
<td>-3</td>
<td>5</td>
</tr>
<tr>
<td>Belarus</td>
<td>66</td>
<td>5</td>
<td>22</td>
</tr>
<tr>
<td>Georgia</td>
<td>-30</td>
<td>-9</td>
<td>-25</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>65</td>
<td>6</td>
<td>23</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>-12</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Republic of Moldova</td>
<td>-13</td>
<td>na</td>
<td>-4</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>70</td>
<td>-10</td>
<td>9</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>34</td>
<td>29</td>
<td>23</td>
</tr>
<tr>
<td>Turkey</td>
<td>-4</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>17</td>
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<td>-15</td>
</tr>
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<td>Ukraine</td>
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</tr>
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<td>Uzbekistan</td>
<td>63</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>13 countries above</td>
<td>50</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td>World</td>
<td>17</td>
<td>-3</td>
<td>No change</td>
</tr>
</tbody>
</table>

Sources: USDA, PSD, October 2009 and FAO for the 2009 crop forecast
*Crop Prospects and Food Situation, Global cereal supply and demand brief, [http://www.fao.org/docrep/012/ai484e/ai484e04.htm](http://www.fao.org/docrep/012/ai484e/ai484e04.htm)

Challenge - provide social protection and safety net measures for the most vulnerable populations

199. The future of agricultural markets and financial markets are likely to be volatile and uncertain in many ways, so it would be prudent to provide more social protection for the general population and risk management tools for producers. Some recommended policies are in response to this need.

Short run policy priorities

Expand food assistance and early warning and rapid response capacities and target food production programmes with inputs, credit and extension education packages

200. This Twin-Track approach to reducing hunger advanced by FAO is a valid response to this dual crisis. It helps make food accessible to the most vulnerable and simultaneously helps producers, especially smallholders, to raise their output and increase their incomes.
Accelerate local adaptation and dispersion of currently existing technology

201. Although production potentials and agroclimatic conditions in the region vary greatly, most countries have a significant unrealized yield growth potential. The constraints on production growth can be reduced by improved technology transfer mechanisms and improved functioning of credit markets. There have been some improvements in yields in recent years in many countries of the region, but most countries are still below the world average in grain yields (Figure 26) and far below the potential that could be realized with existing technology.

![Figure 26. Grain yield growth and change in CIS, Georgia and Turkey, tonnes/hectare](image)

Source: USDA, PSD, October 2009

Complete the Doha Round of trade negotiations and Restore trust in the international trading system with improved multilateral or plurilateral rules and agreements

202. The experiences with trade restricting policies employed by many countries in reaction to the food price crisis and the increased protectionism that has been seen as the financial crisis have created distrust in the global trading system and increased the cost of doing business in international markets. A Doha Round agreement would be an important step in restoring confidence in the trading system and in further reducing distortions that restrict trade and create more uncertainties for farmers and traders. Although it is very tempting for countries to look inward and limit exposure of their own consumers and producers to world market volatility in times of trouble, one of the best ways to protect food security in a global market is to expand trade and reduce trade restricting policies.

Long run policy priorities

Make Investments in agricultural development and R&D for production and post harvest technology

203. The World Bank Development Report 2008 states that the developing countries have “suffered from neglect and underinvestment over the past 20 years. While 75 percent of the world’s poor live in
rural areas, a mere four percent of official development assistance goes to agriculture in developing countries.” To address this shortfall, both national governments and international agencies and donor programmes need to give new priority to investment in agriculture. The fact that this is a long run priority does not mean it can wait. It should begin immediately, because the payoff from such investment often takes a long time.

Improve market functioning to facilitate price transmission and better integration with global commodity markets

204. Farmers and the national economy would gain from improvements in market efficiency, which can include improved transport infrastructure, improved market information systems, increased competition in the marketing chain\(^{11}\), and increased efficiency and transparency in regulatory systems. In transition countries with fledgling market institutions, it is especially important to strengthen these institutions and let them play a role in market adjustment. The government’s role is important to create an enabling environment for new farm and agribusiness to develop, but it should focus on improving financial services, technical support services, information services and the like.

Develop Risk management tools for farmers

205. Farmers face risks associated with yield and price variability that can be mitigated with good risk management tools. Yield insurance, revenue insurance, contracting and improved access to futures market tools can all assist farmer in managing risk. Government can assist the private sector in developing and offering such tools and even could use prudent incentive measures to encourage adoption of such risk management tools.

Enhance rural development and rural infrastructure investments

206. In eight of the countries in this region, the share of rural in total population is 40 percent or more, and the share has been increasing in many cases (Figure 27). Rural development is not the same as agricultural development and it needs targeted attention, including provision of rural development support systems and social infrastructure. A rural development support system provides rural residents and local governments with information, coordination, and technical assistance. Social infrastructure needs will vary from place to place, but will include such things as roads and highways, schools and child care facilities, hospitals and clinics, community centres with libraries, internet connections, and adult learning facilities. These support measures are territorial not sectoral, and they improve the rural business environment as well as the capacity of rural residents to improve their own human capital, increase their economic opportunities and enhance the quality of life in rural areas.

Invest in social protection or safety net measures to protect vulnerable populations

207. “Safety net” is an umbrella term that covers various programmes aimed at assisting vulnerable population groups. It includes targeted food distribution programmes; targeted cash transfer schemes, feeding programmes and employment schemes (FAO, 2009a). The concept of social protection or safety net is to cushion the biggest impacts of market and financial shocks in order to limit the long-term consequences. For example, when unemployment increases, incomes decline and food price or shortage threaten households, they may dispose of valuable assets, interrupt the education of their children or suffer malnutrition. These are but a few examples where the short run impacts of a crisis create long run damage to the household’s income earning capacity. So, the safety net measures are temporary and targeted to mitigate the worst consequences of a financial or food crisis.

\(^{11}\) Box 2 gives an example in Kyrgyzstan of the impacts of poorly functioning agricultural markets on farm prices and its effect on increasing dependence on labour migration for rural inhabitants
H. CONCLUSIONS

208. The countries of this region have faced many challenges in the last two decades, and most have experienced massive changes in social and economic institutions and policies. Some policies and some countries have clearly been more successful than others, and much can be learned from the successes and failures during these 20 years. The lessons learned dealing with adversity during those years of change will be valuable in dealing with these new crises, and the recommendations provided in this paper need to be discussed, evaluated and applied to the particular situation in each country. As with all policies, means to implement action may be different under different circumstances. So it is important to engage in this policy forum to gain the benefit of differing experiences and perspectives of different countries and different individuals that can together improve the application of these principles to concrete conditions in the countries of this region.

