Competitiveness and
Private Sector Development

KAZAKHSTAN

SECTOR COMPETITIVENESS STRATEGY

OECD

Competitiveness and Private Sector Development: Kazakhstan 2010

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Foreword

The long-term economic goal of the Republic of Kazakhstan is to support a balanced and diversified economy. Economic and foreign direct investment (FDI) diversification will help provide sustainable growth and ultimately improve the living standards of the people of Kazakhstan.

The strong economic growth of Kazakhstan in the past ten years has been driven largely by the performance of its natural resources sector. Currently, oil exports represent 65% of the value of the country's total exports. In addition, FDI into Kazakhstan, which accounts for over 80% of FDI in the Central Asia region, is concentrated in oil- and gas-related companies. Approximately three quarters of the foreign investments into Kazakhstan to date have flowed into the oil and gas sector. As such, the design and implementation of policies supporting economic and FDI diversification is a priority for the country.

In this context, the Government of the Republic of Kazakhstan collaborated with the OECD as part of the Central Asia Initiative of the Eurasia Competitiveness Programme to develop and implement a sector competitiveness strategy. This effort has helped Kazakhstan to sharpen its policy-making for diversifying its foreign direct investments and improving economic productivity.

The OECD recommendations included in this report are currently being implemented by the Government of Kazakhstan. Overall, this report will also serve as a model of analysis and policy development in the area of FDI diversification and sector competitiveness. It also marks an important milestone in the ongoing collaboration between the Republic of Kazakhstan and the OECD.

Mr. Karim Massimov,
Prime Minister of the Republic of Kazakhstan

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A number of Ministries, government agencies, and private sector associations in Kazakhstan contributed to this report. These include: Deputy Prime Minister Yerbol Orynbayev, Deputy Prime Minister Asset Issekeshev, the Ministry of the Economy and Budget Planning (B.T. Sultanov, Assistant to the President and former Minister; Zhanar Aitzhanova, Minister; M.A. Khussainov, Deputy Minister; B.K. Tortaev, Director of the investment policy department; A. Abenov, Head of division; B. Maserbayeva, Head of unit), the Ministry of Agriculture (M.A. Orazayev, Deputy Minister; A. Yevniyev, former Deputy Minister; Taskuzhin Amangeldy, Director of Department of International Cooperation; Yessimov Taspulat, Deputy Director of Agriculture and Phytosanitary security; Idrissov Kanat, Deputy Director of Department of Livestock and Veterinary security; Aimakhanova Nurbala, senior expert; Puchkova Svetlana, expert), the National Holding Kazagro (L.S. Musina, Deputy Chairman), KazagroMarketing's Analytical Centre of Economic Policy in the Agricultural Sector (Rakhim Oshakbayev, Director; Regina Taitukova and Yerlan Syzdykov, analysts), the Ministry of Industry and Trade (Nurbek Rayev, former Deputy Minister; Nikita Ivakhnenko, expert; A. Dosanov, Head of the investment co-operation division), the National Analytical Center (Ayana Manasova, Chairman; Alexander Dauranov, Deputy Chairman; Nazipa Ayubayeva, former Manager), Kaznex Invest (T. Nurashev, deputy chairman of Kaznex Invest; Aizhan Zhantayeva, Managing Director; Aida Urazaliyeva, Manager), the Sovereign Wealth Fund "Samruk-Kazyna" (Baurzhan Baimukhanov, Executive Director), Kaznex Invest (Mariyam Yerdaliyeva, specialist; Nurlan Syzdykov), the Forum of Entrepreneurs (Raiymbek Batalov, Chairman), the National Economic Chamber "Soiuz Atameken" (E.S. Nikitinskaya, Deputy Chairman), the Chamber of Commerce CCI (Kononova Tatiana, Chairperson in Astana).

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The report was written under the guidance of Carolyn Ervin, Director of the Directorate for Financial and Enterprise Affairs (DAF), and Anthony O'Sullivan, Head of the Private Sector Development Division within DAF.

Fadi Farra, Head of the Eurasia Competitiveness Programme and adjunct lecturer in political economy at both the Harvard University Kennedy School of Government and HEC Paris, led and supervised the study. Antonio Somma, Economist, was project manager of the work. The individual chapters were written by a core team of policy analysts and

consultants: Claire Burgio, policy analyst and project co-ordinator (wheat sector, methodology); Gregory Lecomte, policy analyst (meat, dairy, chemicals and logistics); Romanita Berghia-Revenko, consultant (IT and business services); Piret Hein, consultant (Single Commodity Transfer); Sergiy Rusnak, consultant (agribusiness); Yergali Dosmagambet (IT spillover study); with input from Professor Jo Swinnen (agribusiness workshop).

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The report underwent a quality review by a panel consisting of OECD experts, academic peers, and external country specialists affiliated with the OECD. Andrzej Kwiecinski, Senior Agriculture Policy Analyst in the Development Division of the Trade and Agriculture Directorate, led the review of the agriculture content of the publication. Alexander Böhmer, Senior Economist, Ania Thiemann, Economist and Sara Sultan, Policy Analyst at the OECD, participated in review discussions. Dr. Richard Pomfret, Professor of Economics at the University of Adelaide with an expertise on Central Asia, reviewed the publication in its entirety. Dr. Johan Swinnen, Professor of Development Economics at the University of Leuven, Belgium and a specialist on agricultural economics, held a two-day workshop at the OECD in the early stage of the analysis. Dr. Volker Frobarth, Programme Director at the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) in Central Asia, reviewed the publication upon completion. In addition, the publication was reviewed in Kazakhstan by the National Analytical Center (NAC), and Ministry of Industry and Innovation.

The final report was edited and prepared for publication by Fadi Farra, Antonio Somma, Claire Burgio, Gregory Lecomte, Romanita Berghia-Revenko, Sergiy Rusnak, Laura Boutin, Vanessa Vallee and Edward Smiley.

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Abbreviations

AM	Application management
ASP	Application Service Provider
ASRK	Agency of Statistics of the Republic of Kazakhstan
BIAC	Business and Industry Advisory Committee to the OECD
BISAM	Business Information, Social and Marketing Research Center
BOT	Budgetary transfers
BPO	Business process outsourcing
BSE	Bovine Spongiform Encephalopathy
B2B	Business-to-business
B2C	Business-to-consumers
Ca	Calcium
CAGR	Compound annual growth rate
CBT	Computer-based training
CCS	Country Capability Survey
CEE	Central and Eastern Europe
CIS	Commonwealth of Independent States
CMMI	Capability Maturity Model Integration
CSS	Contact centre services
EPZ	Export processing zones
ERP	Enterprise resource planning
F&A	Finance and accounting
FCC	Food Contract Corporation
FDI	Foreign direct investment
FIS	Foreign Investor Survey
FMD	Foot-and-mouth disease
FTZ	Free trade zones
GAO	Gross agricultural output
GRDI	Global Retail Development Index
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HACCP	Hazard Analysis and Critical Control Point
HR	Human resources
ICT	Information and communication technology
IPA	Investment promotion agency
IT	Information technology
ITO	Information technology outsourcing
KPO	Knowledge processing outsourcing
MENA	Middle East and North Africa
Mg	Magnesium

MMT	Million metric tonnes
MNE	Multinational enterprise
MOK	Mal Onimdery Corporation
MPD	Market price difference
MPS	Market price support
MSME	Micro, small and medium enterprises
NAC	National Analytical Center
NACE	Classification of Economic Activities in the European Community
NPK	Nitrogen, phosphorus and potassium
NUA	New University Astana
OECD	Organisation for Economic Co-operation and Development
PFC	Policies for Competitiveness Framework
PFI	Policy Framework for Investment
PIM	Perpetual inventory method
PO	Producers' organisations
PPF	Policy Prioritisation Framework
PPP	Public-private partnership
PSE	Producer support estimate
S	Sulphur
SaaS	Software as a service
SCF	Supply chain financing
SCSR	Sector Competitiveness Strategy and Review
SCT	Single Commodity Transfer
SEZ	Special economic zone
SLA	Service-level agreement
SME	Small and medium enterprise
SPC	Service Production Centres
SPF	Sector Prioritisation Framework
SZ	Specialised industrial zones
TEU	Twenty-foot equivalent unit
TFP	Total factor productivity
UA	User assistance
UI	User interface
WTO	World Trade Organization
3PL	Third-party logistics
4PL	Fourth-party logistics

Executive Summary

An emerging economy with a strong potential for competitiveness

The Republic of Kazakhstan is the world's largest land-locked country, with a territory of 2 725 thousand square kilometres – larger than Western Europe. Since the country declared its independence in December 1991, it has emerged as a key economy in Central Asia. Since 2000, per capita income doubled,[1] the unemployment rate has been halved, and close to USD 30 billion of foreign exchange reserves have been accumulated by the National Bank of Kazakhstan (NBK) and the National Fund. From 2000 to 2008, the economy of the Republic of Kazakhstan (real GDP) grew at an average annual rate of over 9%, among the ten highest rates in the world. Despite a drop in 2009, real GDP was growing at 8% year-on-year, as recorded in the first quarter of 2010. However, despite this strong economic performance, several challenges have emerged.

- **Economic diversification**. The economy is narrowly based, with economic activity and investment concentrated in the hydrocarbon and mining sectors (oil and fuel products account for 65% of the country's exports). The 2008-09 financial crisis, which led to falling demand for crude oil, highlighted the need to accelerate the diversification of the production base beyond these sectors.
- **Competitiveness of non-oil exports.** Challenges include significant delays in time required to export and import, major skill gaps in the service sectors and limited technical standards. Kazakhstan ranked second to last out of 183 countries in the World Bank's 2010 Doing Business survey on the ease of trade across borders.
- **Income inequalities.** The overall poverty rate remains relatively high (16-17%) and exceeds 25% in some rural areas, although GDP per capita is estimated to have risen by 75% since 2000.[2] According to a recent World Bank assessment, the Republic of Kazakhstan has the widest regional economic disparities among Eastern European and Central Asian countries. Real gross regional product (GRP) per capita in Kazakhstan is large and rising.[3]
- **Impact of the financial crisis.** While the Kazakhstan economy was experiencing rapid growth, leading Kazakhstan banks borrowed heavily from abroad, building external debt amounting to roughly 44% of GDP. Repayments have forced banks to reduce loan activity and limit clients. The decline in credit growth may exert a sustained drag on the country's macroeconomic performance.

A number of initiatives have been adopted by the government in order to address these structural challenges, often with some success. For instance, the government initiated the modernisation of the banking sector, trade liberalisation, the adoption of an inflation

target policy and the reduction of the external debt. New laws and regulations to improve the business environment were introduced – for instance, easing the tax burden on companies by lowering the social tax for 2008 and the corporate income tax for 2009 from 30 to 10%. Business start-up was made easier by simplifying documentation requirements and abolishing the need to register at the local tax office. Overall, on the back of such reforms, Kazakhstan improved its global ranking in the World Bank's Doing Business survey, moving from 80th position in 2008 to 63rd in 2010.

Regional development programmes have also been put in place to pursue such objectives as reducing regional discrepancies in living standards and stimulating economic development of the *oblasts*[4]. In 2009, for instance, the government developed a national Regional Development Strategy, working alongside the European Commission and the World Bank to examine ways to make Kazakhstan's regional development programmes operational and effective.

To address the challenge of diversification, a number of development agencies and research centres have been established, as well as technology and science parks, to support the diversification of higher value-added industries. In the same vein, in 2005 the government approved a cluster project to design and develop clusters in tourism, textiles, agriculture and processed foods, minerals, and oil and gas. More recently, the president decided that one of the five key directions and strategic targets for the next ten years should be the accelerated diversification of the economy (January 2010 annual message to the people of Kazakhstan). Key diversification priorities will be achieved within the work frame of the "Government program of the forced industrial innovative development of the country for 2010-14".

The issue of diversification thus remains very much at the forefront of Kazakhstan's growth agenda. In 2009, 70% of all foreign direct investment (FDI) inflows into Kazakhstan went to the energy extraction and related geological services sectors – approximately twice the share of the mid-1990s.

The diversification imperative

Diversification efforts can be challenging for an economy like Kazakhstan's for several reasons, among them the so-called "Dutch disease". Abundant natural resources may indeed lead to the appreciation of the country's real exchange rate, thereby making manufactured goods less competitive than those of other nations, and so increasing imports and decreasing exports (a process of de-industrialising would then ensue). While some resource-rich economies (*e.g.* Norway, Botswana, and Malaysia) have successfully tackled diversification challenges, these cases are rare. Best-practice policy reforms included the building of strong core capabilities and the appropriate use of energy revenues. Recent studies on economic diversification in resource-abundant economies highlight the deleterious impact of poor capabilities and institutional quality (Tsalik, 2003; Bulte, Damania and Deacon, 2005). A system whereby extractive resources flow through the government may be prone to corruption. To help break the "curse", governments are encouraged to make plans to employ their current resource wealth for the benefit of future generations. Foreign investors can encourage democratic reforms such as the creation of institutions which create checks and balances on spending decisions, and a free press to promote accountability (Tsalik, 2003).

Governments typically have a number of instruments at their disposal to promote economic diversification, including exchange rate policy, targeted government spending, subsidies, tariff policies, and foreign direct investment. Real exchange rate policy can play an important role in the development of industries producing internationally tradable goods, effectively acting as an "across-the-board" subsidy. By increasing the profitability of tradable activities, a competitive real exchange rate targets the development of tradable sectors (Rodrik, 2005). Targeted government spending, *e.g.* via research and development activities, technological assistance and subsidies, may also constitute effective tools for the promotion of sectors of the economy. Some examples of this are the fishing and forestry sectors in Chile, which benefited from the technological and R&D support of Fundación Chile, a public-private entity, and the preferential tariff policies applied under the North American Free Trade Agreement (NAFTA), which helped foster the growth of the motor vehicle sector in Mexico (Rodrik, 2005).

FDI can play an important role in building longer-term capabilities and in diversifying the economy when coupled with policies designed to facilitate the transfer of knowledge and technology between firms. Given the right conditions, FDI can help initiate new industries, particularly for exporting. However, there is a general consensus that the quality rather than the quantity of FDI is what really matters. This relates to export orientation, the level of technology and marketing knowledge. Moreover, some economists caution against the possible negative effects of FDI, notably a so-called "neoliberal race to the bottom" whereby governments competing for FDI outbid each other through lower taxation and higher incentive packages (Hayes, 2003; Basinger and Hallerberg, 2004).

The role of FDI in building long-term capabilities

A large body of research highlights the role of FDI in building long-term capabilities that could support the overall competitiveness of a country. Domestic firms benefit from the presence of FDI via systematic, positive productivity spillovers. For instance, one important channel of spillovers is technology transfer through labour mobility (Kaufmann, 1997; Haaker, 1999). Domestic firms are also motivated to adopt advanced technologies in order to meet competitive pressures – the so-called "competition and demonstration effects" (Wang and Blomstrom, 1992). Lastly, forward and backward linkages between foreign and domestic firms constitute opportunities for positive spillovers (Rodriguez-Clare, 1996; Blomstrom and Kokko, 1997). China's exploitation of FDI to promote the development of domestic sectors of the economy, such as personal computers or mobile phones, is an example of how this can succeed. Where China differed from other countries was in its requirement for transnational corporations wishing to invest in the country to do so through joint ventures rather than wholly-owned entities. Joint ventures facilitate the transfer of technology and capacity-building between firms. In Latin America for instance, the "wholly-owned" format may be a less effective way to promote sectoral development in the host country.

Between 2004 and 2009, FDI inflows were growing in Kazakhstan at almost 25% a year, reaching USD 12.6 billion in 2009. FDI in the energy sector has been growing steadily since the early 1990s. Approximately 75% of total FDI inflows into the country go to the oil and natural gas sector, including a wide range of activities supplying the sector, such as transport, services, infrastructure, equipment and engineering. In 2009, OECD countries accounted for about 70% of total FDI inflows into Kazakhstan with strong investment from

the United States, the United Kingdom, Italy, France and the Netherlands (traditional headquarters of leading oil companies).

FDI plays an essential role in addressing external financing challenges. In 2009, Kazakhstan's overall reliance on external financing represented 8.2% of GDP, with FDI accounting for over 140% of the total amount and thus offsetting high capital outflows in bank lending.

The study presented in this chapter builds on the basic idea that strengthening and diversifying FDI in Kazakhstan is one of the key factors in enhancing competitiveness in the country.

Enhancing the competitiveness of non-energy sectors

For Kazakhstan to enhance the competitiveness of non-energy sectors and attract foreign investment in these sectors, it must overcome two hurdles.

First, OECD countries, which account for over two-thirds of total FDI inflows in Kazakhstan, have experienced a sharp decline in outward FDI since the onset of the economic crisis in late 2008.

Second, in 2009 OECD countries still captured close to 68% of global FDI inflows. Kazakhstan sectors are thus competing with high-growth emerging economies such as Russia, India and China to capture a share of the remaining 32% of global FDI inflows.

Kazakhstan can rely on several clear competitive advantages to meet this challenge: its cost of labour in services is half that of Poland or Hungary – countries that are attracting a new wave of investment – and slightly lower than that of Russia. In agriculture, the country can rely on ample grassland to breed cattle and vast arable land for crop production. Currently, up to 3.5 million hectares of reserve arable land is unused, representing about 15% of the country's total arable land. Low production costs (*e.g.* half those of France for wheat, and approximately 60% of those of Ukraine and Russia) put it in a good position to compete on the international market.

In order to determine which strategy could best use these advantages to enhance competitiveness and diversify sources of FDI for Kazakhstan, the study described in this chapter explored three questions:

- Which non-energy sectors of the economy would be most likely to benefit from FDI in order to enhance productivity and competitiveness in Kazakhstan?
- How could investment and competitiveness in those specific sectors be increased?
- How could competitiveness be sustained through longer-term structural reforms, policy dialogue and monitoring?

In this study, the OECD adopted a demand- and FDI-driven approach with a focus on removing policy barriers in key priority sectors, as well as promoting FDI-led capabilities.

Recommendations on how to move up the value chain in targeted sectors

Several initial priority sectors for foreign direct investment were singled out for Kazakhstan: the agribusiness value chain, including the wheat, beef and dairy sectors, the

agrochemicals sector and the logistics sector for agribusiness, and the information technology (IT) and business services sector. These sectors were selected on the basis of market attractiveness (which incorporates the competitive advantage and potential growth of a sector in a country, and FDI attractiveness) and country benefits, for example through the transfer of skills and technology and higher employment.

In these sectors, Kazakhstan can rely on several sources of competitive advantage. In the wheat sector, for example, Kazakhstan has a large land area (24.5 million hectares of arable land, representing the 14th largest arable land area of the world); very favourable natural conditions for growing grain that produce high-quality hard spring wheat; low production costs compared to its regional competitors; and a freight cost advantage to North Africa, Europe and the Middle East. For example, it is two to three times cheaper to transport wheat from Kazakhstan to Egypt than from other major grain exporters like Australia, the European Union (EU) and the United States. The transformation from a central-command to a market-oriented economy had a short-term adverse impact on Kazakhstan's grain sector in the 1990s, with production levels and yields being drastically curtailed. Kazakhstan's increase in production since then has been quite remarkable, yet some room for improvement remains. Kazakhstan has considerable scope for improving the productivity of the land, targeting Middle East and North Africa (MENA) markets for wheat, and moving up the value chain by producing starch and gluten on a larger scale. The extent to which productivity can be increased and currently unused land transformed into arable land are important questions.

In the beef sector, the country benefits from extensive pastures (estimated at 189 million hectares), relatively low production costs (57% of France's beef production costs), low processing costs and access to premium markets, particularly Russia. Livestock production has been a key economic activity in Kazakhstan for centuries and continues to provide a major source of employment, food and income for the rural population. Kazakhstan should focus on re-invigorating this sector by promoting investment that would increase the quality of feed and increase the cattle inventory, and upgrade the standards of beef products (especially sanitary and quality standards) to bring them in line with international requirements. It should also target markets like Russia.

In the dairy sector, farms enjoy a low-cost production structure (63% of France's production costs), favourable sector development trends and an opportunity to move up the value chain into value-added dairy products in the medium to longer term. However, some quantity and quality issues need to be addressed. Access to finance schemes (particularly supply-chain financing), producer organisations and extension services are very promising means of promoting investment in the sector by increasing the quality of feed or the milk animal inventory, upgrading the standards of milk products, etc. In the longer run, the country should position itself as a producer of higher value-added dairy products, such as milk powder. Based on import trends, Kazakhstan should focus its exports on the markets of Central Asia and the Middle East.

The Government of Kazakhstan should adopt a clear investment promotion strategy aimed at attracting FDI into food processing and modern retail for the agribusiness value chain as a whole. Addressing the requirements of food processing companies and modern retailers regarding the availability, quality and safety of beef-based, wheat-based and dairy products would help spur the development of the entire supply chain. The productivity improvement observed in China and India based on the development of modern retail could be replicated. For instance, wheat processors will be challenged to procure high quality wheat to process into flour, starch and gluten for the production of bread and pasta

sold in modern retail outlets such as supermarkets. At the same time, contracts with large food-processing or retail companies can ease the financial constraints on local farmers through supply chain financing mechanisms.

In the chemicals for agribusiness sector, Kazakhstan is fortunate in having existing production capabilities, locally available raw materials (including large phosphate rock deposits estimated at between 4 and 15 billion tonnes) and significant reserves of natural gas and sulphur. It also has access to affordable imported ammonia and inexpensive local and regional transport to meet fast-growing domestic and regional demand. Nevertheless, the sector faces a number of challenges, notably the use of basic and outdated technologies, low levels of investment, high transport costs outside the region and low-quality products. In order to boost the competitiveness of the sector, the government should focus on attracting foreign technologies and know-how to improve the quality and cost competitiveness of domestic products. A sector-specific investment promotion and facilitation strategy directed at global fertiliser producers could raise awareness among foreign companies about investment opportunities in the country, generating inflow of FDI and introducing modern, low-cost production technologies. Access to long-term financing for large-scale projects in the chemical sector, as well as improving access to finance for the farming sector, is also essential for the improvement and competitiveness of the fertiliser sector in Kazakhstan.

Kazakhstan is well positioned to become the IT and business services sector platform for Central Asia, given its stable political and macroeconomic systems, relatively low labour costs (two times less expensive than Central Europe) and strong skills base. The IT and business services sector is still in an embryonic phase but there is a rapidly growing potential nurtured by local demand, in particular from government institutions and foreign and local investors present in Kazakhstan. The IT market in Kazakhstan grew at an annual average rate of 12% from 2005 to 2008. However, the country needs to address the gaps in human capital: limited human capital capabilities were quoted by the private sector in Kazakhstan as the key element hindering the sector's development. Although the public and private sectors have embarked on several initiatives aiming at human capital improvement, this challenge can best be approached through a public-private dialogue. The government should create a working group of members made up of the private and public sectors to tackle the mismatch between skills demand and supply. Linkage programmes may help attract investors and clients, and encourage knowledge transfer mechanisms.

Sustaining reforms through public-private dialogue, human capital and more effective investment policy and promotion

Sustaining reform and removing policy barriers to encourage competitiveness are critical in the long run. This means that in the future, the focus of support needs to be on developing dedicated and stable capabilities, institutions, mechanisms and processes that will empower Kazakhstan to move the process of enhancing competitiveness forward. In addition to tackling broader economic or monetary policy reforms, this support could be based on three mutually-reinforcing pillars:

- **Implementation of sector-specific policy reforms and related institutional development that establish a systematic approach to removing policy barriers to**

investment and trade in key sectors. The expected outcome is the enabling of targeted sectors to compete more effectively at the global level. To address this objective, the Government of Kazakhstan should create policy working groups, for example for agribusiness.

- **Human capital development as an essential factor to establishing the mechanisms required to match the supply of skills to market demand and enhance overall skills in Kazakhstan.** Specific objectives include reducing skills gaps, allowing more flexible hiring by firms, and ensuring the relevance of human capital policy through effective institutionalised and consultative mechanisms. To address this issue, it is recommended that a public-private working group for human capital enhancement be established, with an initial focus on IT. Linkage programmes should be considered when implementing the recommendations of this report and as part of the working group.
- **Supporting investment policy, promotion and innovation to stimulate projects through partnerships between local and international firms, and universities and civil society, fostered by a systematic regional approach.** Specific objectives would include improving the level of competitiveness by focusing research and development efforts, enhancing knowledge transfer and developing policies to organise and deliver government services more efficiently. Governance mechanisms to attract FDI at regional and national levels would provide an organisational framework for delivering government services that are better tailored to industry demand. The creation of a single Kazakhstan investment promotion agency supported by a network of stakeholders within and outside the country would be part of this exercise. This should be supported by the implementation of an OECD Investment Policy Review for eventual adherence of the Republic of Kazakhstan to the OECD Declaration for International Investments and Multinational Enterprises. To this end, the OECD Secretariat recommends the creation of a Working Group on Investment Policy and Promotion.

Notes

1. GDP per capita in purchasing power parity constant 2005 international dollar exceeded 10 500 at the end of 2009.
2. European Commission: EU's Relations with Kazakhstan – Overview: *http://ec.europa.eu/comm/external_relations/kazakhstan/intro/index/htm*. Note: Poverty line as per the OECD and European Union definition: 60% of national median-equivalised household income.
3. "Poverty and Regional Development in Eastern Europe and Central Asia", March 2007, Europe and Central Asia Chief Economist's Regional Working Paper Series, Vol. 2, No. 1.
4. Administrative division.

Introduction

Launched in July 2008, the OECD Eurasia Competitiveness Programme is a regional programme that contributes to the economic growth in eleven countries of the former Soviet Union and Afghanistan and Mongolia. The Programme involves close co-operation with public authorities, the private sector and civil society in these countries to support economic policy reforms and improve the business climate. It generates impact through an integrated framework based on two pillars: regional policy dialogue, peer dialogue and capacity building; and country-specific support in implementation at the regional, national and sub-national level. The regional approach allows countries to engage their peers in working to design and implement successful policies and institutions. Both pillars incorporate a sector-specific approach. As part of the Central Asia Initiative of the Eurasia Competitiveness Programme, a sector competitiveness review was initiated for the Republic of Kazakhstan to help diversify its sources of foreign direct investment and strengthen sector competitiveness. This project was designed to follow a three-phased approach over three years (2009-11): first by developing a sector competitiveness strategy (Phase 1), then by implementing specific aspects of the recommended policy reforms (Phase 2) and finally by assist in embedding mechanisms for sustainable reform (Phase 3). The objective of Phase 1 of the project, co-financed by the Republic of Kazakhstan in collaboration with the EU, is to support the country in defining a targeted competitiveness and investment promotion agenda.

This report constitutes the output of Phase 1 of the project. It provides policy-makers and the private sector with proposals for actions based on an OECD analysis of investment drivers and policy barriers to be addressed in non-energy sectors. Key recommendations across the agri-business and business services sectors include the need to stimulate quality improvements and modernise production assets by promoting access to finance, attracting modern retailers and addressing skills gaps. The report is the result of a collaborative effort with policy-makers and representatives of the private sector in Kazakhstan. It should serve as an important message for policy makers in the country.

PART I.

Approach, Methodology and Research

Approach, Methodology and Research

The methodology used in this study focuses on strategic co-ordination between governments and firms. Its main characteristics are vertical: addressing policy barriers from a sector and value-chain perspective; capability-based: targeting sectors to generate high spillover and to enhance capabilities; and demand-driven: leveraging feedback from foreign investors and the local private sector on their priorities. The tools and frameworks used include a vertical approach to policy reform, including the Sector Prioritisation Framework; a review of OECD best practices related to diversification; an evaluation of the Single Commodity Transfer; and primary research.

The OECD Sector Competitiveness Review is a country-specific methodology and project aiming to diversify FDI across sectors of the economy and strengthen sector competitiveness in Kazakhstan. The project was designed to follow a three-phase approach over three years (2009-11): Phase 1 – developing a country competitiveness strategy; Phase 2 – targeted implementation of the competitiveness strategy; and Phase 3 – embedding sustainable reforms. During Phase 1 of the project, OECD experts worked closely with public authorities and the private sector in Kazakhstan, as well as representatives from business associations in OECD member countries, to develop a country competitiveness and investment strategy. The approach was based on the analysis of value chains, investor activities and policy barriers, with a view to building long-term capabilities in the country.

The project uses a comprehensive methodology to help identify and remove sector-specific policy barriers. This approach helps focus scarce resources on specific sectors to increase the likelihood that policy reforms are implemented; generates interest and involvement from the private sector early in the process (*e.g.* through industry associations and chambers of commerce); and produces specific and actionable policy recommendations to support the growth of a sector. In this way, the focus is not on the active pursuit of first generation industrial policy, but rather to initiate a process where government and firms engage in strategic co-ordination. Close government-big corporation co-operation in the policy-making process, rather than the specific policy design *per se*, may be credited for the economic success of East Asian countries for instance (Chowdhury and Islam, 1993).

Thus the main characteristics of the adopted approach are:

- Vertical: focusing on enhancing competitiveness and addressing policy barriers from a sector and value-chain perspective (*e.g.* in agribusiness, from the input supplier to the farmer to the retailer) but also across value chains (*e.g.* chemicals, IT and logistics for agribusiness).
- Capability-based: targeting sectors which have the propensity to generate high spillover on the rest of the economy and to enhance capabilities in areas such as human capital, access to property, infrastructure, information, innovative capacity and access to finance.
- Demand-driven: leveraging feedback from OECD foreign investors and the local private sector on their priorities, based on primary research including the OECD Country Capability Survey (CCS), and Sector Prioritisation Framework (SPF).

The OECD Secretariat carried out the analysis using a number of proprietary tools and frameworks, including:

1. The OECD definition of competitiveness.
2. A vertical approach to policy reform.
3. Secondary research.
4. The Sector Prioritisation Framework (SPF).

5. The Sector Competitiveness Review.
6. A review of OECD best practices.
7. The Single Commodity Transfer (SCT).
8. Primary research.

I.1. Defining Competitiveness

The OECD defines competitiveness as "The degree to which a country generates, while being and remaining exposed to international competition, relatively high factor income and factor employment levels" (OECD, 1997). Openness to world trade is a key driver of competitiveness: the ability of countries to achieve increased prosperity is linked to the extent to which they participate actively, and competitively, in the global economy. OECD economies, for instance, have become increasingly integrated into the world economy. Between 1999 and 2007, trade-to-GDP ratios (a measure of countries' openness or integration in the world economy) for the OECD countries increased by 20% on average. In the same period, OECD countries experienced significant rises in prosperity, with GDP per capita levels increasing by 44% on average.[1] Besides openness to trade, two key elements determine a country's relative competitiveness: labour productivity, and the strength of the private sector. These can be supported by a combination of governmental policies, especially in human capital and access to finance, and foreign direct investment.

Labour productivity is a key element of competitiveness, particularly in countries with low relative labour costs where there is little potential for increasing competitiveness through wage reductions. Competitiveness in this case must come primarily from increased productivity through the greater development of worker skills. Value added per worker, the traditional measure of labour productivity, can be improved using policies to promote innovation and the transfer of knowledge, further technological advancement, and to enhance the quality of capital. These, in turn, are facilitated by the relevant human capital and access to finance policies. Governments have a key role to play in this regard: they need to remove common major bottlenecks and reduce the costs of doing business.

The private sector is also a key driver of competitiveness. It is a source of knowledge, skills and resources, and a key engine of growth for industrial development. In this context, the role played by micro, and small and medium enterprises (SMEs), which, on average, make up over 90% of enterprises in the world and account for 50-60% of employment in developing countries, is particularly important (UNIDO, 2005). Efforts to foster private sector growth should focus on improving the business climate, including improving export procedures and providing access to finance for SMEs that would encourage the entry of new firms as well as increase the share of employment in the private sector. To support governments in fostering competitiveness and private sector development, the OECD Secretariat has developed the Policies for Competitiveness Framework (PFC) which is mainly based on the Policies Framework for Investments Instrument. This tool follows a broad horizontal approach, looking systematically across ten dimensions of the business climate to identify and analyse key constraints on the ability of firms to produce, invest and grow. These dimensions include investment policy and promotion, human capital development, trade policy and facilitation, access to finance, regulatory reform, tax policy and infrastructure for investment. The PFC can help governments design and implement policy reform to create a truly robust and competitive environment for domestic and foreign investment.

I.2. Economic and FDI diversification and vertical approaches to policy reform

For countries with abundant natural resources (such as oil), specialisation in a single economic sector can be a source of high risk stemming, in particular, from exposure to the uncertainties of the international markets. Indeed since the late 1980s, it has been well documented that natural resource abundance increases the likelihood that countries will experience negative economic and political pressures. On the basis of large datasets, a number of studies such as those by Sachs and Warner (1995), Leite and Weidmann (1999), Gylfason (2004) and Auty (2001) found that natural resource abundance was negatively correlated with economic growth. The literature on the so-called "resource curse" in oil-dependent economies in particular the "Dutch disease" point to two effects: the crowding out of the non-petroleum tradable sector resulting from the appreciation of the real exchange rate, and increased "rent-seeking" behaviour (*i.e.* the practice of appropriating a portion of production by gaining ownership or control over pre-existing natural resources).

The economic and FDI diversification strategy is critical to reducing natural resource dependence, and to supporting sustainable long-term economic growth and employment creation. Economies like Kazakhstan, which depend heavily on oil proceeds, could channel these into other promising sectors of the economy. Identifying priority sectors from an investment promotion perspective is thus essential to proactively addressing diversification challenges (Rodrick, 2009). In this regard, policy-makers should consider:

- Sectors that hold current or future FDI attractiveness potential, but also country benefits, including attractiveness of quality capital, higher employment, and transfer of skills and technology, but also sectors that can help move up the value chain (see OECD Sector Prioritisation Framework).
- Sectors that help address core country capabilities, including access to finance, human capital, access to property, access to information, innovation and infrastructure.
- Sectors that have close correlations with many other sectors on the basis of skills and infrastructure required (also called "proximity" in Hausmann's product space theory). For example, countries develop goods close to those they currently produce because they require similar institutions, infrastructure, physical factors, and technology. The notion of spillover effect across industries features prominently in the product connectedness theory. In the case of Kazakhstan (Box I.1), the product connectedness theory highlights the proximity between the agriculture and oil sectors, lending support to the selection of the agriculture sector as an area to prioritise.

Adopting a sector-specific approach based on the above principles allows a country to focus scarce resources. In terms of investment promotion, it serves as a tool to prioritise key sectors with attractiveness and country benefits potential. It increases the likelihood that policy reforms are implemented. Furthermore, clear consideration is given to building longer-term capabilities by focusing on sectors which contribute to wider horizontal capabilities, for instance in the areas of human capital, infrastructure, and access to finance (Figure I.1).

Moreover, in this report the OECD Secretariat adopted a value chain approach to map sectors, encompassing all the activities and services involved in bringing a product or service from conception to end use, from input supply to production, processing, wholesale and retail. One of the key features of the value chain approach is that it demonstrates the relationship between the performance of the sector and public sector

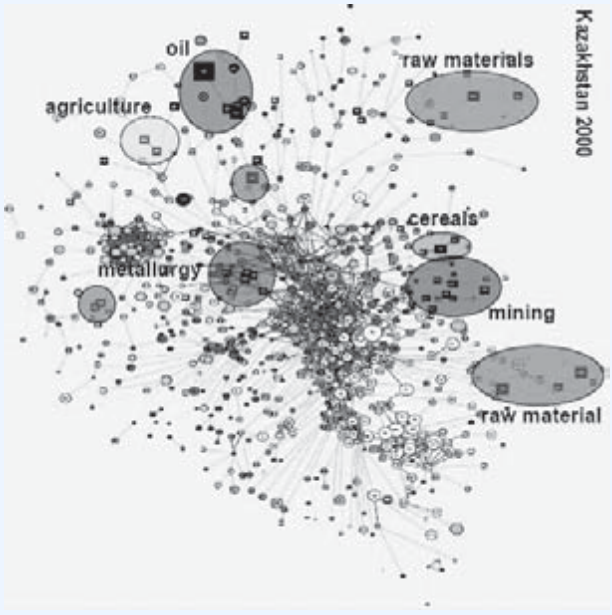
Box I.1. **Product connectedness**

Conventional economic theory predicts that a country's commercial expansion is linked to its underlying factors of production, such as transportation infrastructure or the availability of skilled and unskilled labour. According to this theory, a country with the capacity for making computer chips, for instance, should also be competitive in other industries that require skilled labour, such as vehicle manufacturing. An alternative theory has recently emerged among a team of economists and physicists, most prominently in the work of Hausmann and Klinger. Rather than starting from factors of production, the emphasis is shifted to a new notion of closeness between products. A product space is defined, featuring correlations between industries on the basis of skills and infrastructure required. A country's competitive edge can then spread from sector to sector, provided it moves through this product space by developing goods *close* to those it currently produces. The map of products may help countries along the path of economic development and diversification by indicating the most promising paths to creating new industries.

By analysing global export data on numerous categories of goods, the two economists calculated, for each pair of categories, the probability that if a country is good at exporting one type of product, it will also be good at exporting the other. When that probability is high, those two products have a short distance between them. When the probability is low, the products are far apart. Economic activities toward the periphery of the product space have fewer links. These tend to be industries that require infrastructure or skills with few alternative uses.

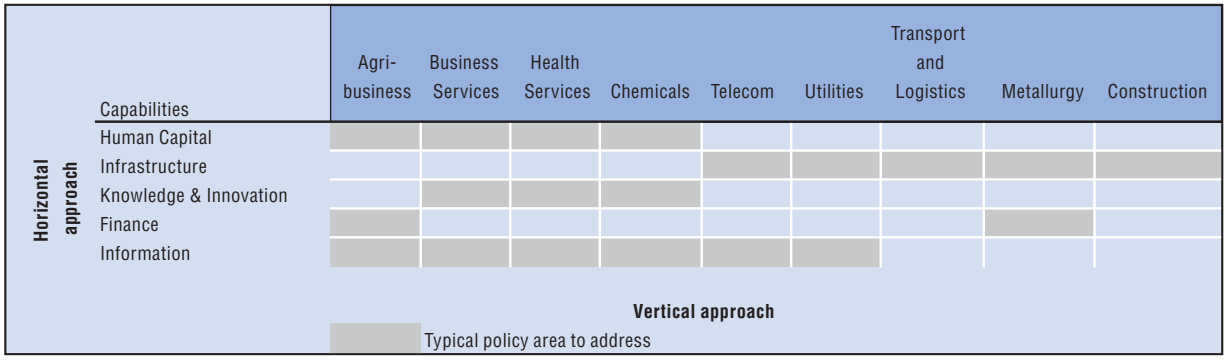
In the case of Kazakhstan, in the middle of the product space lies a large mass of products tightly connected to each other, such as metallurgy and mining. Farther out, almost in isolation at the network's periphery, are products such as minerals and raw materials.

Sector connectedness for Kazakhstan: Visual product space analysis



Source: Hausmann and Klinger (2007).

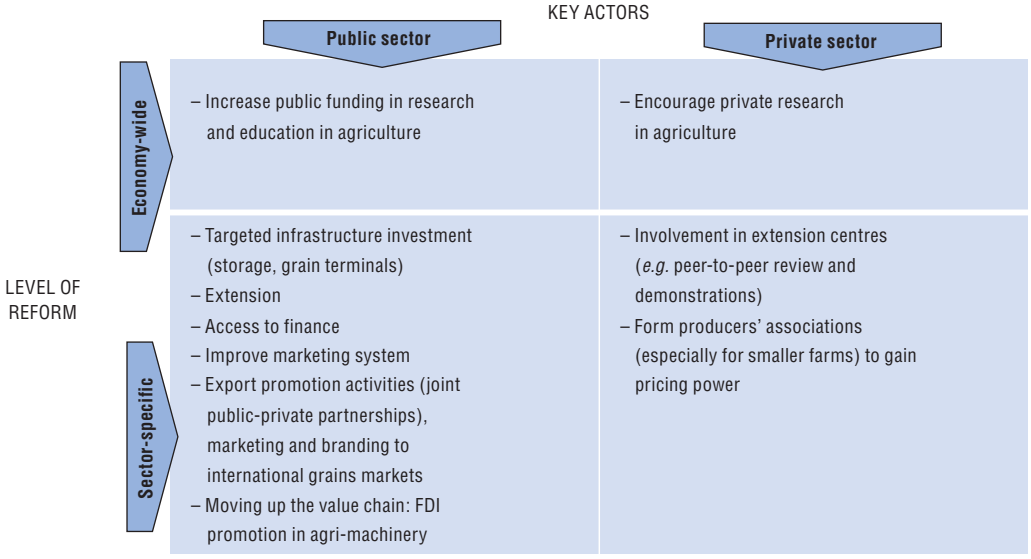
Figure I.1. **Examples of sectors and the capabilities they build**



Source: OECD *Sector Competitiveness Strategy and Review*.

policies. The World Bank Group and other international institutions employ this approach widely to analyse sector performance and to identify public policies for boosting performance (see Figure I.2).