Figure 27. Share of rural population in the total, average of 1990-92 compared with 2003-05

![Graph showing share of rural population comparison](image)

Source: FAO country profiles

I. REFERENCES


http://www.fao.org/docrep/011/ai474e/ai474e00.htm


Box.1 Basic Food Prices trends in CIS, Georgia and Turkey  
(2006-2009)

**Georgia:** Inflation is around 2 percent due to the weakness of economy, possible deflation is expected. Food prices have remained stable with no significant changes form the beginning of 2009. In 2009 prices for meet (mainly pork) increased by 30 percent. Prices for bread are still higher than pre-food crisis. From the beginning of 2009 food import increased by 34 percent and reached 15.2 percent of the total volume of import. Import of wheat increased twice due to the less grain harvest. The price of bread is higher by 33 percent than its level in 2006.

**Turkey:** Inflation remains high (10.5 percent in 2008, and expected 6.5 percent in 2009). By OECD projection export goes down by 12.0 percent import by 21.8 percent down from the level of 2008. GDP is going to decline by 6 percent Turkey is one of the largest wheat importers in the world. There is no indication of growing food insecurity but due to financial position of the country increasing of vulnerability is likely due to the high rate of unemployment which reached 15.5 percent in 2009.

**CIS COUNTRIES:** For most countries of the CIS region, food prices continued to remain stable at previous annual increase levels; and while the rates of food price increases have slowed, the prices themselves have remained substantially higher than during the previous year.

**Armenia:** The rate of inflation has been steady for the last seven months of 2009, amounting to 2.7 percent. During the period between January and July of 2009, the average sale value of agricultural products remained moderately stable. However the price of bread is almost 30 percent higher of its level in 2006.

**Azerbaijan:** Inflation is around 3.7 percent. Prices have been reasonably stable over the first seven months of 2009, with actual decreases, albeit slight, in the prices of vegetables (as can be seen in the table below). The price of bread is almost the same as in late 2008, though still 50 percent higher than before the food price crisis.

**Belarus:** Inflation is over 14.6 percent. There has been a large (30 percent) increase witnessed in the wheat flour price between the 1st half of 2008 and the 1st half of 2009. The price of bread decreased by 5 percent during the last seven months but is still over 50 percent higher than the level at end of 2007. The price of potato is sharply fluctuating upwards. There is also 23 percent increase in the price of milk and diary products.

**Kazakhstan:** Inflation is over 8.5 percent. Food prices during the last seven months have remained more or less stable. The price of bread, however, is still higher than its peak in 2007, with a slight (2 percent) increase in 2009.

**Kyrgyzstan:** Inflation is 12.5 percent. The country faces difficulties due to imposed tariff duties and non-tariff trade barriers imposed by neighbouring countries (Kazakhstan and Uzbekistan). Average bread prices nationwide have decreased by 2 percent compared with its peak in 2007, however, they are still higher than in the pre-food crisis period. In poor regions, such as Naryn, prices are at the same peak level and remain higher than national average prices. Considering the volatile fiscal situation of the country and the significant level of import of wheat and other basic food stuff as well as the dependency on remittances, the situation in this country requires special attention.

**Republic of Moldova:** Inflation is slow (1.1 percent) due to decreasing of demand. There is a slight downward trend in the price of food items as a category in the 1st half of 2009. Based on the information provided by the National Bureau of Statistics, the average sale price of agricultural products sold by agricultural enterprises has decreased by 46 percent during January-June 2009 compared with the corresponding period of the previous year. Deflation is expected due to the weakness of the economy and decreasing demand. Dry conditions have severely affected the main spring crop, maize, notably in the districts of Kahul, Chadry-Lunga, Bassarabiajska, Leova, Stefan Voda, Taraska and Streshen. The effect of drier weather on other crops, potatoes, vegetables and fruit is expected to be alleviated as their production is spread throughout the country and often takes place on household plots. Household and farm income (already amongst the lowest in Europe) is expected to be further reduced in the affected areas. Due its dependency on remittances as well as import of wheat, Republic of Moldova would require regular monitoring with regard to its vulnerability to food insecurity.
Russian Federation: Inflation in the Russian Federation is over 13 percent due to the depreciation of the Russian Federation Rouble as well as resulting from food imports. The price of bread in the Russian Federation is still increasing in the Russian Federation and remains 50 percent higher than during the pre-food crisis period. The Povolzhje Region has experienced drought this year, however due to a relatively good harvest, the Government of the Russian Federation is able to cover losses of this region by its stocks and harvest form other regions of the Russian Federation.

Tajikistan: Inflation is 8.8 percent in the examined period. Though the price of bread remains higher than during pre-food crisis period, it has dropped form its peak by 10 percent. Overall, the prices of food items in Tajikistan have remained stable, particularly with regard to meat, fish and oils. The price of fruits, following an initial significant increase of some 12 percent during the beginning of 2009 has now completely stabilized. Vegetables are actually experiencing a substantial recent downward price trend, particularly onions and carrots. The price of sugar, on the other hand, has increased by around 15 percent. The food security of the country depends on imports, which explains why the Government has increased the import of wheat by over 30 percent. Taking into account the country’s weak fiscal stability, coupled by its dependency on imports and remittances, Tajikistan should be monitored on a regular basis with regard to vulnerability and food security.

Turkmenistan: As Turkmenistan’s economy is less integrated to the international financial markets, impact of the global economic crisis is not significant at present time. Country relies on oil and gas revenues and imports a large volume of food stuffs. One of the major importing food item is wheat flour, because of the underdeveloped milling industry. A significant share of households’ incomes is spent for food. Therefore, fluctuation of international food prices negatively impacts living standards of the majority of population. The Government practices the distribution of a certain volume of flour to all the population. Although appreciation of a national currency and fiscal stability do not deteriorate access to basic food, high unemployment and malnutrition, in particular in rural areas, increases vulnerability of many people.

Ukraine: The fiscal situation in the country as well the currency exchange rate fluctuation in the country is out of control. The currency was depreciated by 30 percent in 2009. Inflation is over 17 percent. The most notable trend in terms of food prices is a sharp increase in the price of potatoes by some 7 percent during the last month. This year has produced a good cereal harvest. Ukraine is the third largest exporter of wheat in 2009, therefore from a food security point of view there is no need for special assistance to be provided to the country. Ukraine possesses a very strong potential to become one of the major cereal suppliers in the world.

Uzbekistan: The impact of the current global economic and financial crisis on the economic development of the country is not significant due to the low integration of Uzbekistan economy to the global market. Official statistics indicate that in the period January-July 2009 Uzbekistan’s GDP increased by 8.2 percent and agricultural output by 3.3 percent. By authorities official information for the nine months of 2009 is defined as 4.2 percent though the methodology of it’s measurement remains questionable. At the same time Uzbekistan remains a low-income food-deficit country with a high level of poverty and vulnerable population.

Sources: Statistics Agencies of 13 countries, OECD, IMF, FAO.
Box 2. Kyrgyz Republic: Agriculture*

One reason for labour migration is lack of work at home, as farming does not produce sufficient income. Reasons given for this included shortage of land, an absence of effective farming practices, poor local markets, a lack of knowledge of how to market agricultural produce elsewhere, and, in some cases, a lack of access to markets for producers. The problem is especially acute in small towns where households do not have land plots and incomes are dependent on salaries.

The number of animals owned by the households has not changed significantly in the past year.

According to Focus Group Discussion (FGD) participants, however, the number of animals has decreased in the past two years, particularly the number of heads of cattle. One reason given was that last year, prices for fodder were very high due to poor weather conditions; this combined with falling cattle prices forced owners to sell or slaughter cattle. In addition, over the past three months of this year one third of surveyed households faced the problem of animal disease. The main issues relating to this identified by respondents are inadequate, expensive or non-existent veterinary services. Only 4.3 percent of households reported receiving adequate veterinary assistance.

Practically all key informants at district and aïyl okmotu levels raised the problem of land degradation. Degradation of pastures is most noticeable in near-village pastures due to unregulated intensive cattle grazing. Other agricultural land is being degraded due to lack of crop rotation, no observation of technical norms for crop farming, and the high cost of mineral fertilizers. A lack of land management skills among farmers means that in some cases even manure is not being used. Land salinization, waterlogging and poor irrigation also all lead to soil degradation. Productivity of agricultural crops is not high because of lack of good breeding and selection, and lack of elite seed funds, as well as the factors noted above. Another serious issue is lack of attention to improving soil fertility, limited pest control and lack of irrigation water.

According to key informants, prices for agricultural produce vary greatly and increase several fold on the path from producers to consumers. Prices for agricultural goods in rural areas are the lowest, higher in district and provincial centres, and the highest in Bishkek. Prices for agricultural products are lower when supply increases as a result of favourable weather conditions. Producers are dependent on middlemen who set purchase prices by bulk buying produce. Many middlemen operate on the market and it is practically impossible to enter the market independently to sell produce. FGD participants expressed the opinion that the Government should be more active in setting prices for producers.

Box 3. Food Security: Kyrgyz Republic.*

According to 48 percent of the vulnerable households surveyed, the economic situation at the household level has deteriorated significantly compared with last year. At the same time a third of households say that the situation deteriorated greatly. Only about 10 percent of respondents noticed some improvement of the situation in their households. The study showed that in all of the past 12 months there have been families experiencing shortage of food. Shortage is most prevalent in a “hungry season” of February – May. For instance in March, 80 percent of vulnerable households noted that they had problems acquiring food. The best months are September and October, when the number of families that experience food shortage declines to 13-14 percent.

In order to cope with food shortage, a number of strategies have been employed by the households interviewed. These include purchasing food on credit (84 percent), borrowing food or relying on help from friends (75 percent), reducing number of meals eaten per day (74 percent), seeking occasional work to buy food (74 percent), limiting portion size at meal times (74 percent) and relying on less expensive or less preferred foods (74 percent). Sixty-five percent of respondents reduce food consumption by adults so that children can eat enough. Special attention should be drawn to coping strategies involving children. Parents tend to give them cheaper less preferred foods or seek temporary work for children to find food.

*Source: Rapid Multi Sector Needs Assessment, Office of the Resident Coordinator United Nations in Kyrgyzstan, November 2009
**Box 4. Tajikistan: Overall food supply situation and access to food***

*The Agriculture sector.* Agriculture is one of the most important sectors of the economy employing about 67 percent of the economically active population, accounting for 22 percent of the GDP and making around 10 percent of official exports in 2008. The importance of agriculture contrasts with the comparatively small area of arable land (7 percent of total area) as Tajikistan is a mountainous country. With 93 percent of its surface area taken up by a complex of east-west and north-south ranges forming the Tyan-Shan and Pamir mountain systems, half the country is at altitudes of more than 3 000 metres. Elevations range from 300 metres above sea level in the Ferghana Valley to 7 495 metres at the Ismail Somoni Peak in the Akademiya Nauk Range (Pamir). Huge glaciers covering more than 8 000 sq. km, mainly in the Pamir Mountains, are the primary source of water for Tajikistan’s many rivers, which also feed the rivers of Uzbekistan to the west.

*Food Supply.* The significant increase in this year’s cereal output is expected to result in a satisfactory food supply situation at national level during 2009/10 (July/June). As the expansion in food production has been widespread across regions and in both the main producer zones and marginal areas, food security is anticipated to improve in areas previously affected by poor harvests. However, despite the satisfactory food output at national level, the relatively high level of food prices continues to give rise to concern for the food security of low-income vulnerable populations, who spend a large share of their incomes in food and have seen their incomes reduced by the sharp decline in remittances this year. The situation of these populations needs to be closely monitored.

*Credit Supply.* Farmer interviews including cooperatives, collective *dekhan* farms, and private *dekhan* farms indicate in almost all cases that interest rates of seasonal credit available to the farmer were above 20 percent and often above 30 percent. Additional 10 percent payments to secure the credit were frequently mentioned. Aga Khan Foundation small-scale credit available in GBAO region was reported to be less this year. In general, credit through banks was avoided or unavailable to the small farmers due to high interest rates and bad debts preventing uptake of seasonal agricultural loans. Corruption within the lending bodies is allegedly a significant feature as well as the risk involved with not insurance policies covering the cost to the borrower, while substantial guarantees are required by the lender.

*Food Access.* The country still has a high level of poverty with a per capita income of USD 550 (World Bank, Atlas method, 2008). It is estimated that about 53 percent of the population live below the poverty line established at USD 41 per month, and 17 percent below the extreme poverty line of USD 26 per month. While poverty is still high, these rates are a significant improvement over the levels of 64 percent in 2003 and 83 percent in 1999. About 71 percent of the poor and 76 percent of the extremely poor live in rural areas. The high poverty rate of people living in rural areas makes them exceptionally susceptible to weather shocks. Food comprises over 50 percent of total expenditures of Tajik households making the poor also susceptible to price shocks. Food prices of staple food, for example bread, remain well above the levels of September 2007, affecting food security of the vulnerable population. Tajikistan remains the poorest and among the most socio-economically fragile of the CIS countries. Social indicators, although having improved in the past few years, remain at low level, reflecting poor public service delivery, weak governance, persistent energy shortages and low per capita incomes. Tajikistan is the only country in the Central Asia region, which is at risk of not achieving most of its Millennium Development Goals (MDGs).

III.

THE IMPACT OF THE GLOBAL ECONOMIC AND FINANCIAL CRISIS ON FOOD SECURITY AND THE AGRICULTURAL SECTOR OF EASTERN EUROPE AND CENTRAL ASIA – JOHAN F.M. SWINNEN AND KRISTINE VAN HERCK

A. ABSTRACT

209. Since the 1998 Russian crisis, Eastern Europe and Central Asia were characterized by a booming economy, which had a positive impact on agricultural productivity and poverty. The recent financial crisis risks reversing the region’s recent gains and exposes the region to significant adverse economic and social impacts as the economies in Eastern Europe and Central Asia are forecast to experience the deepest contraction among all emerging and developing economies. This report analyses the impact of the financial crisis on the agricultural sector, poverty and food security in the region. In terms of policy recommendations the paper argues that governments should focus on social security safety nets to deal with the expected increase in poverty. However, it is important to emphasize that all new policies must not conflict with the longer-term reform agenda and previous reforms should not be dismantled as part of short-term policy reactions. Policies that facilitate a return to economic growth are the best strategy to reduce poverty and enhance agricultural productivity.