Figure I.2. **Sample value chain approach framework**



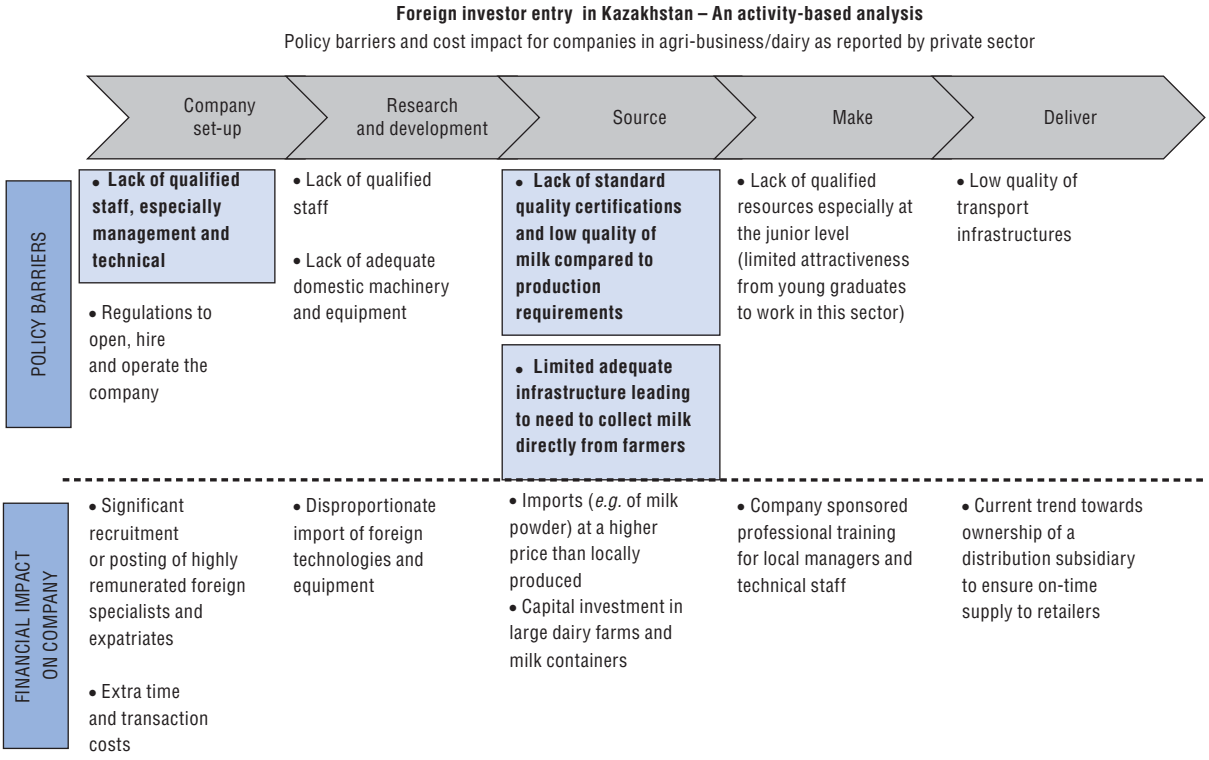
Source: World Bank Value Chain Analysis; OECD *Sector Competitiveness Strategy and Review*.

By adopting a value chain approach, this report analysed the major constraints and opportunities faced by businesses at multiple levels of the value chain. In this way, there is room for examining the role of retail for instance as a key driver of food manufacturing and quality improvement through sourcing and development of private labels. Similarly, a value chain approach allows for the analysis of vertical and horizontal linkages between firms at different levels of the value chain, which may help disseminate technology across firms. Finally, the cross-fertilisation effect of different value chains has been taken into account. For instance, the development of the fertilisers sector (*e.g.* through incentives for innovation instead of incentives to purchase by farmers) can contribute to agricultural productivity and improve the quality of inputs for the processing sector.

The value chain approach framework helps to differentiate policy issues in two groups, those applicable to a specific sector and those applicable to the economy in general. The approach also helps to assign the responsibility for implementation of the required policy options to either public authorities or private sector. Although the responsibilities are clearly divided between government and business, it is rarely the case that policies are implemented without involvement of the other party. Public authorities need to disclose the proposed changes and receive feedback from the private sector in order to learn of the effects the policies will have on the overall economy and individual sectors. On the other hand, participation of public authorities in private sector initiatives can boost effectiveness of these measures. Thus, in order to effectively remove existing barriers and achieve sustainable results, close collaboration between public and private sectors is essential.

Activity-based analyses have been initiated to help identify sector-specific policy barriers from the perspective of investors. The key question for this analysis has been: which challenges will a foreign investor face when setting up and operating a company in a given sector? Figure I.3 offers a summary of this analysis in the case of an agribusiness dairy investor.

Figure I.3. **Activity-based analysis**



Source: OECD interviews with foreign investors in Kazakhstan.

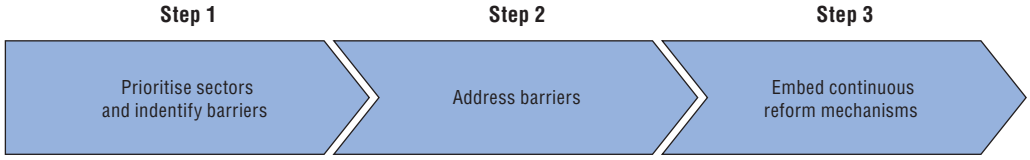
The Sector Competitiveness Strategy and Review approach (SCSR)

The Sector Competitiveness Strategy and Review approach (SCSR) aims to answer the following key questions:

- **Where and how to diversify the sources of FDI?**
  - Which sectors are/could be the most competitive?
  - Which regional geographic markets should be targeted?
- **How to increase investment and competitiveness in specific sectors?**
  - What are the end customer requirements in those sectors and what are the sector/supply implications?
  - How attractive and competitive are the sectors?
  - What is the recommended positioning to attract investment support competitiveness in the selected sectors?
  - What are the main barriers and how can they be removed?
  - What are the implementation steps needed to attract investment and enhance competitiveness?
- **How to sustain growth through longer-term structural reforms?**

The approach is divided into three phases (Figure I.4). During Phase 1 of the project, *Prioritise sectors and identify barriers*, a list of priority sectors is identified on the basis of the Sector Prioritisation Framework (SPF, see below). A market analysis is carried out, looking at value-chain mapping, sources of competitiveness, existing policy barriers and the definition of a high-level implementation roadmap. This report is the outcome of Phase 1. During Phase 2, detailed action plans are developed for each sector, including one or two policy recommendations to remove key sector barriers and an investment promotion strategy. In Phase 3, the OECD Secretariat supports the implementation of structural reform on human capital and capacity building, for instance via the creation of **working groups and training**.

Figure I.4. **Sector competitiveness strategy and review approach**



Source: OECD *Sector Competitiveness Strategy and Review*.

During Phase 1, the OECD Secretariat worked closely with policy-makers in the country by convening an advisory committee (at the cabinet ministers level) every quarter in order to present and validate key findings and by facilitating policy working groups, surveys, field visits and focus groups in the context of monthly country missions.

I.3. Secondary research

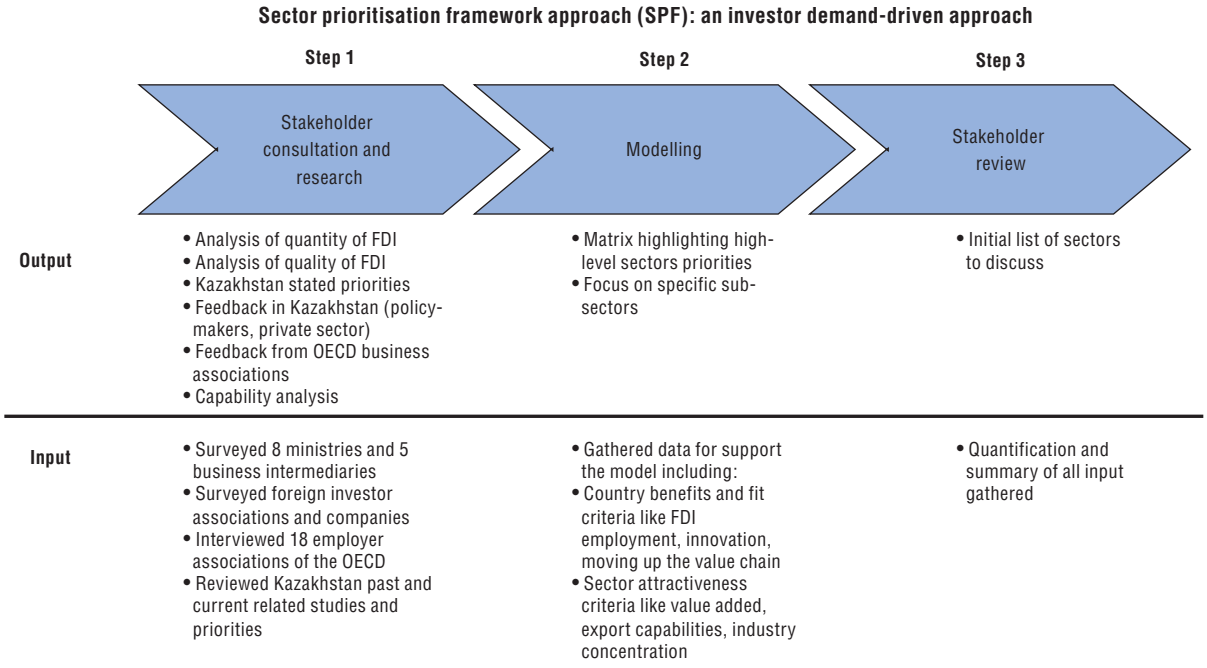
To identify the market dynamics behind each sector covered by the study, the OECD conducted extensive desk research on the global position and growth of each sector. The following sources are among those consulted: OECD, Food and Agriculture Organization,

European Union, World Bank, International Monetary Fund, and United Nations reports and working papers; key input and support from Kazakhstan's National Analytical Centre and ministries (Economy, Agriculture, Industry and Trade); market research studies; specialised journals; and press reviews. Workshops were held with OECD industry experts in the agri-sectors analysed, in particular Professor Jo Swinnen from the Katholieke Universiteit Leuven. In addition, statistics for each sector on output and employment were collected from the National Statistical Agency of Kazakhstan. FDI data were gathered from international investment statistics compiled by the National Bank of Kazakhstan.

I.4. The Sector Prioritisation Framework (SPF)

The Sector Competitiveness Strategy and Review indentified sectors, based on the Sector Prioritisation Framework (SPF) methodology. The framework is built on a three-step process involving stakeholder consultation, data collection and quantitative analysis, and validation of results with key stakeholders (Figure I.5).

Figure I.5. **Sector Prioritisation Framework**



Source: OECD *Sector Competitiveness Strategy and Review*.

Phase 1: Stakeholder consultation and research

Eight ministries and five business intermediaries in Kazakhstan were surveyed regarding their perceived list of priority sectors. Suggestions concerning the sector-based interest level for investing in Kazakhstan came from eighteen employer associations of OECD member countries. Past and present studies on diversification and sector clusters were also reviewed. Using the list of priority sectors from Kazakhstan, along with foreign investor feedback, an initial short list of sectors to consider for the analysis was identified.

Phase 2: Modelling

After consultation with government representatives, international organisations and regional and sector experts, the OECD performed a quantitative analysis of the current situation and growth potential of several sectors in Kazakhstan. This evaluation allowed sectors to be positioned relative to each other in two main dimensions: market attractiveness (which incorporates the competitive advantage and potential growth of a sector in a country) and country benefits.

These two dimensions are further broken down into 13 variables (Figure I.6):

Figure I.6. **Variables of the SPF model**

Variable	Measure
Value added	Share of value added of the sector in total value added
	Compound average rate (CAGR) of value added of the sector over five years
Trade balance	Share of the sector in total exports
	Evolution of the relative comparative advantage of the sector over five years
Number of establishments	Share of the sector in total number of firms
	CAGR of number of firms of the sector over a number of years
Cost of labour	Labour cost advantage or disadvantage in the sector (benchmark: a cluster of emerging countries)
World trends in FDIs	Share of world FDIs inflows of the sector
	CAGR of world FDIs inflows over a number of years
FDI share of the sector/ VA share of the sector	Share of FDI stocks of the sector / Share of added value of the sector

Variable	Measure
CAGR of FDI stock as % of GDP	CAGR of FDI stocks of each sector as a percentage of GDP over a number of years
Employment level	Share of the sector in total employment
	CAGR of employment of the sector over a number of years
Innovation	Sector Innovation Performance Index built on 12 OECD countries
CAGR of domestic demand	CAGR of domestic consumption over a number of years
Value added per employee	Value added created per employee of the sector (excepted for mining and quarrying)
Energy costs advantages	Degree of energy consumption of the sector index
Sensitivity to distance	Degree of influence (costs, risks) of long distances on the sector index

Source: OECD *Sector Competitiveness Strategy and Review*.

The SPF covers 25 sectors.[2] To facilitate data collection, the SPF sectors correspond to the Classification of Economic Activities in the European Community NACE 2. Upstream extraction and initial refining of energy commodities were excluded from the scope (Figure I.7).

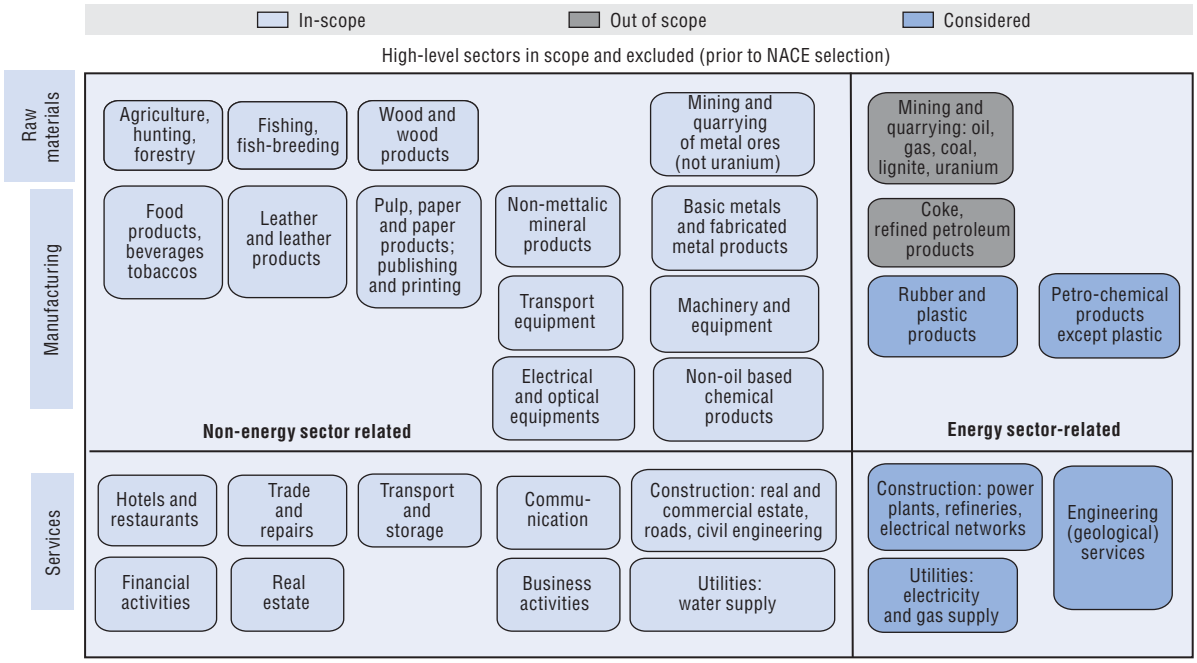
Data was collected from the following sources: OECD, National Analytical Centre of Kazakhstan, Central Bank of Kazakhstan, Statistical institute of Kazakhstan, UNIDO, UNCTAD, International Labour Organization and European Commission.

Both dimensions were scored on a scale of 0 (low benefits or attractiveness) to 100 (high benefits or attractiveness). To determine the score, each variable within the dimension was allocated a weight (based on a correlation with FDI inflows at sector level) and validated through a comprehensive literature review (Figure I.8). The outcome of the analysis and the resulting weights can be found in Table I.1.

The framework is based on the principle that the sectors in each of the four quadrants require different investment promotion strategies:

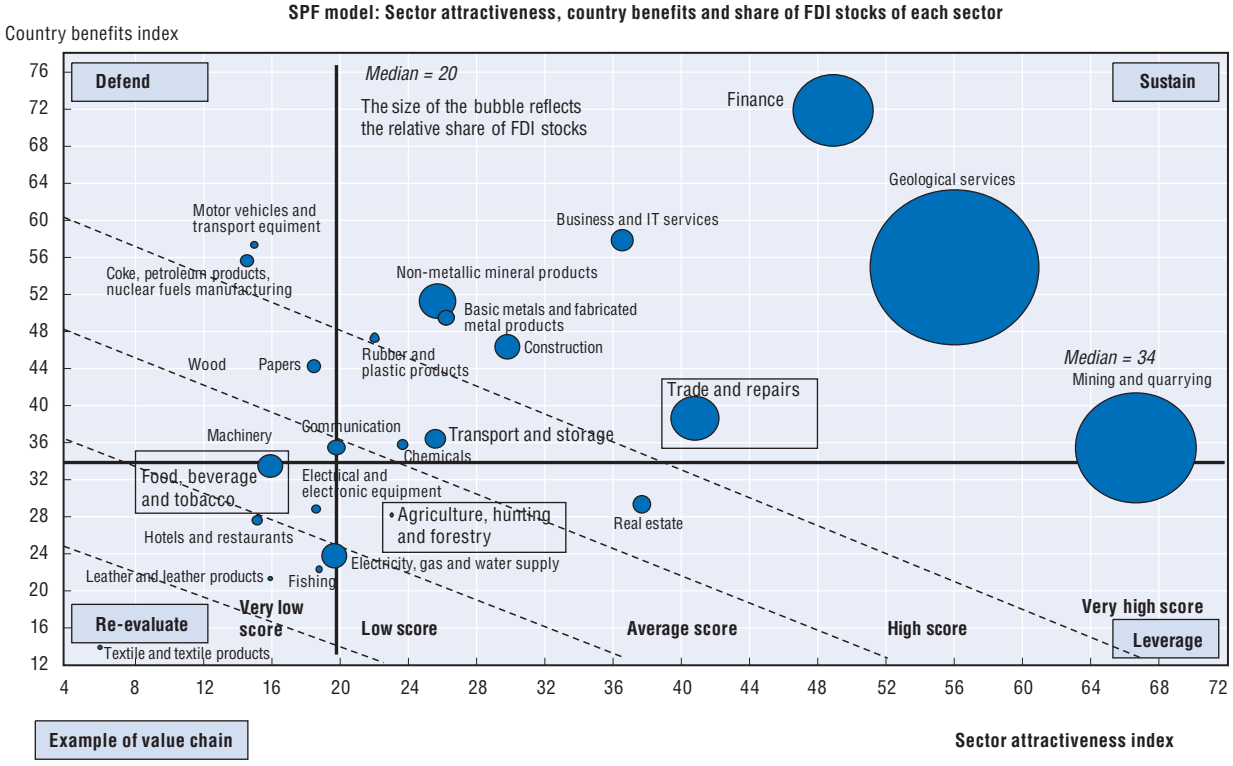
- *Sustaining* competitiveness is required if both country benefits and market attractiveness are high. To sustain their competitiveness, it is essential for sectors to move up the value chain.

Figure I.7. **Sectors considered in the scope of this study**



Source: OECD *Sector Competitiveness Strategy and Review*.

Figure I.8. **SPF quantitative analysis output for Kazakhstan**



Source: OECD *Sector Competitiveness Strategy and Review*.

Table I.1. **SPF weight allocation methodology**

Variables	Sub-variables	Weights (%)
Sector attractiveness		**100**
Value added		30
	% of total country VA	20
	CAGR	10
Trade balance		15
	Share of total exports	10
	Comparative advantage evolution	5
Number of establishments		10
	% of total number of establishments	5
	CAGR	5
Cost of labour		5
World trends in FDIs		20
	Share of world FDI inflows	15
	CAGR of world FDI inflows	5
FDI share of the sector/VA share of the sector		20
Country benefits		**100**
CAGR of FDI stock as percentage of GDP		15
Employment level		20
	as % of total	10
	CAGR	10
Innovation		15
CAGR of domestic demand		20
Value added per employee		20
Energy costs advantages		5
Sensitivity to distance		5

Source: OECD *Sector Competitiveness Strategy and Review*.

- *Defending* is required if country benefits are high but relative market attractiveness is low. For sectors in this quadrant, the objective is to maintain market share.
- *Leveraging* of existing market attractiveness is required in order to improve country benefits.
- *Re-evaluating* a sector is required if both dimensions are low.

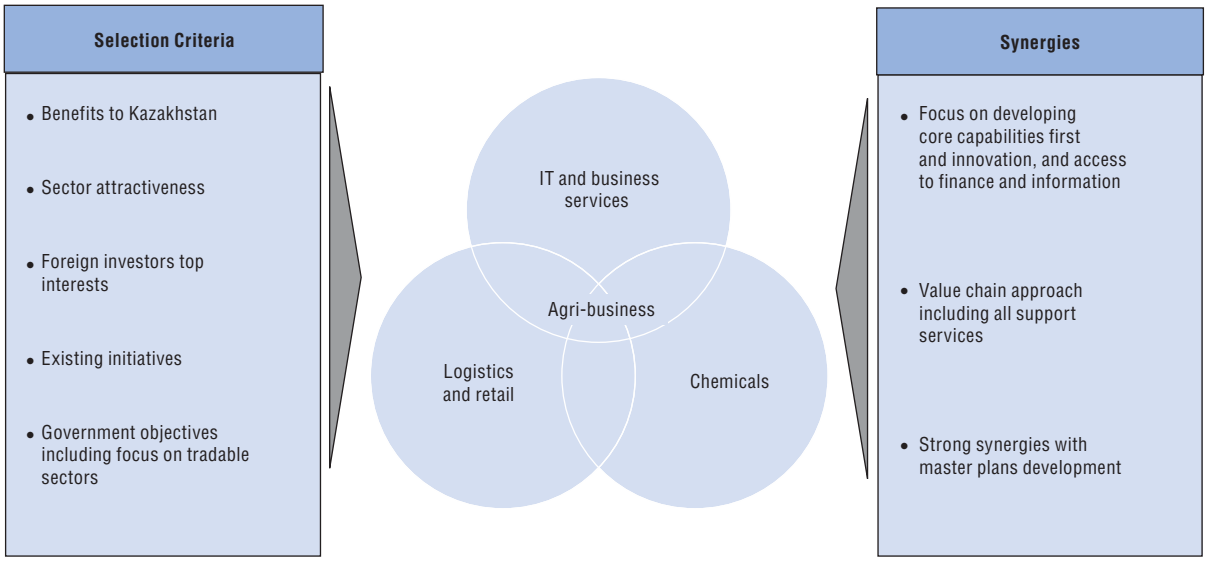
The purpose of the SPF is less to prioritise sectors than to adapt strategies relevant to each sector's situation. Based on that approach, sector-specific investment promotion strategies shall be developed.

Phase 3: Stakeholder review

Combining the short list of priority sectors identified by government agencies, private bodies in Kazakhstan and foreign investors from the OECD, with the results of data collection and quantitative analysis, four value chains and six sectors were identified in the course of ten country missions for potential focus (Figure I.9):

1. The agribusiness value chain (including grains, meat and dairy).
2. The chemicals value chain.
3. The logistics and retail for agribusiness value chain.
4. IT/business services.

Figure I.9. **Sector value chains identified in SPF analysis**



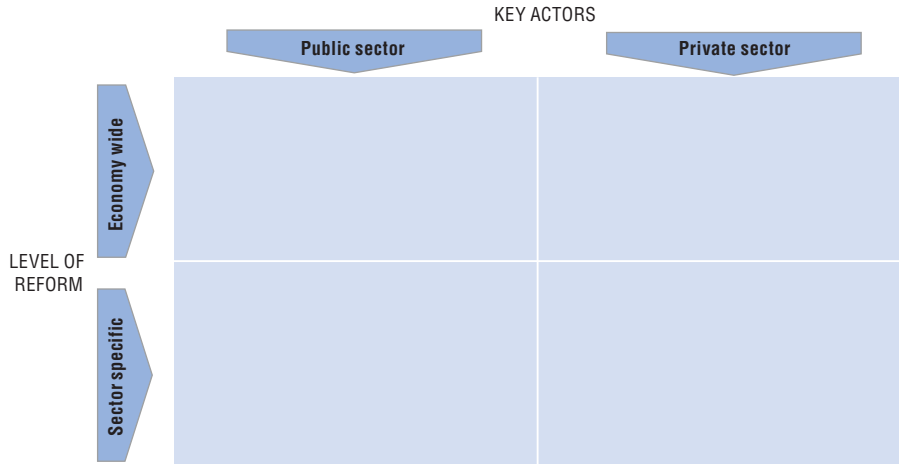
Source: OECD *Sector Competitiveness Strategy and Review*.

These four sectors present strong synergies with master plans being developed by the government, and strong opportunities to develop core capabilities in areas applicable across other sectors, namely human capital, knowledge and innovation, and access to finance.

I.5. Sector Performance Review

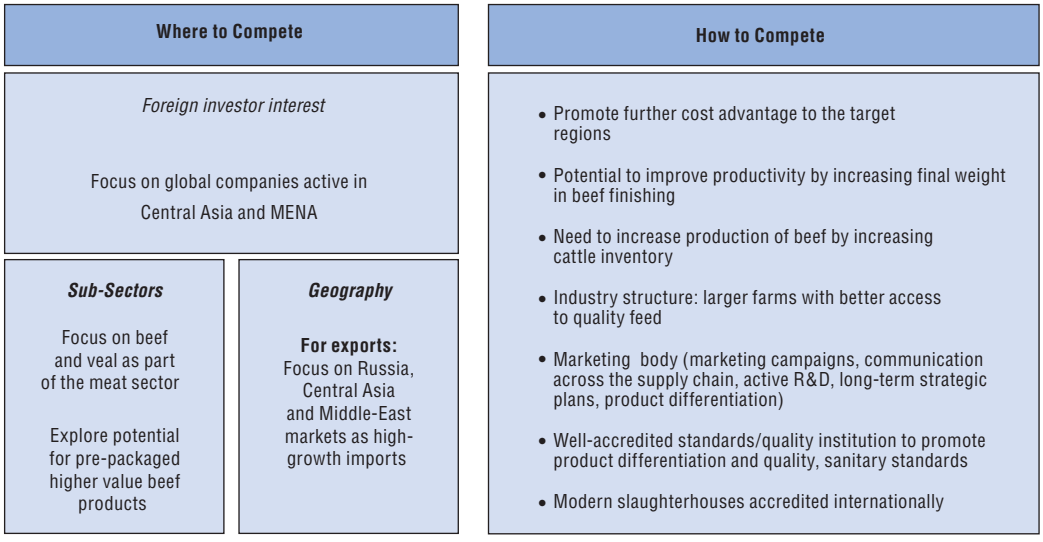
Following the identification and selection of four priority value-chains, the Sector Performance Review undertook a series of steps. First, the sector was clearly defined and segmented. The sub-sectors of interest were selected on the basis of specific drivers, depending on the sector. For instance, agribusiness sub-sectors were selected based on the export prospects and degree of processing, IT/business services sub-sectors were selected based on growth potential and impact on the agribusiness value chain. Second, demand trends were examined by analysing global and regional historical trends and prospects. More specifically, this step looked at sector drivers and key success factors, consumer and competition trends, economics, value chain and market structure. Third, supply implications for Kazakhstan were identified through peer analysis using regional benchmarking and productivity analysis to assess Kazakhstan's real comparative advantages (or lack thereof). Fourth, an initial outline for a sector strategy was developed, addressing two specific questions: where to compete and how to compete. This outline was further refined following the identification of existing policy barriers and challenges in a given sector. The result of this analysis makes it possible to issue specific policy recommendations and provide a preliminary implementation roadmap (Figures I.10 and I.11).

Figure I.10. **Policy analytical framework**



Source: World Bank *Value Chain Analysis*, OECD *Sector Competitiveness Strategy and Review*.

Figure I.11. **Strategy framework: Example for the meat sector**



Source: OECD *Sector Competitiveness Strategy and Review*.

I.6. Review of OECD best practices

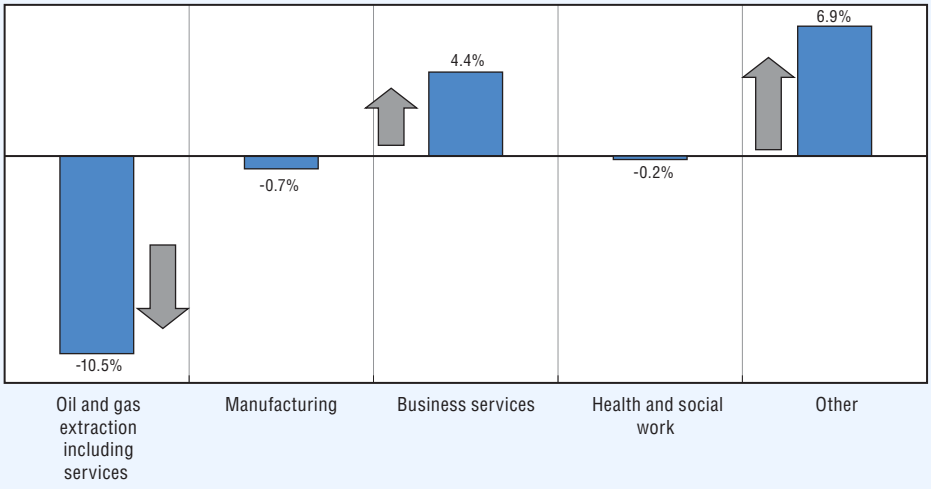
In selecting sectors, learning from OECD experience was leveraged. The case of Norway is particularly relevant with regard to economic diversification. For instance, Norway successfully diversified its economy by putting a focus on education and innovation, while encouraging petroleum technological spillovers. South Korea provides another good example of strong productivity gains, based on investments in human capital and technology factors (Box I.2).

Box I.2. **Norway's oil and gas share of GDP**

Norway's oil and gas share of GDP has been declining since the mid-90s. Other sectors have gained in importance (*e.g.* business services)

Change in the share of total industry value added, from Q1-1997 to Q4-2008

By sector

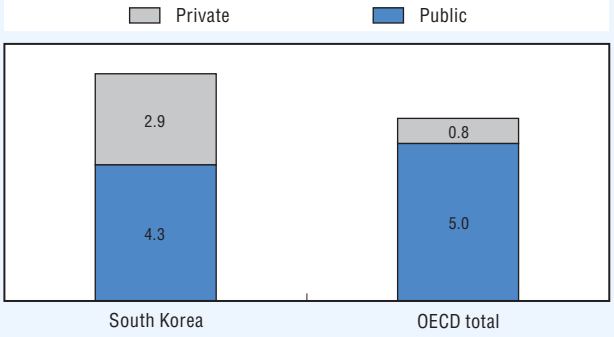


Source: Statistics Norway.

South Korea provides another good example of strong productivity gains, based on investments in human capital and technology factors. South Korea is the 3rd largest spender in the OECD on education.

Education expenditure

Public and private, % of GDP, 2005



Source: OECD *Programme for International Student Assessment* (PISA) 2006.

I.7. Analysis of Agricultural Subsidies: the Single Commodity Transfer (SCT)

This report presents the methodology of a quantitative evaluation of support provided to wheat, milk and beef producers in Kazakhstan through domestic and trade policies discussed in the previous sections of this chapter. The evaluation is based on an indicator called the OECD producer single commodity transfers (Producer SCT), which is a part of the

producer support estimate (PSE) methodology developed by the OECD Secretariat. The SCT analysis is an integral part of the analysis on competitiveness in the agriculture sector. By evaluating the differential in price levels between export reference price and domestic producer price in given commodities (*i.e.* the market support price), it determines whether distortions exist. For instance, a very positive SCT implies a strong price premium of domestic over world prices, which constitutes a major comparative disadvantage for domestic food processors which rely on these underlying commodities. An SCT close to zero implies very little distortion. A negative SCT is common in emerging markets. It may either signify that a government forbids exports, or transport costs are high, alternatively it may be indicative of currency depreciation.

A comprehensive description of the PSE methodology and PSE databases for OECD countries and a number of non-OECD countries are available from *www.oecd.org/agr/support/psecse*.

Producer SCTs are the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm gate level, arising from policies linked to the production of a single commodity (the producer must produce the designated commodity in order to receive the transfer). SCT can be expressed also as a percentage of the gross farm receipts. SCT is calculated as follows:

$$producerSCT_i = MPS_i + \sum BOT_i$$

Market price support (*MPS*) is the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers arising from policy measures that create a gap between domestic market prices and border prices of a specific agricultural commodity, measured at the farm gate level. Market price support is calculated by multiplying the market price difference (MPD) by the quantity of production. MPD is calculated by using a price gap, which measures the difference between the domestic market price and the border price of a commodity. MPD measures the extent to which a set of agricultural policies affect the market price of a commodity. Budgetary transfers (*BOT*) include national aggregate budgetary and other transfers to producers from policies that have been identified as based on a single commodity.

Box I.3. **Kazakhstan SCTs: What and how?**

Period covered: 1996-2009.

Products covered: wheat, milk and beef. These three commodities account for 46-56% of total value of gross agricultural output (GAO) in Kazakhstan during the period covered by the study.

Market price support

Producer prices: average producer prices at the point of sale (entrance to the elevator, dairy processing plant or slaughterhouse). The data originates from the Agency of Statistics of Kazakhstan.

External reference prices: export unit values at the border of Kazakhstan are used for exportable wheat. For milk products (importable commodity), import unit values could not be used, because imported quantities were either small or trade data were not sufficiently consistent across the period under study to allow for the calculations of import unit values. Therefore import unit values of Russia were used: c.i.f. import price of butter (040500) and c.i.f. import price of skimmed milk powder (040210). Beef was an exportable

Box I.3. **Kazakhstan SCTs: What and how?** *(cont.)*

product until 2001 and importable after 2001, however, import or export unit values of beef could not be used because imported quantities were either small or trade data were not sufficiently consistent across the period under study to allow for the calculations of import and export unit values. For the reference price of beef, Brazilian producer price of fat beef on bones at carcass weight adjusted for the transportation costs of fresh meat from Brazil to the EU was used (transportation costs between Brazil and Kazakhstan are not available).

Marketing margins: The marketing margin for wheat consists of the processing cost at the elevator and the transportation cost from the elevator to the border, as the producer price was expressed at the point of sale to the elevator. Processing costs per tonne at the elevator were obtained from Kazagromarketing. Interviews were conducted with two traders to estimate the transportation costs. The rail transport cost index was used to calculate the transportation costs for 1996-2008. The transportation costs were then subtracted from the border price. In the case of milk, the processing margin of butter and skimmed milk powder from one tonne of raw milk in four major exporters (Australia, New Zealand, European Union and United States) was used in making the adjustments. As the reference price for beef was expressed at the farm gate level, the adjustment was only made for transportation costs of fresh or chilled boneless meat of bovine from Brazil to the EU. The reference prices used in the study might be underestimated, because of the high transportation costs.

Quality adjustments: no quality adjustments were applied

Price gap estimates: for all the above mentioned products, relevant data have been collected and price gaps calculated.

Budgetary support

Budgetary information for the period 1996-2009 originates from the Ministry of Agriculture. According to the PSE methodology applied by the OECD (*PSE Manual www.oecd.org/agr/support/psecse*), only those policy measures should be included in the SCT calculation that are directed to wheat, beef and milk producers. In Kazakhstan, however, there are no such support measures that are available only to the wheat, beef or milk producers. The measures are mostly targeted to all agricultural producers or to a group of producers (*e.g.* crop or livestock producers), but not specifically to wheat, beef and milk producers, thus, in principle should not be included in the SCT calculation.

However, as wheat, beef and milk production accounted for 56% of total agricultural production in 2009 and these three products are the most important agricultural commodities produced in Kazakhstan, the programmes targeted to crop or livestock producers are taken into account in SCT analysis, based on the share of wheat in the value of crop production and milk and beef in the value of livestock production. These policies are mostly input support programmes available either to crop or livestock producers. The policies targeted to all agricultural producers (like preferential tax regimes, preferential credit programmes and leasing of agricultural machinery at subsidised interest rates) are not included in the calculations; hence the SCT levels concerning budgetary transfers might be underestimated.

I.8. Primary research

In its approach to enhancing competitiveness, the OECD puts a strong emphasis on collecting demand-side data, most notably by conducting Country Capability Surveys (CCS) in Kazakhstan of a sample of agribusiness and IT/business services companies (for more

on CCS, see below). The OECD also carries out focus groups with beef, dairy and grains companies; interviews; and field visits. The approach adopted is thus based first and foremost on the feedback from foreign investors and the local private sector to unlock the full potential of a sector.

Country Capability Survey

The OECD CCS focuses on sector-specific business and policy constraints experienced in Kazakhstan. It includes both a quantitative and qualitative methodology. The CCS specifically aims at capturing data that:

- examines companies' general operational activities;
- determines perceptions of obstacles to business growth;
- analyses sector-specific issues;
- establishes firms' perceptions of key success factors;
- assesses perceptions of desirable policy changes.

The qualitative survey includes two types of data collection: focus groups and in-depth interviews during company visits. The qualitative survey was carried out by the OECD using a sample of 700 companies (see Table I.2).

Table I.2. **CCS survey in Kazakhstan**

	Sector	No. companies in the database	Sample size	%
1	BPO	683	150	22.0
2	IT	698	150	21.5
3	Dairy	144	50	34.7
4	Meat	156	50	32.1
5	Wheat producers and processors	516	150	29.1
6	Logistics	220	100	45.5
7	Chemistry	89	50	56.2

Source: BISAM Marketing Company.

The quantitative survey questionnaire was drawn up by the OECD Secretariat and implemented in the country by the Business Information, Social and Marketing Research Center (BISAM). To secure maximum participation in the survey and ensure quality input, individual responses to the questionnaires have been kept confidential. The sectors surveyed were wheat, dairy and meat industries, along with chemicals, logistics and IT/BPO (specifically, firms engaged in back office functions, human resources, financial, accounting and legal services, call centre activities and software development).The survey was carried out across diverse oblasts in Kazakhstan.

The CCS questionnaire was organised into four parts:

1. *General information:* Business activities, types of output/input, size of operations, ownership and exports.
2. *Business environment:* Perceptions of the business constraints affecting growth in their sector.
3. *Customer requirements:* Customers' demands and key success factors for securing profitability in their sector.

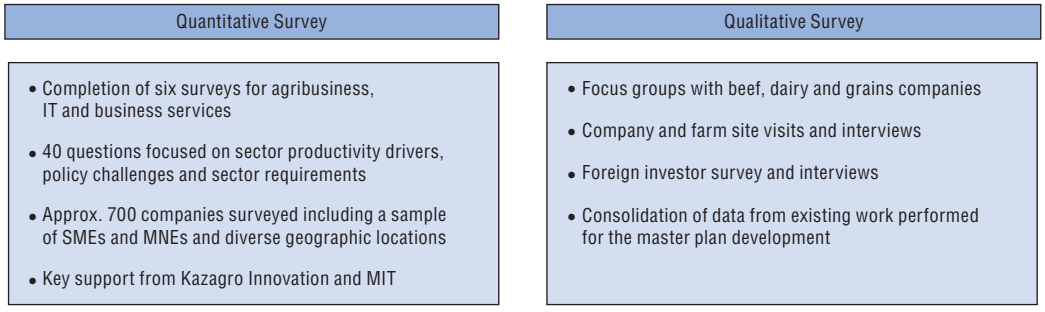
4. *Specific policy areas:* The extent to which specific policy areas pose a problem for growth and can be improved (for instance, in agribusiness, they cover human capital, quality issues, access to finance, trade, access to land and sector collaboration).

The survey consisted of 28-30 questions, depending on the sector, covering representative samples of companies including large, medium and small companies and agricultural production units (see *www.oecd.org/daf/psd/Eurasia*).

To complement the survey data, the OECD Secretariat conducted focus groups and individual company/farm visits in the capital Astana and Akmola region, northern Kazakhstan. With the aim of obtaining first-hand information, the OECD Secretariat visited five to ten companies per sector and conducted interviews with company managers and directors. Focus groups were organised with the help of the Ministry of Agriculture, the Ministry of Industry and Trade, and the Forum of Entrepreneurs (private sector organisation). At the same time, the OECD Secretariat conducted a series of country missions with the dual aim of presenting preliminary findings to the public and private sectors (including government and industry associations) and validating these findings via iterated consultations with policy-makers and private bodies.

The combination of quantitative data collection and analysis, focus groups and individual company interviews allowed the OECD to build an understanding of the key success factors, challenges and possible improvement strategies in the sectors covered by the study (Figure I.12).

Figure I.12. **Surveys conducted**



Source: OECD *Sector Competitiveness Strategy and Review*.

Foreign Investor Survey of OECD members (FIS)

Eighteen national employer associations across the OECD member countries were interviewed with the help of the Business and Industry Advisory Committee to the OECD to capture external investment sectoral priorities and demands (Table I.3). The OECD Secretariat asked seven key questions about Kazakhstan's attractiveness as an investment destination:

1. How familiar are your members with Kazakhstan?
2. What are the top features which attract investors the most?
3. What is keeping investors at bay?
4. Is it a case of investing in Kazakhstan directly, or establishing business in Russia/China first?

Table I.3. **Foreign investor survey interviews**

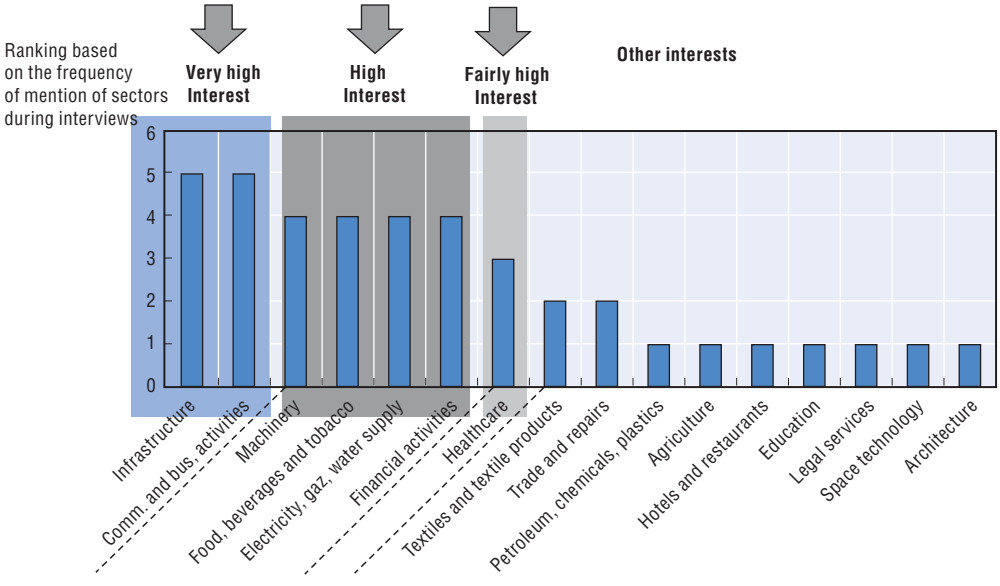
	OECD employer associations interviewed
Austria	Federation of Austrian Industry
Canada	Canadian Employers Council
Czech Republic	Confederation of Industry of the Czech Republic
Germany	Council Federation of German Industries (BDI)
Denmark	Confederation of Danish Industry
France	Medef
Hungary	National Association of Entrepreneurs and Employers
Iceland	Confederation of Icelandic Employers
Italy	Confindustria
Poland	Confederation of Polish Employers
Spain	Confederation of Employers and Industries of Spain
Switzerland	Economie suisse, OSEC Business Network Switzerland, Swiss Joint Chambers
Turkey	Turkish Industrialists and Businessmen's Association (TUSIAD)
UK	Confederation of British Industry
US	US Council for International Business (USCIB), Eurasia Center and Eurasian Business Association

Source: OECD *Sector Competitiveness Strategy and Review*.

5. Over the years, do you see a natural progression from oil/gas extraction to other sectors (*e.g.* services)?
6. Based on the informal feedback you receive from your members, where do you see promising investment opportunities?
7. What would encourage your members to invest (more) in Kazakhstan?

The results, discussed in more detail in Part III of this report, enabled the OECD team to map out three clusters of investor profiles and derive implications for investment promotion strategy and activities; and gauge the general interest level for different sectors of the economy, which in turn contributed to the selection of priority sectors (Sector Prioritisation Framework) (Figure I.13).

Figure I.13. **Top investment opportunities in Kazakhstan**



Source: FIS (OECD).

Policy Prioritisation Framework (PPF): Assessment for Agribusiness

Different tests were applied to identify the most relevant policy options and models for selected agribusiness sectors (Figure I.14).

Figure I.14. **Methodology used for policy assessment**

Step 1: Policy selection	Step 2: Policy prioritisation	Step 3: Policy description
• Identification of most relevant policy options/models for the selected agri-business sectors • Review of the impact of potential solutions • Estimation of implementation timing: – For decision making – For operational implementation • Estimation of implementation cost: – Set-up cost – Running cost	• Private sector feedback on: – Initiatives that would most support the positive growth of the business – Barriers which limit the operation and growth of the business – Most important factors to customers	• Definition and typology • Best practice review • Feedback from foreign investors • Summary of pros and cons

Source: PPF (OECD).

- **Policy benchmarks:** A review of OECD and non-OECD best practices was conducted to identify past successful and unsuccessful policy experiences. The review included analysing country cases and policy models relying on OECD experience, academia and interviews.
- **Feedback from foreign investors:** A review of ten national agro-business associations as well as private firms was performed in order to identify the level of attractiveness of the potential policy area (Figure I.18).
- **Feedback from Kazakhstan private sector:** The Country Capability Survey identified current challenges and the impact of the potential policy area to support Kazakhstan competitiveness (see previous description).
- **Economics and policy impact:** Pros and cons were identified for each agribusiness policy option, based on specific criteria including time and cost of implementation. The *timing* of implementation assessment was based on expected decision-making time for reforms (*i.e.* time it takes to define the outlines of the scheme, then pass the law(s) and adopting regulations), and operational implementation time (*i.e.* time it takes to adapt the institutions and infrastructure, raise awareness and build consensus). The *cost* of implementation was based on set-up costs (*i.e.* legislation and regulation, project designing, capital expenses on infrastructure and facilities), and running costs (*i.e.* financial state support to producers or processors, operational costs, costs of monitoring and evaluating). A quantification of the cost and time of implementation was performed together with the Government of Kazakhstan to prioritise policy options.

Six policy options were assessed for agribusiness. They are listed and described in Figure I.16.

A review of the impact of potential solutions was completed according to several criteria: implementation timing estimated based on expected decision-making time for reforms, cost of implementation, and estimated final impact (Figure I.17).

Ultimately, several groups of solutions were envisaged, including attracting modern retailers and enhancing access to finance (Figure I.18).

Figure I.15. **Feedback from foreign investors on agribusiness policy options**

Example of associations, companies and ministries surveyed	Examples of key questions asked
• British meat processors association • Fevia-Belgian federation for the agro-food industry • Swedish dairy association • European dairy association • Ania (French agro-business federation) • Wallonia Export and Investment Agency (Belgium) • European Starch Industry Association • Unquoted companies • German dairy association Milch and Markt • French dairy association ATLA • French Agriculture Ministry	• From your perspective, is a co-operative model which aggregates suppliers into organised production centres a desirable feature in the host country? • What do you think should be the role of the state in providing services to farmers? • From your perspective, is a special economic zone which provides a "one-stop shop" for setting up a company and fiscal incentives attractive? • Does the introduction and development of retail multinational companies in the host country imply positive developments for your company, in terms of revenues?

Source: PPF (OECD).

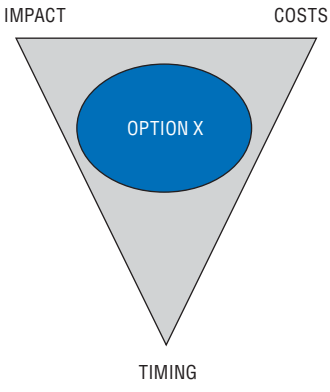
Figure I.16. **Policy areas tested for agribusiness sectors**

Policy area	Description
Producers' organisation	Collaboration between farmers in certain areas, *e.g.* input purchasing, output sales
Extension Programmes	Network of training centres (management, business, biology, etc) in rural areas
Special economic zones	Delimited zone for investors
Access to finance (supply chain financing and guarantee Schemes)	a) Supply chain financing schemes b) Guarantee schemes
Retail development	Attracting foreign retailers to motivate local suppliers to increase quality, quantity and reliability
Investment policy and promotion	Improve the investment environment and encourage foreign investment

Source: PPF (OECD).

Figure I.17. **Impact, costs and timing of each option**

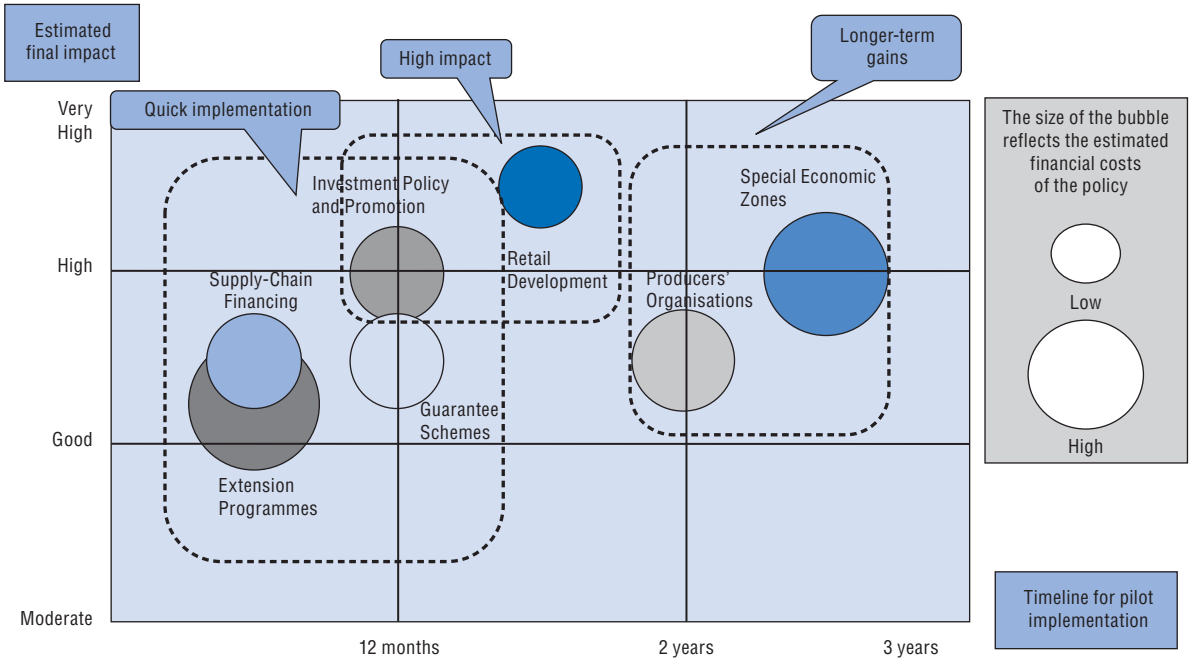
Impact on
Short-term financing
Obsolete equipment
Difficult access to land
Skill gap
Inconsistent legislation
Poor logistics
Quality of supplies
Lack of awareness of investment opportunities by investors



Cost drivers	
Set-up costs	Legislation and regulation designing costs (*e.g.* staff)
	Project design costs (*e.g.* staff, subcontractors)
	Capital expenses (*e.g.* infrastructure, facilities)
Running costs	Financial state-support (*e.g.* tax incentives, privileged loans)
	Operational costs (*e.g.* staff, research)
	Monitoring and evaluating costs (*e.g.* staff, experts)

Source: PPF (OECD).

Figure I.18. **Potential policy areas**



Source: PPF (OECD).

Notes

1. Gross domestic product per capita, Annual, Current prices and Current purchasing power parity (in USD)
2. Agriculture, hunting and forestry; Fishing; Mining and quarrying; Food products and beverages; Textiles and textiles products; Leather and leather products; Wood and wood products; Pulp, paper and paper products – Publishing and printing; Coke, refined petroleum products and nuclear fuel; Chemicals, chemical products and man-made fibres; Rubber and plastics products; Other non-metallic mineral products; Basic metals and fabricated metal products; Machinery and equipment, n.e.c.; Financial activities; Real estate, renting and business activities; Manufacturing, n.e.c.; Transport equipment; Electrical and optical equipment; Electricity, gas and water supply; Construction; Trade, repair of motor vehicles, personal and household goods; Hotels and restaurants; Transport; Communication.

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PART II.

Sector Competitiveness Strategy

Chapter 1

Agribusiness

Several global trends are impacting the agribusiness value chain including increasing globalisation, increased competition and pressures to increase efficiency, growing co-operation and concentration further down the value chain. Standards and food safety and changing food consumption patterns and preferences are also increasingly important. Among Kazakhstan's constraints to agribusiness development are its fragmentation, limited financial resources and the need to improve quality. The lack of modern technologies and know-how among farmers are also critical. The initial focus for improving the agribusiness sector in Kazakhstan should be on attracting foreign investors, especially by promoting modern retail development, on improving access to and availability of financing for agribusinesses (through mechanisms such as supply-chain financing), and on enhancing investment policy and promotion.

1.1. Summary

The food and agriculture value chains have undergone profound transformations in recent decades. Among the most noticeable trends are the growing role of the private sector, increasing globalisation, stepped-up competition and pressure for improved efficiency, growing co-operation and concentration further down the agribusiness value chain. For example, in 2008 the top 15 global modern food retailers accounted for more than 30% of world modern retail sales (Euromonitor, 2008).[1]

Agribusiness is a comprehensive value chain that covers all aspects of agricultural production, processing and distribution. It involves a wide range of activities related to production of food and non-food crops and livestock commodities, ranging from support activities to farmers and agriculture (including crop production and animal husbandry), to food processing, distribution and retail. It covers the supply of agricultural inputs, production, post-harvest handling, processing, marketing, storage and distribution of agricultural products to final consumers (FAO, 2010a; OECD, 2008a).

Agriculture is the first step of the broad agribusiness value chain. A number of key global trends can be identified in both the supply and demand sides of the agribusiness sector. The key trends from the supply side include growing concentration in the retail, processing and production segments of the value chain as well as the increasing importance of standards and food safety. Among major developments influencing agribusiness from the demand size are changing food consumption patterns and preferences of consumers in developing and high-income countries due to urbanisation, ethnic diversity, income growth and healthier diets.

The critical constraints of agribusiness development in the context of Kazakhstan are fragmentation (*i.e.* the lack of vertically integrated agribusiness holdings) and the limited financial resources available for working capital to finance inventories, seeds, fertilisers, chemicals and fuel for farmers. There is a need to improve quality, increase productivity, introduce modern technologies and transfer know-how to farmers, as well as to improve the use of water and other critical resources. After a decade of declines in the 1990s, agricultural productivity in Kazakhstan is now one of the highest in the Central Asia region, but it is still lower compared to neighbouring Russia and Uzbekistan. Investments in physical infrastructure (warehouses, cold chain logistics and telecommunications) can help to reduce production costs and establish better links between farmers, processors and retailers.

A number of policy options to facilitate the development of agribusiness have been identified, including modern retail development, access to finance, investment and export promotion, development of producers' organisations, extension programmes and special economic zones. At the same time, the OECD Secretariat calls for an initial focus on attracting foreign investors especially by promoting modern retail development, improving access to and availability of financing for agribusinesses (through mechanisms such as supply-chain financing), and delivering investment policy and promotion improvements.

1.2. Sector definition and segmentation

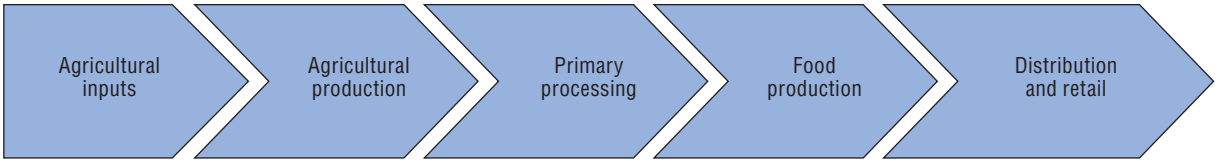
Although the extent, scope and speed of changes differ across regions and countries, the transformation to market-oriented agriculture and a growing role of the private sector is evident in developing and transition economies. Major developments in the sector include increasing globalisation, intensifying competition and pressure for improved efficiency, commercialisation of smallholder farming, growing co-operation and concentration within the agro-industry.

Agribusiness is a comprehensive value chain that covers all aspects of agricultural production, processing and distribution and spans many industries. FAO defines agribusiness as "collective business activities that are performed from farm to fork". Agribusiness refers to farms involved in commercial production of agricultural products and businesses directly involved in the agricultural value chain through upstream or downstream operations. It covers the supply of agricultural inputs, production, post-harvest handling, processing, marketing, storage and distribution of agricultural products to final consumers (FAO, 2010a; OECD, 2008a). In brief, agribusiness refers to the sum total of all operations involved in the production and distribution of food and fibre (Davis, 1956).

Segmentation of the agribusiness sector

Agribusiness can be divided into five major segments based on the value chain approach: agricultural inputs, primary agricultural production, primary processing, food processing and production, and distribution and retail (Figure 1.1).

Figure 1.1. **Value chain structure of agribusiness**



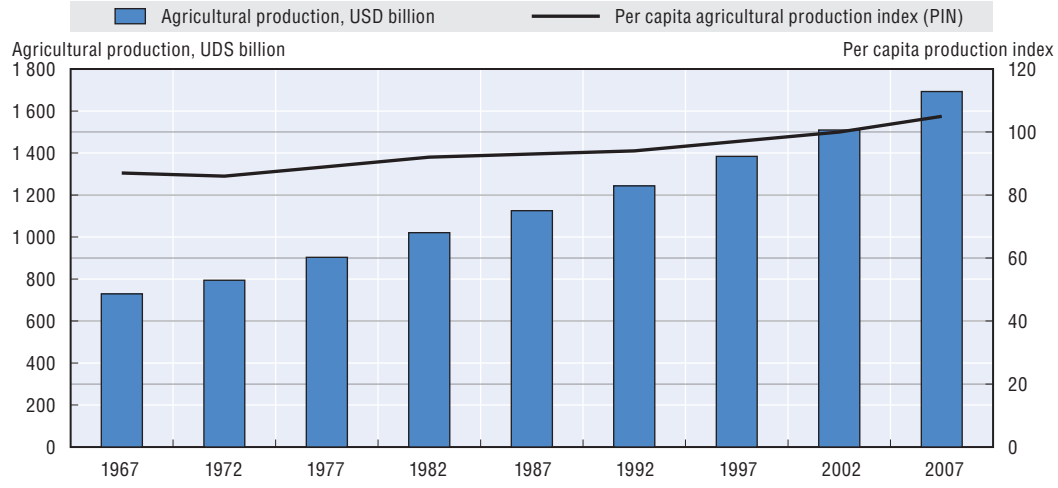
1. The *agricultural inputs segment* includes producers and suppliers of seeds, fertilisers, agricultural chemicals, tools and agricultural machinery for crop cultivation and animal breeding.
2. The *primary agricultural production segment* covers activities such as cultivation of food and non-food crops, animal husbandry and includes such sectors as grains, oilseeds, livestock, dairy, fish and horticulture.
3. *Primary processing* involves basic processing of agricultural commodities such as milling, crushing as well as handling of produce (such as fresh fruits and vegetables) which does not require further processing, and is delivered to final consumers through various distribution channels.
4. *Food processing and production segment*. Companies at this level are engaged in deeper processing of agricultural crops and production of food. Products include meat, poultry, bread, snacks, beverages, frozen food, etc.
5. *Distribution segment*. The distribution and retailing segment covers the operations of wholesaler, retailer and food service companies.

It is often difficult to draw exact borderlines between these levels due to considerable integration and consolidation of both upstream (supplying of agricultural inputs) and downstream (storage, transportation, processing and distribution) activities within the agro-industry. For example, food processing firms are integrating backward to primary product production as well as forward to retail distribution, while a number of large multinational suppliers of seeds, feeds and fertilisers are well diversified in product processing and distribution. At the same time, the scope of co-operation and integration and the nature of relationships differ among the levels of the agro-industry value chain.

Agribusiness acts as a primary link between agricultural producers and consumers by processing, transportation, marketing and distributing agricultural and food products. Thus, a dynamic agribusiness sector can have a positive impact on development of agriculture, and positive spillover effects on other sectors and economic development overall (World Bank, 2007).

Agriculture constitutes the foundation of agribusiness. World agricultural production as measured by the aggregate value has been growing steadily during the last four decades and increased by 2.3 times between 1967 and 2007 (Figure 1.2). The average annual growth rates ranged between 2.1 and 2.3% per annum during 1961-2001. During this period developing countries were growing on average at 3.4 to 3.8% per annum, which was more than double the average growth rate in developed economies at 1.1 to 1.4% (FAO, 2006).

Figure 1.2. **World agricultural production (1967-2007)**



Source: FAO, 2010b.

Growth rates have increased significantly in recent years. Global agricultural production expanded at an average annual growth rate of 6.3% in the period from 2004 to 2008 and the total value of the market reached USD 1 557 billion in 2008 (Datamonitor, 2008). In physical terms, global consumption of food and agricultural products grew at a slower pace with an average annual growth rate of 3.4%.

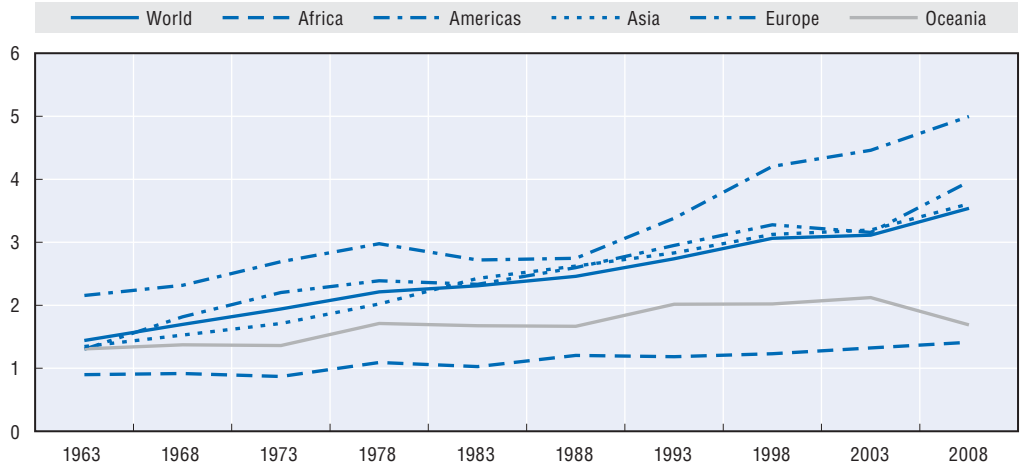
Productivity in agriculture is improving

Technology and policy improvements have been the major sources of growth in agricultural productivity since the 1960s. Increase in the use of irrigation and fertilisers as well as improved crop varieties have been the main factors behind rising cereals yields

(World Bank, 2007). The average yield of cereals increased 2.4 times worldwide from 1.44 tonnes per hectare in 1963 to 3.54 tonnes per hectare in 2008 (Figure 1.3). The highest growth during this period has been observed in Europe, where yields increased from 1.3 to 4.0 tonnes per hectare. At the same time, the Americas (and in particular, North America) retain the lead in cereals yields, where they rose from 2.16 to 5.0 tonnes per hectare during this period. The yields of cereals in Africa and Oceania have seen the weakest growth of 57 and 29% and remain at 1.41 and 1.69 tonnes per hectare respectively.

Figure 1.3. **Average yields of cereals**

1963-2008 tonnes per hectare



Source: FAO, 2010b.

Kazakhstan's agricultural production levels

Agriculture constitutes a significant part of Kazakhstan's economy, and the main non-oil sector of the country in terms of employment. In 2009, it accounted for 5.3% of the country's GDP and employed 30.2% of the country's workforce. After years of declines in the 1990s, agriculture production rebounded and grew for most of the last decade. Agriculture gross output more than doubled in the last five years. In terms of volumes, total agricultural production in Kazakhstan in 2008 was at 85.9% of the volume in 1991. The horticultural sector has seen strong growth in the last decade with production levels in 2008 reaching 15.1% above the level of 1991. Livestock production has not fully recovered from the lows of 1998 and by 2008 had only reached 69.1% of the 1991 level (Figure 1.4).

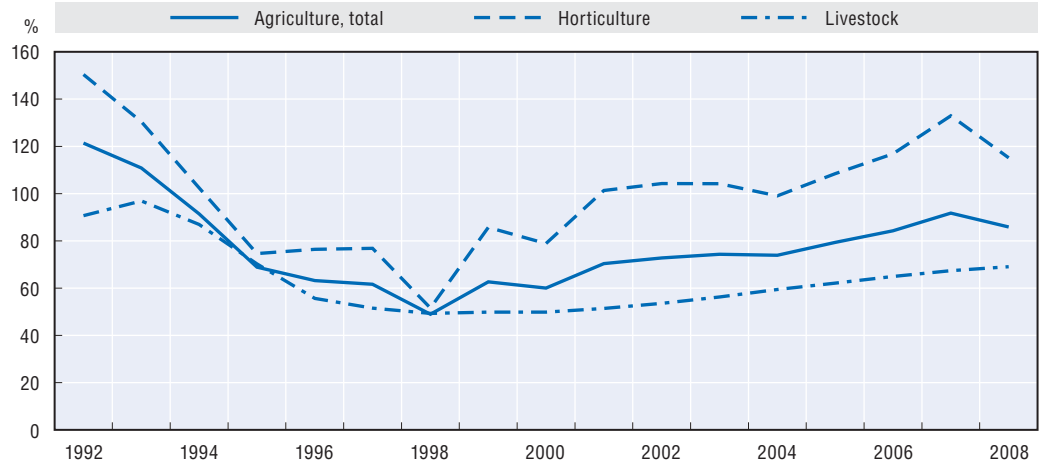
Agriculture productivity in Kazakhstan, as measured by the value added per worker,[2] after a decade of decline in the 1990s, reached USD 1 870 which is 5.3% higher as compared with USD 1 776 in 1992 (Figure 1.5). Agricultural productivity in Kazakhstan is one of the highest in the Central Asia region and 80% higher than the world average of USD 1 036, but it is still lower compared to neighbouring Russia (USD 3 043) and Belarus (USD 4 383) (World Bank, 2010), as shown in Figure 1.5.

Grains are the only major non-extractive export good

Grains production is one of the major sectors in agriculture and contributes substantially to Kazakhstan's exports. Grains are the country's only major non-extractive export good. The grains sector includes wheat, coarse grains (corn, sorghum, barley, oats, rye,

Figure 1.4. **Agricultural production volumes in Kazakhstan**

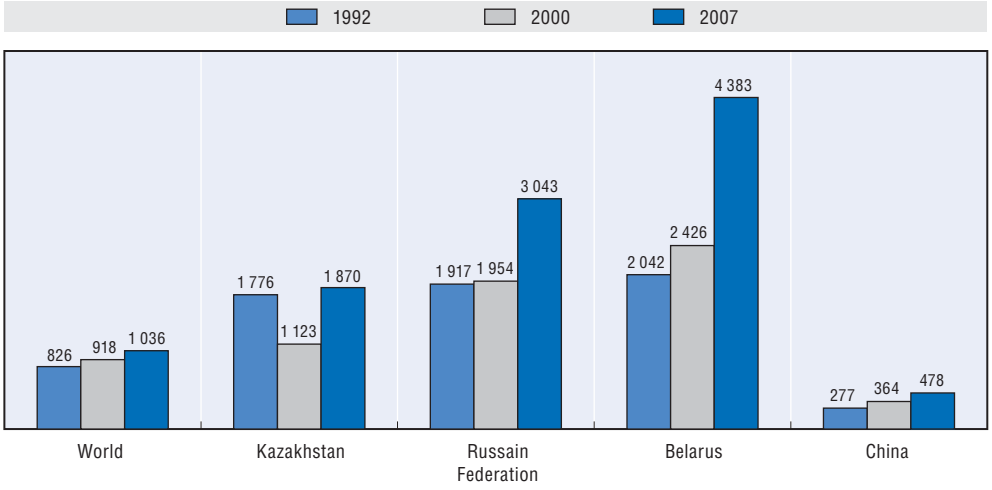
1992-2008, as % of 1991 volume



Source: ASRK, 2009b.

Figure 1.5. **Agriculture value added per worker**

Constant 2000 US dollars



millet and mixed grains) and rice. Production of total grains has grown from 13.8 million tonnes in 2005 to 20.8 in 2009, an increase of 51%. Wheat is by far the most cultivated type of grain in Kazakhstan and in the last five years accounted for over 80% of total grain production. Thus, wheat has been chosen as one of the key sectors in this analysis.

As a result of unprecedented harvests of wheat of over 20 million tonnes in 2007 and 2009, Kazakhstan has become one of the top ten grain exporting countries in the world (Table 1.1). In the 2005-09 period, the production of grains has grown each year except for 2008, when production volumes decreased to 15 578 million tonnes due to lower yields. Favourable weather conditions, increased use of modern production technologies and effective state support contributed to the growth in production.

Table 1.1. **Total grain and wheat production and growth rates**

	2005	2006	2007	2008	2009
Total grain, thousand tonnes	13 781.4	16 511.5	20 137.8	15 578.2	20 830.5
Growth, %, y-o-y	11.4%	19.8%	22.0%	–22.6%	33.7%
Wheat, thousand tonnes	11 198.4	13 460.5	16 466.9	12 538.2	17 052.0
Growth, %, y-o-y	12.7%	20.2%	22.3%	–23.9%	36.0%

Source: ASRK, 2010.

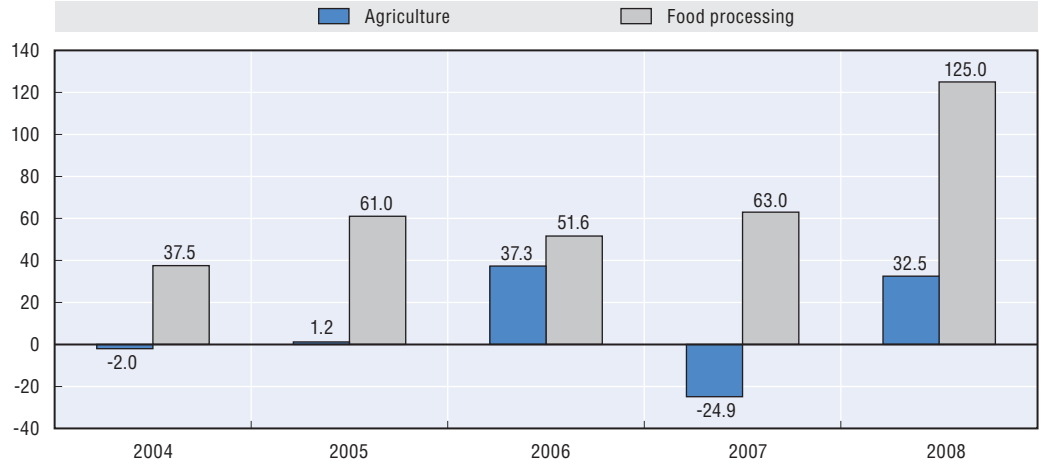
Food processing sector

Similar to primary agricultural production, the food processing sector in Kazakhstan is also growing (although not as much as other industrial sectors). The value of the food processing sector output increased 101% in terms of value in the 2004 to 2008 period, while the physical production index increased by 48% during this period. The largest segments of the food processing sector by value in 2008 were flour, cereal products and starch (18.2%), drinks (16.2%), dairy products (13.8%), processed fruits and vegetables (9.5%) and processes meats (8.5%) (ASRK, 2009d).

The food processing sector performed considerably better than agriculture in terms of FDI inflows in recent years (Figure 1.6). Between 2004 and 2008 more than USD 338 million was invested in the food processing sector in the country while the balance of FDI in agriculture during this period increased only by USD 44 million. However, the volumes of foreign direct investment into the food processing sector and agriculture remain very low compared to the level of inflow of FDI into Kazakhstan's economy. In 2008, these sectors accounted for only 0.8% of USD 19 810 million of FDI inflow into the country (ASRK, 2009c).

Figure 1.6. **FDI inflows into agriculture and food processing**

Million USD

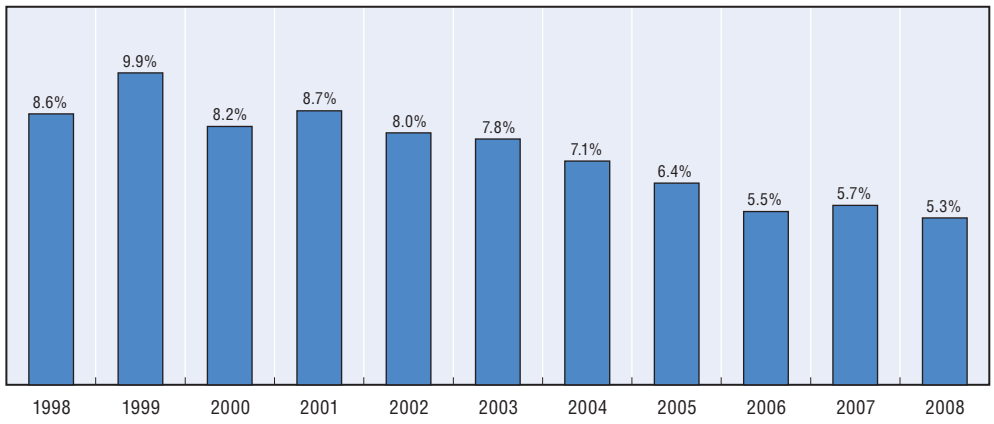


Source: ASRK, 2008, 2009c.

Agriculture's contribution to the country's GDP has been decreasing for the most part of the last decade. Its share dropped from 8.6% in 1998 to 5.3% in 2008, which represents a decline of some 38% (Figure 1.7).

The drop in the contribution of agriculture to GDP is primarily caused by stronger growth in other sectors, in particular extractive and oil-based ones. Also, growing

Figure 1.7. **Share of agriculture in GDP**



Source: ASRK, 2009b.

productivity in agriculture allowed the labour force to move to other sectors while maintaining and increasing production volumes. Employment in agriculture decreased from 35.5% in 2001 to 30.2% of total employment in 2008. During this period the share of industry and construction in total employment increased by 2.6 to 18.9% and that of the service sector by 2.8 to 50.9%.

The identification of the sectors covered by this study was carried out using the Sector Prioritisation Framework (SPF) methodology (Figure 1.8). Export prospects and processing levels criteria were used to segment the agribusiness sub-sectors. The export prospects index is a product of relative comparative advantage of Kazakhstan in world trade (50% weight), future trends in world trade defined as CAGR of projected world imports from 2008 to 2017 (30% weight) and Kazakhstan's production capabilities defined as CAGR of Kazakhstan's production from 2000 to 2008 (20% weight). Level of processing of the product in its value chain has been divided into four levels. For example, for the grain value chain, the levels are: Level 1: raw wheat; Level 2: cleaned and blended wheat; Level 3: wheat flour; and Level 4: biscuits and pasta. Depending on the export prospects and degree of processing, three potential sector-specific strategies could be envisaged, including opportunities to move up the value chain, opportunities to capture market share and opportunity to capture a share of high and fast growing demand in the regional market.

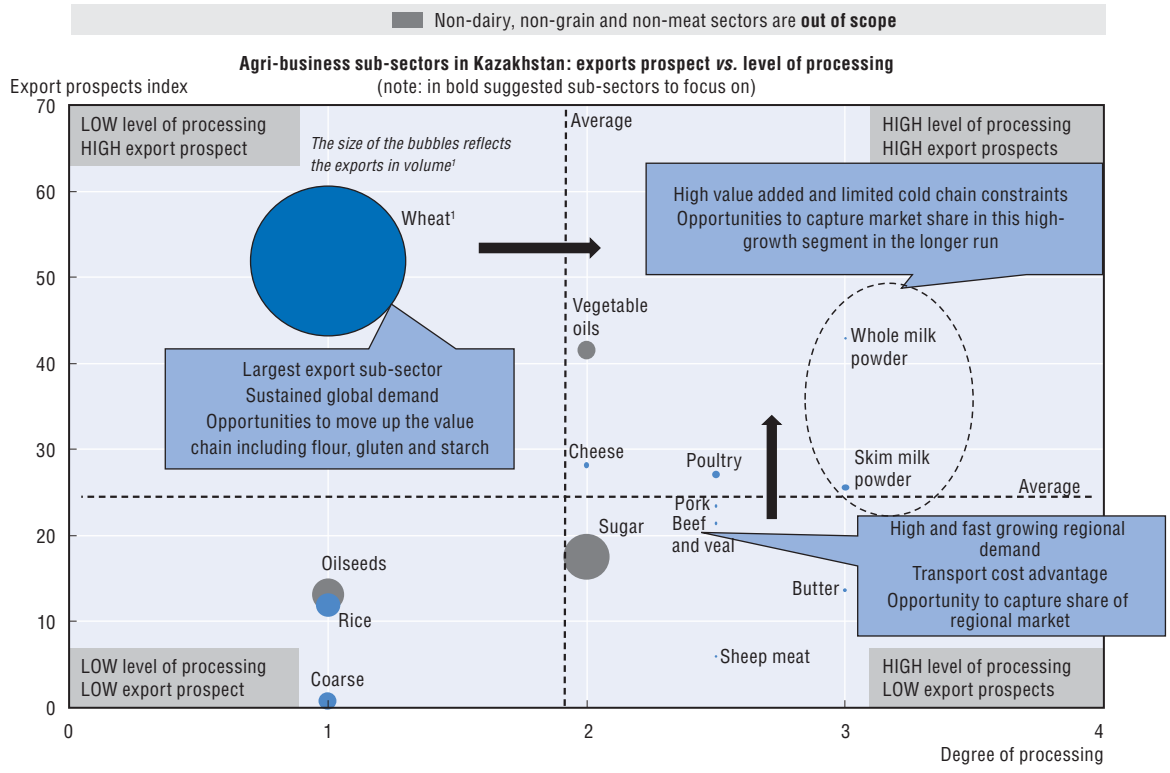
1.3. Sector trends

The global food and agribusiness sector has experienced significant transformation in recent years as food suppliers, producers and retailers strive to meet the changing needs of consumers, who are increasingly demanding a wider variety of better quality products at lower prices. A number of key global trends can be identified in the supply and demand sides of the agribusiness sector.

Growing concentration along the value chain

The growth and concentration of retailers trend has been observed in the recent years, which resulted in considerable shift of power from the producers and processors of food and agricultural products to retailers. The top five retail chains in Europe doubled their share of retail food turnover from 13% in 1990 to 26% in 2000 (Humphrey, 2006). And in 2008, the top 15 global modern retailers accounted for more than 30% of world retail sales (Euromonitor,

Figure 1.8. **Agribusiness sub-sectors**
Using SPF methodology



Source: OECD *Sector Competitiveness Strategy and Review*.

2008). Whereas previously, modern retailers were simply selling food products offered to them by producers and processors, they now actively seek suppliers of products for their customers themselves. This is evidenced by the growth in the share of the private label products in supermarket sales, which has become even stronger during the recent global recession.

There is also a significant trend towards concentration in other parts of the value chain. It has been noted both in upstream and downstream operations. It is characterised by the increase in the size of producers, a growing market share as well as stronger forward integration of processors with primary producers. With economies of scale as the main reason behind this trend, there are other factors influencing this trend. Working with a small number of large suppliers with long-term contracts ensures greater stability of supply and high quality products. Also, the processors tend to convert independent producers into contracted suppliers and thus gain tighter control of their operations, ensure productivity growth and implement technological changes.

Stringent food standards and safety

Another global trend in agribusiness is the growing role of standards and food safety. Governments introduced stricter standards over the last decade and placed primary legal responsibility for ensuring food safety on food operators. Private companies responded by implementing stricter public standards as well as developing their own standards. Both public and private standards are developed along three main trends: controls over processes rather than products, traceability of products and implementation along the entire value chain (Humphrey, 2006). An example of the growing role of standards is the

introduction of various certification schemes for farmers, processors and producers in the entire agro-food value chain.

The broad transformation in the agribusiness sector is also driven by changes in consumption patterns, preferences and lifestyles of consumers. Increasing food demand in developing countries, rising disposable income, improving diets and changing world demographics translate into higher demand for processed products, high-value foods and prepared food.

Changing diets and growing income

Spending on food during the last decade reflects a shift in consumer preferences towards higher-value food products. In developing countries, growing incomes allow consumers to shift away from carbohydrate-rich products toward healthier but more expensive foods such as meat and dairy as well as fresh fruits and vegetables, often leading to increased import of these products.

The changing demographics, particularly lifestyle changes brought about by urbanisation and time constraints, have influenced the composition of the food basket for consumers. Retailers have responded to this shift in demand for convenience food by offering ready-to-eat meals and side dishes. Packaged food products[3] constitute a considerable share of consumers' expenditures in the OECD countries and European Union. The United States and Japan account for more than 50% of world sales in this category (USDA, 2009). The trend for growth in consumption of packaged food products is also observed in developing economies, but at a lower level. The majority of the food basket in these countries consists of intermediate food products with lower added value, such as cereals, dry pasta, vegetable oils and other dried products.

All these trends have a strong effect on development of global agribusiness and change the structure of world food production and trade in agricultural products.

1.4. Sector implications and key success factors

Growing competitive pressure along the value chain as a result of growing concentration

Modern-day agribusiness development is characterised by globalisation of markets and resources, consumers' rapidly evolving preferences, a more demanding food industry with high-quality standards, and the pivotal role of information and communication technologies. This changed environment calls for all segments of the agricultural value chain to recognise the nature of changes, understand them and proactively adapt to the world's needs. Input suppliers need to maintain high quality standards in order to compete and survive in the new environment. With mounting competitive pressures, firm-level competitiveness could be sustained through innovations, transfer of know-how and new technologies across the value chain.