B. INTRODUCTION

210. The financial crisis started in 2007 in the United States and had effects on the global economy. The economies in Eastern Europe and Central Asia are forecast to experience the deepest contraction among all emerging and developing economy regions, as a result of the global economic recession of 2008–09 (World Bank, 2009a). The crisis risks reversing the region’s recent gains and exposes the region to significant adverse economic and social impacts.

211. Since the 1998 Russian crisis, the region was characterized by a booming economy and over 60 million people moved out of poverty in the region. In all countries poverty decreased, with the largest decrease in the middle income, resource rich countries, such as Kazakhstan and the Russian Federation. Poverty reduction in the region is mainly driven by increasing incomes due to increasing real wages and remittances. The present financial crisis and its macroeconomic effects are threatening the welfare of about 160 million people, close to 40 million people who are still poor and about 120 million people who are just above the poverty line (World Bank, 2009a).

212. The paper is structured as followed: in Section 2, the evolution of the crisis in the region is discussed. In Section 3, the recent evolution in the agricultural sector in the region and the expected impact of the financial crisis on the sector is reviewed. Section 4 deals with the recent evolution in poverty and food security in the region and the expected course of the financial crisis. Finally, in Section 5 some policy recommendations are given.
C. THE FINANCIAL CRISIS IN EASTERN EUROPE AND CENTRAL ASIA

213. In the summer of 2007, the financial crisis started in the United States, triggered by the bursting of the housing bubble. In the period 2002-2006, housing prices have increased largely due to favourable loan incentives which encouraged borrowers to acquire difficult mortgages in the belief they would be able to quickly refinance them at more favourable terms. However, once interest rates began to rise and housing prices in many parts of the United States started to drop in 2006–2007, refinancing became more difficult. This caused high default rates on “suprime” loans. The effect was not limited to the United States economy, but was worldwide spread through asset-backed securities, such as collateralized debt obligations. These financial products enabled institutions and investors around the world to invest in the United States housing market and were very popular due to the long-term trend in increasing housing prices. However when housing prices declined, major global financial institutions that had borrowed and invested heavily in asset-backed securities reported significant losses. Risk premiums rose rapidly and corporate borrowing was reduced.

214. In the past, financial markets in emerging economies have been vulnerable to shocks in the international financial system. Shocks immediately influence the financial flows because investors reduce their investments in risky financial products, such as investments in emerging countries. However, the shock that affected the United States financial sector in 2007 did not affect Eastern Europe and Central Asia until 2008 (Figures 28 to 33).

215. The intensity of crisis is different between countries and it has affected mainly the resource rich countries, such as Kazakhstan, the Russian Federation and Ukraine. In general, the crisis affected the economy in the region through reduced capital flows, namely a decline in investments, a decline in domestic production and exports, and a decline in remittances (World Bank, 2009b).

216. Recovery of the international financial markets started at the end of the second quarter of 2009. In line with the international markets, the decline in industrial output in Eastern Europe and Central Asia slowed down or even reversed in some countries and confidence indicators stabilized. However, at the same time, the ripple effects of the crisis on the industry and the households became clear, with effects on unemployment, the exchange rate and the number of non-performing loans.

D. DECLINE IN INVESTMENTS

217. The first sign of “infection” by the financial crisis was a decline in investments. In general, investments in emerging economies are considered as risky assets and when the financial markets in advanced countries have bad prospects, investors in general, retreat from risky assets.

218. As a consequence of reduced capital flows, the banking system faced a decline of value of its assets and at the same time cross-border lending declined, because of a lack of confidence between financial partners. In the Russian Federation and Ukraine, this lack of confidence even infected individual households as it led to a substantial increase of withdrawals from deposits.

219. In addition to the effect on the capital market, the financial crisis also affected the inflow of capital through foreign direct investment (FDI). The effect is expected to be less dramatic on the existing investments, because foreign investors have in general long-term interests in the region. However, the crisis will certainly affect new investments. In most countries, FDI inflows are expected to remain positive, although it is expected that they will decrease substantially in 2009 (Figure 34).

E. DECLINE IN DOMESTIC PRODUCTION AND EXPORT

220. As a consequence of the reduction in financial assets, lending to private borrowers was strongly reduced (Figure 35). In combination with lower FDI, there was an immediate effect on output and export
volume. In 2008 real Gross Domestic Product (GDP) growth declined compared with 2007. The European Bank for Reconstruction and Development (EBRD) expects that in 2009 real GDP growth will decrease in all countries in the region and in 8 of the 13 countries it is expected that GDP will even shrink compared with 2008 (Figure 36). Also export volumes contracted in 2008 considerably compared with 2007 (Figure 37).

F. DECLINE IN REMITTANCES

221. The financial crisis caused a slowdown of migration and decline of remittances due to its negative effects on labour demand in the European Union and the resource-rich countries in Eastern Europe and Central Asia. For workers from most countries in Central Asia, such as Armenia, Azerbaijan, Georgia, the Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan, the major destinations to find employment are Kazakhstan and the Russian Federation, whereas workers from the Republic of Moldova mainly leave for the European Union.

222. In the past five years, remittances and the outflow of labour in poorer countries in the region have increased substantially, because of high economic growth in the host countries of the migrants (Table 8). In the poorer countries in the region they became a major, maybe even the most important, source of income for households. A slowdown of the economy and reduction of the employment opportunities in Kazakhstan, the Russian Federation and the European Union negatively affects the surrounding poorer countries via reduced migration flows and remittances. This will reduce private disposable incomes and consequently reduce private consumption and residential construction. This effect is expected to be the largest in Tajikistan, which is already the poorest country in the region, but similar effects are expected in other countries that also largely depend on remittances, such as Armenia, Georgia, Kyrgyz Republic and the Republic of Moldova.

G. EFFECTS ON UNEMPLOYMENT

223. The crisis has caused a large increase in the unemployment level in many countries. In the Russian Federation, unemployment rates increased in the second quarter of 2009 by approximately 50 percent compared with the same period in the previous year (Figure 38). This has direct effects on the domestic demand in the country. However, there are also other indirect effects as a decrease of employment possibilities in the resource rich countries will also negatively affect remittances to and migration from the poorer countries in the region. This will have negative spill over effects on the domestic demand in these countries.

H. EFFECTS ON EXCHANGE RATES

224. Currencies in Eastern Europe and Central Asia are generally very vulnerable to shocks in the economy. In order to increase the competitiveness of their export sectors, the currencies in some countries depreciated by more than 25 percent at the end of 2008 (Figure 39). This caused significant repayment problems for households and companies that had loans in foreign currencies, financial products which are particularly important in the region. In the poorer countries, a depreciation of the local exchange rates against the Russian Federation Rouble (RUB) mitigated to some extent the effect of decreasing remittances.

225. The devaluation of the exchange rates also affected the inflation rate (Figure 40). For example, in Ukraine, prices increased approximately 25 percent, whereas in Armenia this was only 9 percent. However, in general, the effects of the financial crisis on the exchange rate and inflation were relatively moderated compared with the financial crisis at the end of the 1990s.
I. EFFECTS ON NON-PERFORMING LOANS

226. In the period from mid-2008 to mid-2009, the number of non-performing loans rose dramatically. In the Russia Federation and Ukraine, the number of non-performing loans increased in July 2009 by respectively 300 and 250 percent compared with the number in the same period in 2008. In Georgia and Kazakhstan the increase was even more spectacular as it has increased by more than 500 percent (Figure 41).

J. THE AGRICULTURAL SECTOR IN EASTERN EUROPE AND CENTRAL ASIA

227. The agricultural sector in all countries in Eastern Europe and Central Asia, except Turkey, remains affected by the transition to a more market-orientated economy in the beginning of the 1990s. The liberalization of the sector caused dramatic changes in agricultural output and productivity, which had a long-lasting effect on the sector. Therefore, it is impossible to analyse the impact of the financial crisis, without first giving an overview of what has happened in the sector in the past two decades.

228. In this section, changes in agricultural output, agricultural input use and productivity will be discussed. Finally, the possible impact of the crisis on the agricultural sector will be discussed.

K. CHANGES IN AGRICULTURAL OUTPUT

229. In the first five years of transition gross agricultural output strongly decreased in all countries that went from a state orientated economy to a market orientated economy (Figure 42). In the poorer countries in the region, such as Kyrgyz Republic, Turkmenistan and Uzbekistan, the decline in agricultural output was only limited, whereas in the middle income countries, such as Kazakhstan, the Russian Federation and Ukraine, agricultural output declined by more than 40 percent.

230. Despite differences in the magnitude of the decline of agricultural output, there were also differences in the time until recovery and speed of it between the poorer and the middle income countries. In the poorer countries, agricultural output started to increase again at the end of the 1990s and by the beginning of the 2000s agricultural output exceeded the pre-reform level in the Kyrgyz Republic, Turkmenistan and Uzbekistan. Later, in the mid-2000s, also output levels in Armenia and Azerbaijan recovered beyond this pre-reform level.

231. In Kazakhstan, the Russian Federation and Ukraine, the agricultural output continuously declined until the late 1990s. Since 1999 agricultural output started to recover. Despite this increase in output, recovery in agricultural output in these countries lagged behind the recovery in the poorer countries in the region and output is still below the pre-reform output quantity. In Kazakhstan, for example, agricultural output in 2007 was only at 63 percent of the pre-reform quantity.

L. CHANGES IN AGRICULTURAL INPUT USE

Labour use

232. In the centrally planned economy labour was inefficiently employed in most sectors of the economy, and several studies suggest that this was especially the case in agriculture (Brada, 1989; Bofinger, 1993). Consequently the shift to a more efficient allocation of labour in the economy was

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12 All countries in the region, except Turkey, liberalized their economies in 1990s and therefore all figures and tables start in this year. For Turkey, this year is purely arbitrary. The focus of the discussion of this section is on the countries that went from a state orientated economy to a market orientated economy, although all tables will also show the evolution of output and productivity in Turkey.
expected to coincide with a re-allocation of agricultural labour and, more specifically, an outflow of labour from agriculture to other sectors.

233. This prediction did not totally coincide with the reality. In some countries, such as Kazakhstan and the Russian Federation, agricultural employment was relatively stable and it even increased in countries such Armenia, Kyrgyz Republic and Uzbekistan during the first five years of transition (Table 9). In these countries, agriculture is said to have provided a buffer role during transition, both in terms of labour allocation and in terms of food security (Seeth, et al., 1998).

234. More recently, agricultural employment started to decrease in most countries in the region. However, in some countries, such as Tajikistan and Turkmenistan, agricultural employment is still increasing and recently agricultural employment in these countries increased to more than 150 percent of the pre-reform level of employment.

Capital use

235. The most dramatic changes in input use in the first years after transition were changes in capital use. In this section, these changes based on changes in tractor use and changes in fertilizer use are illustrated.

236. Initially, tractor use in the region was relatively stable as in many countries agricultural reforms were implemented slowly and soft budget constraints still applied (Table 9). However, in the following years, when reforms were implemented, tractor use decreased strongly. For example, after 15 years of transition, tractor use in the Russian Federation decreased more than 60 percent and in Kazakhstan, it even decreased by 79 percent.

237. Fertilizer use followed a similar pattern as tractor use, but it even declined more dramatically (Table 9). In the first four years of transition, fertilizer use already declined, but in the following years the decline accelerated and by the mid-2000s fertilizer use fell to approximately 20 percent of the pre-reform fertilizer use. In some countries, such as Armenia, Kazakhstan or the Russian Federation, it declined to less than 10 percent of the pre-reform fertilizer use.

M. CHANGES IN PRODUCTIVITY

238. The measure for productivity is total factor productivity, but comparable estimates for the different countries in the region are scarce. Therefore, partial productivity estimates, such as labour productivity and land productivity will be considered.

Agricultural labour productivity (ALP)

239. ALP declined in all countries in the region, but like in the case of agricultural output the magnitude of the decline and the time until recovery was different among countries (Figure 43). In Uzbekistan, for example, ALP declined by less than 20 percent compared with the pre-reform era, while in Armenia ALP declined by 60 percent in the first five years of transition. The decline in ALP was the result of two effects. First, agricultural output declined strongly in all countries and second, outflow of agricultural employment was limited and in some countries agricultural employment even increased. From the mid-1990s, the decline in ALP started to slow down and since the beginning of the 2000s ALP has recovered slowly.

13 An important study that gives an overview of total factor productivity estimates for most countries in the region is Lerman, Csaki and Feder (2004).
Land productivity

240. In the first years of transition, agricultural yields of production studied (grains, sugar beet and cotton), decreased in all countries. In some countries, yields decreased dramatically, for example, between 1990 and 1995, grain yields in Kazakhstan decreased by more than 10 percent per year (Figure 44), sugar beet yields in Belarus decreased by more than 8 percent per year (Figure 45) and cotton yields in Tajikistan decreased even by more than 12 percent per year in the same period (Figure 46).

241. In the period 1995-2000, yields started to increase again and in Tajikistan and Uzbekistan grain yields at the end of the 1990s had already reached the pre-reform yield. In Belarus, the Russian Federation and Ukraine recovery was slower, but at the mid-2000s yields were increasing in all countries and currently some yields exceed the pre-reform level.