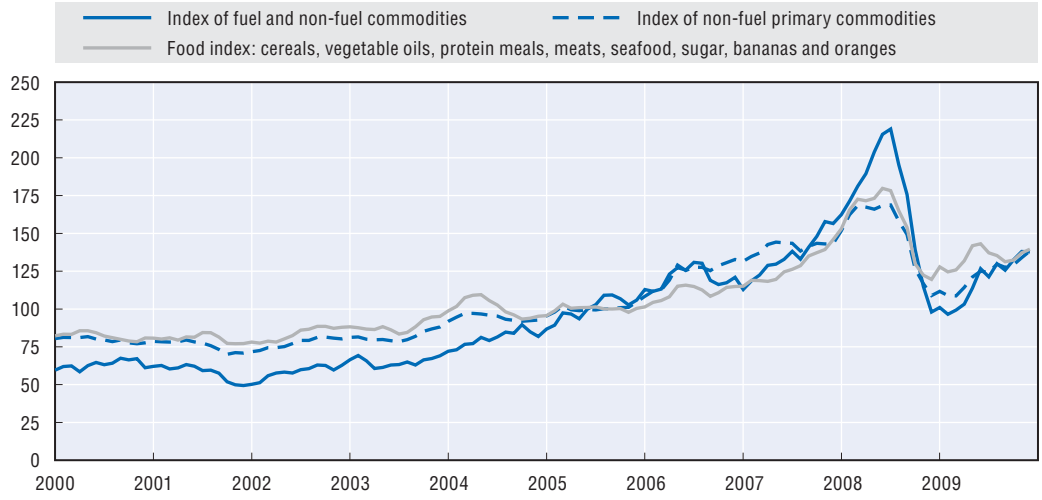
Volatility of markets for agricultural products

Agribusiness plays a vital role in economic development, especially in countries with low per capita incomes. In some of the developing countries, the agricultural sector accounts for 20-30% of gross domestic product and up to 40-50% of total employment (UNCTAD, 2009; World Bank, 2010). Agribusiness has a potential for affecting broad development goals and plays an important role in poverty reduction. Recent global trends

in agribusiness development, however, revealed that agribusiness faces serious challenges. The recent food price crisis of 2007-08 put strong pressure on the global supply chain. World market prices for major food commodities such as grains and vegetable oils in 2008 rose to record highs of more than 60% above the level in 2005 (Trostle, 2008). Subsequently, commodity prices have dropped considerably from their peak in mid-2008, but most of them still remain above trend levels (Figure 1.9). Many factors contributed to this phenomenon. On the one hand, there is slower growth in production and more rapid growth in demand. On the other hand, there are rising energy prices and increasing costs of agricultural production. Policy concerns about how to prevent a future food crisis remain, and considerable uncertainty persists in agricultural markets globally.

Figure 1.9. **Indexes of primary agricultural commodities, 2000-09**

June 2005 = 100



Source: International Monetary Fund, 2010.

Lack of finance constrains agribusiness development in Kazakhstan

The rapid succession of the global food crisis and the subsequent financial crisis in 2008-09 had a strong negative effect on agribusiness. The critical constraints of agribusiness development in Kazakhstan's context are the lack of vertically integrated agribusiness holdings and lack of working capital to finance inventories, seeds, fertilisers, chemicals and fuel for farmers. According to the results of the OECD *Country Capability Survey*, 40% of agribusinesses in Kazakhstan consider access to finance to be a challenge (40% of respondents in the meat and dairy industries consider access to finance to be a moderate to major barrier) and between 40% and 60% of interviewed companies see the cost of financing as too high (over 50% in meat and 40% in dairy).

Inadequate physical infrastructure

Kazakhstan's agribusiness has some internal imbalances (the north of the country specialises in cereal crops and livestock breeding, while the south is more diversified). Processing enterprises are scattered around the vast territory of the country and distribution is rather costly. High logistical costs affect prices and make the agricultural output of the country less competitive. Insufficient modernisation and poor input quality standards complicate the sector growth prospects as well.

Key success factors for agribusiness development in Kazakhstan

Several success factors could be envisaged for Kazakhstan's agribusiness development to accelerate its growth. Development of a modern retail network through strengthening the role of FDI and attracting modern retailers can motivate local suppliers to improve standards, quality and reliability. Improved access to finance for primary producers by means of supply chain financing and guarantee schemes can also contribute to sector growth. The experience of OECD countries demonstrates that investment in human capital, supporting markets to ensure sustainable access to finance, reliable business services and quality inputs, the effective use of information and communication technologies, and targeted investment promotion activities are drivers of success in the sector (Sveinbjörn *et al.,* 2002). Besides, adjustments to the legal framework need to be made in order to overcome concerns of both domestic and foreign investors in Kazakhstan as much as regulatory enabling environment appears to be the critical element to ensure smooth agribusiness development in the country.

1.5. Sector attractiveness in Kazakhstan

Kazakhstan's agribusiness sector features many of the required factors and characteristics to be attractive both to domestic and foreign investors. It has vast land resources suitable for crop and livestock farming. Although Kazakhstan is the world's largest landlocked country (UNCTAD, 2006), which is perceived as a disadvantage for many sectors and products, the country is well placed near the main sources of regional and global growth in demand for agribusiness products. Its rapidly growing economy, resulting demographic changes and increasing disposable income of the population mean a growing demand in the domestic market for higher value and quality food products.

Extensive arable land resources

Kazakhstan's mostly favourable climate and vast areas of arable land have historically stimulated development of the agricultural sector. As the world's ninth largest country by territory, with 74% of its surface area suitable for farming, it has 23.4 million hectares of arable land and 188.7 million hectares of pastures (ASRK, 2009a). Also, the country has second highest level of arable land per capita with 1.47 hectares per person in 2007 (World Bank, 2010). This endowment provides an excellent basis for the production of crops and livestock products. The agricultural sector has been and remains a major part of Kazakhstan's economy. Favourable weather conditions and introduction of modern production technologies resulted in substantial increases in wheat production and allowed the country to recently become one of the top ten grain exporting countries in the world.

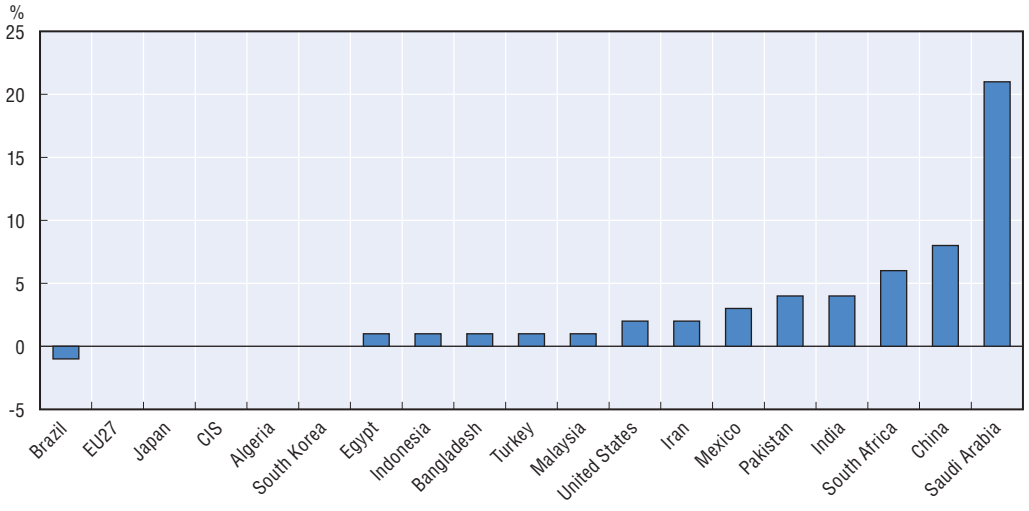
High regional demand prospects

Being the largest land-locked country in the world can be seen as a disadvantage for exports of many industries and products. At the same time, this situation provides a natural protection for importable beef and dairy products, including for the processing sector.

According to the Food and Agriculture Organisation's projections, the main sources of growth in global consumption of cereals (including wheat, barley and rice) will come from developing countries, more specifically, from the Middle East, North Africa and China. According to the OECD-FAO *Agricultural Outlook 2009-18,* imports of wheat by Saudi Arabia are expected to grow by 21%, China by 8%, India and Pakistan by 4% CAGR in the period 2009-18 (Figure 1.10). Similar trend holds true for dairy and meat products. Currently, consumption

Figure 1.10. **Projected growth of wheat imports**

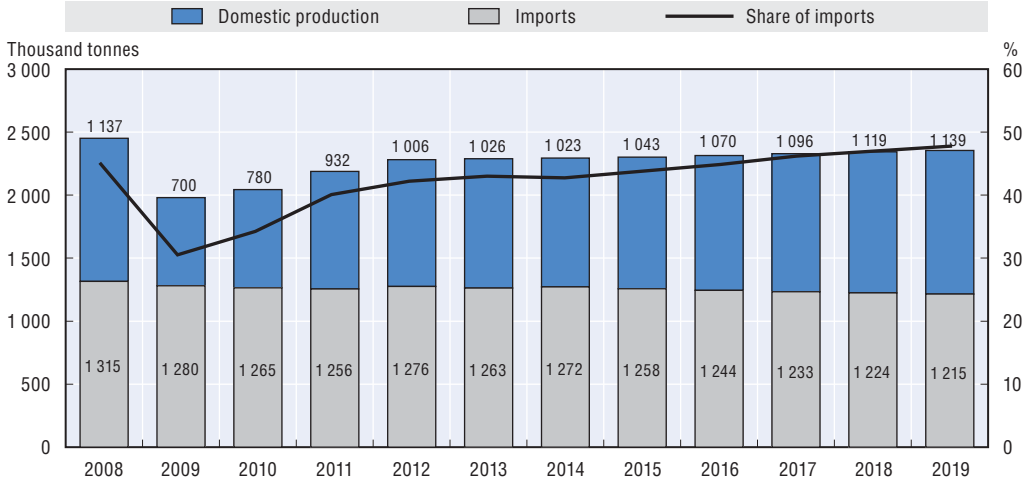
CAGR, 2009-18 period



of dairy products in China is well below the world average, which means that Kazakhstan is well placed to meet impending growth in demand for milk and milk-based products at least in the neighbouring areas of one of the world's most populous countries.

Also, Kazakhstan's northern neighbour and partner, Russia, is the second largest importer of meat in the world. With declining domestic production, Russia relies heavily on imports in order to satisfy domestic demand for beef. Imports reached 811 000 tonnes in 2008, accounting for 47% of domestic consumption. Although the levels of beef consumption and imports fell in 2009 as a result of the global financial crisis, the United States Department of Agriculture forecasts that growth in Russia's beef imports will resume, as rising consumer demand outpaces gains in domestic production (Figure 1.11). According to the forecast, Russia is expected to increase beef imports from 780 000 tonnes in 2010 to 1 139 000 tonnes in 2019. Rapid import growth is also projected for a number of

Figure 1.11. **Beef production and imports in Russia, 2008-19(f)**



Source: USDA, 2010.

middle-income countries in Northern Africa and the Middle East, due to rapid growth in population and per capita incomes. These trends create an opportunity for growth in Kazakhstan's beef sector.

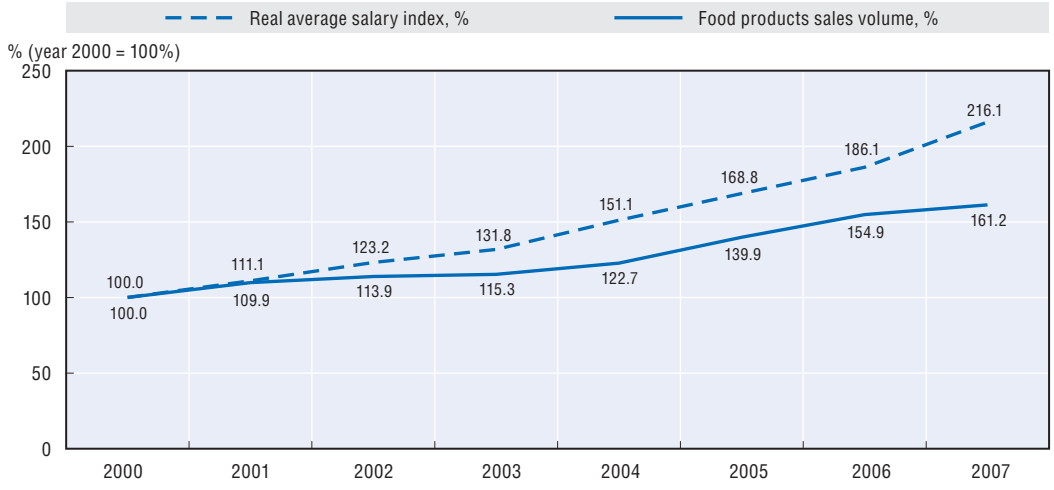
Growing domestic consumption

Kazakhstan's fast-paced economic development, based on increased production of oil and minerals, has a positive effect on domestic consumer spending. With growing disposable income, the Kazak population's consumption patterns and preferences are shifting towards improving diets and higher demand for processed products, and high-value and prepared food. This trend will provide an opportunity to develop the food processing sector and move up the value chain, where profits are much higher compared with raw agricultural commodities or minimally processed food.

The growth of GDP per capita levels and purchasing power of the population are among the main factors influencing the development of the retail sector. The incomes of the population in Kazakhstan have seen a strong growth during 2000 and 2007 with an average salary increase of 116% in this period. This trend had a positive effect on development of the retail sector in general and processed food/agricultural products in particular. The food products market sales volumes grew by 61.2% in real terms between 2000 and 2007 (Figure 1.12).

Figure 1.12. **Average salary and food products turnover**

Volume indexes, 2000-2007



Source: ASRK, 2009b.

Changing demographic patterns such as urbanisation and growth in disposable incomes of population create favourable conditions for development of the retail sector. Foreign investors have already started to explore the opportunities in the retail sector of Kazakhstan, with international retail chains Metro (Germany), Vester (Russia) and Ramstore (Turkey) already present in the country. This indicates that the retail sector offers potential opportunities and more foreign investors may follow the pattern, especially if the government takes measures to create favourable conditions and a conducive business environment in the country.

Limited distortions in terms of agricultural support (SCT levels converging to zero for wheat, beef and milk)

Trade policies supporting agricultural producers went from practically inexistent in the late 1990s, to moderate in recent years. In the second half of the 1990s, the government largely neglected the agricultural sector as the focus was given to macroeconomic stabilisation and tight fiscal policies to overcome the consequences of the Russian crisis of 1998. After a substantial contraction of agricultural production in the 1990s, government changed its policy and decided that developing the agricultural sector would require a sound regulatory framework and a certain amount of state support. The situation improved from 2003, when the government implemented the Agricultural and Food Programme 2003-05 and the budget revenues improved from oil exports. The objectives of the Agricultural and Food Programme were to ensure food security, establish an efficient agro-industrial system, increase sales of farm products and processed farm products in domestic and foreign markets, and optimise state support for agriculture (Presidential Decree No. 889). The programme focused on competitiveness and efficiency and recognised that technical support is an important public service to agriculture (Pomfret, 2007). The main measures provided to agricultural producers through the programme were input support measures, namely subsidies to reduce the cost of inputs (*e.g.* fertilisers, seeds and fuel) and indirect price support measures, provided through the Food Contract Corporation and Mal Onimdery Corporation (see Boxes I.1 and I.2). For instance in the case of wheat, milk and beef producers, support is delivered through lowering the cost of feed, fuel, seeds, fertilisers and stimulating farmers to purchase pedigree cattle.

The support to wheat, milk and beef producers was measured by the single commodity transfers (SCT) as a share of gross farm receipts. Compared to OECD countries, as well as selected emerging economies, the support levels to these commodities remained low in Kazakhstan. Support to wheat and beef producers was negative until the beginning of the 2000s, due to the impact of price liberalisation policies in the 1990s, strong depreciation of the local currency and low interest towards agricultural sector from the government. Budgetary support to the wheat sector began to increase in the early 2000s. Market price support for wheat remained volatile, mainly due to weak price transmission of the world market prices to the local producer level. Similar developments occurred in the beef sector; however, the budgetary support compared to that for wheat producers remained negligible. Support levels for milk producers were positive up to 2000, but fell to close to zero in the first half of 2000s. Similarly to the beef sector, support in the milk sector consists mostly of market price support. In 2007-09, the support levels were highly volatile due to significant fluctuations in the world market prices only partly transmitted to local producers, mainly because milk is not an extensively traded commodity in Kazakhstan.

SCT results for wheat, beef and milk are provided in more detail within relevant commodity chapters (Chapters 2, 3 and 4).

Box 1.1. **The Food Contract Corporation and Mal Onimdery Corporation**

Two state-owned companies, Food Contract Corporation and Mal Onimdery, are responsible for domestic market regulation in the wheat and livestock sectors respectively and are major exporters of wheat and beef.

Food Contract Corporation (FCC), established in 1997, is the largest grain trader and responsible for purchasing the national production, for maintenance of grain reserves and market intervention. The FCC stabilises prices on the domestic market through interventions. It operates on the basis of the Law on Grain according to which public grain stockholdings are maintained by an agent on the basis of a contract. The contract was granted without open competition to the FCC as a "state procurement from a single source" (Ceyssens, 2006).

The FCC is fully owned by the state of Kazakhstan through the National Holding KazAgro. At the end of December 2008, the FCC employed 1 718 people and reported revenues at KZT 35 billion (USD 238 million) up from KZT 24 billion (USD 200 million) the previous year. The FCC is the largest trader of grain in the domestic market as well as the key exporter of grain. The FCC is the owner of the only operating grain terminal in the seaport Aktau in the Caspian Sea (Ceyssens, 2006).

Since its establishment, the role of the FCC has expanded: it is now also responsible for regulating the national grain market, investment activities in the agricultural sector and grain exports.

The activities of FCC are the following:

- ensuring the food security of the country by purchasing grains for state resources;
- providing short-term loans for input purchases;
- purchasing grains to regulate domestic markets and stabilise grain prices;
- exporting grain;
- providing seed loans for purchases from the state seeds resources for sowing campaign;
- crediting field and harvest works to support grain producers (the rate of interest is 8% per year);
- implementing investment projects for the expansion of the Kazakhstan grain export routes, deep processing of grain and the formation of grain production clusters (Ministry of Agriculture, 2010).

According to the Law on Grain, the state grain resources for mobilisation, food security, fodder provision and regulation of the grain market must be maintained by purchases at market prices. The FCC is responsible for maintaining about 500 000 tonnes of grain in the state reserves (about 4% of total wheat production). The FCC procures grain directly from farmers and makes limited use of tender or auction procedures (Asian Development Bank, 2001). At the beginning of the year, the government fixes the amount of grain to be purchased for security purposes and the price to be paid.

For example, in 2006, the government announced the purchase of 558 308 tonnes of cereals at the price of KZT 11 120 per tonne to for the purpose of food security and regulation of the domestic market (Governmental Order No. 101). The price announced in February was actually lower compared to the average producer price in 2006 (KZT 12 252 per tonne). The prices set by the government at the beginning of the year tend to be lower than the market prices. Moreover, as the FCC is a large exporter, they cannot deviate far from world market prices.

Box 1.1. **The Food Contract Corporation and Mal Onimdery Corporation** *(cont.)*

Most of the grain purchases by the FCC are carried out and paid for in spring, in order to provide farmers with financial resources to purchase fertilisers and petrol. The government allocates each spring the amount of money that the FCC has to spend. These contracts actually work as interest-free loans to the producers (Ceyssens, 2006).

In addition to procurement for state reserves, FCC carries out commercial procurement using its own and borrowed funds. The government does not determine the price, volume and procedures used in procurement for commercial purposes. The FCC independently sets the price and volume of the purchased grain, based on its own commercial considerations. Usually, the volume of commercial purchases exceeds state procurement about six times. Hence, the share of wheat procured by the FCC was 13% of total wheat production in Kazakhstan during 2007-09.

Mal Onimdery Corporation (MOK) was established in 2001. It carries out state activities in the cattle-breeding sector and plays a central role in helping Kazakhstan to reduce its dependence on meat imports and increase exports. The Corporation is responsible for providing producer support, regulating the market in the livestock sector, assisting the livestock sector and developing new export markets. Mal Onimdery Corporation is fully state-owned and it is a subsidiary of the JSC KazAgro.

The tasks of the Corporation are:

- organising the purchase, manufacturing, processing and delivery of cattle-breeding production for export and internal markets;
- supporting producers of agricultural production by organising purchasing operations;
- helping smooth price fluctuations of socially important production of animal husbandry in the home market;
- working on the establishment and promotion of Kazakhstan's brand name of cattle-breeding production in external markets;
- increasing processing capacities for high-quality meat products.

The total fixed capital is KZT 8.5 billion (USD 58 million). In 2002-06, the Corporation produced live stockbreeding for KZT 6.4 billion (USD 51 million) and rendered services of cattle processing for KZT 875 million (USD 7 million). The Corporation sold cattle-breeding products for KZT 6.3 billion (USD 51 million). The export was KZT 1.1 billion (USD 9 million) (17.5% of total sales).

MOK carries out procurement operations with animal-origin products at the domestic market at fixed prices, to ensure market stabilisation based on the decisions of the government. The purchase of products is carried out in accordance with the order of the Law on Government Procurement at prices set by the Ministry of Agriculture.

MOK provides price intervention of cattle-breeding products to support domestic producers. These are measures undertaken (upon the decision of the government) on sales of agricultural goods at domestic markets from the state resources, at fixed prices. Price interventions stabilise the domestic market in cases when market prices for agricultural goods have increased above the level of the average annual market price (which is formed during the previous calendar year), adjusted for inflation and defined in the medium-term plan of social economic development.

Within price interventions, agricultural goods shall be sold at prices set by the Ministry of Agriculture to wholesale and retail sellers and agricultural processing industries through tender procedure. In cases when there is no need to undertake price interventions, MOK could sell agricultural goods at the domestic market or export at its own discretion.

Box 1.2. **Overview of input support policies and tax/credit policies**

Input support policies

After the adoption of Agricultural and Food Programme (2003-05) in 2002, budgetary support to the agricultural sector increased substantially. Many incentives are provided in the form of subsidies that reduce the cost of inputs (*e.g.* fertilisers, fuel and seeds) (Pomfret, 2007). The aim of the programme was to increase production efficiency and competitiveness of local agricultural products on the world market, and meet international quality standards (primarily grain, rice, cotton, wool and flour).

Reduction of the cost of fertilisers, seeds and herbicides

The support scheme to reduce the prices of mineral fertilisers, seeds and herbicides for agricultural producers started in 2002 within the framework of the Agricultural and Food Programme (2003-05). The support scheme was designed to increase the productivity of agricultural crops, improve the fertility of the soil and raise the quality of agricultural produce. The annual average budgetary cost of the support programme during 2002-05 was KZT 457 million (USD 3 million) annually. During 2006-07, the annual average cost increased to KZT 1.3 billion (USD 10 million) and to KZT 2.7 billion (USD 21 million) during 2008-09.

Seed support

Seed support is provided to all crop producers. Farmers are compensated up to 40% of the cost of purchased elite seeds. The cost of production of original seeds is compensated from 40 to 100% to the producers of original seeds of priority crops. Support is paid per hectare. From 2009, the rates of support per hectare are differentiated depending on the level of technology used in the farm. In the case of resource-saving technologies, the subsidy is twice as high as for farmers using traditional technologies. In order to receive the subsidy, producers of elite seeds had to sell the seeds at a certain price until 2010. The farmers who sold the seeds at the price that did not exceed the average market price (KZT 39 000 per tonne) were eligible for a subsidy of KZT 19 330 per tonne in 2009. Eligible farmers have to be certified and to meet the requirements set by the law.

Budgetary support for this programme increased from KZT 100 million in 2000 to KZT 900 million in 2005 (USD 1 million to USD 7 million). From 2006, the average annual expenditure was about KZT 1.5 billion (USD 12 million).

Crop insurance

In 2004, the Law on Mandatory Crop Insurance was adopted that introduced mandatory insurance for all crop producers. Insurance is provided by private insurers and agents and applies in case of crop damage or destruction as a result of adverse natural conditions. The insurance premium is fixed by the law. Insurance payments are calculated on the basis of a producer's loss, defined as the difference between the costs for one hectare of production of the destroyed crop and the income derived usually from that crop, multiplied by the tillage affected by the natural damage. A commission composed by the state authorities, insurant, insurer and insurance agent establishes the areas affected. In the case of natural disaster, the government refunds 50% of insurance payments to the insurer (Ceyssens, 2006).

Support to high priority crops production

In 1997, the Law on State Regulation of Development of Agro-Industrial Sector and Rural Areas was enacted. According to the law, farmers are partially reimbursed the costs associated with the purchase of fuel, fertilisers, seed and herbicides needed for spring sowing and harvesting. The purpose of the support is to increase yield and improve quality of crop production.

Box 1.2. **Overview of input support policies and tax/credit policies** *(cont.)*

Input support policies

Subsidies are paid to agricultural producers once a year. Support is paid per hectare for crops of high priority defined for each region. The amount of subsidy per hectare by type of priority crops is the same for all regions. The volume of subsidies for each region and Astana city is approved by the procedure established by law and based on the amounts stipulated by the Ministry of Agriculture, which are determined in accordance with the size of subsidies and area under crops of high priority. The annual average cost of the support programme during 2007-09 was KZT 8.8 billion (USD 70 million).

Additionally, Kazakhstan imposes a temporary fuel export ban every year during harvesting periods in order to provide fuel at low prices to farmers (Ceyssens, 2006).

Support to high-breed livestock production

The objective of the measure is to increase the share of pedigree livestock in the total herd of the country and to increase productivity of livestock production. The support measure has been applied since 1995.

The programme includes the following components:

- compensation of up to 50% of the price of pedigree livestock to farmers, who bought this livestock from domestic producers;
- compensation of up to 50% of the cost of high-bred bulls' semen;
- compensation of up to 50% of the cost of day-old chicks;
- 100% compensation of the cost of laboratory equipment and special agricultural equipment purchased by the Republican pedigree livestock centre;
- 100% compensation of the cost of high-bred bulls purchased by the Republican pedigree livestock centre, imported semen, costs of maintenance of high-bred bulls;
- 100% compensation of the cost of purchase of high-bred poultry;
- 100% compensation of the cost of purchase, maintenance and training of high-bred horses.

A special commission was created in the *akimat* (local executive bodies) to administer the programme. Farmers submit their applications to the *akimats* stating the expected number of pedigree livestock they plan to buy. If the number of applicants exceeds available budget, the commission makes a list of high priority farms (those with a larger share of high-bred livestock or members of agricultural co-operatives). The final list of farms eligible for subsidy is approved by the *akim* (the head of the *akimat*).

The policy measure is applied at the national level. Participation is voluntary. Eligible bodies include the Republican pedigree (high-bred) livestock centre, Kostanay breeds unit, high-bred poultry production units and other agricultural producers. Farmers have to provide evidence of purchase of pedigree livestock to the commission (copies of purchase contract, invoices, etc). If the documents meet the requirements, the commission determines the appropriate level of subsidies.

The annual cost of the support to high-breed livestock production was on average KZT 170 million during 1995-2006 (USD 2 million).

Support to increase the quality and efficiency of pedigree livestock production

The programme was introduced in 2007. The objective of this policy measure is to increase the level of livestock production and improve competitiveness by reducing the cost of feed for producers. Payments are provided to domestic producers of beef, pork and poultry to minimise the cost of feed concentrates. Subsidies are paid to special enterprises

Box 1.2. **Overview of input support policies and tax/credit policies** *(cont.)*

approved by the *akims*. Farmers provide information on the volume of sold produce and documents to prove the sales to the relevant department in *akimats* on a monthly basis. The department then forwards the documents to the Regional Commission. The Regional Commission is established in the *akimats* to organise and monitor the process of subsidy. The payment rate per 1 kg of sold meat at slaughter weight is KZT 90 (KZT 9 per 1 kg of concentrate feed; 10 kg of concentrate feed is used to produce 1 kg of meat). During 2008-09, the annual average cost of the support programme was about KZT 400 million (USD 3 million).

Preferential tax and credit policies

Simplified tax regime

Agricultural producers are subject to a simplified tax regime. Tax privileges apply for both peasant farms and corporate farms. Small farms that do not need to register as VAT payers pay a unified land tax which amounts to 0.1% of the cadastre value of the land in use, which replaces the individual income tax, land tax and charges for its use, property tax, transport tax and value-added tax. Corporate farms have to pay only 20% of the whole taxes due from the enterprise (Wandel, 2009).

Preferential credit

In terms of budgetary transfers involved, various forms of preferential credits are the most important programme supporting agricultural producers. The agricultural sector is benefiting from subsidised interest rates on credits, state guarantees for foreign loans and preferential loans to support agricultural small and medium-sized enterprises. The aim of these measures is to strengthen reforms in the agricultural sector and to implement a unified medium-term investment policy. The criteria used to select competitive investment projects include the compliance of investment projects with restructuring goals in the agriculture sector, the creation of competitive markets for agricultural commodities, the use of modern machinery and technologies, and the economic viability of projects.

Three institutions are involved in providing preferential credits to agricultural sector: JSC Fund for Financial Support to Agriculture, JSC Kazagrofinance and JSC Agricultural Credit Corporation.

JSC Fund for Financial Support to Agriculture focuses on micro-lending and insurance services. Micro credits are provided to rural population for maximum two years.

JSC Kazagrofinance provides leasing for agricultural equipment and financing for working capital. The interest rate in leasing agricultural equipment is 4-12.5%, and the leaser covers 25-28% of the price of equipment. Machinery is purchased by the state budget. Kazagrofinance purchases the machinery according to the public procurement rules (Ceyssens, 2006). All farms can lease agricultural machinery at subsidised interest rates. Kazagrofinance is also responsible for implementing a short-term credit programme that provides farmers with resources to pre-finance input purchases at favourable conditions.

JSC Agricultural Credit Corporation credits are available for members of the rural credit associations for 1-7 years with interest rates up to 9%.

Since 2005, the Ministry of Agriculture provides subsidies for interest rates of credits up to KZT 20 billion (USD 150 million). This allows agricultural enterprises to get credits at annual interest rates of 5% (Wandel, 2009).

1.6. Sector challenges and policy barriers

For most of the past decade, Kazakhstan has enjoyed overall steady economic growth. However, at the same time, certain weaknesses have developed, and have been magnified by the global financial crisis starting in mid-2007. The country is competing on cost and needs to leverage this advantage to be ready to reap opportunities for value-based competition. Kazakhstan now needs to move up the value chain by greater processing of products in agribusiness. It also needs to better identify investor demands and remove specific policy barriers that hinder the sector's development. Kazakhstan's agribusiness by and large remains underdeveloped and fragmented, characterised by obsolete infrastructure and technologies. Furthermore, the export potential of agribusiness in Kazakhstan is not yet fully realised.

The crisis highlighted Kazakhstan's excessive dependence on primary industries and commodity exports. This has prompted the government to declare economic diversification as its strategic objective. The modernisation of the agricultural sector has become one of the national priorities.

Key issues and challenges facing Kazakhstan's agribusiness were analysed and some key sector challenges for agribusiness sectors were identified, such as limited working capital and shortages of farm and agribusiness credit at affordable terms, obsolete technology, limited access to land, limited numbers of qualified mid-level and lower-level managers, a major skills gap, lack of consistency of legislative framework and pervasive corruption, limited logistics, lack of quality input supply, and lack of awareness of investment opportunities by foreigners.

Need to increase financial resources for working capital

Restricted access to financial resources and the resulting limited ability to invest in farm inputs and equipment are among the key obstacles to increasing productivity. The state of the rural credit system in the country is another constraining factor for the development of agribusiness. The lack of seasonal working capital financing limits the ability of farmers to buy inputs and services before harvest, and to finance storage costs and inventories after harvest. While large grain producers have fewer difficulties to access credit, thanks to public programmes such as KazAgro Finance and grain receipts, smaller firms face obstacles to attract credits. High interest rates and stringent borrowing conditions with prohibitive collateral also make commercial loans less affordable. The level of financing of agro-processing companies in Kazakhstan has been on a declining trend in the last three years (Figure 1.13).

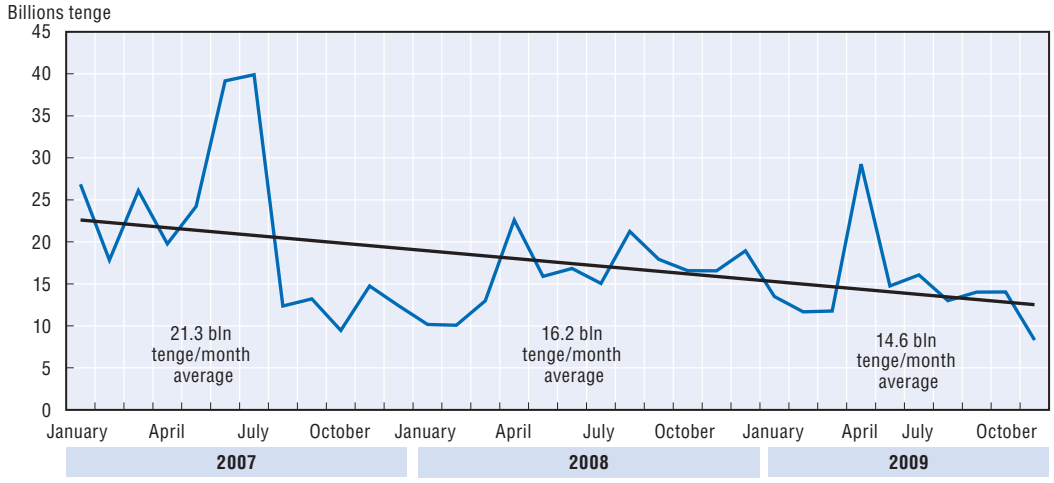
The recent financial crisis has increased aversion of financial institutions to lending to SMEs in the country. Policies and lending practices improvements are needed to ensure access to financing by agribusinesses, especially micro, small, and medium-size enterprises. Collateral is also a key issue (*e.g.* farmers in Kazakhstan cannot use livestock as collateral, unlike in North America, Uruguay and other countries).

Opportunities for quality improvement through technology upgrades

Agribusiness in Kazakhstan is characterised by low rates of investment in agricultural inputs. According to data from the State Statistical Agency, a high portion of Kazakhstan's agricultural machinery (including 77% of its tractors and 59% of its grain combines) are at least 20 years old. Long-term investments are needed to finance agriculture machinery, farm

Figure 1.13. **Bank credit to agro-processing companies in Kazakhstan**

USD million



Source: National Bank of Kazakhstan, 2010.

equipment and buildings. Investments in infrastructure are needed to lower running costs and increase productivity and efficiency along the value chain. Finally, key investments are also needed in the transfer of know-how and technologies to farmers, which will improve safety and quality standards, as well as provide easier access to export markets.

Need to relax land tenure and property rights constraints

Limited or non-existent land tenure and property rights are crucial barriers to increased investment and agricultural production throughout Central Asia. Kazakhstan has recently adopted laws that recognise and respect private land ownership, support transfer of land through the land market, and allow for the collateralisation of land to obtain financing. Kazakhstan's legislative and regulatory framework for land relations is supportive of private land rights and land markets. Land of all kinds may be privately owned, though foreign ownership of agricultural land is prohibited. However, under the 2003 Land Code, shareholders will lose their conditional land rights unless they start farming or invest their rights in large agricultural enterprises. Apart from the issue of conditional land shares, most Kazakhstani citizens have rights to small plots of land for household production and some commercial sale. However, the household sector in Kazakhstan controls a much smaller proportion of land than in other countries of the region, while the corporate sector continues to retain a much greater share of arable land than in the rest of Central Asia (despite a drop from its early 1990s level, as the share of corporate farms in arable land in Kazakhstan went down from virtually 100% in 1990-91 to about 60% in 2007) (see Box I.3 for a discussion of the link between land ownership structure and productivity).

Need to bridge the skills gap

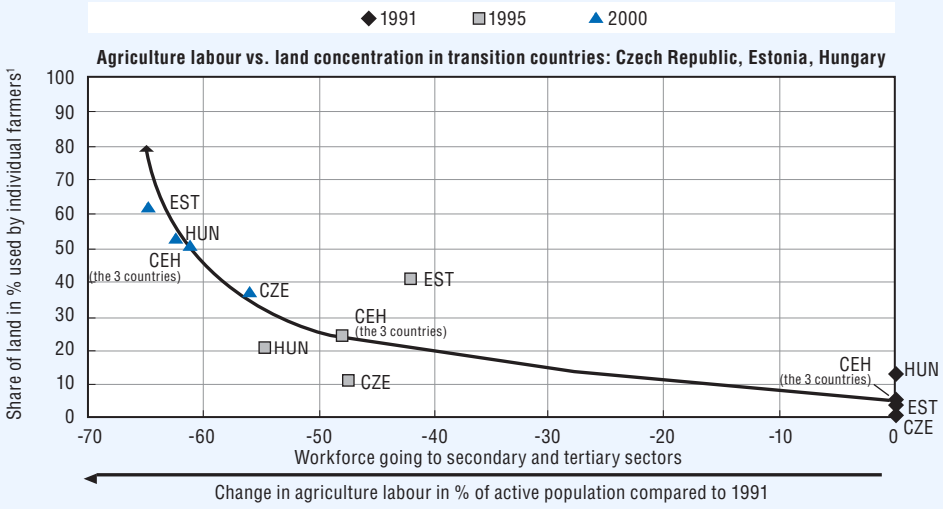
Lack of qualified staff, especially at the managerial and technical level, is a serious impediment to agribusiness development in the country, as suggested in the results of focus groups with foreign investors (Figure 1.14).

Box 1.3. **Land concentration and farm productivity**

There is no clear evidence pointing to the relative efficiency and merit of large corporate farms *versus* smaller family farms in a general sense (Gorton and Davidova, 2004). More specifically, the optimality of farm structures depends on the initial endowments of countries under consideration, in particular relative factor abundance. In labour-intensive regions, of which China is the most prominent example, the shift to small-scale individual farming may lead to dramatic gains in efficiency. In capital- and land-intensive regions on the other hand, of which Kazakhstan is an example, gains in productivity come from large farms shedding labour.

The following graphs highlight the different dynamic adjustment patterns which affected Eastern and Central Europe as well as Central Asia, with positive implications for farm productivity.

Agriculture labour *vs.* land concentration in transition countries: Czech Republic, Estonia, Hungary

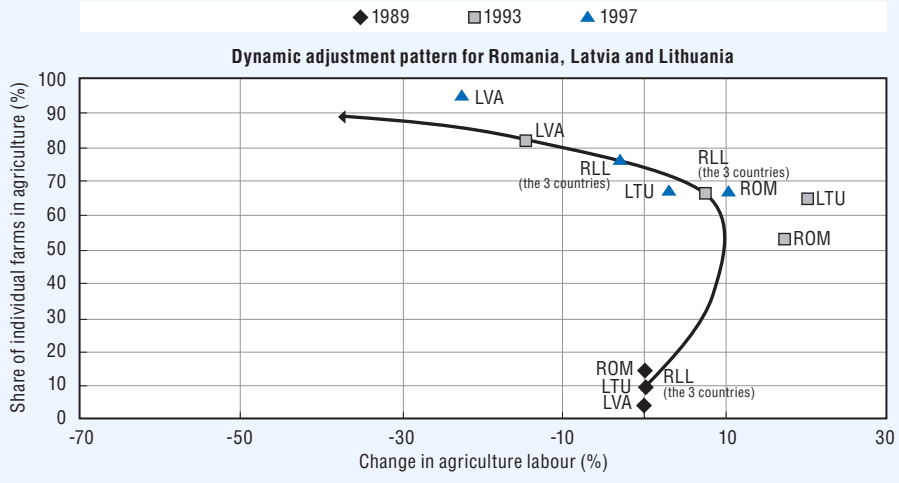


Note: Total land used by individual farmers (as opposed to corporate farming which is not single proprietor) divided by all agricultural land in the country.

Source: "Land Reforms and Farm Restructuring", Professor Jo Swinnen, October 2009 Workshop, OECD, Paris.

Dynamic adjustment pattern for Romania, Latvia and Lithuania

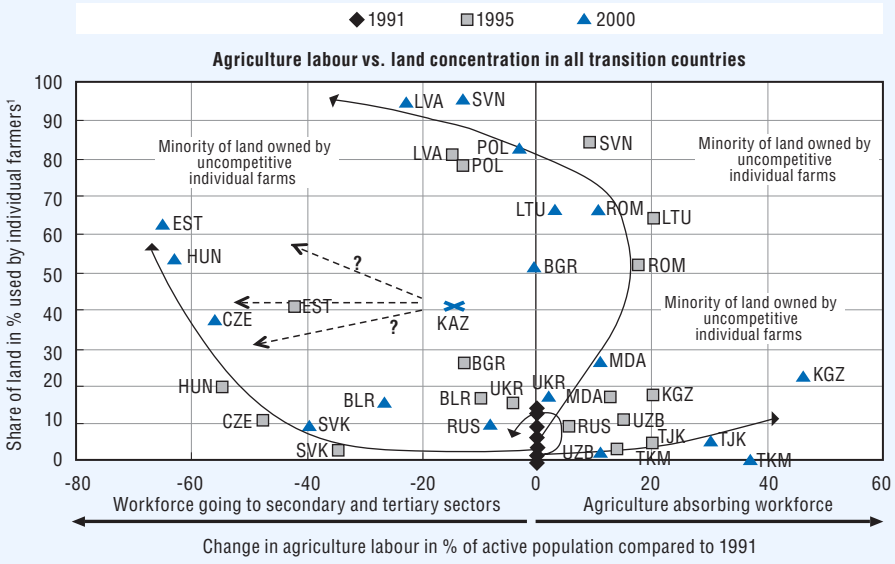
Country names abbreviated. Year 0 = 1989, Year 4 = 1993, Year 8 = 1997



Box 1.3. **Land concentration and farm productivity** *(cont.)*

Putting the paths together: Patterns of transition

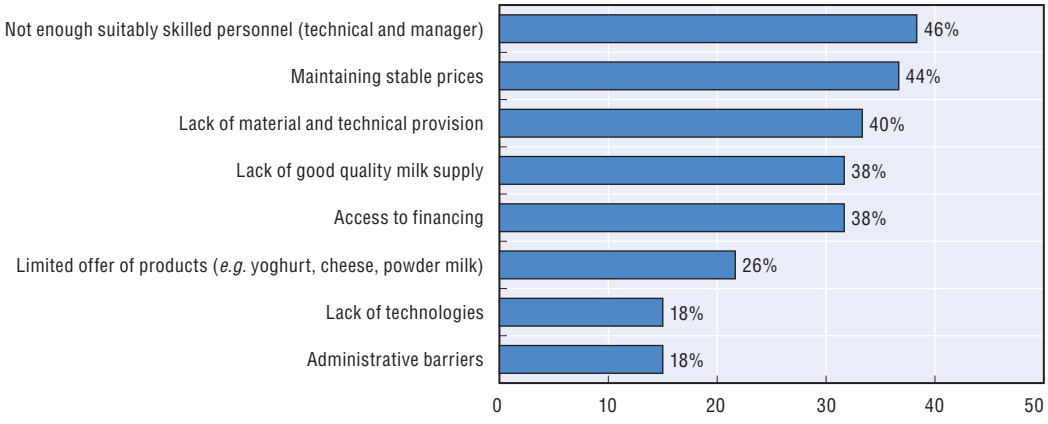
Country names abbreviated, IF individual farming



Source: Professor Swinnen, OECD Agribusiness Workshop, 14-15 October 2009, Paris.