N. IMPACT OF THE FINANCIAL CRISIS ON THE AGRICULTURAL SECTOR

242. The crisis is expected to have a negative impact on the recent productivity growth in both the poorer countries and the middle income countries. There are three reasons for this: reduced investments in agriculture, reduced demand for agricultural products and an increase in public intervention.

Reduced investments in agriculture

243. The financial crisis reduces investments in agriculture through two different channels. First, it reduces the supply of loans offered as banks are more reluctant to lend out money. Consequently, banks charge higher interest rates and make tougher collateral demands. In combination with the unstable macroeconomic environment, this makes it more difficult for private borrowers to get loans. This is expected to slow down or reverse the growth in private credit that started in the beginning of the 2000s (Tables 10 and 11). A reduction in private credit due to the financial crisis will also mean a reduction in rural credit and if rural credit is reduced, it could be expected that investments by agricultural companies and individual households in the agricultural sector will be reduced too.

244. Second, it is expected that food processing companies reduce their investments in the region as a consequence of the financial crisis. This is likely for both domestic and foreign investments. In the past years, FDI increased in the region. Investments in the food industry have played an important role in the reintroduction of vertically coordinated supply chains and the provision of credit to farmers in the post-transitional period. Vertical coordination of the supply chain was the solution for processors to guarantee to supply a certain quantity and, later on, also a certain quality. FDI in particular played an important role here.

245. One could expect an overall decrease in investments, because banks are expected to provide less credit to private companies and individual households and foreign investors are expected to reduce their investments. This could cause a stabilization in the recent productivity growth, depending on the extent to which the sector depends on formal credit.

Reduced demand for agricultural products

246. The financial crisis is expected to lead to an decrease of domestic demand for higher value agricultural products and a switch to basic products due to a decrease of the household’s disposable income. This decrease in income is caused by an increase in unemployment levels, macroeconomic instability and a decrease in remittances. In many countries, poverty is still high and there are inefficient social security systems, which cause even small losses in income to be difficult to cope with. Households in Kazakhstan and Turkey, were found to cope with this by switching to lower quality food and cutting non-essential spending (Hoelscher and Alexander, 2009). In 2008, dairy consumption in the Russia Federation decreased for the first time in last ten years (Serova, 2008).
An increase in public intervention

247. The governments in some of the countries, such as Kazakhstan and the Russian Federation, reacted to the crisis by increasing their expenditures on agriculture (Serova, 2008). In the Russian Federation, the Government provided RUB 25 billion to Rosselkhozbank, the Russian Agricultural Bank, at a special interest rate and RUB 4 billion to Rosagroleasing, a state-owned leasing company of agricultural equipment. In addition to this, some supported banks are obliged to provide 100 percent subsidized loans for certain agricultural projects. Finally, the Government of the Russian Federation also provided RUB 60 billion for the agricultural budget in 2008 and another RUB 21 billion for the agricultural budget in 2009-2010. In Kazakhstan, the Government injected USD 1 billion into agriculture to deal with the crisis.

248. These government interventions could be positive if they boost investments and help to stabilize or maybe enforce the growth in agricultural productivity. However, one should be careful that the increase in government intervention in the agricultural sector, does not lead to a (partial) reversal of reforms in the agricultural sector, which could have a negative effect on the efficiency.

O. POVERTY AND FOOD SECURITY IN EASTERN EUROPE AND CENTRAL ASIA

249. Poverty and food security was improving strongly in Eastern Europe and Central Asia before crisis periods hit the region. First, in the first semester of 2008, the region was confronted with rising food prices as a consequence of a worldwide food crisis. Later, in the second semester of the same year, a second shock affected the region, when the effects of the worldwide financial crisis became clear. These two crises have fed on each other. Although the food and financial crisis developed from different underlying causes, they are interacting through their implications for financial and economic stability, food security and political security. The food crisis has added to general inflation and macroeconomic imbalances to which governments must respond with financial and monetary policies. At the same time, the financial crisis and the accompanying decrease in economic growth have pushed food prices to lower levels by decreasing demand for agricultural commodities. Further, as capital becomes scarcer and more expensive and as consumer spending stagnates, the expansion of agricultural production to address the food crisis has been cut short (Von Braun, 2008).

250. In this section, the evolution of poverty and food security in the period before the food crisis is discussed. Then the effects of the recent food crisis is reviewed and finally the expected impact of the financial crisis is discussed.

P. EVOLUTION OF POVERTY AND FOOD SECURITY BEFORE THE TWO CRISES

251. A World Bank study reports a significant decline in poverty during 1998–2003 (Alam, et al., 2005). In 1998, approximately 20 percent of the population was living in poverty, whereas this was down to 12 percent in 2003. The decrease in poverty was the most important in the middle income, resource rich countries, such as Kazakhstan, the Russian Federation and Ukraine, but also in the poorer countries in the region, the number of poor in their country decreased.

252. The most important driving factor behind the poverty reduction is the overall high economic growth in the region in that period. Given the importance of economic growth in poverty reduction, it could be expected that poverty reduction in the region even accelerated in the past five years as the economic growth rates in the region were even more pronounced compared with the period 1998–2003.
Despite these positive findings, there are still some concerns with relation to the spatial dimensions of poverty reduction. In general, poverty rates are higher in rural areas than in the capital city or other urban areas (Macours and Swinnen, 2005). In the period 1998-2003, both rural and urban poverty decline substantially, but rural poverty is not catching up and therefore grows in relative importance (Macours and Swinnen 2005).

Q. IMPACT OF THE FOOD CRISIS ON POVERTY AND FOOD SECURITY

World market prices for major food commodities such as grains and vegetable oils have been rising sharply since 2006 growing, by a rate of more than 60 percent of previous levels. This was driven by a low stock-to-use ratio. Over a number of years, consumption was higher than production, shortfalls in grain production due to regional droughts reduced the supply, and also the disappearance of intervention stocks in the European Union and the United States worked in this direction. In combination with increased world demand due to higher imports from emerging countries, a growing world population and changing food patterns in developing economies, this situation resulted in a sharp increase in food prices (Kray, 2008).

Impact on different socio-economic groups

The impact of higher food prices differs substantially among socio-economic groups and typologies of households. In general, higher food prices can substantially hurt poor net food consumers (especially in countries where food still accounts for a large share in their household budget), while they have a positive effect on the income of net food producers. Urban poorer households, wage earners and net buyers of food, are likely to be more negatively affected than rural groups, as they usually are net food consumers of food products.

However, it is important to note that there are differences within the farmers’ group. In fact, in many countries there is a significant group of farmers with very small holdings, who do not cultivate enough land for self-production and are in fact net food buyers. These subsistence farmers represent a substantial part of the rural and even total population. A World Bank study found that in 2003 20 percent of the population in Georgia, 24 percent in Kazakhstan, and 40 percent in the Republic of Moldova, rely on their own farming activities as the main source of their livelihood (Alam, et al., 2005). In addition to subsistence farmers also agricultural labourers are net buyers of food products and will be negatively affected by the food crisis. In most countries of the region, except for Armenia, agricultural labourers represent a significant group in agricultural employment as the agricultural sector is mainly dominated by large agricultural enterprises (Table 12).

In case market imperfections do not avoid the transmission of high food prices to smallholders, the group of farmers that will have the possibility to profit from the rising food prices are the net food producers. In the short-run, higher food prices increase the income of these farmers. In the long-run, high food prices are not only to be expected to increase agricultural incomes, but also to increase investments in the agricultural sector. This will positively affect productivity, as well as produce some indirect effects on non-agricultural rural income (e.g. trade and services). The size of this multiplier effect will of course depend on the share of the increased agricultural rents ultimately invested and spent in rural areas. However, unless agriculture is a major component of the total GDP of agriculture-based countries, it is unlikely that the beneficial economy-wide effects of increased food production will offset in a major way the negative direct effects of increased prices on the urban poor (FAO, 2008).

Impact on different countries

The food crisis affected especially the poorer countries, such as Kyrgyz Republic and Tajikistan, which are traditionally net importers of food products and have a large share of net buyers of agricultural products.
In Tajikistan, especially urban households rely exclusively on markets for their food supply and they are most likely to experience food insecurity (World Food Programme, 2008a). In the autumn of 2008 15 percent of the urban Tajik population were severely food insecure, while another 22 percent were moderately food insecure. In rural areas food security was slightly better as only 11 percent of the rural households were classified as severely food insecure and 23 percent of rural households were moderately food insecure. These numbers were similar to the previous assessment of food security in the beginning of the same year. In some regions, the situation has improved, but in others it has deteriorated. In one region 70 percent of the interviewed households respond to cope with increasing food prices through reduced consumption (World Food Programme, 2008b). The data show that one of the main issues is access to food as most of the households are still finding it hard to purchase food and for many the only way is to rely on remittances or borrowing. Therefore, increasing food prices are expected to have negative implications on food security.

Similar findings are found in Kyrgyz Republic. In the autumn of 2008, 21 percent of all households were found to be severely food insecure and another 13 percent were moderately food insecure. There was a slight increase in the proportion of severely food insecure households in urban areas from the 1st to the 3rd quarter of 2008, possibly reflecting more economic difficulties for these households who depend on the market for the majority of their food and thus face larger expenses than rural households (Dhur, 2008).

**R. IMPACT OF THE FINANCIAL CRISIS ON POVERTY AND FOOD SECURITY**

The financial crisis and the accompanying slow down of the economy reversed the increase in commodity prices, which could be expected to have benefits for the food security and poverty of net consumers of food. However, at the same time, a reduction in real wages and employment and a decline in remittances are expected to negatively affecting the income of all households in the region and increasing poverty and food insecurity.

*Effect on the income of individual households*

In Tajikistan, it is estimated that a 30 percent decline in remittances would cut the consumption of households in the poorest quintile between 17 percent (rural) and 21 percent (urban) and increase headcount poverty from 53 percent to nearly 58 percent (World Bank, 2009a). In January 2009, 50 percent of the households with migrants had not received any remittances in the previous three months, and among the remittances recipients, 60 percent reported receiving less than usual. This trend is also confirmed by income data and by the fact that 43 percent of households estimate their economical situation as worse than last year, while only 1 percent of households indicate that their situation is better. At the same time, the economic situation is forcing households to take on new debts, mostly to buy and stock food (and feed). Half of the households surveyed have taken on new debts and one-third of them...
will not be able to repay them before two months. All the severely food insecure households borrow money exclusively for buying food. Shopkeepers also confirmed receiving more demand for credit (World Food Programme, 2009).

263. Also in the Russian Federation, a middle income country, the first figures show that the poverty is increasing again. In the summer of 2009, the Russian statistical agency, Rosstat, reported that the population below the national poverty line had increased by almost one-third from 13.4 percent of the population in the last quarter of 2008 to 17.4 percent during the first quarter of 2009, or an additional six million individuals lived in poverty (World Bank, 2009b).

Effect on government revenue

264. The financial crisis also negatively affects the government budgets, in addition to the effect on the households’ incomes discussed. This could have a negative impact on government spending on social assistance programmes, while these in fact need to be expanded given the expected increase in poverty. Governments also need to consider changing the eligibility criteria of the current programmes or to introduce new programmes, because some of the individuals that will fall into poverty because of the crisis may not be easily reached by existing social protection programmes. For example, returning migrants who do not qualify for unemployment insurance.

265. Currently, total spending on social assistance averages 1.7 percent of GDP in the region but there is substantial variation across countries, ranging from 0.5 percent of GDP in Tajikistan through 2.0 percent in Ukraine, which is still substantially lower than in the Organisation for Economic Co-operation and Development (OECD) countries where social spending on average augment to 2.5 percent of GDP (World Bank, 2009b).

266. Besides the total spending, also the coverage and the targeting accuracy vary between countries. Coverage rates, the share of households in the poorest quintile of the population reached by social assistance programmes, vary between 0 and 80 percent (Figure 47). Belarus and the Russian Federation have the highest coverage rates, followed by moderate rates in Armenia, Azerbaijan and Turkey, while the low-income countries in the region have the lowest coverage rates, reaching only 30 percent of the poorest quintile in Georgia and the Kyrgyz Republic and barely 1 percent in Tajikistan.

267. The targeting accuracy of social benefits, the share of benefits going to the poorest quintile of households, is rather poor in the region (Figure 48). In several countries the poorest quintile receives less than a third of the safety net benefits. It is remarkable that the countries that have high coverage rates, do not necessarily have a high targeting accuracy. For example, at 80 percent, the Russian Federation has relatively good coverage, but only 30 percent of total benefits go to the poorest quintile.

S. POLICY RECOMMENDATIONS

Stimulate economic growth

268. The best strategy to reduce poverty, improve the food security and enhance the agricultural productivity in the past, has been an increase in economic growth. Economic growth and the consequent increase in employment alternatives, have a positive effect on households’ income and through taxes and other government revenues also on the government budget. These effects will reduce poverty in two ways. First, an increase of households’ income has a direct effect on poverty, and second, the increase in government budget can be used to enhance social safety nets, helping to push the poor over the poverty line.

269. In the agricultural sector, growth of the non-agricultural economy is necessary to absorb the surplus labour. In the region, a further reduction of overemployment in the sector is crucial to enhance
productivity and growth of agricultural output. Additionally, economic growth enhances investments and research in the sector, two evolutions that can contribute to an increase in productivity, which is necessary to increase agricultural incomes and reduce rural poverty.

T. PROMOTE (FOREIGN) INVESTMENTS

270. Increased investments have been a major driving force behind the recent economic growth. In the agrifood industry in other more economic advanced transition countries, such as the new Member States of the European Union, foreign investments have been one of the, if not the, main engine behind productivity growth, quality improvements and enhanced competitiveness. The inflow of FDI in the food industry and the associated pressure on the domestic firms to restructure will lead to important changes in the agricultural supply chain.