Figure 1.14. **Key challenges for dairy business development in Kazakhstan**

% respondents, by category



Source: OECD *Country Capability Survey Kazakhstan*, 2010.

The lack of qualified resources calls for investment in company-sponsored professional training for local managers and technical staff. The experience of the OECD countries shows that investment in education and training can result in significant improvements in the level of skills and education of the workforce and, more fundamentally, in raising labour productivity. In general, private investment rose much faster over the last decade (on average, up 186%) than public investment (on average, up 26%) (OECD, 2008b, 2008c).

There is a lack of public funding into agricultural research, and limited educational opportunities. Expenditure in R&D in agriculture represents only 0.5% of agricultural contributions to GDP, against an average of 1% in developing countries, 2% in industrial countries and 4.3% in Australia. According to empirical studies, public investment in agricultural research may result in large economic benefits of at least 35% annual rate of return (Fuglie, 1996).

Need to enhance logistics for agribusiness

The agribusiness sector would benefit immensely from further investments in transport infrastructure. 40% of companies in the dairy sector and 28% in the meat sector consider transport as a major or moderate barrier for business development. For example, improvements in transport infrastructure connecting the south and the north of the country would greatly improve the production potential of fruits and vegetables in the southern areas. According to World Bank estimates, transport could add around 15% to the cost of goods supplied to and from Central Asia. Good transport infrastructure is important for facilitating regional and international trade. According to the OECD CCS, 38% of companies in the dairy sector supply their products to other regions within Kazakhstan, 10% to Russia and 2% to other Central Asian countries.

Opportunity to improve quality of supply

Quality standards and control in dairy and meat sub-sectors could be improved and thus further stimulate the development of a modern food chain in Kazakhstan. According to the OECD CCS, 38% of respondents in the dairy sector mentioned the lack of quality inputs (milk) as a critical challenge for expanding production.

Ensuring an adequate supply of quality inputs for processors remains a priority. For example, limited adequate infrastructure for milk storage and processing makes it necessary to collect milk directly from farmers. This has some financial implications for processors, who may be constrained to import quality inputs at a higher price than locally produced milk. Limited dependable quality supply in general makes it a challenge to meet one of the key policy objectives as set by the Government of Kazakhstan: modernisation of the agricultural sector and development of modern food processing, with a focus on exports. The issue of quality is particularly evident in the dairy sector with 62% of business respondents facing problems with the quality of milk supply (OECD CCS). Meeting safety and quality standards in a cost-efficient fashion will strengthen the competitiveness of the sector. The domestic market is expected to grow in the coming decade and will be increasingly concerned with input quality standards.

Focus on policy environment rather than subsidies

Two complementary approaches can be adopted in order to enhance the agricultural sector, one focused on *targeted subsidies and support*, and the other on improving the *policy environment*, for instance in terms of access to finance, or the promotion of retail development. Regarding the first approach, a noteworthy trend in recent years across OECD countries has been the reduction in support levels and some shift away from market price support and payments based on output or input use towards budgetary payments that are less linked to production ("decoupling", Box 1.4). This approach also includes producer-oriented programmes such as the provision of farm-level infrastructure, irrigation and inspection services. The Single Commodity Transfer presented in this

Box 1.4. **OECD countries' support to agricultural producers**

The OECD makes a distinction between support provided through prices (market price support) and budgetary transfers. Budgetary transfers are divided between those provided to farmers individually, and those provided to the agricultural sector as a whole (general services).

There is a slow but growing trend in OECD countries towards less support, and more decoupled forms of agricultural support.* The general trend in the OECD area is to reduce support levels to agricultural producers and shift away from market price support and payments based on *output* or *input use* towards budgetary payments less linked to production ("decoupling"). European countries in particular have moved away from the most distorting forms of assistance as part of the 1992 McSharry reforms, culminating in the single payment scheme.

* The share of total support directly linked to production (based on output and payments based on use of variable inputs) is still high in the OECD (as high as 80%, although it declined from 91% in 1986-88).

Source: OECD, *Agricultural Policy Design and Implementation. A Synthesis*, 2008.

publication is one element of this approach. By contrast, the latter approach, which is embraced in this publication, is focused on addressing the specific policy barriers that hinder competitiveness and productivity of agricultural sub-sectors. Enhancing access to finance is one of key policy solutions advocated in this publication for Kazakhstan agri-business sectors, along with the development of modern retail.

1.7. Sector strategy and policy recommendations

Agribusiness development in Kazakhstan is an area of focus for the government. In fact, Kazakhstan's President stressed in his speech on economic perspectives in May 2009 that modernising the agriculture sector and developing food processing with a focus on its export potential is a national priority.[4]

Following the analysis of Kazakhstani agribusiness and potential policy barriers and challenges, a list of initial recommendations was drawn up. Four tests were applied to identify the most relevant policy options/models for the selected agribusiness sectors.

- Benchmarking: a review of OECD and non-OECD best practices was performed to identify successful and unsuccessful policy experiences.
- Feedback from foreign investors: a review of 10 national agribusiness associations as well as private firms was performed to identify the level of attractiveness of the potential policy area.
- Feedback from Kazakhstan's private sector: The Country Capability Survey singled out current challenges and impact of the potential policy area to support Kazakhstan's competitiveness.
- Economics and policy implementation costs: Pros and cons were identified based on specific criteria including time and cost of implementation.

A number of relevant policy areas to promote the development of the agribusiness sector in Kazakhstan were then explored. Three steps were undertaken to identify relevant policy options: selection, prioritisation and description. As a result, the following areas were retained for policy consideration (see Figure I.16 in Part I: Approach, Methodology and Research):

1. Retail development (attracting foreign retailers, promoting modern retail development).

2. Access to finance (supply chain financing and guarantee schemes).
3. Investment policy and export promotion.
4. Producers' organisations.
5. Extension programmes.
6. Special economic zones (SEZ).

Further analysis singled out three policy measures to address the barriers for development and competitiveness of agribusiness. Thus, should focus should be placed on implementation of the following sector-specific strategies:

- Retail development.
- Supply chain financing and guarantee schemes.
- Investment policy and promotion.

Attracting modern retailers to generate a "pull" effect across the value chain

Modern retail development can have a major impact on the entire agribusiness value chain. Promoting private investment in the modern retail sector would bring important changes in the procurement system, including the building of distribution centres and direct contracting with suppliers. Wholesalers would acquire a new role and become logistics services providers. Development of modern retail would affect local suppliers in the short and medium term. Local suppliers would deliver to distribution centres rather than local markets. Modern retail would stimulate standardisation and compliance with quality requirements. Finally, local supplies would replace imports. Retail is a key driver of food manufacturing and quality improvement through sourcing and development of private labels: the case of China convincingly demonstrates a positive impact of modern retail development on agribusiness (Box 1.5).

Box 1.5. **Modern retail development in China**

Modern retail development in China over the last 20 years demonstrates the impact on all segments of agribusiness. In 1989, there were no modern retailers in China and food retail was controlled by the government. In 1990, modern retailers began to spring up and by 2003, they accounted for 13% of the nation's food retail and 30% of the urban retail. Liberalisation of retail FDI started in 1992 and culminated in 2004 as a provision of World Trade Organization accession.

Three waves of change could be observed in the development of packaged food in the country. In the 1990s, modern retailers very quickly took over packaged food retail in the top 60 cities. The quick gains of this process were economies of scale in procurement as well as direct relations with manufacturers of canned, dry and packaged food. The second wave could be observed in the 2000s when semi-processed food came to the forefront (chicken, beef, pork, dairy products). Again, economies of scale in procurement were an obvious advantage; however, time was required to establish stable relations with processors. The third wave (2010-20) relates to fruit and vegetable procurement. The freshness and convenience of markets near consumers' homes explains why small shops and markets still dominate. Modern retailers will transform fruit and vegetable procurement over time. In six large cities in China in 2006, modern retailers had a retail market share of 79% in processed food, 55% in baked goods, 46% in meat, 35% in fruit and 22% in vegetables.

Source: RIMISP-Latin America Center for Rural Development, OECD.

The last two decades have seen the rapid rise of modern retail around the world. Starting in the 1990s there has been a surge of modern retailers in developing countries, occurring in waves (Dries *et al.*). During the early to mid-1990s, a first wave of countries experienced retail sector take-off, where the supermarket sector went from a niche of around 5% of total food retailing in the mid-1990s to 40-50% by the mid-2000s. Examples include Northern Central Europe and the Baltics, much of South America, East Asia excluding China (South Korea, Philippines, Thailand), and South Africa. In the second-wave countries, such as Mexico and much of Southeast Asia, Central America and Southern Central Europe, the sector grew to a share of 20-30% by the early 2000s, with the take-off occurring in the mid to late 1990s. Finally, in third-wave countries (notably China, India, Russia) the share is still only 10% but growing very rapidly. China and India in particular have since become the foremost destinations for retail FDI in the world, with India ranking first and China second in the Global Retail Development Index (Farra and Bell, 2006). The Index ranks 30 emerging countries based on a set of 25 variables including economic and political risk, retail market attractiveness and retail saturation levels.

The retail revolution is driven on the demand side by underlying trends such as urbanisation and the entry of women into the labour force, per capita income growth, the rapid rise of a middle class in countries like China, and the growth in refrigerator ownership throughout the 1990s. On the supply side, FDI was crucial to the take-off of modern retail. Indeed the development of modern retail coincided in the 1990s with massive inflows of FDI, particularly from chains in Europe, the United States and Japan, at a time when many countries in the developing world undertook full or partial liberalisation of retail sector FDI. Heavy foreign investment made the transition from state-run retail shops, co-operatives and farmers' markets to Western-style, modern retailers possible. From the vantage point of foreign investors, timing is key: the failure of companies in a given market is often due to poor timing of market entry.

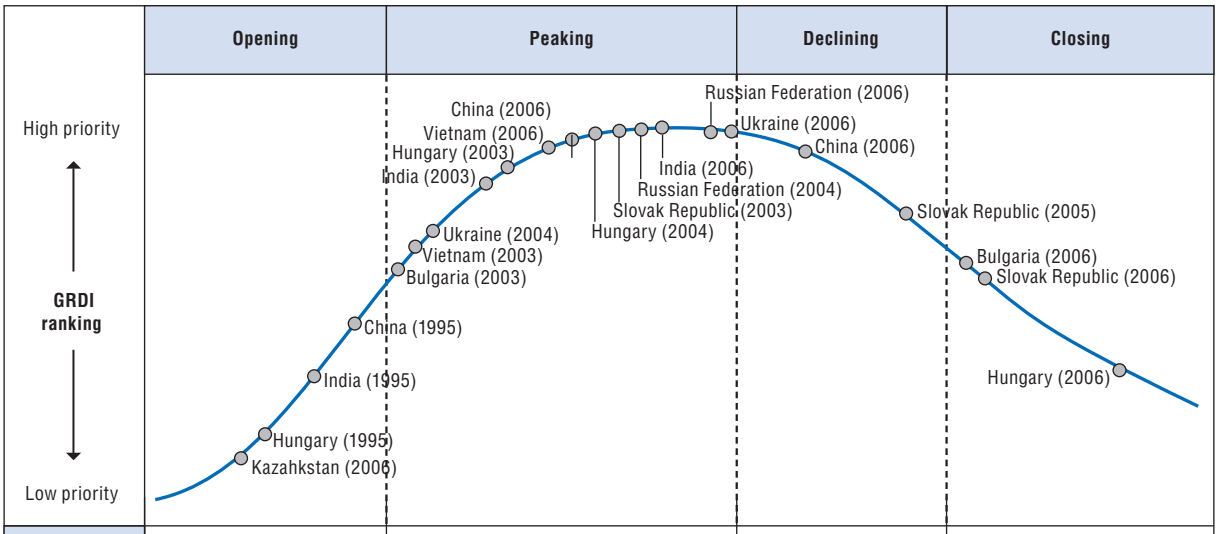
In Kazakhstan, the retail sector has lagged behind other countries with a similar level of GDP: today, 50% of all trade still takes place in open markets or through other informal means. However, the potential for growth is high, with Kazakhstan positioned at the opening stage of the window of opportunity for foreign retailers (Figure 1.15).

The retail market in Kazakhstan has been growing at average annual growth rate 19% since 2003, and the retail space provided by shops has increased by 37% in the last four years (Figure 1.16).

International retailers are starting to enter the market. Foreign retailers present in Kazakhstan include the Russian hypermarket chain Vester (first store opened in Karaganda in 2007), the Turkish chain Ramstore, Swedish furniture retailer IKEA (opened in Almaty in 2008), and Metro (in Astana, with plans to open 10 to 15 wholesale stores in Kazakhstan) (Box 1.6).

An increasing body of literature reflects on the retail revolution and its impact on the entire agri-food system. The retail revolution shock downstream in the food system generally has significant ripple effects upstream across the entire supply chain, leading to a restructuring at the wholesale, processing and farm levels. The most obvious and rapid effects are on producers of processed and semi-processed products. In this context, the widespread diffusion of supermarkets facilitates the development of a modern and mostly demand-driven agro-processing sector, responsive to quality requirements set by retail stores. Global retail chains typically sell a wider assortment of higher quality food. Most

Figure 1.15. **Windows of opportunity for investing in retail GRDI**[1]



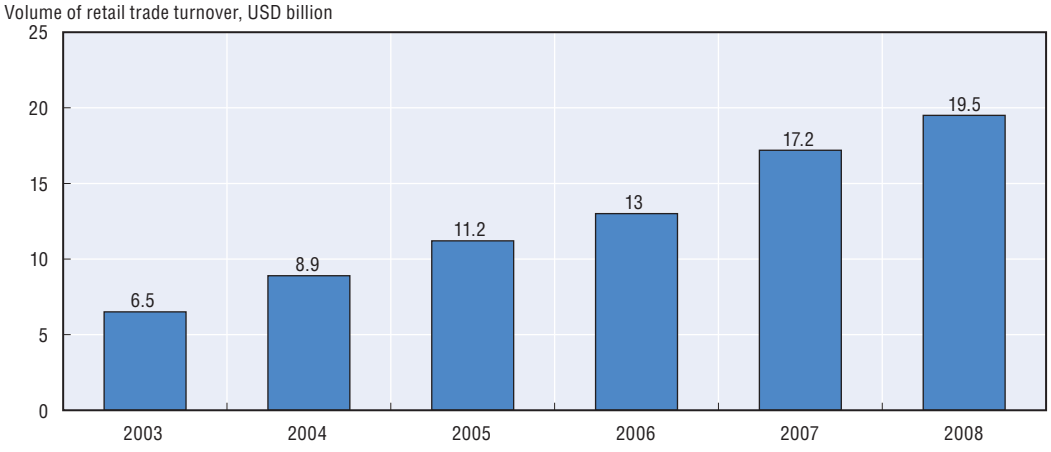
	Opening	Peaking	Declining	Closing
Strategy	Monitor market, consider sending research team	Open sourcing office or set up retail stores, test the market	Scale up operings to capture market share	Détermine market position, re-evaluate strategy as needed
Formats	Not applicable	Consider supermarkets, cash and carry, and convenence stores over other formats. They have higher success rates	Consider discounter models	No pattern identified
Labour	Identify skilled labour pool for market	Hire and train local talent, create balance with expatriate employees	Switch balance from expatriate to local staff	No pattern identified

1. Global Retail Development Index

Source: Fadi Farra and David Bell, Harvard Business School, "Globalisation Strategies, How to Crack New Markets,"*EBF*, Issue 25, 2006.

Figure 1.16. **Growth of the retail market in Kazakhstan**

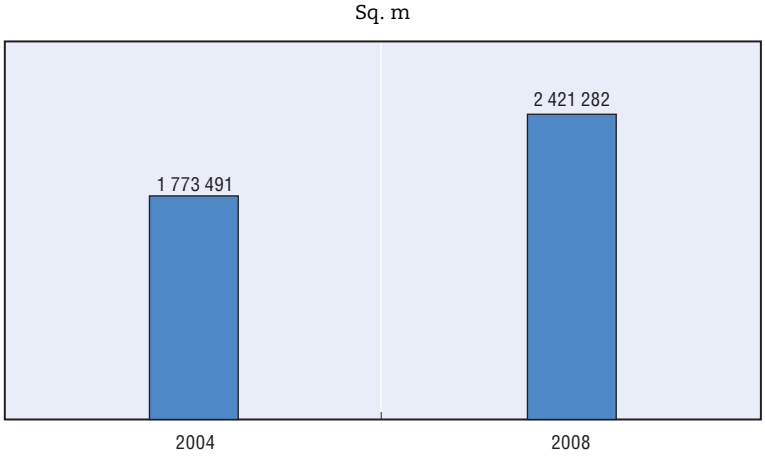
Total volume of retail trade turnover, USD billion



Source: Agency of Statistics of the Republic of Kazakhstan, 2010.

international retailers make a point of sourcing a large proportion of their products from the local area. In order to achieve required levels of quality, retail chains typically share know-how on quality standards with local businesses (for example, through training sessions on global hygiene standards). This exchange of know-how ultimately makes local processing companies more competitive on world markets.

Figure 1.17. **Trading floor space in consumer goods shops in Kazakhstan**



Source: Agency of Statistics of the Republic of Kazakhstan, 2010.

Box 1.6. **The perspectives of international retailers in Kazakhstan**

Metro Group's decision to invest in Kazakhstan was based on a thorough assessment of market conditions in the country, analysis of the market potential and establishing business contacts. Metro Group analysed economic conditions in the country and assessed development potential (first and foremost, per capita income dynamics and purchasing power indices). The infrastructure was properly assessed, as well as the legal climate, tax regime and competitive environment. A closer look on the ground was necessary to estimate how the small- and medium-sized sector is structured, how many hotels and restaurants were in the city and what standards they offered. Early in the process, potential partners were checked to ensure that international standards were met, product safety and hygiene ensured, and refrigeration and storage facilities provided.

The findings were very positive for Kazakhstan. As a result, Metro became the first international wholesaler to enter the market when the store opened in Astana in October 2009. According to Frans W.H. Muller, from the Management Board of Metro Group, "90% of goods sold in the Kazakhstan's stores of the chain will be sourced from local producers and suppliers. This will give a push to the local and regional economy. Metro stores are to be staffed mainly by members of the local community, management included. In addition, systematic training programmes at various levels are also provided to the local employees."

Source: Metro Group in Kazakhstan.

By extension, the "retail revolution" leads, albeit indirectly, to the restructuring of food processors' ingredient suppliers, such as grains, meat and dairy farmers. Farmers will have the incentive to adopt improved management techniques that increase efficiency, quality output and variety for consumers. The rise of supermarkets can thus act as a potent driver for quality, quantity and reliability at the farm level.

Alongside the potential benefits, there are also possible limitations of modern retail attraction and implementation. In the short-term, jobs among local retailers and suppliers could be destroyed even though this loss could be outbalanced by job creation within the modern retail sector. Smaller producers from the regions can also easily be excluded from

the sector if the transaction costs are not sufficiently low, especially when modern retailers concentrate their activity in one specific location, close to the consumption centres. Local suppliers and retailers may also find themselves in an unequal position as compared to foreign retailers. As for the relationship between local supply and foreign retailers, the bargaining power may not be in favour of local suppliers. They might have to simply conform with the price offer made by the foreign retailers without having any significant control over this parametre. As regards the local distribution chains, compared to international retailers they may be in a in a disadvantaged position because of significant differences in modern retail know-how and access to finance capabilities (lack of efficient procurement and organisational schemes, lack of immediately disposable capital, less favourable conditions for credit lines, etc.).

This policy option would require one to two years to implement as a pilot. International retailers could be drawn in through focused investment promotion campaigns. The implementation cost of this policy option is medium to low as the main cost drivers are staff and other expertise to elaborate the adequate legislative framework and implement investment promotion campaigns. The potential benefits are very high and would be mainly market-driven.

Enhancing access to finance even further

The Government of Kazakhstan has found solutions for the financing of agribusiness by stepping up financial support to the sector in the last five years. More than USD 4 billion was channelled through the national holding company KazAgro to support the sector.[5] The state programme on agricultural sector development 2010-14 is being developed. However, to enhance agribusiness development, small and medium-sized farmers need access to finance through such instruments as credit guarantee schemes or supply chain financing.

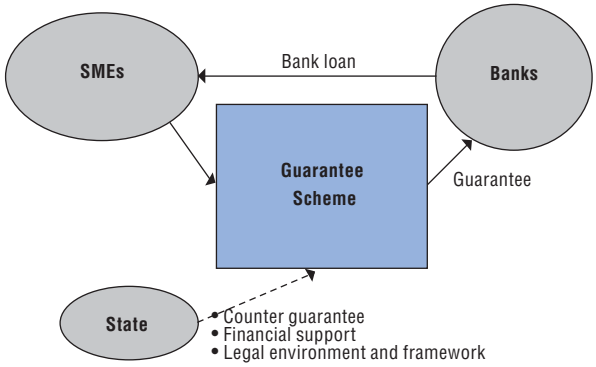
Credit guarantee schemes

Credit guarantees are commitments by a guarantee agency to reimburse a lender if the borrower fails to repay a loan.[6] The lender pays a guarantee fee. Guarantee schemes effectively support access to finance for SMEs but the quality of their implementation is the key. The main purpose of the guarantee schemes is to help smaller, credit-worthy companies which might otherwise fail to access finance they need for working capital or investment finance, due to a lack of collateral or credit history. The guarantee is issued on behalf of micro, small and medium enterprises (MSMEs) to substitute for missing collateral. Sponsors could be the state budget, private investors or international financial institutions. In case of default, the guarantee scheme pays out the amount of the loan covered by the guarantee (usually between 50% and 80%) to the lender. The establishment of a guarantee system in economies in transition requires political support able to provide reliable funding. OECD countries have successfully implemented guarantees schemes especially in countries like the Czech Republic.

Supply chain financing – An innovative financial mechanism

In many developing countries, information asymmetry underpins the lack of lending to agriculture. Information on borrowers' credit histories is rarely available, making accurate credit risk assessment difficult. The farmers' major asset, the land they harvest, is not willingly used by banks as collateral since it is difficult to foreclose on land in case of

Figure 1.18. **Guarantee scheme (an example)**



Source: "A Framework for Guarantee Schemes in the EU: A Discussion Paper", 2005 England's Financial Services Authority.

default. Information asymmetry is compounded by risks of weather and price volatility (high degree of covariate risk). Risk management techniques are insufficient for institutions to efficiently lend to activities in the agricultural sector.

New models for financing and new financial products are emerging to meet the financing challenge in agriculture in the developing world, such as warehouse receipt programmes and other collateralised lending programmes. Supply chain financing is an innovation which uses the supply chain as a structural aspect of the financing problem.

The development of more tightly aligned supply chains, with growing linkages between farmers and agribusiness firms, has emerged as a successful mode for risk sharing. The processor provides the farmer with finance and/or technical assistance, in exchange for security of supplies and upgraded quality of supplies. For instance, processors make training available to farmers in order to ensure that the inputs are used most effectively and to secure the quality of production expected by the investment. This combination of investment and technical assistance can do much to build a local farmer's competitiveness. In a more general sense, supply chain financing eases smaller farmers into supply chains, playing an important role in agricultural income stabilisation.

Supply chain financing has obvious advantages and solid investor support. Foreign investors judge supply chain financing as an excellent way to stimulate domestic investment and boost quality and quantity of production (Box 1.7). This solution (both supply chain financing and guarantee schemes) would potentially require little time to implement as a pilot (less than a year). The implementation cost of this policy measure is medium. The main cost drivers are staff and expertise to elaborate adequate legislative framework. Running costs for supply chain financing would include the provision of incentives for processors to support farmers, and the provision of privileged interests on loans (or tax cuts and subsidies) for guarantee schemes.

Producer organisations, an effective tool for farmer collaboration

Producers' organisations are independent, non-governmental and membership-based rural organisations of part- or full-time self-employed smallholders and family farmers. They collaborate in certain areas, such as input purchasing, promotion and sales. They range from formal groups covered by national legislation, such as co-operatives and national farmers unions, to looser self-help groupings and associations. In the case of

Box 1.7. **Supply chain financing**

Definition

Private supply chain financing is a form of contracting with finance and/or technical assistance to the farmer by the processor/trader.

Motivation for processors

Processors face lack of supplies, because farms are not able to supply in terms of:

- Quantity: inputs or working capital are lacking
- Quality: investments, technology or know-how are lacking

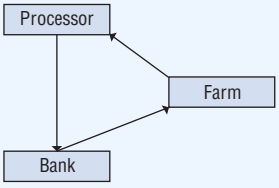
Motivation for farmers

Higher and stable prices, guaranteed sales, pre-payment, technical and financial assistance in an environment without alternative sources of financing

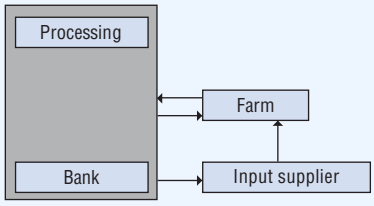
Examples

- Guaranteed supplier loan:

  The processor provides a loan guarantee to the bank on behalf of the supplier:



- Processor becomes financial institution:

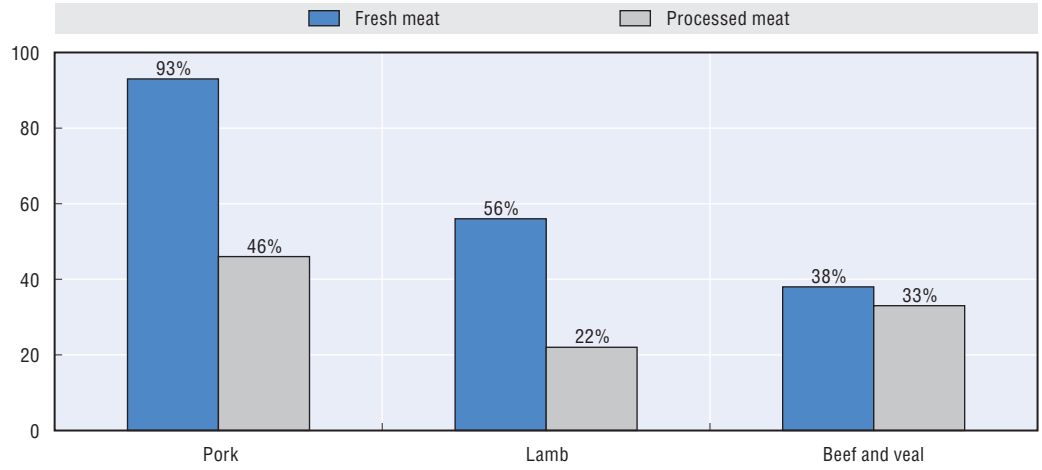


Source: Professor Swinnen, OECD Agribusiness Workshop, 14-15 October 2009, Paris.

agricultural production co-operatives, production resources (*e.g.* land or machinery) are pooled and members farm jointly. Inputs and marketing services are usually provided by the state at fixed prices. This form of co-operative is relatively rare in the world since the collapse of the Soviet Union.

In the case of *agricultural consumer co-operatives*, members own their production resources. The co-operatives provide various services to individual farming members, leveraging scale advantages: a supply co-operative supplies its members with inputs (*e.g.* seeds, fertilisers, fuel), while a marketing co-operative handles distribution, transformation, packaging and marketing of products. French meat marketing co-operatives, which presently account for a sizeable share of the markets (Figure 1.19), are a good example of the latter.

Figure 1.19. **Market share of marketing co-operatives in the French meat sector, 2006**



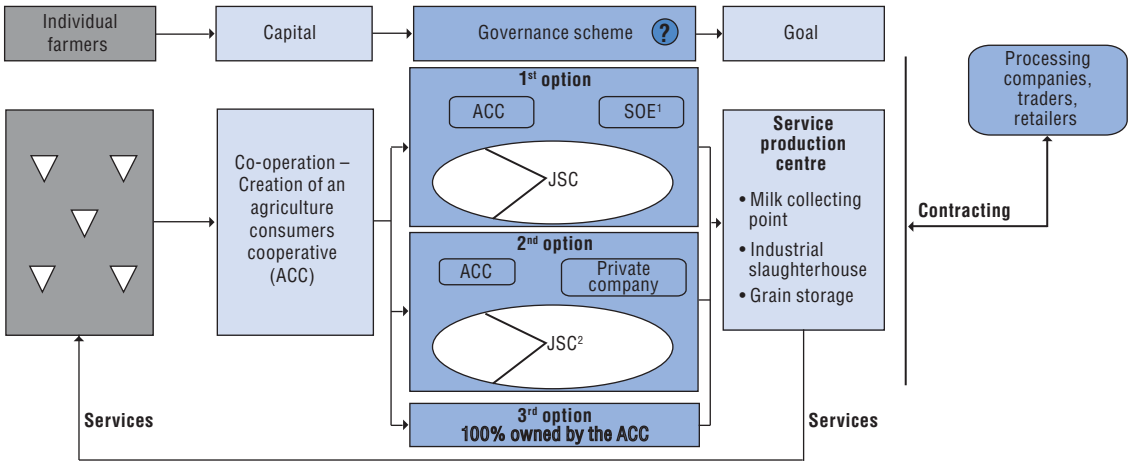
Source: French Association of Cooperatives, Coop de France, 2006.

In this case, the French state facilitated the transition, but did not dominate the process: legislation passed in 1962 provided incentives to farmers to organise themselves, tax incentives and subsidies. Agriculture consumer co-operatives marketed virtually no beef production in 1962, today they market more than 30% of beef production. At the country level, this has resulted in homogenisation, better quality, greater quantities and productivity.

In the case of the Republic of Kazakhstan, experience in co-operatives has yet to prove successful. A law on production co-operatives was passed in 1995, followed by a law on agricultural consumer co-operatives in 2001. However, co-operatives are perceived negatively due to Soviet experience, where producers were forced to become members and were obliged to sell their products through the co-operative, and distribution of inputs was also controlled by the co-operative. Co-operatives were heavily state-dominated, characterised by low efficiency and even fraud, which led to a deep distrust among producers of any collective enterprise. Presently, the government is seeking to implement a network of Service Production Centres (SPCs) across the country.[7] SPCs sell technical and marketing services to individual producers. By August 2009, 22 SPCs had been established and 1 300 producers had been united in consumers' co-operatives. The government set a target of 62 SPCs by 2011 (Figure 1.20).

Service Production Centres may exhibit different governance structures, with relative benefits and disadvantages. If the initiative is heavily *state-driven*, co-operatives will typically benefit from a better access to finance thanks to state support. However, state management issues may arise, in particular corruption, and distrust between the farmers and state representatives. If the initiative is *private sector-driven*, benefits include a mainly profit-oriented approach, and high potential for cost and quality competitiveness of the production, possibly enhanced by tax advantages. The difficulty with this form of governance is to find a private company willing to invest. A third governance model would be a *co-operative-driven* approach, whereby full ownership of farmers may lead to potential price and process efficiencies, however there is a need to build trust among members of the co-operative in the short term, and possible limited ability to provide collateral.

Figure 1.20. **Service production centre for dairy, beef and grain**



Source: KazAgroInnovatsia Analytical Centre, OECD analysis.

Overall, producers' organisations possess some key advantages that help farmers become more competitive: they may help individual farmers gain critical skills, meet certain quality standards and form enterprises to successfully compete in the market. They help their members purchase inputs, equipment and manage the drying, grading, storage, cleaning, collection, packing and transportation of produce. Finally, organised farmers have greater bargaining power when negotiating with other agribusiness market players to ultimately increase the profits that accrue to farmers rather than intermediaries.

This policy option can produce high impact in the long term, and has the support of investors as both foreign and domestic investors recognise the solution's potential to support the overall growth of business. This policy option would require approximately two years to be implemented as a pilot. The cost of implementing this policy option is in the medium to low range. The principal cost drivers are the staff costs and expertise to elaborate the legislative framework, and privileged interests on loans, tax cuts and subsidies.[8]

Extension programmes

Extension is a non-formal educational function that describes any institution that disseminates information and advice with the intention of promoting knowledge, attitudes, skills and aspiration. As such, extension programmes are an instrument to facilitate development. There are two channels of extension services delivery: public and private. Extension centres are used for training and dissemination of information and scientific research from the research level to the production units. At the same time, private sector research should be incentivised, and linkages between scientific research and farmers promoted.

In the Soviet era, extension services were provided in each administrative area by technical staff appointed to organise specialised courses and training, and to introduce the new technologies originating in the agricultural research system. Information was disseminated to agronomists on large-scale state and collective farms (*kolkhozes* and *sovkhozes*) and onwards to the relevant farm workers. A new formal extension system is now in its inception phase to fill the gap. Extension programmes should be designed along key working guidelines and principles. Financing, firstly, is an important part of the design of extension services, affecting the quality and effectiveness of the services to a major degree. Both public and private investments are desirable (Box 1.8).

Box 1.8. **Financing for extension programmes**

Extension centre: what type of financing? – A combination of public and private funds is desirable

- Public investment is essential to ensure public interests related to agricultural extension are protected, *e.g.* to oversee that services with quick economic benefits do not lead to unsustainable farming and deplete the resource base. Moreover, full privatisation would deprive small farmers from benefiting from the services, as small farmers do not believe that the extension advice is worth paying for, or cannot afford to pay.
- The financial participation of producers/users is essential, so that users can define the contents of extension services, appraise the quality of services and sanction poor service (accountability of service providers). Means to mobilise private funds include: direct payment, annual membership contributions to a producer organisation, levies on produce and taxes.
- The common wisdom would dictate that in developing countries, commercial farmers and large co-operatives should pay for extension advice, while the government should continue providing free extension services to small producers.

Examples:

- In Holland, 60% of the extension budget is provided by farmers, the remaining 40% comes from the government.
- In Costa Rica, the government provides farmers with extension vouchers which can be used for getting extension advice from private specialists.
- In England, the public extension service has evolved over time into a private consulting practice.
- In Estonia, government subsidies for individual advisory contracts between farmers and advisers were gradually reduced over the last decade (from 90% in 1996 to 0%). There is now broad understanding and acceptance among farmers that advisory services have to be paid for by the beneficiaries.

Source: OECD, World Bank, Neuchâtel Group.

Extension programmes should include courses and training in agro-technical areas, farm management, production management, demonstrations of production technologies, advice on which machinery to purchase, environmental degradation, marketing and commercial management. The use of information and communication technologies (ICT) in particular can greatly magnify the outreach of extension programmes. The internet can facilitate the dissemination of market information (reports, prices), and the development of an Internet-based agricultural information network can connect the farming community to rural advisers, the ministry, and other domestic/international resources. It may also create links with other initiatives, including banks, insurance companies, and commercial companies.

Special economic zones – Strongly supported by foreign investors

Special economic zones (SEZs) are customs-free areas for import and export. There are four types of SEZ in Kazakhstan: free trade zones (FTZ), export processing zones (EPZ), special economic zones (SEZ) *per se* and specialised industrial zones (SZ) (Figure 1.21). FTZs are engaged in re-exporting; EPZs are involved in processing, exporting and re-exporting; SEZs and SZs are processing, exporting, selling to domestic markets.

Figure 1.21. **SEZ simplified typology**

	FTZ Free Trade Zone	EPZ Export Processing Zone	SEZ Special Economic Zone	Specialised Zone/ Industrial Zones
Common Features	Customs-free areas for import and export ring-fenced areas			
Specifics	Warehousing, storage, distribution facilities	Industrial estates targeting foreign markets, with substantive value added	Regulatory environment of their own, one-stop shop for investors	Facilities and infrastructure tailored to sectoral targets, *e.g.* petrochemical zone, agri-food zone
Activities	Re-exporting	Processing, exporting, Re-exporting	Processing, exporting, selling to domestic market	Processing, exporting, selling to domestic market
Coverage	Multi-sector	Multi-sector	Multi-sector	Sector-specific

Each SEZ is specific and can include a combination of characteristics from all identified categories. SEZs enjoy strong support of investors (both domestic and foreign); however, they are rather costly and have long implementation times. They also distort competition. Domestic investors strongly favour this solution, while foreign investors expressed interest, encouraged by prospects of enhanced safety for their investments within SEZs, particularly in countries where the legal/political context is not consistent. The potential facilitation of licensing and eventually fiscal incentives (*e.g.* investment subsidies) can also make a host country more attractive to foreign investors, relative to its peers. Moreover, special economic zones typically provide good infrastructure and are located near production areas, which make them attractive to processing companies (local/foreign).

The key advantages of SEZs are well illustrated by the Malappuram Food Processing Park in Kerala, India.

In Kazakhstan, SEZs have been developed since 2003, however not related to food processing. The special economic zone of Morport Aktau was established in 2003 in Aktau, near the border with other countries, to establish heavy industry plants and a logistics centre. Infrastructure (road, railways, port) and common facilities (water, power, oil and gas) were made available, as well as a favourable fiscal policy and financial incentives that included 0% corporate income tax, land tax, real estate, VAT and customs on imported goods. The centre was successful in attracting foreign and local investments, such as Mittal (India) and Keppel (Singapore). Six special economic zones are now being developed (including Aktau) in: construction (Astana), textile (Ontustik), tourism (Barabay) petrochemicals (Atyrau) and IT (Almaty). None of these projects is related to the food processing sector.

This option would require the longest to implement (two to three years). The expense of this solution is caused by engineering of the project and building necessary infrastructure. The key advantages of the SEZ are logistic facilities, value added in industrial estate, simpler regulations, one-stop shop for investors and opportunities for sector-tailored solutions.

In conclusion, several clusters of policy options could be envisaged for agribusiness, while the recommended ones include strengthening the role of FDI through investment promotion activities, a focus on attracting modern retailers and enhancing access to finance.

In the short term (up to 12 months), investment promotion policy could generate rapid improvements in quality and diversification of FDI with relatively low implementation costs. As an initial step, there is a need to develop a national investment promotion and facilitation strategy to stimulate FDI inflow in the country. Supply chain financing is a much needed policy improvement, with impacts on quality and therefore on the competitiveness of the whole agribusiness value chain. Retail development is a policy option that could bring results within a two-year period.

Extension programmes are viable policy options as well; however, extension services might require sizable financial costs and are already underway. Special economic zones are expected to bring longer-term gains (up to a three-year period); however, the cost of this policy option is rather high. Investment linkages between foreign affiliates and local enterprises should be promoted.

Notes

1. According to Euromonitor, modern food retailers (supermarkets) are stores with a selling area of between 400 and 2 500 square metres, selling at least 70 per cent foodstuffs and everyday commodities.
2. Value added in agriculture measures the output of the agricultural sector (ISIC divisions 1-5) less the value of intermediate inputs. Agriculture comprises value added from forestry, hunting and fishing as well as cultivation of crops and livestock production. Data are in constant 2000 USD.
3. Packaged food products are sold through retail stores and include prepared foods for home preparation or direct consumption such as baked, canned, frozen or dried food products. Fresh products such as fruit, vegetables and meat and basic ingredients such as sugar, flour and salt are not included.
4. President of Kazakhstan speech on economic perspectives, May 2009.
5. Agency of Statistics of the Republic of Kazakhstan.
6. OECD glossary of statistical terms.
7. In Russian, "Сервисно-заготовительный центр (СЗЦ)".
8. In post-Soviet countries, governments used to finance agricultural co-operatives to deliver essential services. Such co-operatives were important but they were quasi-government agencies that tightly controlled farmers. They were neither ruled by farmers nor managed by them. As a result, the term "co-operative" obtained a negative connotation.

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Chapter 2

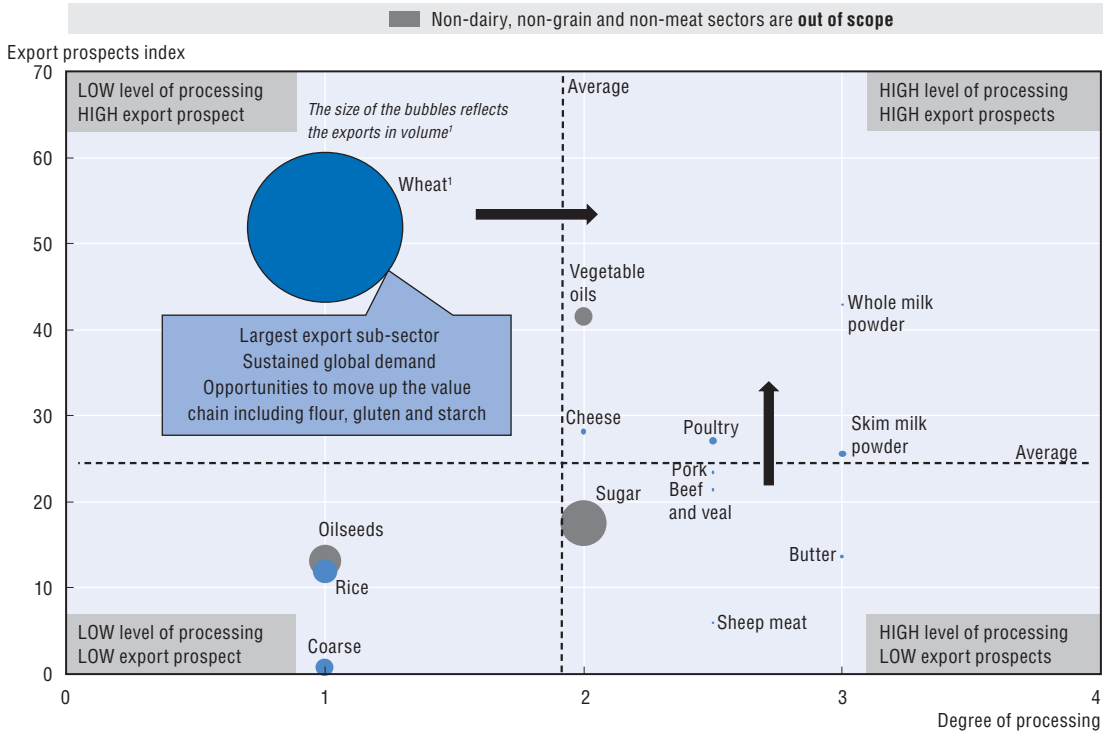
Grains Sector: Focus on Wheat

Grains consist of coarse grains (barley, oats, sorghum, maize and rye), wheat and rice. Wheat is by far the most cultivated grain in Kazakhstan, and was thus chosen as the area of focus for the project. The global wheat trade has grown by 1.5% per year on average over the past 10-15 years and world imports are increasingly dominated by less-developed countries. Growing competition among grain exporters is intensified by competition from non-traditional exporters, among them Kazakhstan. Exporters are exploring non-traditional markets and moving up the value chain to mitigate their fluctuating ocean freight costs. Although Kazakhstan is among the five largest wheat exporters in the world and has a significant advantage in its production costs, it faces a number of challenges. Its main policy barrier is the agricultural sector's lack of access to finance. Recommendations include supply chain financing and attracting foreign retailers. Kazakhstan has a considerable opportunity to promote its brand of wheat and for greater deep processing of wheat end products.

2.1. Summary

Grains contribute substantially to Kazakhstan's exports and are the country's only major non-extractive export good, accounting for over 2% of the country's total exports. Grains consist of coarse grains (barley, oats, sorghum, maize and rye), wheat and rice. Wheat is by far the most cultivated grain in Kazakhstan, and was thus chosen as the area of focus for the project.

Figure 2.1. **Wheat sector**



Source: OECD *Sector Competitiveness Strategy and Review*.

The global wheat trade over the past 10-15 years has grown at a modest pace (1.5% per year over last 15 years on average), reflecting population and income growth in various parts of the developing world. Imports are increasingly dominated by less-developed countries in Asia, Latin America and North Africa. These three regions combined accounted for 55% of world imports in 2009. At the same time, growing competition among grain exporters is reshaping the global wheat trade landscape. While exports continue to be governed by developed industrialised countries (the United States, the countries of the European Union and Australia), competition from non-traditional exporters has increased markedly over the last 5 to 10 years. Russia, Ukraine and Kazakhstan have emerged as key new players on the global wheat market, having increased exports of wheat dramatically

during the last few years. Indeed according to recent reports by the United States Department of Agriculture, exports from these three countries should increase by 50% by 2019, positioning the region as the world leader in wheat sales by the end of the decade.

Increased competition among grain exporters, in a context of rising global food prices, is pushing exporters to explore non-traditional markets. Japan and South Korea, for instance, are considering Black Sea origin wheat as a possible new source of milling wheat.[1] At the same time, ocean freight costs have fluctuated significantly in recent years, with a significant rise starting late 2007 followed by a precipitous drop in late 2008. High upside price volatility suggests that geographic proximity can be leveraged as an important source of competitive advantage. For instance, non-traditional exporters hold a competitive advantage particularly in the Mediterranean and Africa from Black Sea ports.

Increased competition and volatile freight costs have important implications for the wheat sector. Quality, marketing power in terms of strategy and the ability to move up the value chain into deep processing of wheat are becoming the major success factors for the sector. Competitors like the United States are deriving a competitive edge from devoting increasing resources and technologies to test end-product quality, develop new methods to improve grain quality and seek market applicability for high value-added wheat-derived products (gluten, starch). The ability to move up the value chain in particular has become increasingly relevant to mitigate high freight costs.

These developments are particularly relevant for Kazakhstan: Kazakhstan is among the 10 largest wheat producers and 5 largest exporters in the world. The grain has high gluten strength and is superior in quality to wheat produced in other regions of Asia and Europe. Looking at the economics of wheat, Kazakhstan holds a significant competitive edge in production costs (crop establishment costs and operating costs).

However, Kazakhstan farmers must bear some significant logistical costs, leading to much higher free-on-board (fob) prices. Transport costs to terminal on average reach USD 70 per tonne (or 28% of total cost), significantly higher than Ukraine (USD 30) or France (USD 20). In addition, other hurdles include low levels of productivity (yield) and production area. The transformation from a central-command to market-oriented economy had a short-term adverse impact on Kazakhstan's grain sector, with production levels and yields drastically curtailed in the 1990s. Kazakhstan's increase in production since then has been quite remarkable, yet some room for improvement remains. The extent to which productivity can be increased and currently unused land can be transformed into arable land are important questions. Close scrutiny of these main challenges gives an insight into the major policy barriers Kazakhstan needs to address.

The main policy barrier to overcome is access to finance. The wheat sector in Kazakhstan is plagued by low levels of investment in machinery and other inputs directly related to the financial constraints that producers been experiencing since independence. Farmers have extremely limited access to credit at reasonable rates of interest. Although overall lending is booming in Kazakhstan, the growth of lending to the agriculture sector specifically has been growing much slower. Presently only 4% of commercial bank loans consist of agricultural accounts. The CCS revealed that as many as 42% of wheat enterprises surveyed cited access to credit and financing as insufficient. Better and cheaper financing would allow farmers to increase productivity and innovate in the arable farming industry, moving up the value chain. The Ministry of Agriculture has been very active in addressing this challenge, via the KazagroFinance (financial leasing institution) warehouse receipt programme.

To further address this policy barrier, the OECD Secretariat first recommends focusing on another type of financing, supply chain financing (SCF). SCF is a form of contracting with finance and/or technical assistance to the farmer by the processor/trader. In countries like Kazakhstan, which lack well-developed capital markets and where commercial banks are reluctant to provide finance to resource farmers in rural areas (*e.g.* for lack of appropriate collateral), SCF is a good solution to address the financing problem. The processor provides a loan guarantee to the bank on behalf of the supplier, effectively participating in making funds available to suppliers in return for securing supplies. By working more closely with processors, either foreign or domestic, suppliers can go a long way to improving wheat quality and quantity (increased productivity/yield through increased investments). The promotion of foreign investment in the area of food processing can accelerate the implementation of supply chain financing.

Second, attracting foreign retailers should be a priority. The promotion of a modern retail sector is critical to the development of a modern and mostly demand-driven agro-processing sector. Kazakhstani farmers are challenged to compete in markets that are increasingly demanding in terms of quality and food safety. Modern retailers' requirements regarding availability, quality and safety of wheat end-products would help spur the development of the entire supply chain, from wheat producers to processors, in line with international retailers' standards. For instance, wheat processors will be challenged to procure high-quality wheat supplies to process into flour, starch and gluten for the production of bread and pasta sold in supermarkets. The Government of Kazakhstan should spearhead a policy measure to attract FDI in the retail sector.

Kazakhstan has considerable opportunity for promoting its brand of wheat and moving up the value chain into deep processing of wheat end products. Whether this opportunity can be maximised depends on a number of factors, especially facilitating access to finance and invigorating the retail sector.

2.2. Sector definition and segmentation

Sector definition

The grains sector includes wheat, coarse grains (corn, sorghum, barley, oats, rye, millet and mixed grains) and rice. Wheat is by far the most cultivated grain in Kazakhstan, accounting for over 80% of total grain production. It was thus chosen as the area of focus for the project (Figure 2.2). Grains contribute substantially to Kazakhstan's exports and are the country's only major non-extractive export good.

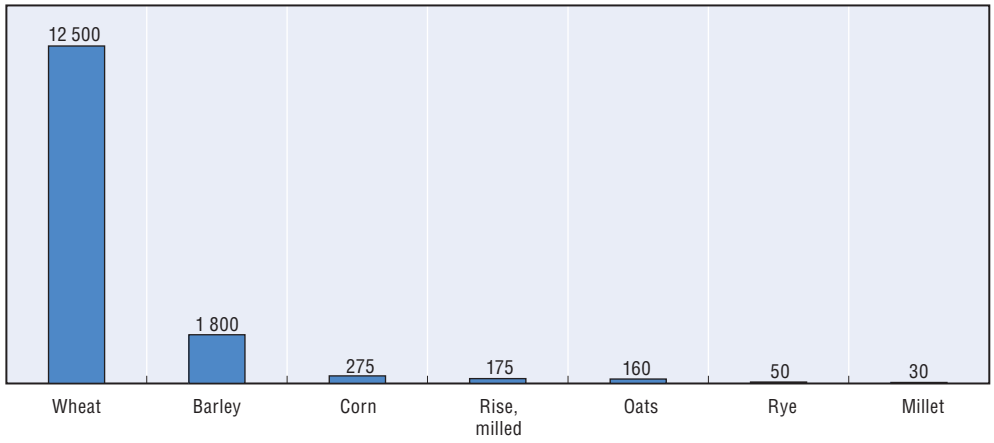
Agricultural enterprises account for about 65% of Kazakhstan grain production. They tend to be large-scale operations. While the average size of the 5 000 enterprises that are involved in grain production is about 3 000 hectares, a significant number are above 5 000 hectares.

A sound understanding of the dynamic functioning of the wheat value chain requires the unpacking of the value chain into four main levels through which value adding occurs. The four main stages are growing, first processing, second processing and third processing (Figure 2.3).

- Stage 0 entails the growing and production of wheat at the farmer level. Wheat cultivation can be very input-intensive, as was the case in Kazakhstan during the Soviet era (the present situation has changed dramatically). Wheat can be grown on small-scale or large-scale corporate farms, with relative advantages or disadvantages in the way of

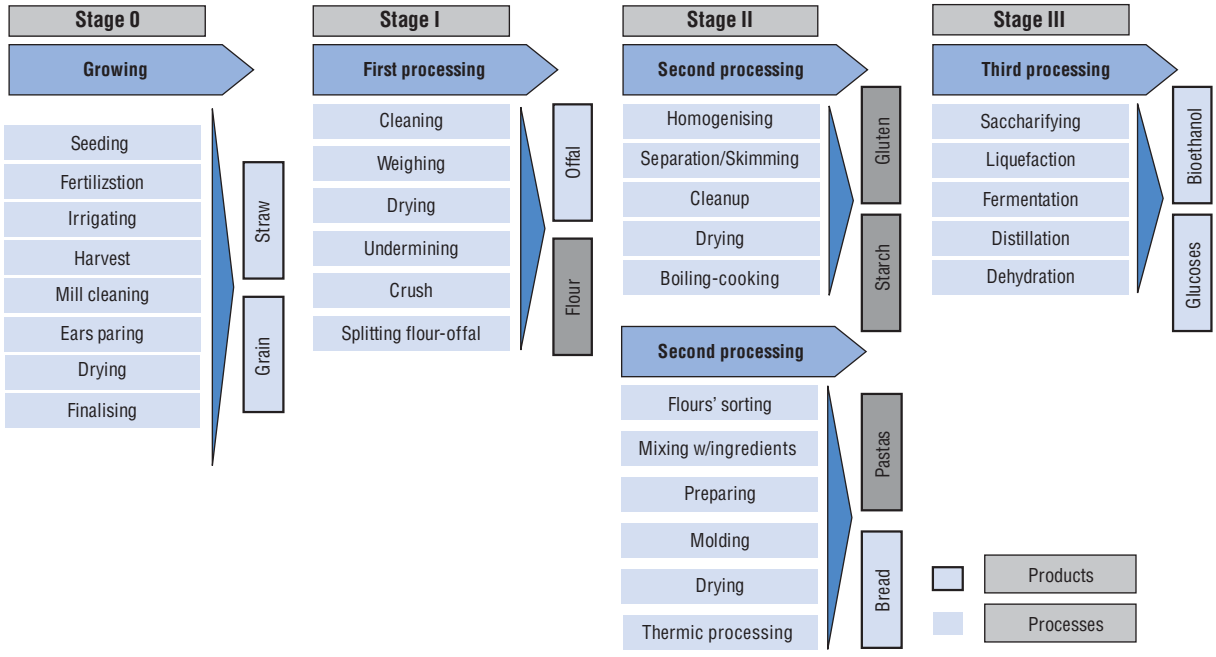
Figure 2.2. **Kazakhstan grain production by type**

Thousand million tonnes, 2008/09



Source: FAO statistics.

Figure 2.3. **The wheat value chain**



Source: National Analytical Center of Kazakhstan.

efficiency and competitiveness. In the specific institutional environment and structural conditions of transition, corporate farms and non-traditional large farming organisations are more likely to be efficient (Swinnen, 1997). Whereas in labour-intensive regions, a shift to small-scale individual farming can lead to dramatic gains in efficiency (such as the Chinese land reform model), in capital- and land-intensive regions (of which Kazakhstan is a prime example) gains in productivity are more likely to come from large farms shedding labour. Large units also tend to obtain access to credit, input and output markets more easily. Grain cultivation especially is typically extensive in nature, favouring scale economies and larger units.

- The second link in the wheat supply chain is milling. Milling is the process of grinding the wheat into flour. At the flour mill, the grain undergoes cleaning to remove impurities. The grain is then weighed, dried and crushed. The process is relatively capital intensive and constitutes little value added.
- The next stage refers to second processing, whereby raw materials are then processed into final products for the consumer (pasta, bread), as well as starch and gluten. The starch and gluten industry extracts starch and gluten from wheat and processes these into a number of products which can be used as ingredients and functional supplements in food or non-food applications. For instance, starches are typically used as thickeners and stabilisers in foods such as puddings, custards, soups, sauces, gravies, pie fillings and salad dressings, and to make noodles and pastas. Industrial applications include paper and board applications, pharmaceutical and cosmetic applications. Gluten is typically used as an additive affecting the texture of baked goods such as bakery products, pet foods and breadings, and is also used to fortify flour. Second processing is technology intensive and value adding, relying on wheat cracking technologies.
- Stage 3 third processing results in the production of biofuel and sugars. The starch-based mash goes into a liquefaction tank, where enzymes complete the conversion of starch into sugar. With the help of yeast, the sugars can then be converted to ethanol.

In response to global market pressures, firms are increasingly forming strategies to gain competitive advantage by integrating the supply chain. Closer vertical linkages between millers and wheat suppliers allow the former to more tightly control the quality and reliability of supplies.

Segmentation

This sectoral analysis focuses on the growing and second processing stages of the wheat value chain in Kazakhstan (*i.e.* the farm level of analysis), and deep processing into food-related products (starch and gluten).

The farm level of analysis is important because grain is the prime product for the processing sector. Grain production conditions in effect predetermine the competitiveness and effectiveness of the milling and deep processing value chain. Regarding optimality of farm structures, Kazakhstan has already achieved economies of scale (the Northern grain belt is dominated by very large corporate farms), thus the focus of the analysis is on sector-wide drivers of productivity and marketability of wheat production (including access to finance schemes, extension programmes, targeted infrastructure development, domestic marketing system and co-ordinated external marketing).

The domestic flour milling sector (primary processing) constitutes a rapidly growing sector in Kazakhstan. The country is the largest exporter worldwide, accounting for 15% of all flour exports. However due to the low transportability of flour, geographic proximity is a key limiting factor for the growth of the sector. Presently nearly 90% of all exported Kazakhstani flour is supplied to the Commonwealth of Independent States region. These elements suggest there is limited upside potential for significant developments in this segment. Secondary processing, on the other hand, which transforms wheat into wheat-derived products such as gluten and starch, has scope for development in Kazakhstan, particularly in view of the domestic wheat's high protein and gluten content.

Third processing/ bioethanol is not covered by this report since its application is non-food related and Kazakhstan is not a strong case (due to lack of infrastructure and of

skilled human resources, uncertainty about environmental consequences of production, and ongoing ethical concerns about the production of wheat biofuel given the global issue of food security).

2.3. Sector trends

Wheat trade issues in the past two decades focused prominently on high levels of export subsidies (*e.g.* in the European Union and the United States) and the lack of transparency in trade practices of state-trading enterprises (*e.g.* by the Canadian Wheat Board). The five largest wheat-exporting sources (United States, Australia, European Union, Argentina and Canada) accounted for 89% of world trade in 1997/98. Today, the picture has changed sharply: global wheat trade has become more globalised and privatised. Export subsidies have declined in the course of successive rounds of multilateral trade negotiations. Trade issues which previously revolved around tariffs and subsidies increasingly revolve around sanitary and phytosanitary practices and quality standards. On the supply side, new players have emerged in the Black Sea area, just as the United States and European Union are experiencing declines in production. At the same time, demand is driven by growth in the developing world. The emergence of developing countries as key drivers of future wheat demand coincides with two emerging trends: increasing trade in processing rather than primary products and the issue of food security.

Enhanced market access

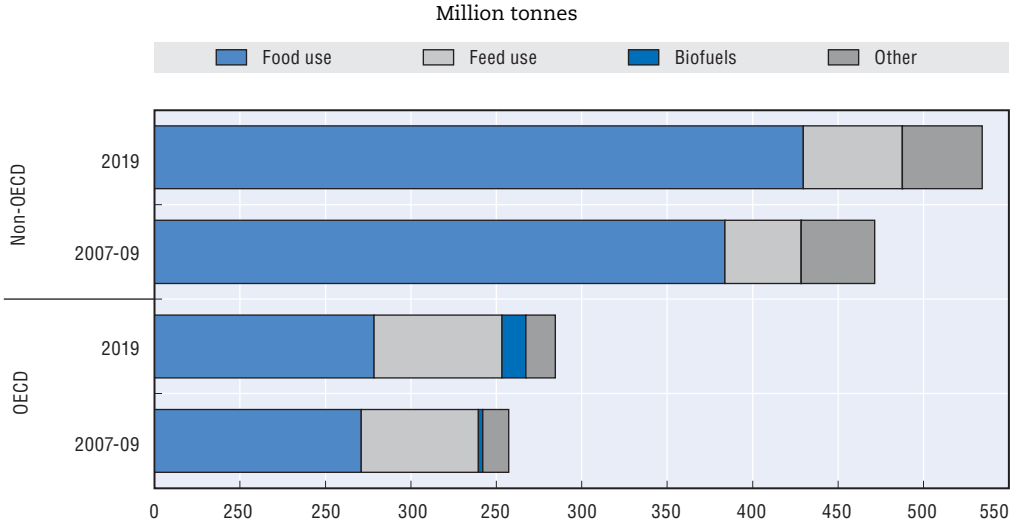
Over the last few decades, the global wheat trade has become more open, as many countries have liberalised their trade regimes by joining the General Agreement on Tariffs and Trade or the World Trade Organization, or by unilaterally pursuing policies of greater openness. Successive rounds of multilateral trade negotiations have led to lower tariffs and lower export subsidies, resulting in improved market access for the wheat sector and effectively levelling the playing field for wheat competitors. The European Union and the United States in particular (for much of the 1980s engaged in an escalating subsidy war) proceeded to reduce the volume and value of their export subsidies, tariffs and distorting domestic subsidies during the Uruguay Round of trade negotiations. Therefore subsidy levels and tariffs for wheat have fallen significantly since the mid-1990s. As a consequence, wheat trade issues that in the past two decades focused prominently on export subsidies and tariffs now have more to do with non-tariff barriers such as sanitary-phytosanitary and quality standards, owing to the enactment of stricter national quality and safety regulations. For instance, in 2003, the European Union established trade barriers to lower quality wheat imports from Commonwealth of Independent States countries.

Another contributing factor in this respect has been the privatisation of state trading entities, implying a decline in the role of state agencies as buyers of wheat. The purchase of wheat is increasingly conducted by millers and processors directly, who usually have tighter buying specifications and increasing sophistication. This development has helped produce a more quality-conscious and competitive buying environment. While price remains a key factor, quality has become a critical factor (arguably, the most important factor) in accessing competitive new markets. The aspects of quality cited of most concern are gluten quality, cleanliness and uniformity. As an example, the European Union established trade barriers to lower quality wheat imports in 2003, significantly changing world wheat trade.

The demand side

Rising population combined with strong economic growth in various parts of the developing world is driving global wheat demand (Figure 2.4). Since 1980, wheat demand in developing countries has grown from 50 million metric tonnes (MMT) to 125 MMT. In the longer term, one can expect world wheat imports to sustain an upward trajectory as increasing amounts of wheat are required to meet demand for staple food products in countries with low incomes and expanding populations. According to the latest OECD-FAO estimates (2010), world wheat consumption is projected to rise by around 1.2% annually in the next decade, to reach 740 million tonnes. The increase is mostly due to the rise in direct food consumption in the developing countries, driven by growing population, income and continued urbanisation.

Figure 2.4. **Wheat consumption in OECD and developing countries**



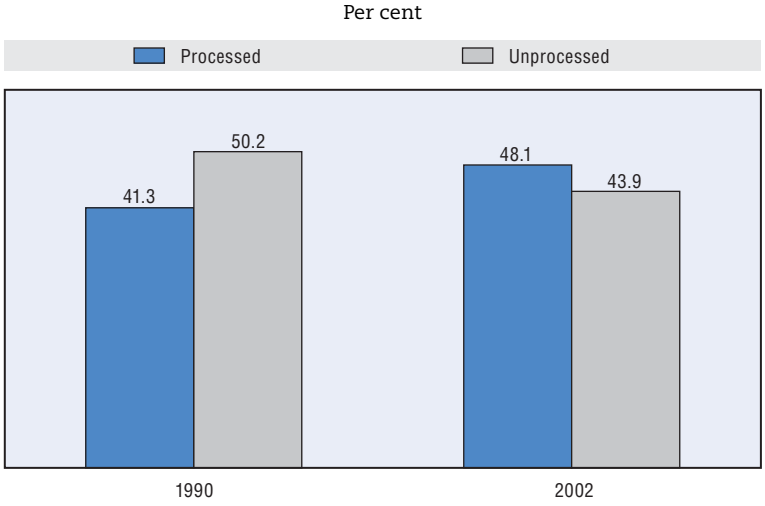
Source: OECD-FAO *Agricultural Outlook* 2010.

The emergence of developing countries as key drivers of future wheat demand at the international level is linked with changes in the composition of trade: trading increasingly involves processing rather than primary product. As incomes rise, consumers seek out the variety of high-value food imports. Consumers shift away from lower added value, such as cereals, dry pasta, vegetable oils, towards higher-value food products, leading to increased imports of these products. The World Trade Organization has in recent years highlighted this trend: in the past two to three decades, international trade in processed food products has expanded faster than that of semi-processed and unprocessed agricultural products. According to its 2004 *World Trade Report*, the share of processed products rose throughout the 1990s, from 42% in 1990-91 to 48% of global agricultural trade in 2001-02 (Figure 2.5).

This shift to more processed agricultural products appears to affect all economies worldwide, particularly in Asia (China, Indonesia, Malaysia and Thailand).

A second, interrelated, development is the growing concern of world food security and whether supply can keep pace with the growth in demand. The food crisis of 2007-08 in particular, with the dramatic spikes in global food prices, determined the need to seriously address the issue of whether the current global food production system will be able to meet this challenge. According to UNCTAD *World Investment Report 2009*, while prices of crops

Figure 2.5. **Share of processed goods in world exports of agricultural products**



Source: UN Comtrade database and WTO.

have receded from the peak of 2008, they are nevertheless high relative to their historic levels, and are likely to remain high in the future. At the national level, some countries concerned about food security have taken measures to address their concerns, including through efforts to increase investment in agriculture. Others restricted the export of staple food products at the height of the food crisis (such as Kazakhstan's quota on wheat exports in 2008), while food-importing countries have started investing in overseas farming (*e.g.* via the acquisition of land or long-term leasing) in order to secure future food supply. The increasing presence of China in Kazakhstan for instance, through the leasing of large segments of Kazakhstani land (cultivation of soybeans, rapeseed), is one clear example of this new "global rush" for land.[2]

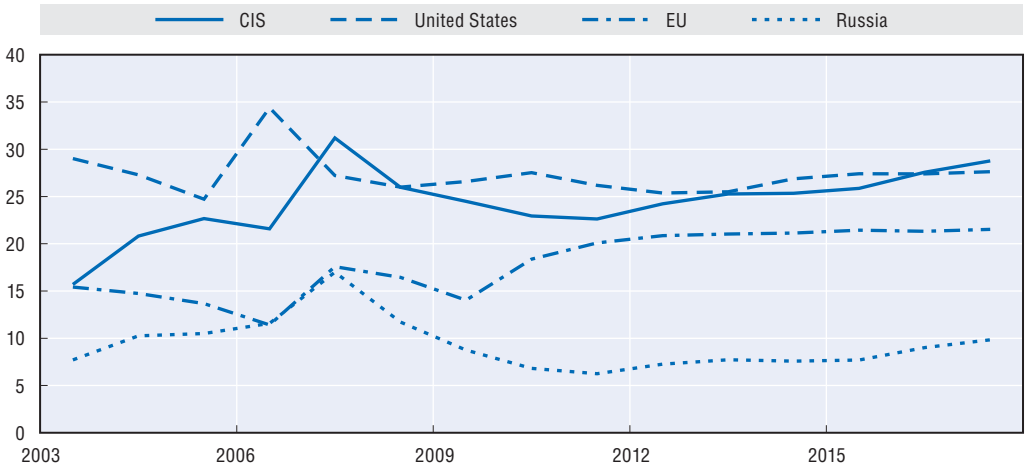
The supply side

The rise of wheat production in Russia, Ukraine and Kazakhstan is the most significant development on the supply side over the last several years and reflects a reality that could have a major impact on the balance of world trade going forward. These countries, net importers as recently as 1995, have become significant wheat exporters in recent years, together surpassing US exports in 2008/09. During the mid- to late-1990s, their combined share of world exports was less than 4%, averaging less than 600 MMT. Toward the end of the 2000s, their share of world exports had risen to over 20%, with world exports totalling 6 billion metric tonnes, a tenfold increase over the decade.

An impressive growth in wheat exports occurred in Ukraine, where exports jumped from less than 2 million tonnes in 1999/2000 to 6.8 million tonnes in 2009/10 and estimated to reach 8.9 million tonnes in 2018. Russia has increased its exports of wheat dramatically during the last few years. Whereas the country was the world's leading importer of wheat during most of the last three decades of the 20th century, Russia has now joined the ranks of the leading wheat-exporting countries. Russian exports in 1999/2000 were a mere 500 000 tonnes, by 2009 they stood at 11.8 million tonnes, enabling the country to capture a share of close to 10% of the 2009 world wheat trade compared to virtually zero just years before. Similarly, Kazakhstan has re-emerged as a primary wheat exporter, having ramped up production in recent years. With the proximity of Black Sea ports to wheat-deficient

Figure 2.6. **Leading exporters of wheat**

Million tonnes



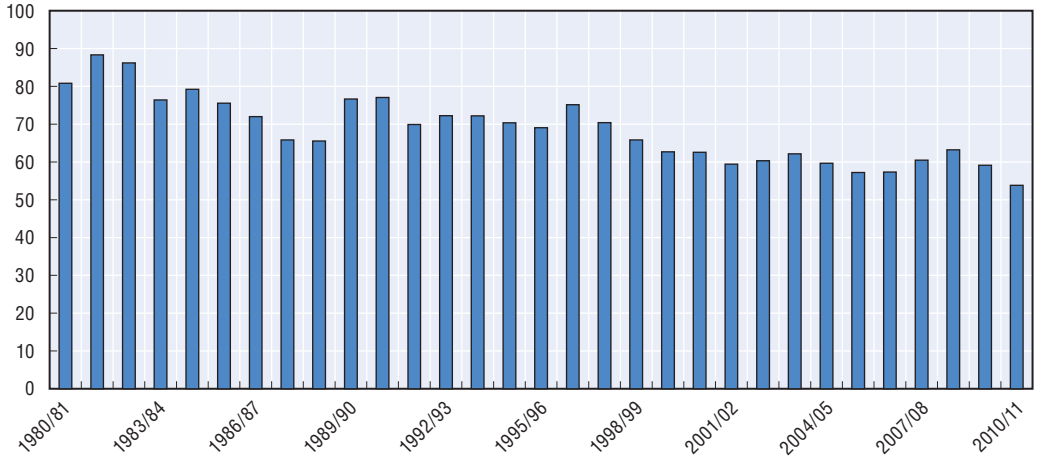
Source: USDA statistics.

Africa, Asia and the Middle East, wheat from the Commonwealth of Independent States has a competitive edge, beginning to replace the European Union as a supplier in North Africa and also in parts of the Middle East and sub-Saharan Africa. In the Far East, Japan is also studying samples of Black Sea origin wheat as a possible new source of milling wheat.

Just as CIS countries are emerging as key wheat competitors, a steady trend of decline in wheat production has been underway in the world's biggest exporter, the United States. The National Association of Wheat Growers notes that wheat plantings are about 30% lower than in the early 1980s, down from an average of 85 million acres to about 60 million acres in recent years (Figure 2.7).

Figure 2.7. **US Wheat: Planted acreage**

Million acres



Source: USDA 2010.

The reason for this decline is twofold. First, farmers are planting less wheat over time because they can earn more planting other crops. They increasingly focus on other crops, such as corn and soybeans, because of wheat's low relative returns. The profitability of growing

crops for biofuel feedstock in recent years in particular has been a key incentive for private investment in corn. Second, domestic food use, while growing, is no longer as dynamic as what the United States experienced in the 1970s through the mid-1990s. This trend is set to continue, according to United States Department of Agriculture predictions. Over the next 10 years, US wheat planted area is projected to fall sharply from its 2008/09 level. The declining production is a long-term concern to millers, bakers and food businesses in the United States. From the perspective of emerging competitors like Kazakhstan, however, the erosion in the US export market share presents significant opportunities.

The rise of contract farming

One interesting alternative to investing directly in agricultural production of cash crops (via land lease or ownership) which has gained momentum is contract farming. This non-equity form of participation has been on the rise in recent years.

Contract farming is by no means a new practice, yet it has garnered heightened awareness and interest by policy-makers, researchers and development planners recently. Contractual farming arrangements allow different types of domestic processors and multinationals in the downstream stages of agribusiness value chains (including food processors and retailers) to secure agricultural inputs from local farmers in different host countries. In effect, it serves as a mechanism to develop linkages between farmers and agribusiness firms. Farmers agree to deliver to processors a quantity of farm outputs at an agreed price, quality standard, delivery date and other specifications. Benefits to farmers include predictable incomes, access to markets, and support in access to credit and know-how. When dealing with multinationals, it may enable farmers to become part of international food value chains.

The global spread of this phenomenon can be measured by the contract farming activities of the largest agribusiness multinationals engaged across the developing world. According to a UNCTAD report (*WIR 2009*) for instance, in 2008 the food processor Nestlé (Switzerland) had contracts with more than 600 000 farms in over 80 developing and transition economies as direct suppliers of agricultural commodities. In Brazil, 75% of poultry production and 35% of soya bean production are sourced through contract farming.

Contract farming can apply to a number of agricultural commodities, from vegetables to eggs or coffee. In the case of grains, the grain company provides selected inputs like seeds, fertilisers, agricultural know-how, regular inspection of the crop and advisory services on crop management. It later buys all the contract farmers' grain. This model is used extensively in the US Midwest on wheat crops and in India. This approach, which establishes strong links between farmers and processors, holds much promise in developing countries facing the issue of scarcity of credit for agriculture.

2.4. Sector implications and key success factors

The dynamics for global trade patterns in wheat have altered significantly in recent years. On the demand side, more emphasis is given to greater quality in a market characterised by the increasing sophistication of buyers, and on the trading of processed foods (as opposed to primary products). On the supply side, increasing competition, especially coming from the Black Sea region, and enhanced market access are creating opportunities as well as challenges for key exporters. At the same time, new linkages are being promoted between farmers and multinational agribusiness firms, as the practice of contract farming has been on the upsurge in recent years.

These trends have serious implications for wheat growers and producers worldwide in terms of the ability to remain competitive and prosper. Countries which are able to attract foreign investment, either through FDI or contract farming involving food processing companies and retail chains, are in a better position to raise quality standards for the wheat sector, gain technical know-how for moving up the value chain into advanced processing for some part of the wheat produced, secure financing, as well as open up linkages to the global markets for wheat and wheat-derived products. Hereafter is a discussion of these key success factors.

Quality improvement

Foreign investment can help spur quality improvements both at primary and export levels since quality demands by foreign processing and distribution companies, concerned about consumer and export demands, are typically higher than the host country. Foreign companies could introduce new methods of quality control, in the case of crops, and food processing companies may provide the producers with good-quality seed supplies to upgrade the quality of the crop, chemicals to avoid adverse environmental impacts of production practices such as chemical contamination, and know-how regarding grading standards and cleaning procedures. Foreign investors will subsequently screen wheat on the basis of moisture content, protein content, protein quality, moulds damaged grains and odour. A moisture content exceeding 15%, for instance, will put the wheat at risk of infestation and will lead to rejection by the buyer. Grain safety is another major parametre taken into consideration by international buyers. Wheat needs to be monitored for chemical residues, mycotoxins and trace elements, providing customers with the assurance that grain shipments will meet stringent requirements.

Moving up the value chain

Deep processing of wheat to produce starches and gluten is a capital and technologically intensive process. Production methods and methodology have become increasingly sophisticated in order to achieve a high extraction rate of maximum proteins and vitamins from the wheat grain and a more complete processing of all parts of the kernel. The development of a wheat deep processing capacity requires research and development efforts, as well as large initial investments in technologically advanced equipment. Large multinational firms can more easily raise the funds needed to establish facilities. Multinational firms may also play a key role in generating technology spillovers, to the extent that they are more likely to offer training and on-the-job learning.

Productivity spillovers in the recipient country can be substantial, helping the country develop a modern sector, and effectively moving up the value chain into higher value-added products. The Chinese case is particularly revealing: the imported technology embodied in FDI has changed China's trade over the past decade as the commodity composition has been diversified from traditional industries into higher technology-intensive industries.

Access to finance

Limited access to credit is a critical issue in the agriculture sector of many developing economies, especially in the case of small farms which cannot put up sufficient collateral and are generally more credit constrained than larger growers. According to a World Bank report (*World Development Report, Agriculture for Development, 2008*), despite the rapid

development of financial services, access to financing is a pervasive constraint to the competitiveness of smaller farms as "A majority of smallholders worldwide remain without access to the services they need to compete and improve their livelihoods".

Public investment can play a key role, in terms of spending on education, R&D, in the provision of public goods such as infrastructure, in the promotion of an enabling environment for private investment and through an involvement the provision of extension services. However, other sources of financing are gaining momentum across the developing world in the field of agricultural finance in areas where banks and other financial institutions have failed in providing capital. These include: foreign direct investment, microfinance, warehouse receipt financing, financial co-operatives, privatising of public agricultural banks and supply chain financing.

Supply chain financing contributes to the development of grain farming, as linkages are established between processing companies and farmers in a form of vertical co-ordination. Contracts, especially with large food processing, manufacturing or retail companies, can ease financial constraints for local farmers. As such, the food processing company acts as a lender instead of the bank, providing inputs. Alternatively, the bank may consider the contract with the large food processing firm a good substitute for collateral, and provide credit to the farmer on that basis. In that case, the food processing firm may act as a sponsor on behalf of the farmer, introducing a guarantee to the bank, with the contract serving as collateral.

Access to world markets

Marketing capabilities in terms of strategy and branding have become major success factors for grain farmers and processors, given the increasing demand for quality and sanitary/safety considerations. Foreign investors may play a central role in this respect. International processing and modern retail companies are generally well positioned to monitor global or regional consumer trends, observe national regulations and standards, and establish a brand. Responsiveness and adaptability to consumer trends is essential because the food sector is highly demand-driven. Wheat markets, in particular, have become much more specialised in recent years with different types of wheat now being produced in different geographic regions for distinct end markets. At a time when the market is beset by increased quality requirements and consumer demands for variation, there is a myriad of qualities and specifications. International grain trading companies, processing companies and retailers can help to increase the competitiveness of wheat and wheat-related exports of developing countries via quality assurance and adequate branding.

2.5. Sector attractiveness

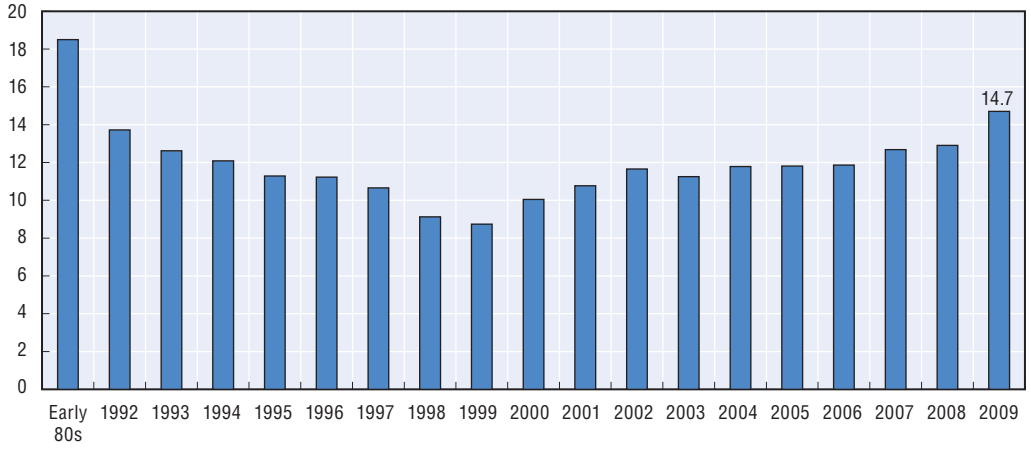
Wheat dominates the agricultural sector in Kazakhstan, with almost 75% of the total cultivated area. The picture of the sector has evolved considerably over the last two decades. In USSR times, Kazakhstan used to supply most of the Soviet Republics with its wheat. After independence in 1991, as the country underwent a radical transformation from a central-command to a market-oriented economy, Kazakhstan's grain sector was adversely impacted in the short term. Production levels for wheat drastically declined (*e.g.* the 2004 level was half of the 1992 level), due to a drop in production area and yield. The present situation has changed dramatically: wheat production levels have risen back to pre-independence levels, Kazakhstan has re-emerged as a leading producer and export levels have risen steadily over the past 20 years, today accounting for 3.3% of world wheat exports.

Kazakhstan relies on a large land area, very favourable natural conditions for growing grains resulting in the high quality of its wheat; low production costs; and a freight cost advantage in North Africa, the European Union and the Middle East. Kazakhstan thus has a clear comparative advantage in the production and export of wheat, as well as great potential for further development.

Large land area to harvest and future potential

Kazakhstan has rich land resources. It is ranked as the *ninth largest country* in the world, with more than 223 million hectares, or three quarters of the country's territory, being suitable for agricultural production (it ranks number six worldwide for agricultural land, just below Russia with 231 million hectares, and above the 193 million hectares of agriculture land in India). The flat, open land lends itself to large-scale, extensive agriculture. The northern part of Kazakhstan (Kostanai, Akmola and North Kazakhstan) was under Soviet times the "breadbasket" of the entire Soviet Union. The total area under wheat in the 1980s in Northern Kazakhstan was close to 19 million hectares producing some 24 million tonnes of wheat (Figure 2.8).

Figure 2.8. **Wheat area harvested million hectares**



Source: FAO statistics 2010.

The wheat area started to rebound in 2000 and by 2009 had risen to 1980s levels, at 14.7 million hectares, but significantly lower than the peak reached during the Soviet era (over 20 million). According to the Ministry of Agriculture, there are currently 5 million hectares of idle land in Kazakhstan, of which only 2 million are suitable for crop production. Presently, idle-land recovery efforts are active in the Kostanai, Akmola and North Kazakhstan oblasts. These three oblasts account for 70% of all wheat produced in Kazakhstan.

High quality wheat

The diverse climate conditions in Kazakhstan produce different varieties of spring and winter wheat. In the North, spring wheat is widespread, while southern regions produce mostly winter wheat. Owing to the comparatively dry conditions and soil fertility in Kazakhstan, the wheat is of high quality. The spring wheat areas in particular grow wheat of high protein content and gluten strength. The protein content typically ranges from 11% to 14% and can be superior in quality to wheat produced in other regions of Asia and

Europe. It therefore has the potential to compete closely with Dark Northern Spring wheat of North America and premium wheat of Australia. Kazakhstani wheat is heavy wheat, as the protein content and bread-making properties are very high and it is used to correct other wheat. Quality is highest in the more southern and drier production regions of the main production zone in North Central Kazakhstan. From a sanitary perspective, Black Sea wheat in general contains little to no contaminants in excess of authorised levels, as measured by the presence of mycotoxins, pesticides, heavy metals or radioactivity.