271. The task of the Government will be to provide a favourable institutional and policy environment for stimulating more FDI. They can do this by providing a favourable institutional and regulatory climate for foreign investors. In this perspective it is important that the governments continue the reform process that started at the beginning of the 1990s.

272. Currently, there is a marked slowdown in reforms relative to previous years, but the number of reforms that are dismantled is still well below that of the crisis that affected the region in the 1998 (EBRD, 2009). There are at least three reasons which can explain this slow down. First, most governments in the region have been “fire fighting” in order to mitigate the worst effects of the crisis and had no time to spend on more fundamental reforms. Second, reforms are usually accompanied with short-term pain in order to achieve long-term benefit. In an economic harsh period such reforms become politically more difficult to implement. Third, some reforms, such as privatization, require private investors, which are scarce and will offer a lower price in current environment. However, despite these concerns, it will be important for the governments in the region to continue with the reform process in order to attract more investors as the economy recovers.

U. ENHANCE SOCIAL SECURITY SAFETY NETS

273. Social safety nets need to be strengthened to deal with the expected increase in poverty. However, the concrete measures that need to be taken differ between countries as social assistance systems in the region largely vary in size and targeting performance. It will be crucial to expand some of the well-performing programmes and reform the relatively less effective interventions.

274. Another crucial reform that needs to be taken in all countries is scaling up targeted programmes that reach the poorest quintile of the population. Most countries in the region, have at least one well-targeted programme where a high proportion of benefits reaches the poorest quintile of households. Examples of well targeted programmes include the Unified Monthly Benefit in the Kyrgyz Republic, the Family Benefit Programme in Armenia and the Targeted Social Assistance Programmes in Azerbaijan and Georgia, which deliver between 55 and 60 percent of their benefits to the poorest quintile. But their coverage, the share of the poorest quintile reached by these programmes, is generally less than 35 percent and should be expanded (World Bank, 2009b).

275. Finally, the governments in the region also need to consider to introduce new poverty-focused programmes that focus on the people that will fall into poverty because of the crisis and that are not reached by the existing social security programmes, such as for example, migrant workers that return to their home countries.
V. AVOID SHORT-RUN POLICIES THAT CONFLICT WITH LONG-RUN DEVELOPMENT GOALS

276. In the current environment, it is very important that governments do not implement inappropriate “panic” policies that may have welfare consequences far larger than the welfare losses resulting directly from the shocks themselves. In 2007-08, some countries imposed trade restrictions and price controls in response to rising food prices. Such policies redistributed income away from rural food producers to urban consumers (who tend to be richer). The net social impact may be even larger when considering the impact of such policies on production incentives and the likely spill over impacts of restrictive trade policies on neighbouring countries.

277. Additionally, it is important that policy responses do not conflict with the key longer-term reform agenda. For example, many of the restrictive trade and price controls that governments in the region adopted in response to the food price increases in 2007 have not been reversed and with lower food prices, these policies could be expected to further increase the poverty gap between urban and rural areas.

W. REFERENCES


## Tables

### Table 8. Workers remittances, compensation of employees and migrant transfers (USD million)

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
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### Table 9. Change in Input Use

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a Data from 2004
b Data from 2003
Source: National statistics, International Labour Organization (ILO) and FAOSTAT

Table 10. Domestic credit to private companies (% of GDP)

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Source: EBRD (2009)

Table 11. Domestic credit to households (% of GDP)

<table>
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Source: EBRD (2009)
Table 12. Individual land use

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<td>Ukraine</td>
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<tr>
<td>Uzbekistan</td>
</tr>
</tbody>
</table>

Note: Data on individual land use are from 1998, 1999 or 2000, depending on the data availability. Source: Csaki and Tuck (2000) and Macours and Swinnen (2002)
Figures

Figure 28. Evolution of the spread of the crisis

Note: The index ranges from 1 to 4 and is the sum of the following subindices:
- A 25 percent (or more) depreciation of the nominal interest rate with respect to the United States
- A 20 percent (or more) decrease of nominal house price index with respect to the pre-crisis index
- Two (or more) months decrease in production in the previous six months
- Two (or more) consecutive months of decline in net credit in the previous six months

Source: EBRD (2009)
Figure 29. Evolution of GDP per capita (1994=100)

Source: International Monetary Fund

Figure 30. Bank ownership patterns in Eastern Europe and Central Asia

Source: Barth, Caprio and Levine (2008); EBRD (various years); and World Bank staff estimates
Figure 31. Evolution of the non-performing loans (% of total loans)

Source: EBRD (2009)
Figure 32. Foreign Direct Investments (FDI)

Source: United Nations Conference on Trade Development (UNCTAD) online database

Figure 33. Evolution of commodity prices

Source: International Monetary Fund (IMF) online database
Figure 34. Evolution of the FDI inflow (US Dollars per capita)

Note: Data for 2007 and 2009 are estimates

Source: EBRD (2009)
Figure 35. Lending to private borrowers in the transition region (%) 

Note: The transition region also includes the Central and Eastern European countries that are already member of the European Union.

Source: EBRD (2009)

Figure 36. Growth in real GDP (%) 

Note: Data for 2008 are preliminary actual, mostly official government estimates and data for 2009 represents EBRD projections.

Source: IMF and EBRD (2009)
Figure 37. Decline in export volume (%)

Source: World Trade Organization (WTO) online trade database
Figure 38. Growth in unemployment (%)

Source: ILO online database

Figure 39. Change in exchange rate

Notes: Maximum depreciation between the third quarter of 2008 and the first quarter of 2009. Exchange rate defined as local currency against the United States Dollar.

Source: IMF
**Figure 40. Annual inflation (%)**

Note: Figures for 2009 are estimates  
Source: IMF (2009)

**Figure 41. Growth of non-performing loans (June 2008=100)**

Source: CEIC Data Company and EBRD (2009)
Figure 42. Change in Gross Agricultural Output (1990=0)

Source: National statistics and FAOSTAT
Figure 43. Change in ALP (1990=0)

Source: National statistics, ILO and FAOSTAT
Figure 44. Change in grain yieldsa (1990=0)

a Yields based on a three year moving average

Source: National statistics and FAOSTAT
Figure 45. Change in sugar beet yields a (1990=0)

-40 -30 -20 -10 0 10 20 30 40

Yields based on a three year moving average

Source: National statistics and FAOSTAT
Figure 46. Change in cotton yields (1990=0)

![Graph showing change in cotton yields](image)

*Yields based on a three year moving average

Source: National statistics and FAOSTAT

Figure 47. Coverage of overall safety nets

![Graph showing coverage of safety nets](image)

Source: World Bank (2009b)
Figure 48. Targeting accuracy of overall safety-net benefits

Source: World Bank (2009b)