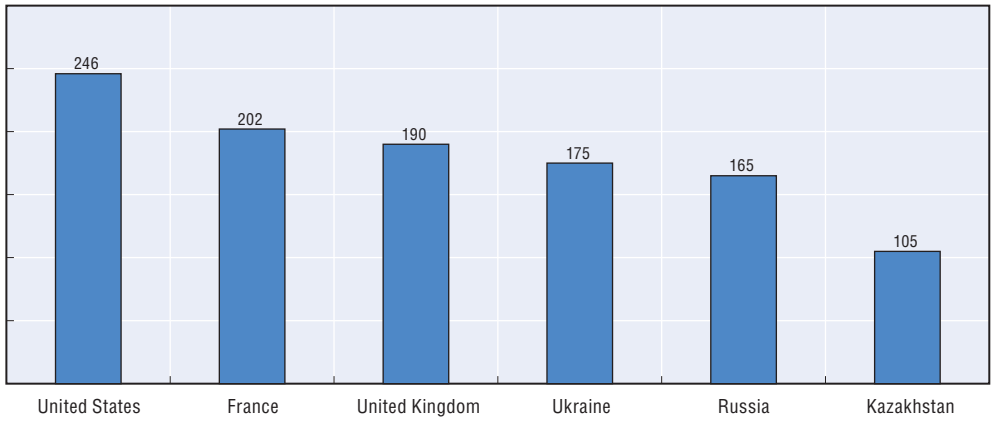
Grades rank from 1 to 5, with 1 being the best grade, and 5 typically used as fodder or animal feed. Grades are assigned based on the level of damage (heat damage, broken kernel, etc.), defect, dockage (cleaner wheat has low dockage) and foreign material. In 2008, 89% of all wheat produced in Kazakhstan was grade 3. The high gluten and protein content of Kazakhstan wheat makes it highly suitable for primary and secondary processing.

Low production costs

One of the biggest competitive advantages that Kazakhstan wheat sector possesses is its low production costs. In this respect, Kazakhstan is well placed to compete with other wheat producers. Production costs were on average USD 105 per tonne in 2008, lower than its nearest competitors Ukraine and Russia, and well below countries like France, the United Kingdom and the United States (Figure 2.9).

Figure 2.9. **Wheat production cost by country**

USD per tonne, 2008



Source: KazAgro Marketing, UK *Farmers Weekly*, US Wheat Marketing Center.

Considering the low wheat production cost, the fob price of Black Sea wheat is particularly competitive (Table 2.1).

Freight advantage

According to OECD/FAO projections, the fastest-growing markets over the next decade will be Saudi Arabia, South Africa, Pakistan and India. Egypt will maintain its position as the world's largest importing country (over 9 million tonnes), while imports by developing countries in Sub-Saharan Africa, North Africa and the Middle East are set to rise 11.6 million tonnes and account for 53% of the total increase in world wheat trade. Saudi Arabia has adopted a policy to phase out wheat production subsidies by 2016 because of water scarcity concerns. These markets have high potential for rapidly growing imports.

Table 2.1. **Black sea milling wheat**

Prices: Wheat export quotations

Fob, USD per tonne, average July 2008-June 09

Canada CWRS wheat St Lawrence	Canada	341
US DNS wheat Gulf	US	337
US DNS wheat PNW	US	325
US HRW wheat Gulf	US	271
Argentina Trigo Pan wheat Up River	Argentina	230
Germany wheat grade B – Hamburg	Germany	224
Australia ASW wheat Eastern States	Australia	224
France standard grade wheat Rouen	France	212
Black Sea milling wheat	Black Sea	203

Source: International Grains Council.

In terms of freight rates, Black Sea countries have a substantial advantage in Egypt over all other key grain exporters. The Black Sea region also has a clear advantage in other North African markets (Tunisia and Morocco), is on par with the European Union for Spain, and on par as well with Australia for Pakistan (Table 2.2). The cost of maritime transport has a strong impact on trade in agricultural goods. With ocean freight costs' high volatility in recent years, geographical proximity can be leveraged as an important competitive advantage (Figure 2.10).

In June 2008, freight rates dropped precipitously, going from an index high of 13 000 to a low of 2 600 over a six month-period. The index has been on an upward trend since the beginning of 2009, climbing to over 6 000 due in part to growing mineral demand in China, as well as support from increased grain interest out of South America and the US Gulf. Sustained high freight rates would lead to the increasing regionalisation of the international wheat market. Australia and Canada would hold a relative advantage in Pacific markets; Argentina, the European Union and the United States (Gulf ports) in Atlantic markets; while non-traditional exporters from Black Sea ports hold a clear ocean freight cost advantage for North Africa, the Middle East and the European Union.

Single commodity transfers

As measured by % SCT, the level of single commodity transfers to wheat producers in Kazakhstan ranged between –48 and 1% during 1996-2009 (Figure 2.11). At the end of the 1990s, the support levels remained on average at –41% that reflected the transition process from planned economy to market economy, currency depreciation in 1999 and still weak linkages with international markets. In the first half of the 2000s, the % SCT remained negative, but less at –12% on average. Positive % SCTs were observed in 2005 and 2009 at 1%. The negative % SCTs for the wheat producers reflect a net exporter position of Kazakhstan; on average about a third of domestically produced wheat is exported annually.

In 2007-08, the % SCT fell to –18 and –19%. The main reason was rapidly increasing world market prices (*i.e.* fob export prices for Kazakhstan), which were not fully transmitted to the producer prices, as the prices for local producers rose at a lower rate.

Negative market price support in the form of export preventive measures remained the dominant component of the SCT throughout the period under the analysis. Starting from 2000, the government increased expenditures on input support measures. Although these measures were not directly targeted to wheat producers, they were included to the

Table 2.2. **Ocean freight rates for grains on major selected routes**

30 December 2008, in USD per metric tonne

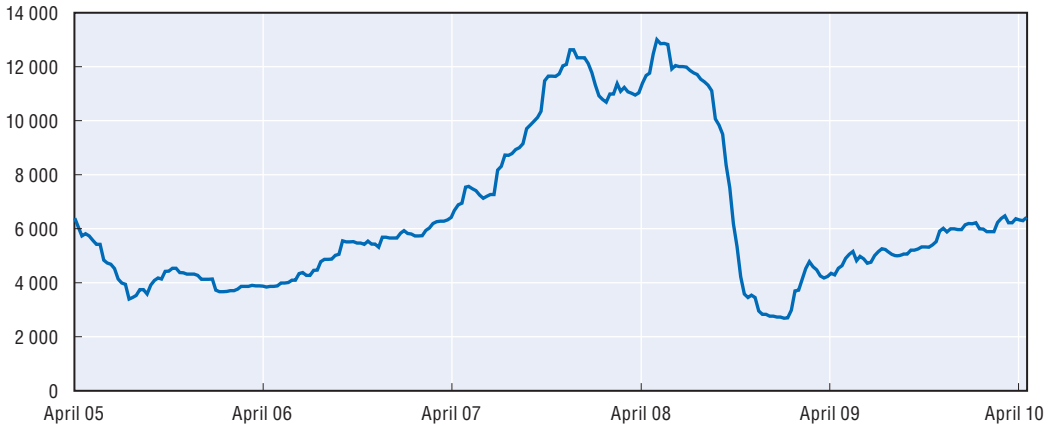
TO \ FROM		Argentina	Australia	Canada	US Pacific North West	US Gulf	EU	Black Sea
Europe								
	EU: Antwerp, Hamburg	24		16		17		
	Italy			19		21		
	Spain – Mediterranean	21		17	29	19	13	13
	Poland	29		19		21	10	
CIS Black Sea			24		26	15		
North and Central America								
	Mexico (East Coast)	22		13		10		
South America								
	Brazil	11		23		19		
	Colombia	21				12		
	Venezuela	19		12		10		
Asia								
	Iran		24	29				
	Iraq		24					
	Yemen		29			28	25	
	Bangladesh		21			30	28	
	China		14	28	19	25		
	India (West Coast)							
	Indonesia		12		24	31		21
	Japan			26	16	24		
	South Korea		15		18	25		
	Malaysia (Singapore)		14		25			
	Pakistan		15	26		28		14
	Sri Lanka		22	26		29	25	
Africa								
	Algeria	23	26	18		20	12	
	Egypt – Alexandria	28	28	20	29	22	18	10
	Egypt – Mediterranean	24	26	15	22	17	12	
	Egypt – Red Sea	24	24	18	25	20	17	
	Morocco	20		17		17	13	13
	South Africa	18	17	23	24	22	18	
	Sudan	25	27	27			24	
	Tunisia	23		22		23	16	12

Source: International Grains Council.

SCT analysis, as wheat is the major cereal produced in Kazakhstan. However, their impact on results remained marginal when compared to the effect of preventive measures that more than compensate support to farmers.

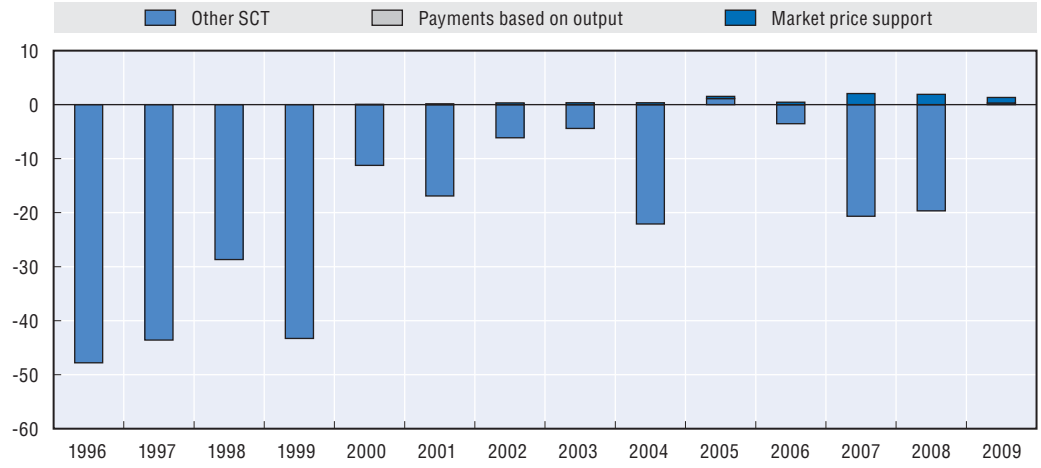
In comparison with selected OECD and non-OECD countries, the level of single commodity transfers for wheat is low in Kazakhstan with the % SCT well below those for the EU27 and the OECD average (Figure 2.13). It is comparable with Russia, the main trading partner of Kazakhstan. Looking at the dynamics of the % SCT during 1996-2008, the % SCT for wheat has fluctuated relatively closely to that of Russia and to a certain extent also to that of China. Until 2005, the % SCT for wheat in Ukraine has been higher compared to that for Kazakhstan, but since then the results converged.

Figure 2.10. **International Grains Council (IGC) grain freight index**



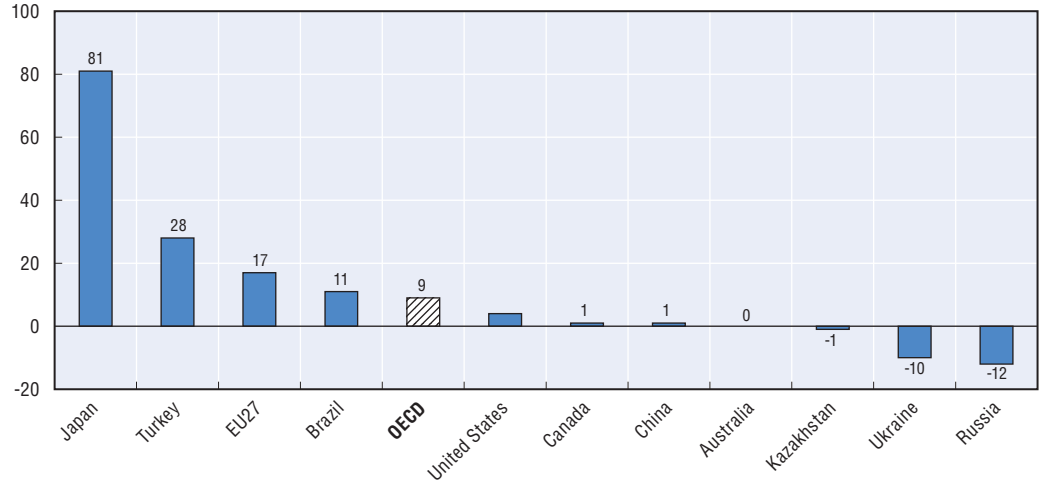
Source: International Grains Council (2010).

Figure 2.11. **SCT estimates for wheat, 1996-2009**



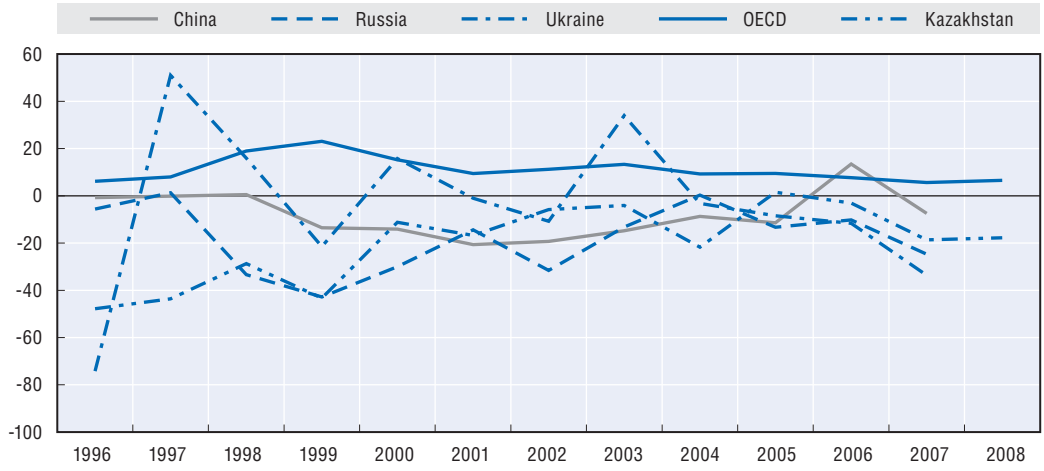
Source: *OECD PSE/CSE database*, 2010.

Figure 2.12. **SCT for wheat by country, 2005-06**



Source: *OECD PSE/CSE database*, 2010.

Figure 2.13. **SCT for wheat by country, 1996-2008**



Source: OECD PSE/CSE database, 2010.

2.6. Key sector challenges and policy barriers

Kazakhstan benefits from a large land area, high-quality wheat, a clear production cost advantage and considerable opportunities for wheat production and exporting. The wheat sector has achieved significant recovery since the mid-1990s. However, the sector is still facing some challenges which need to be addressed in order to ensure greater competitiveness in the longer term.

Need to raise land productivity

Land productivity, as measured by wheat yield, remains very low by international standards. Its level corresponds to less than half that of Russia, and is three times lower than Canada (Table 2.3).

Table 2.3. **Wheat yield by country**

	Wheat yield (Hg/Ha), 2008
Germany	80 873
Ukraine	36 698
US	30 177
Canada	28 520
Russia	24 458
Australia	15 788
Kazakhstan	9 714

Source: FAO statistics.

The low productivity of land is linked with minimal use of inputs per hectare of land. Wheat cultivation used to be very input-intensive during the Soviet era, when state and collective farms obtained inputs at minimal artificial prices. However, Kazakhstan's agriculture became much less intensive during the 1990s, when farmers had to pay market prices for purchased inputs and receive market prices for output. As a result, the incentive has been to reduce inputs strongly, and a virtual ceasing of investment in agriculture in a broader sense. One indication of the decline in input use is that fertiliser use in recent years (as of 2002) has been about 20% of the 1990 level. According to the CCS, only 44% of

farms use fertilisers in large quantities, while the majority use fertilisers moderately or not at all. The overwhelming reason behind this is the high price of fertilisers.

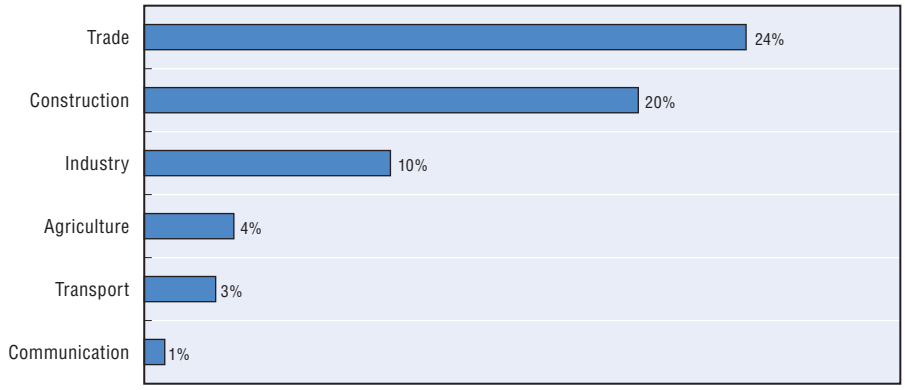
Low productivity is also attributable to inconsistencies of information stemming from serious disruptions in the research system following the collapse of the Soviet Union. In the Soviet era, extension services were provided in each administrative *oblast* with technical personnel responsible for conducting specialised courses, arranging training, and introducing the new technologies coming out of the agricultural research system. Information was relayed to agronomists on state and collective farms and from them to the appropriate farm workers. A centrally planned distribution system for inputs and government procurement of output was in place. Today, a new formal extension system is in its inception phase to fill the gap and address the current lack of dissemination among farmers of modern knowledge on wheat production (agronomics, techniques, machinery), and lack of knowledge on how to conduct commercial farm management and marketing.

The financing gap

Low levels of investment in machinery and other inputs are directly linked to financial constraints that producers been experiencing since independence. The restructuring process has had a strong impact on the financing mechanisms made available to agricultural enterprises in Kazakhstan. The withdrawal of the state in particular from its role of back-up financier has only been partially filled by commercial banking. Although overall lending boomed in the 2005-07 period, lending to agriculture has been much slower and only 4% of all loans made by banks in Kazakhstan reach the agricultural sector (Figures 2.14 and 2.15).

Figure 2.14. **Loans made by banks**

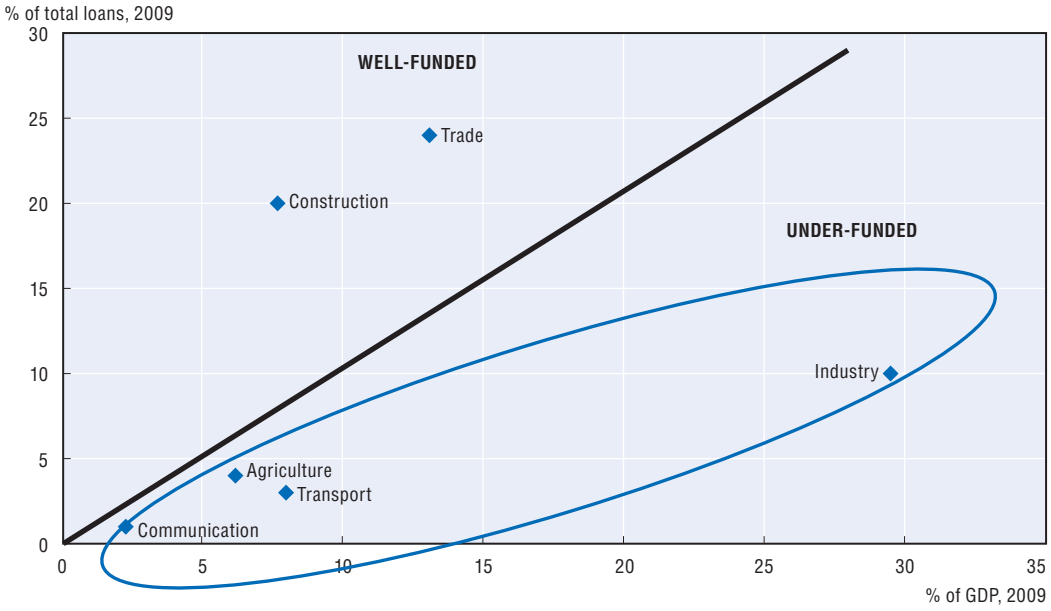
Per cent of total loans, December 2009



Source: National Agency of Statistics of Kazakhstan.

Farmers do not have strong credit and financial support for making necessary farm investments and for dealing with the risks they face, which are significant due to the acute continental climate and the resulting volatility in crop production. Smaller-scale farmers in particular have limited access to credit at reasonable rates of interest. Although title to land is issued, banks are not prepared at this stage to properly assess the risk of lending to farmers and are not structured to use land as collateral for loans to farmers. Consequently, farmers have faced serious credit difficulties and a lack of funds for purchasing inputs and for financing of farm operations.

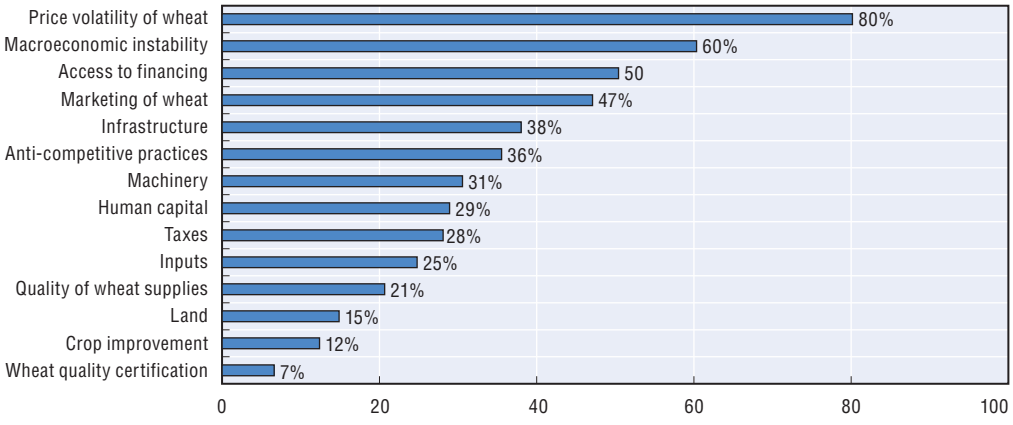
Figure 2.15. **Levels of investment**



Source: OECD analysis, National Agency of Statistics of Kazakhstan.

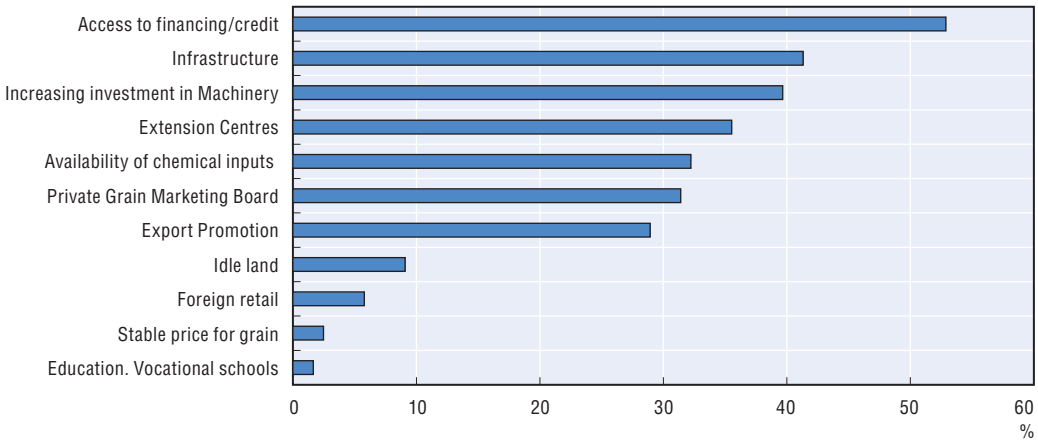
The Ministry of Agriculture has been active in addressing this financing challenge, via KazagroFinance (financial leasing institution) and warehouse receipt programme. However, the situation can still be improved. The CCS revealed that as many as 42% of wheat enterprises surveyed cited access to credit and financing as insufficient. Among all possible challenges and obstacles faced by Kazakhstani wheat farmers, access to finance is ranked at the top, third only to global systemic factors such as price volatility of wheat and macroeconomic instability (Figure 2.16).

Figure 2.16. **CCS: Top five challenges**



To the question of which areas of focus would most likely support the positive growth of their business, wheat growing and processing enterprises cited access to financing/credit first, mentioned by 53% of all enterprises surveyed (Figure 2.17). The introduction of foreign retail chains, on the other hand, ranked low among respondents, with less than 10% seeing it as a means to support the positive growth of their business.

Figure 2.17. **CCS: Areas of focus for positive growth**

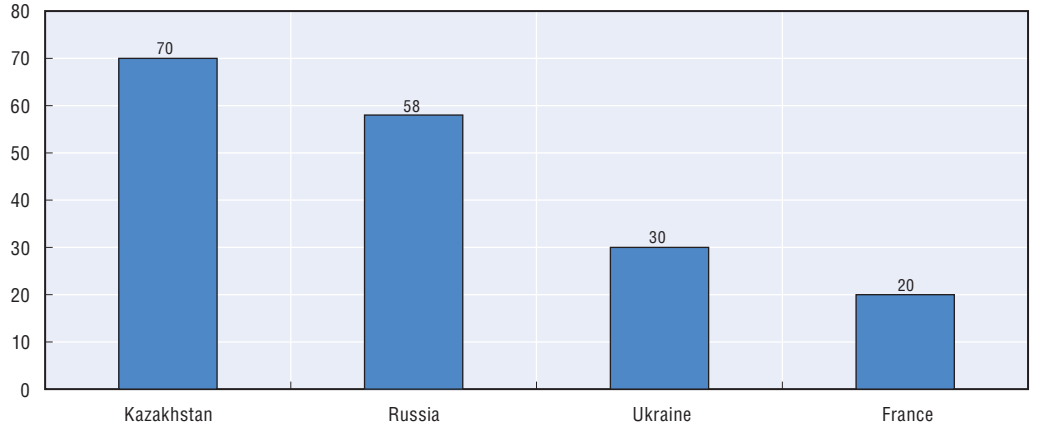


Infrastructure and export promotion

Kazakhstan's location is the main drawback in exporting to world markets: its low-priced, high-quality wheat should be very competitive on international markets, however wheat-exporting farmers face high transportation costs (especially in Northern and Central Kazakhstan) which hinder their overall competitiveness. Transport to ports, for instance, can cost as much as the farmgate value of the wheat itself. In 2008 for example, the cost of USD 70 per tonne to get the wheat to a terminal (on the train, to the border, through Russia and through Ukraine) offset the production cost advantage of Kazakhstan (Figure 2.18).

Figure 2.18. **Transport costs to terminal**

USD per tonne, 2008



Source: KazAgroMarketing, 2008.

Since 2006, the Kazakhstani government has been addressing the issue with several infrastructure investment projects, including the Aktau grain terminal, and terminals in Baku, Amirabad in Iran and Poti in Georgia. Construction of the Kazakhstan-Turkmenistan-Iran railway will allow Kazakhstan to boost its exports to Iran, Afghanistan and Turkmenistan. More construction works are in the planning stage.

Storage is a major issue as well. Arable farmers who have to sell during harvest are not able to reap a major benefit, while farmers with storage capacity are in a position to sell during peaks in price development. Kazakhstan also has approximately 21 million tonnes of elevator and storage capacity. The capacity of grain storages in three major grain-producing regions Akmola, Kostanay and North Kazakhstan is 10.5 million tonnes.

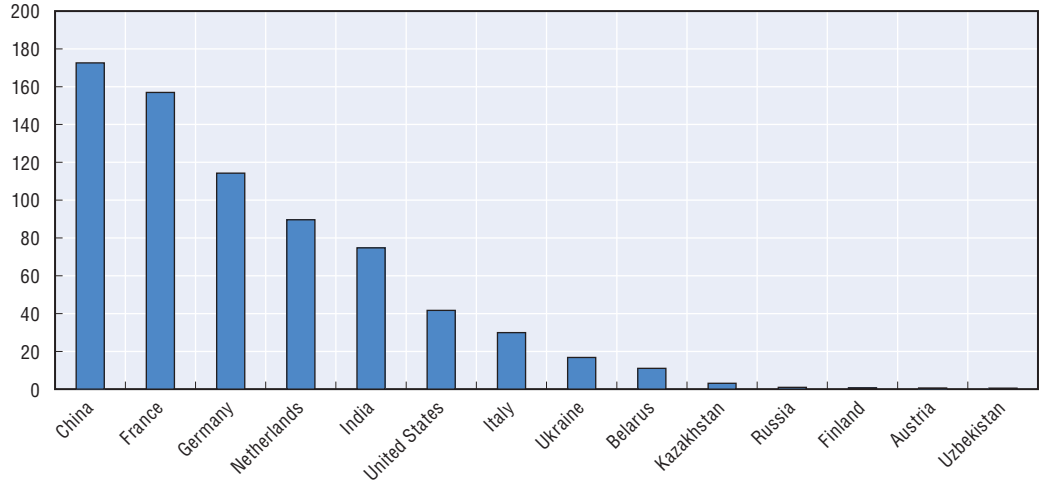
This infrastructure was built principally for the transport of grain and other goods from Kazakhstan to specifically chosen regions of the Soviet Union. Russia and other former republics in Central Asia have continued to be primary export markets for Kazakhstan since independence, and these traditional markets are generally expected to continue to exist. However, many of these countries have ramped up their own production of wheat and emerged as new competitors and net exporters. Kazakhstan has succeeded in diversifying its export base in recent years, decreasing its share of wheat exports to the former Soviet Union to 36% from 91%, as Egypt and other MENA countries have emerged as large importers of wheat. If other export markets are to be targeted, improvements to the country's transportation and marketing infrastructure (storage, grain terminals) are vital. Of importance is the development of good market relationships, built up on a strong export promotion strategy. At the moment, export promotion is fragmented, under-funded or non-existent. Kazakhstan has to be a better marketer (not just a trader), branding Kazakhstan wheat to prospective markets. In South Africa for example, the leading grain importer cited a lack of awareness of Kazakhstan wheat baking and milling properties as a key obstacle in the way of increasing imports from that source.

Deep processing

The high cost of transportation of agricultural products (in particular for exports) could be mitigated if the private sector would add as much value as possible through agro-processing, especially in terms of deep processing. Examples include wheat cracking technologies to obtain starch and gluten); currently the wheat gluten and starch production in Kazakhstan is in its infancy (Figures 2.19 and 2.20).

Figure 2.19. **Top producers of wheat gluten worldwide**

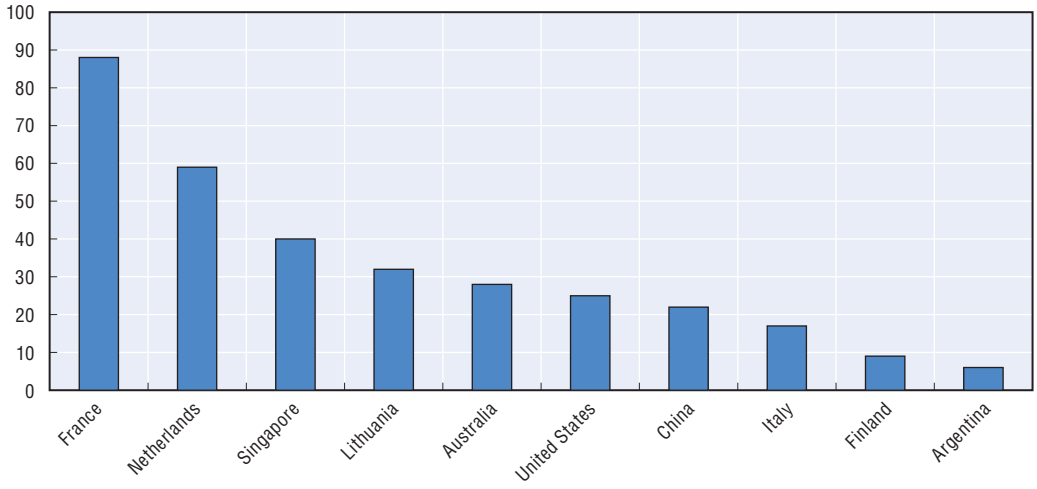
Thousand million tonnes, 2008



Source: UN Comtrade, 2008.

Figure 2.20. **Top exporters of wheat starch worldwide**

Thousand million tonnes, 2008



Note: Kazakhstan's wheat starch production in 2008 was 56 tonnes, and none was exported.
Source: UN Comtrade statistics.

However, the processing sector is facing several obstacles. Most of the existing government programmes concerning wheat are oriented toward production rather than processing (although since 2009, grain processing features as a high-priority sector). Wheat processing enterprises subsequently gained access to concessional loans from KazAgro. Other obstacles include a lack of awareness among the general public of the different uses of wheat gluten and starch in diverse industries (food and non-food usage). Taxation is an issue: while wheat producers face negligible taxation, independent agro-processors are overtaxed.

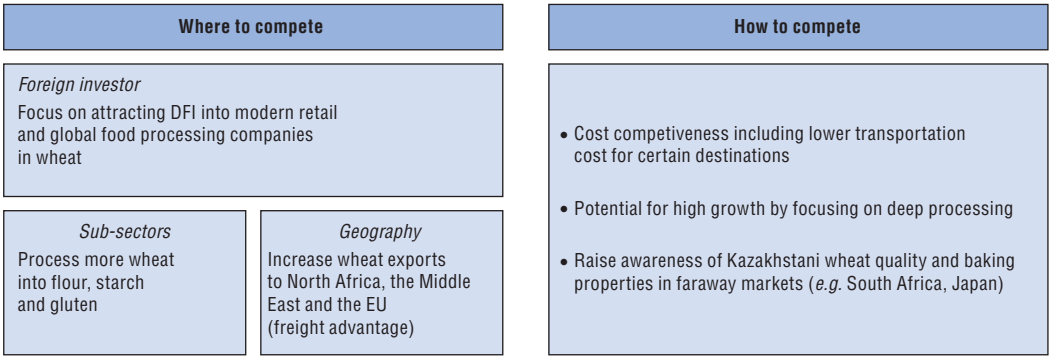
According to KazAgro's marketing master plan, the profitability of starch is higher than flour and pasta products (if the profitability of flour is 5% and pasta is 15%, starch can achieve 25%). Kazakhstan's ample and cheap grain supplies gives it a comparative advantage, as in most agro-food processing the procurement of raw materials is the main component of the cost of production.

2.7. Sector strategy and policy recommendations

The wheat sector in Kazakhstan plays a vital role in the country's economy. Wheat contributes substantially to Kazakhstan's exports and is the country's only major non-extractive export good. The sector has come a long way since its severe depression in the 1990s and now has a number of strong prospects and considerable possibility for wheat production and exporting. In order to realise this opportunity, the country will tackle the key challenges and barriers described in the previous section, including how to increase land productivity, solve the financing gap and develop a viable grain deep processing sector.

In this regard, grain-specific improvement policies have been proposed in modern retail development and access to finance schemes (Figure 2.21). Modern retail development and supply chain financing are key drivers that can create the links between production and processing, and can reshape the entire agri-food chain by making it more integrated. FDI can be a driving force for both developments.

Figure 2.21. **Where and how to compete**



Source: OECD SCSR.

Sector strategy and key policy recommendations on retail development

In the case of wheat, growth prospects are most obvious at the processed level. The growth of supermarkets can invigorate the wheat deep processing sector, which manufactures the starch and gluten needed for an assortment of food products, from pasta to cookies, bread and non-food products (cosmetics, paper) commonly available for purchase in supermarkets (Tables 2.4 and 2.5).

Table 2.4. **Starch application table**

Industry	End product
Food	Mayonnaise, baby food, bread, buns, meat sausages, meat rolls and loaves, ketchup, soups, snacks, pizza sauces, sauces, low-fat foods, noodles
Beverage	Soft drinks, beer, alcohol, coffee
Confectionery	Jelly gums, high-boiled sweets, jellies, marshmallows, marmalade, jam, ice cream, dairy cream, fruit fillings
Animal feed	Pellets, by products
Agriculture	Seed coating, fertiliser
Fermentation	Vinegar, enzymes
Plastic	Biodegradable plastics
Textile	Warp, fabrics, yarns
Non-woven	Hygienic diapers, baby diapers, sanitary napkins
Pharmacy	Tablets, dusting powder
Paper	Corrugated board, cardboard, paper, printing paper, packaging material
Building	Mineral fibre tiles, gypsum board, concrete, gypsum plaster
Various	Foundries, water treatment, coal, detergent, oil drilling, stain remover, glue, foamed starch

Source: International Starch Institute, Denmark.

The Government of Kazakhstan should focus on attracting FDI into modern retail with a view to encouraging the processing of wheat into higher value-added by-products that meet the highest international quality and safety standards. It should adopt a retail policy allowing for a gradual opening of the market, in order to give local suppliers a chance to adapt to the product requirements of foreign retailers, while allowing local retailers to consolidate before the heavy influx of global retailers. The Chinese case can serve as an illustrative example (Box 2.1). At the same time, it should promote food and non-food applications of wheat starch and gluten.

Table 2.5. **Gluten application table**

Industry	End-use
Aquaculture	Binding for feed in aquaculture
Bakery products	Hard rolls and multigrain, high-fibre and other specialty breads, doughnuts
Breading, batters, coatings and flavours	Batter mix, coating of dry roasted nuts, hydrolyzed vegetable proteins
Breakfast cereals	Fortified breakfast cereals
Cheese analogues and pizza	Synthetic cheese, pizza crust
Meat, fish, poultry and surimi-based products	Binding for meat chunks, sausages, seafood and fish analogues
Milling and flour fortification	Enhancement of flour protein level
Natural bio-polymers	Biodegradable plastic products
Nutritional snacks	Gluten balls, vegetarian snacks, wafers
Pasta	Gluten addition
Personal care	Cosmetics
Pet foods	Simulated meat, canned pet food, dry dog biscuits
Tortillas	Tortilla dough

Source: International Wheat Gluten Association.

Box 2.1. **China's retail policy**

China's retail policy allowed for gradual opening of the market in order to enable local retailers to consolidate before a heavy influx of foreign retailers, and to minimise possible social disruptions. The Chinese government first allowed foreign direct investment in retail in 1992, but capped it at 26%. Ten years later, it raised the FDI limit to 49%. In keeping with the conditions for China's membership in the World Trade Organization, in December 2004 Beijing lifted most restrictions on foreign retailers by removing limits on the number of stores, rules confining them to large cities and regulations capping the foreigners' stake in local ventures at 65%. China had erected those hurdles to give domestic companies a chance to replicate the West's big-store model, which they have done successfully. The top four retailers in the country presently are run by the government or local entrepreneurs.

Other countries, including Poland, Brazil, Morocco and the Czech Republic have taken a similar path (Farra, 2006).

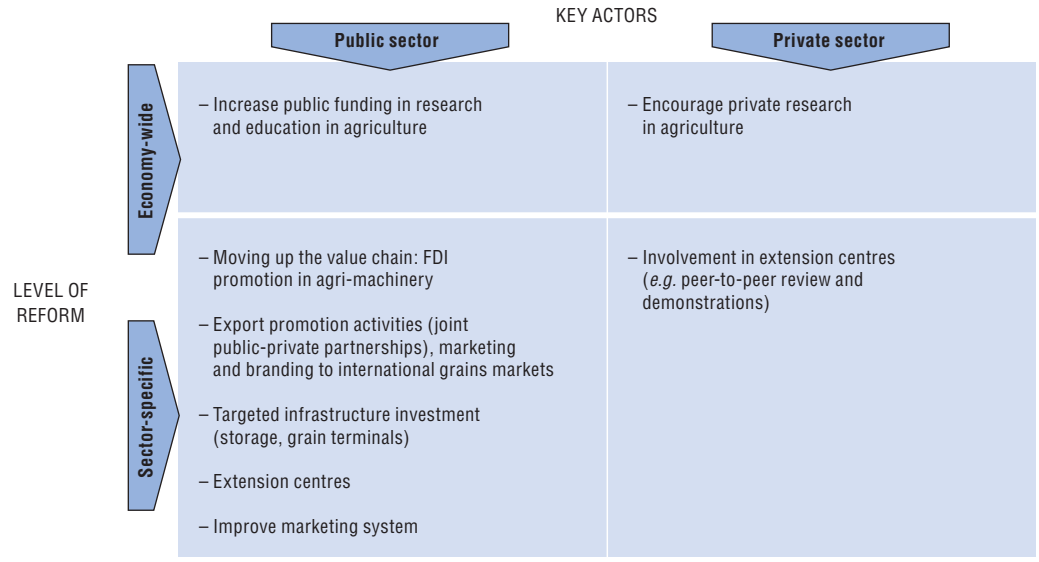
Sector strategy and key policy recommendations on supply chain financing

Kazakhstan should put in place investment promotion policies to attract global food-processing companies in wheat. At the same time, the government should encourage the dissemination of a comprehensive form of SCF, including credit, physical inputs, quality control, agronomic support, farm loan guarantees and investment loans, as part of a wider rural development strategy.

In addition to these policies, a combination of targeted infrastructure development, well functioning extension services, an improved marketing system for the purchase of inputs and sale of output, and a well co-ordinated export promotion system would help the country recover some productivity while enhancing export capacity and competitiveness (Figure 2.22).

Public investment in agriculture R&D can help disseminate new knowledge. It could be conducted in collaboration with research centres in OECD countries with relevant expertise, *e.g.* a Kazakhstani-Australian joint project to genetically modify wheat to be grown in semi-arid conditions.

Figure 2.22. **Improve competitiveness in the wheat sector**



Source: OECD SCSR.

In terms of infrastructure development, the government should invest in transport infrastructure and accelerate new grain terminals development, via funding for the Food Contract Corporation (FCC), in Aktau, Baku (Azerbaijan) and Amirabad (Iran) in order to strengthen exports to Caspian countries and the Caucasus. Since China is an important prospective market for Kazakhstan, the country should secure the construction of a railway terminal on the border. In addition, the government should focus on making large-scale strategic storage capacities available to all producers via the Food Contract Corporation, and create incentives for private traders or farmers themselves to develop storage and transport capacity (*e.g.* by removing bureaucratic hurdles).

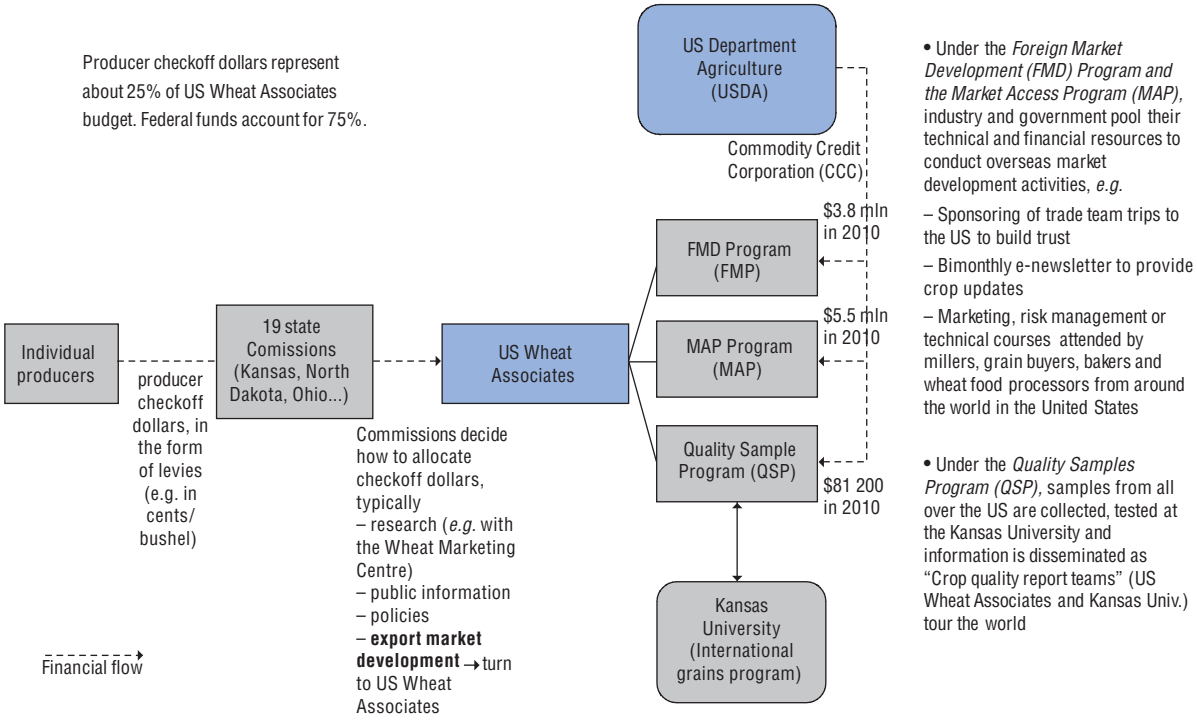
A sound agricultural extension policy is indispensable to achieving success in transferring knowledge to farmers. For a more thorough description of extension centres, refer to Chapter 1 on agribusiness.

In terms of the existing domestic marketing system, producers are hampered by inadequate marketing infrastructures to obtain inputs or market output. Since the mid-1990s when state procurement disappeared, marketing alternatives for producers have been limited. Peasant farmers are often discriminated against by grain traders and offered low prices. The FCC (created in 1997) is the largest purchaser in the country, controlling 10-15% of the wheat market. It helps stabilise prices (through market price support schemes) and gives producers access to inputs. Grain marketing has become concentrated among a small number of private grain trading firms, resulting in the weak bargaining power of wheat growers. The government should improve functioning of the FCC, in particular the transparency of the FCC pricing system, to avoid high price margins between farmers and external prices (*i.e.* taxing agricultural producers). Inconsistent information is also a key problem. The government should improve market information systems (such as KazAgro Marketing) to ensure pricing information and information on wheat quality is properly disseminated among producers and grain traders.

Efforts should be made in the area of export promotion and branding: Kazakhstan is the most important high-protein wheat producer of Asia and Europe, with a high quality of

grain in terms of protein and gluten content. The country has opportunities to establish premium-quality wheat exports. However, it faces several obstacles in becoming a leading world exporter of wheat. In particular, there is a pervasive lack of awareness in some countries about Kazakhstan wheat quality and baking properties which hampers wheat export growth (*e.g.* South Africa, Japan). Kazakhstan should develop and maintain a reputation among potential customers for quality and reliability, by carefully studying the required wheat quality parametres in other importing countries, according to individual requirements of buyers. To that effect, Kazakhstan could develop a network of proactive wheat export promotion agencies, modelled on the US best practice (see Figure 2.23). This network should provide the missing institutional setting for international contacts which limits Kazakhstan's branding capacity. In this respect, it should aim to position itself in contrast to Russia and Ukraine, among Black Sea countries, Kazakhstan is most likely to deliver a consistent supply of high-quality wheat, regardless of the state of world markets and seasonal volatility.

Figure 2.23. **Overview of US wheat export promotion – Joint public-private partnership**



Source: USDA, US Wheat Associates.

According to a new economic analysis of wheat export promotion (released on 29 January 2010), US wheat producers invested on average USD 10 million per year to promote their products overseas between 2000 and 2007, and for every one of those dollars they received USD 23 back in increased net revenue.

Notes

1. "We are aware of other countries, such as Russia and Ukraine, that grow abundant wheat and we have begun taking samples and analysing the types of the wheat and their safety," Shirara

Shiokawa, director of the grain trade division at the Japan Ministry of Agriculture, Forestry and Fisheries, Reuters Food and Agriculture Summit, 19 March 2010.

2. In December 2009, President Nursultan Nazarbayev announced that China had expressed a desire to lease a million hectares of Kazakhstani land.

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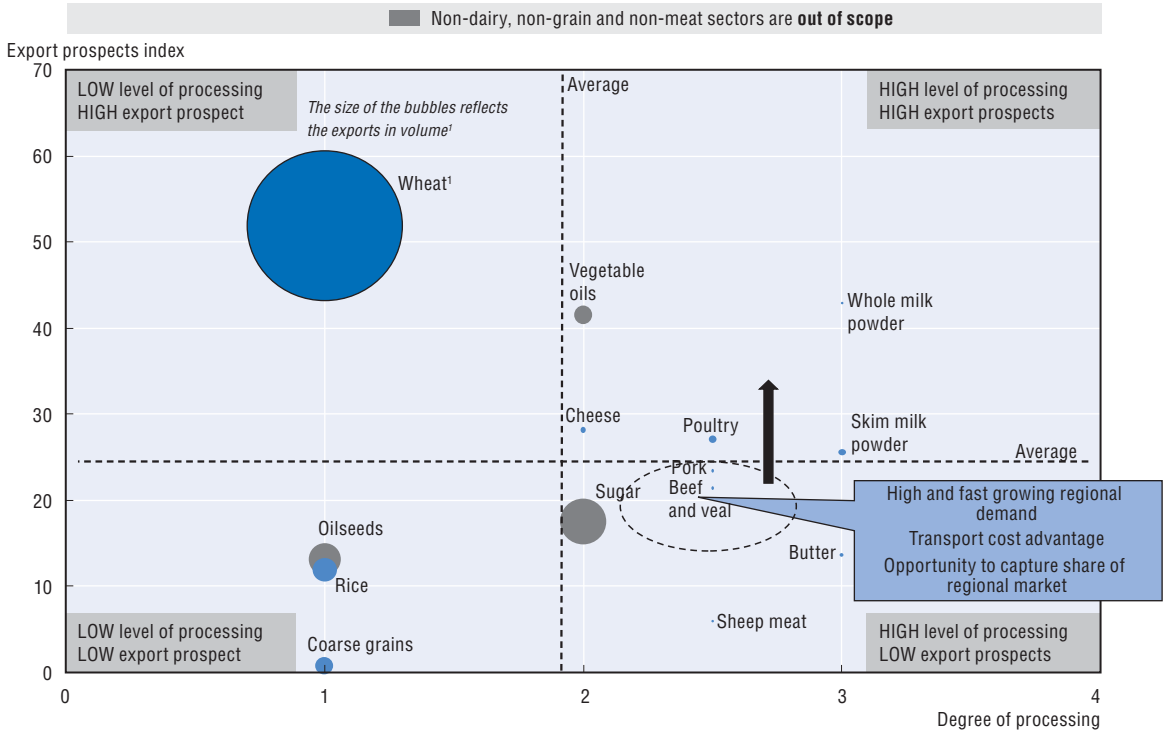
Chapter 3

Meat Sector: Focus on Beef

The global trade in meat has increased by an average of over 7% annually over the past three decades, and global meat consumption is forecast to grow by 15% in the 2010-19 period. Kazakhstan's beef sector is supported by its comparative advantages of low labour and land costs, low processing costs and access to premium markets such as Russia. Its challenges include a very low cattle inventory, the absence of an active marketing institution for Kazakhstan's beef and a lack of affordable financing to grow the sector. Policy options include promotion of modern retail and access to finance schemes to promote investment in the sector and upgrading the standards of beef products. Kazakhstan's exports should focus on the growing markets of Russia, Central Asia and the Middle East and the beef sector should move up the value chain, coupled with promotion of better quality standards, the development of producers' organisations and extension programmes.

3.1. Summary

Figure 3.1. **Beef and veal export prospects and degree of processing**



Source: OECD *Sector Competitiveness Strategy and Review*.

The global meat and livestock sector went through significant changes in the recent decades. Rapidly growing demand for meat and meat-based products in many developing economies, technological developments and innovation prompted quick growth of the livestock sector. These developments resulted in profound structural changes in the sector. On the supply side, the growing concentration of retailers in the last decade (and their subsequent stronger buying power) induced consolidation and integration at all levels of the meat value chain. On the demand side, the growing demand for meat products in developing countries had a significant impact on the geography of animal production, shifting the global livestock production base from the developed world to developing countries and stimulating a sustained growth in the international meat trade. The global trade in beef (world exports, including veal) increased by 288% from 1 332 thousand tonnes in 1977 to 5 163 thousand tonnes in 2007, which represents an average annual growth rate of over 7%. OECD projections for global imports of meat in the 2009 to 2018 period suggest beef and veal should grow the fastest, at average annual growth rate of 2.83%, compared to 2.43% for poultry and 1.72% for pork. Beef was selected as the focus of this chapter.

Kazakhstan's beef sector has significant potential. Livestock production has been a key economic activity in Kazakhstan for centuries and continues to be a major source of employment, food and income for the rural population. The country can rely on a number of comparative advantages, including relatively low production costs, relatively low labour and land costs, low processing costs and access to premium markets (particularly Russia). SCT support levels, which were significantly negative in the 1990s (implying beef producers were in fact "taxed" by government policies), have in recent years returned to zero or slightly positive levels.

At the same time, the beef sector faces several challenges which hinder its growth. Beef production went through a severe contraction following the country's independence, dropping by more than half in the 1990s, and recovering only partly since then. Kazakhstan's cattle inventory is very low by world standards, particularly given the country's vast pasture area. Quality standards of the beef produced are low, presenting an important obstacle to Kazakhstan's export potential. The country lacks an active marketing institution for Kazakhstan beef. At the business level, affordable financing represents a major hindrance to sector growth and was frequently cited by businesses in the sector as one of the key challenges that hamper business activity.

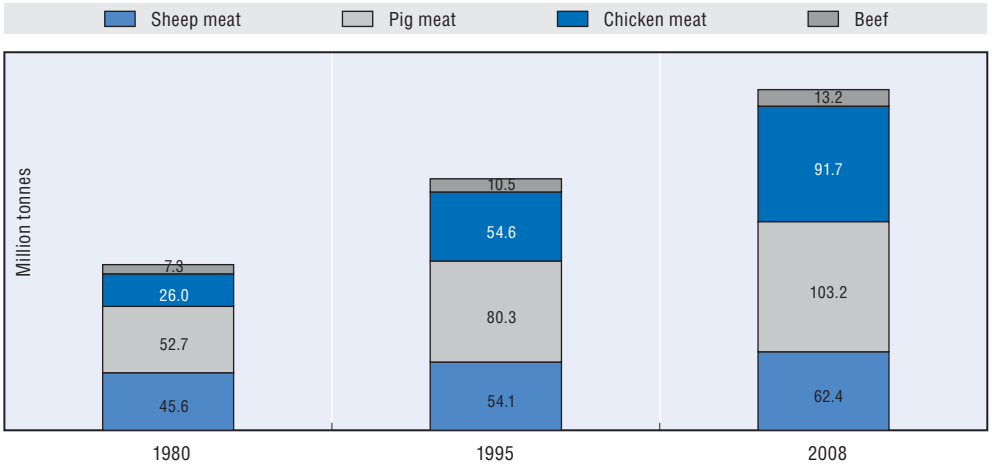
Several potential policy options have been envisaged for the beef sector in order to enhance its competitiveness. Policies which are applicable across other agribusiness sectors, namely the promotion of modern retail and access to finance schemes, are particularly relevant to the beef sector in Kazakhstan, as a means to promote investment in the sector (*e.g.* to increase the quality of feed, or the cattle inventory) and upgrade the standards of beef products. Concerning export potential, Kazakhstan should focus on Russia, Central Asia and the Middle East markets as high growth markets. Moreover, the beef sector should seek to move up the value chain by exploring the potential for pre-packaged, higher value-added beef products. To promote better quality standards, Kazakhstan should also consider the further development of producers' organisations and the development of extension programmes.

3.2. Sector definition and segmentation

Meat is one of the main sources of proteins in human diets. As income levels of consumers have increased over the years, food consumption patterns are shifting from cereal foods to higher value, protein-rich livestock products. Fuelled by growing demand, world production of meat has been steadily rising in the last decades (Figure 3.2). The types of meat consumed are very diverse, ranging from domestically grown pigs, beef and poultry to wild animals and fowl. Depending on the type of animal and method of production, meat can be divided into three groups. The flesh of cattle, pigs and sheep is defined by the term "red meat." The flesh of poultry, including chicken, turkey and duck, is termed "white meat." The third group combines a wide variety of meat of wild animals, such as deer, rabbit, moose, bear and wildfowl.

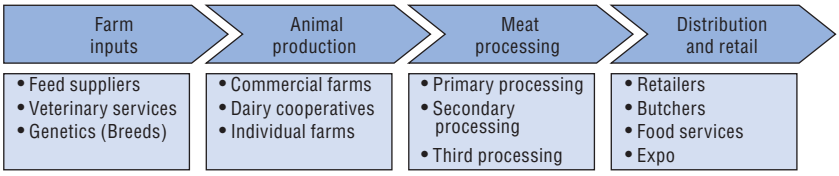
The livestock sector constitutes a major part of the global agribusiness sector. The sector employs 1.3 billion people worldwide and accounts for 40% of the agricultural GDP[1] (UNESCO-SCOPE-UNEP, 2008). The sector covers a wide spectrum of operations from animal husbandry and feed production to meat processing, marketing and delivering of meat products to consumers. Hence, the meat value chain includes the following segments: 1) input supplies; 2) animal production; 3) meat processing; and 4) distribution and retail (Figure 3.3).

Figure 3.2. **World meat production: Volume and structure**



Source: FAO, 2010.

Figure 3.3. **Meat sector value chain**



1. The *farm inputs* segment of the meat value chain provides upstream to the livestock and poultry farms all necessary supplies, including feed, breeding stock, veterinary services and medicine, fertilisers, farm machinery and equipment.

2. The *animal production* segment covers all types of cattle and poultry farms, ranging from large-scale commercial enterprises to farms, smallholders and households. This segment includes operations such as breeding, calving, feeding and management of livestock and provides the processing sector with poultry, beef, pork and sheep meat.

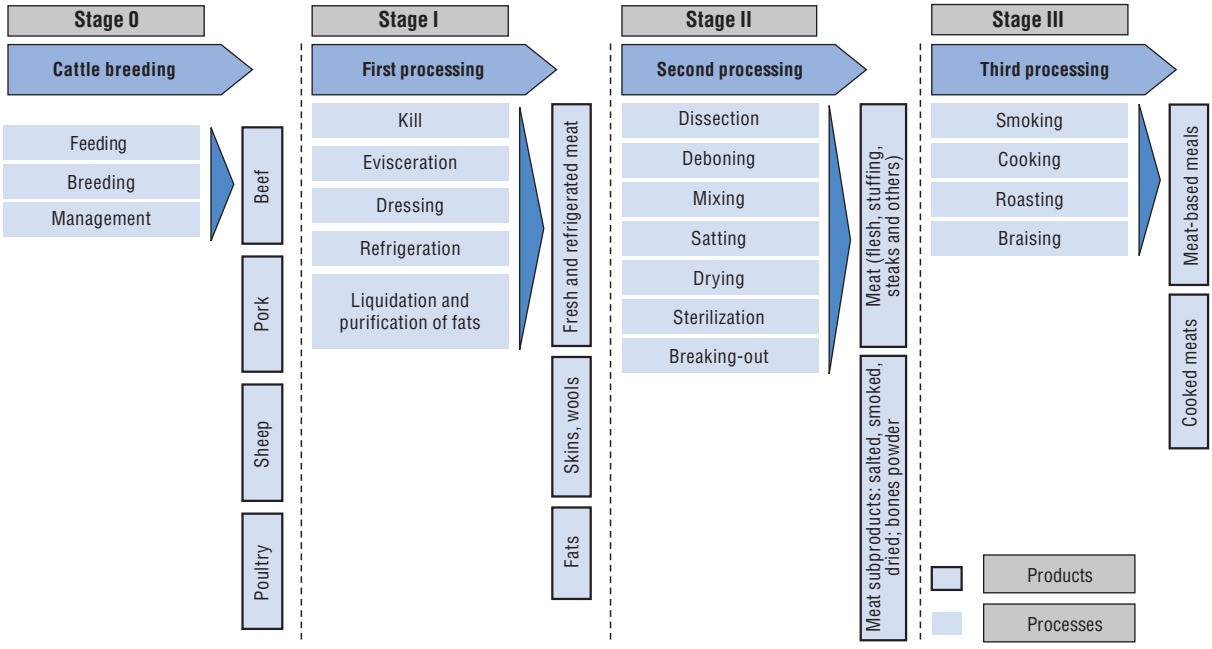
The livestock can be produced extensively or intensively. The extensive system necessitates the use of rangelands, pastures and annual forages for feeding the animals. The intensive production system calls for high inputs of capital, labour and commercial feed for animals. Another important characteristic of intensive production is high concentration of animals in large production units. The type of production system depends on availability of resources, the structure and the level of development of the sector, as well as the level of consumption and consumer preferences. Virtually all developing countries graze cattle on extensive pastures, while intensive production is more common in developed countries, where intensive feeding regimes allow the production of low-cost products and higher returns on investment. In the countries where intensive livestock raising dominates, such as the United States and Canada, the animal husbandry sector is further subdivided into cow-calf, stocking and feed-lot operations.

3. The *meat processing* segment involves a wide spectrum of operations, ranging from slaughtering of animals to production of ready-for-consumption meat products.

4. The final segment in the value chain is retail and distribution of meat and meat products to final consumers.

There are some differences in the structure of the value chain for different types of meat, particularly between the poultry and red meat sector. In this report we concentrate on the analysis of the red meat sector. Based on the degree of processing and resulting products, the red meat processing segment can be subdivided into three stages (Figure 3.4). Depending on the structure, level of development of the sector and other factors, some companies operating in the sector will be involved in all three stages of processing and it will be difficult to daw direct lines between these stages. In other cases, this division will be clearer and each of these stages will be represented by individual processors.

Figure 3.4. **Processing segment of the meat value chain**



Source: s: National Analytical Center (Kazakhstan), KazAgroMarketing.

The first stage of processing covers slaughterhouse operation. At this stage the abattoirs slaughter the animals and cut the carcases into quarters. Offal, liquated fats, skins and wools are produced as a result of livestock processing.

The second stage of processing is represented by cutting operations. Many large abattoirs also operate cutting facilities located either on the same site or on a stand-alone site. The primary function of this stage of meat processing is to debone carcases and cut them into primal joints, which are then vacuum packed, boxed and sold upstream in the chain for further processing. Many companies are also involved in production of smaller meat cuts, diced and minced meat products packed for distribution to consumers through retail channels.

The third processing stage is represented by minced meat and meat preparation plants. This stage involves deeper processing of meat and production of meat products ready for sale to the final consumer either through caterers (such as restaurants, hotels, schools, etc.) or through modern retailers. Prepared meat products, such as burgers, sausages and ready-to-cook meats with necessary seasoning as well as breaded and minced meats are also produced at this stage. Manufactured meat, including cooked, cured, dried, smoked and canned meat products represents the highest degree of

processing. As mentioned above, although meat processing is divided into the stages mentioned above, some sector operators are involved in all levels of meat processing, while others cover one or two stages.

The level of meat consumption has been constantly growing over the last three decades. Global meat production more than doubled from 131.5 million tonnes in 1980 to 270.4 million tonnes in 2008 (Table 3.1).

Table 3.1. **World meat production and structure by volume, thousand tonnes**[1]

	1980	Share (%)	1995	Share (%)	2008	Share (%)
Cattle meat[2]	45 567	34.6	54 106	27.1	62 363	23.1
Pig meat	52 679	40.0	80 348	40.3	103 190	38.2
Poultry meat	25 951	19.7	54 620	27.4	91 699	33.9
Sheep and goat meat	7 348	5.6	10 533	5.3	13 174	4.9
Total	131 546		199 606		270 426	

1. The total meat production volume is the sum of cattle, pig, poultry, sheep and goat meat volumes for each year.
2. Within this report the terms cattle meat, beef, and beef and veal are used interchangeably and represent the aggregate of value or volume of beef and veal meat.

Source: FAO, 2010.

Based on the type of animal, the meat sector is divided into four segments: 1) beef; 2) pork; 3) poultry; and 4) sheep and goat sectors.

All types of meat have seen a significant production increase in the last two decades. Poultry experienced the highest growth levels. Its production increased 3.5 times between 1980 and 2008, from 25.9 million tonnes to 91.6 million tonnes respectively. Consumption of poultry increased remarkably during this period with its market share jumping from 19.7% to almost 34% in terms of production volume. Despite a drop in the market share, beef production increased by 36.8% from 45.5 million tonnes in 1980 to 62.3 million tonnes in 2008.

3.3. Sector trends

The global meat and livestock sector underwent significant changes in the recent decades. Rapidly growing demand for meat and meat-based products in many developing economies, technological developments and innovation spurred the quick growth of the livestock sector. These developments resulted in profound structural changes in the sector, such as a move from the traditional smallholder farming to large-scale industrial production, a shift in demand from developed to developing economies, an increased role of international marketing and stronger global integration in the value chain through global sourcing.

The transformation of the meat sector is taking place both on the supply and demand side.

Growing demand driven by developing countries

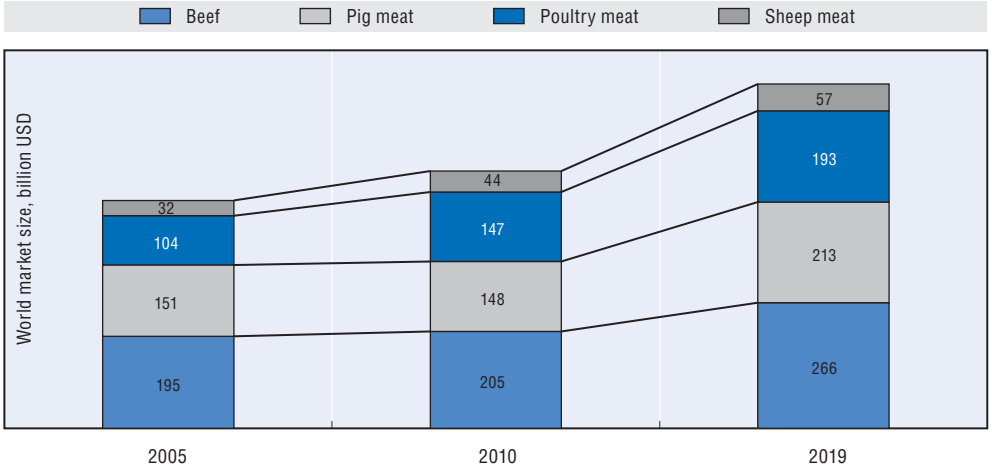
Developing countries have been responsible for driving the growth of the meat sector. One of the key factors behind this trend is the difference in per capita consumption of meat between developing and developed economies. More than 41 kilogrammes of meat per person were produced in 2005, but the level of consumption varies greatly by region and socio-economic status. In developed and industrialised countries, people eat more than

82 kilogrammes of meat and meat products per year, while in developing countries annual meat consumption is less than 31 kilogrammes (FAO, 2009).

Beef consumption follows the same pattern. The average world consumption of beef per capita was estimated at 9.5 kilogrammes on average in 2007-09, with a person in a developed country consuming on average 22.3 kilogrammes of beef per year or 3.5 times more than the 6.3 kilogrammes in developing countries. Per capita consumption of beef in developed countries remained unchanged on average, although it declined by nearly 1% in the United States but grew by 2% in Russia during 2000-09. Consumption in developing countries grew by over 0.5% per year during this period, with countries in Asia and the Middle East experiencing the strongest growth in per capita beef consumption. Saudi Arabia, Iran, Indonesia, Turkey and China were among the leaders in per capita beef consumption growth in the 2000-09 period (OECD/FAO, 2010).

The global meat market is expected to continue to expand in the coming decade, thanks to the growth of population, increasing personal income levels in developing countries, continued urbanisation, and changing preferences and diets of consumers. By 2019, its production value is estimated to reach USD 729 billion, one third higher than in 2010. The value of beef market will grow by 30% from USD 205 billion in 2010 to USD 266 billion in 2019 (Figure 3.5).

Figure 3.5. **World meat production forecast**

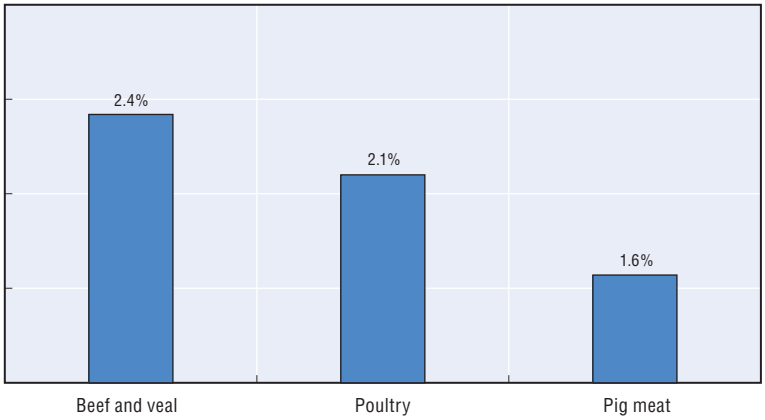


Source: OECD/FAO, 2010.

According to the latest OECD/FAO *Agricultural Outlook* (2010), global trade in beef and veal is projected to increase over the next decade. For the period from 2010 to 2019, world imports of beef and veal will grow at an average annual rate of 2.4%, as compared to 2.2% for poultry and 1.6% for pig meat (Figure 3.6).

The global trade in beef (world exports, including veal) increased by 288%, from 1.3 million tonnes in 1977 to 5.2 million tonnes in 2007. This represents an average annual growth rate of over 7%. The world trade (exports) in beef is dominated by a number of countries, including Australia, Brazil, European Union, United States, Argentina, New Zealand and Uruguay, which accounted for more than three quarters of world beef and veal exports in 2007. Among the major importers of beef in the world are the United States, Japan, Russia, the EU and Mexico.

Figure 3.6. **Projected annual growth rates of meat imports, 2010-19**

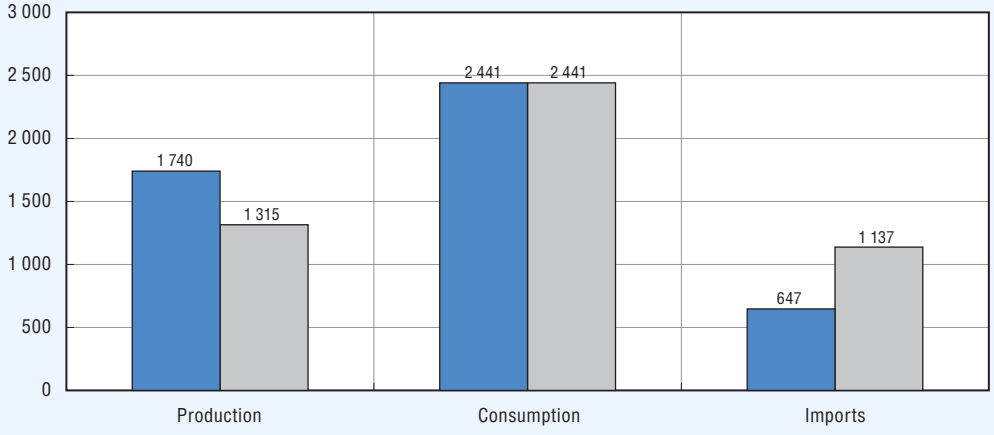


Source: OECD/FAO, 2010.

Box 3.1. **Russia's beef imports 2002-08**

Beef sector in Russia: production, consumption and imports

2002/08, thousand tonnes



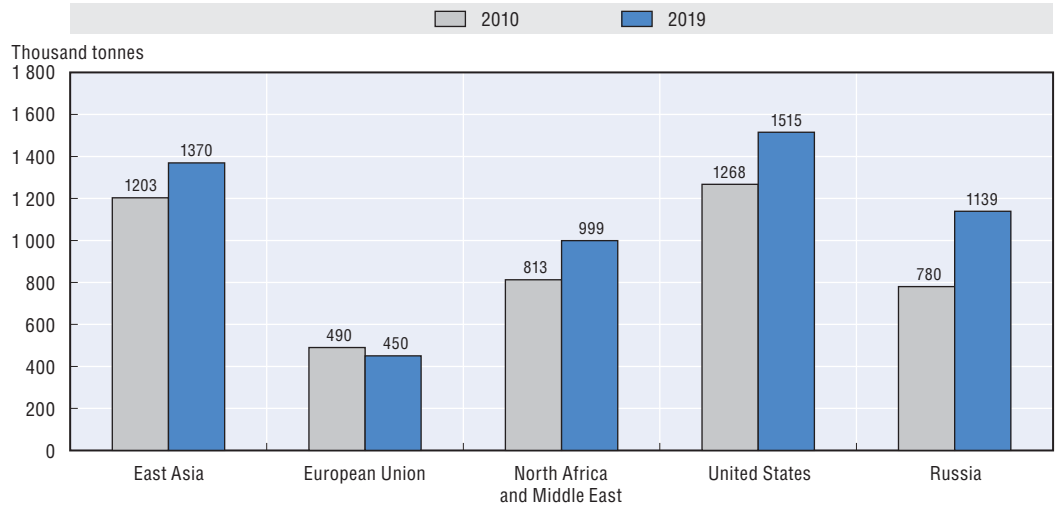
Source: USITC, 2008; USDA, 2010.

Domestic production has declined due to lack of investment

- Russian beef production has been declining for 17 straight years as the sector continues to struggle with the lack of investment and inadequate infrastructure.
- Russia is the world's second largest importer of beef, importing approximately 45% of its consumption requirements.
- Sources of supply: Traditionally, the EU (bone-in and boneless cuts), Ukraine (carcasses). More recently: Brazil, Argentina (high-quality offal).

After a decline in 2008-09 due to the global financial crisis, beef imports by major importers are expected to resume growth and increase by 1.5 million tonnes by 2019 according to recent OECD/FAO (2010) estimates. The highest increases in beef and veal imports are projected in the United States, North Africa and the Middle East, East Asia and Russia (Figure 3.7).

Figure 3.7. **Projected beef import volumes**



Source: OECD analysis, USDA, 2010.

Concentration of production, specialisation and contract-based supply chains

One of the key trends on the supply side is the growing concentration. The growing concentration of retailers in the last decade and their subsequent stronger buying power induced consolidation and integration at all levels of the meat value chain. Driven by the need to produce larger volumes of meat at a competitive cost, the livestock segment is shifting towards larger and fewer farms and feedlots, which can bring the benefits of economies of scale and new production technologies. The high cost of investment in genetics, modern buildings and equipment can be spread out across big production volumes, thereby keeping the average production costs lower.

The trend of concentration in the beef sector is evident throughout the entire value chain, but the degree of concentration varies significantly among countries. For example Australia, the United States and the United Kingdom have a high concentration at the processor level. In the United States, four beef packing companies controlled over 80% of all cattle marketed in 2001. At the production level, the United Kingdom has a very low degree of concentration, while Australia has a medium level. The United States has very high concentration at the feedlot level, but low concentration of producers who supply live animals to the feedlots. In the United States, the share of cattle sold by supply chains doubled between 1980 and 1998 from 10% to more than 20%.

As the sector continued to consolidate in the last decades, a new trend emerged. Although first adopted by other sectors of agribusiness, supply chain development based on contractual agreements started to become noticeable in the beef sector. Contract-based supply chains have clear advantages for both processors and producers. One of the major benefits for processors is the ability to ensure a constant supply of raw material in order to fully utilise their production facilities. Long-term contracts with suppliers allow processors to influence producers to improve product quality, and encourage the supplier to adopt new technology and improve productivity. Livestock producers benefit from long-term contractual agreements with processors by lowering risks, ensuring stable sales, and gaining access to supplies at preferential prices and, in many cases, access to financing.

Box 3.2. **Beef production is increasingly challenged by emerging markets**

The United States and EU account for a large portion of world beef production

Beef production, 2008, thousand tonnes

	2008
US	**12 163**
Brazil	9 024
EU27	**8 100**
China	6 100
Argentina	3 150
India	2 470
Mexico	2 225
Australia	2 159
Russia	1 315
Canada	1 285
Pakistan	1 121
Colombia	840
South Africa	678
New Zealand	644
Turkey	615
Uzbekistan	600
Uruguay	568
Japan	520
Ukraine	475
Paraguay	450
Kazakhstan	390

Source: FAO, 2010

But production is on the increase in developing countries

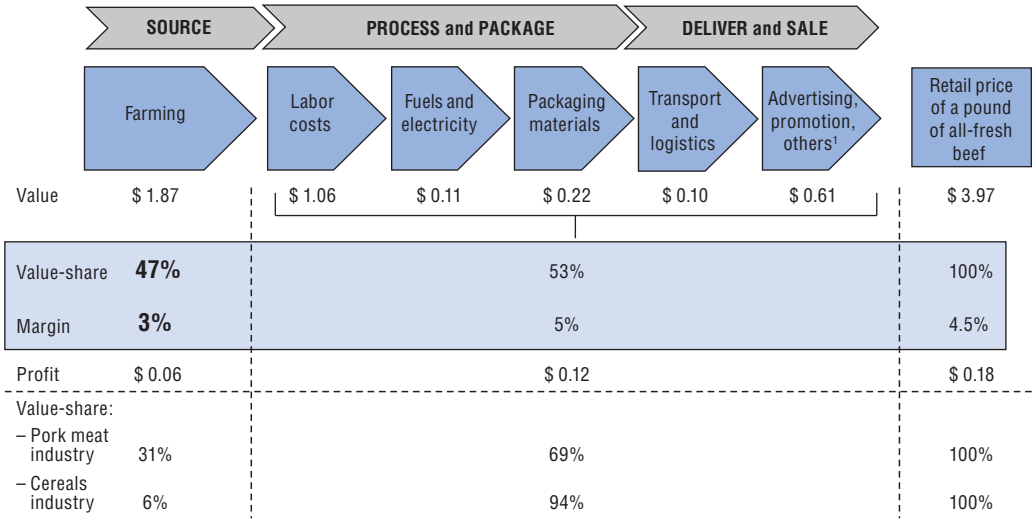
- Production in Brazil, China and India has been growing substantially over the last few years.
- Developing country exporters, including Argentina, Uruguay, India and Paraguay, substantially increased exports over the last few years.
- Meanwhile, substantial declines occurred in exports from most major developed country beef exporters, including the United States, Canada and the EU.

Farming accounts for half of value added in beef supply chain

According to the estimates of the Economic Research Service of USDA and OECD estimates, farming accounts for about one half of the creation of value added across the beef supply chain. For example in the United States, with the retail price of one pound of fresh beef USD 3.97, the value added created at the farming stage equals USD 1.87, which accounts for 47% of the total, with the rest created in the processing, packaging, delivery and sale.

Figure 3.8. **US beef distribution costs**

Comparison to other agribusiness sectors, 2006



Source: Economic Research Service of the USDA, OECD estimates.

3.4. Sector implications and key success factors

Sector implications

The global meat sector and the beef sector have changed significantly over the last decades. Increasing demand for food as well as changes in preferences of consumers spurred growth in production of agricultural products and international trade. Increasing prices of agricultural crops and energy have had considerable implications for development of the livestock sector. International trade in agricultural products, including meat, continues to be strongly affected by tariff and non-tariff barriers, animal diseases and increasing requirements for food safety.

Global developments in the sector and impact on prices

Fuelled by the growth of population, higher incomes, urbanisation and dietary preferences of consumers, livestock and meat production has been rapidly growing. Livestock production has consistently outpaced the growth in the production of crops, which creates significant pressure on the world's natural resources. Land used for grazing of animals and cropland dedicated to the production of animal feed together represent about 70% of all agricultural land (FAO, 2007), which makes the livestock sector the major user of agricultural land resources globally. At the same time, the sector faces growing competition for land resources both from traditional crop production and bio-fuels sector, which has seen considerable growth in the United States, Europe and some Latin American countries. Higher growth of demand for agricultural products and slower growth in production coupled with the rising energy prices caused global market prices for major commodities, such as grains and vegetable oils, to increase in 2006-08 to record highs of more than 60% above their level in 2005. Although the prices dropped considerably from their peak in mid-2008, most of them still remain above the historic trend levels.

International trade liberalisation

Due to the perishable nature of its products, livestock production traditionally was a local sector. But technological advances, improved infrastructure, and dislocation of production and consumption brought considerable growth in international trade of meat and meat products. World beef exports (including veal) increased almost four times between 1977 and 2007.

At the same time, international meat trade has been greatly affected by protectionist barriers and sanitary standards. Trade barriers (such as tariffs, tariff-rate quotas, domestic producer support and export subsidies) distort market prices and limit the growth of international trade. Liberalisation of international trade and opening of agricultural markets have been the most important issues in successive rounds of global trade negotiations over the last decades. With the signing of the Uruguay Agreement on Agriculture in 1994, countries agreed to reduce agricultural support and protection.

Although many non-tariff barriers were replaced by tariffs, some of these tariffs were set at extremely high rates. Even after the end of implementation of the agreement by developing countries, agricultural tariffs remained very high, with average agricultural tariffs in the region of 60% of the price of imports, whereas industrial tariffs averaged 5-10% (Brooks and Cahill, 2001). Meat products have some of the highest levels of protection and support among agricultural products, with average bound rates for various meat types ranging from 77 to 85% (Gibson *et al.,* 2001). Although various countries, including the European Union, scaled backed their support to agricultural producers in the last decade, opening of the markets has not been fully successful and growth in agricultural trade remained slower than in other sectors.

Sanitary standards limiting global trade

Global trade in beef has been plagued by increasing instances of animal diseases in the last decades, which changed the role and importance of sanitary standards. Following outbreaks of Bovine Spongiform Encephalopathy (BSE) and foot-and-mouth disease (FMD), countries imposed import bans, tightened sanitary requirements and introduced animal traceability schemes and requirements on labelling of meat products. The outbreak of BSE in the United Kingdom at the end of 1990s significantly cut its beef exports. Sanitary standards are important determinants of international meat trade. Countries, which are free of FMD disease, such as Canada, Australia, New Zealand, United States, South Korea and Japan, prohibit imports of fresh beef from countries subject to the disease. Sanitary standards are effective in preventing the spread of serious diseases and limit devastating animal production in other countries. Countries need to design and implement effective prevention, rapid detection and quick-response mechanisms, as the ability to control FMD is an important factor in determining their export possibilities and position on international markets.

Food handling safety

During the last decade, the role of food safety has become critical to the meat sector. Lack of adequate handling of meat during transportation and slaughter of livestock, processing and preservation of meat can create serious health risks for consumers. As a result of a number of outbreaks of food diseases and food safety scandals, stricter regulations on food production were introduced at the national and international levels. In 2005, the European Union introduced the General Food Law which placed primary legal

responsibility for ensuring food safety squarely on food operators and demanded more stringent quality assurance and traceability of products. On the international level, the principles of the Hazard Analysis and Critical Control Point (HACCP) system have been adopted by the Codex Alimentarius Commission[2] in the General Principles of Food Hygiene (FAO and WHO, 2003). The HACCP system focuses on identification of the critical points in a process where food safety hazards could arise and introduction of measures to reduce or eliminate the risk of the hazards becoming reality. This methodology has been widely accepted in the food processing sector worldwide. The private sector has also responded to the safety concerns of customers by bringing in voluntary standards in the form of various certification schemes. These developments indicate that all members of the meat value chain, from livestock farmers to meat processors, are now required to implement quality control systems that ensure compliance of their products and operations with food safety regulations and industry standards.

Key success factors

Changes in international trade rules and regulatory environment, growing demand and shifting consumption patterns have a substantial effect on the entire meat value chain, both at production level and at processing level. There are a number of factors which can help to stimulate the development and ramp up the growth of Kazakhstan's beef sector.

Production level: Standardise quality and increase productivity and livestock size

Owing to the availability of vast rangelands and feed crops, Kazakhstan has the required resources to increase the size of its cattle herd by means of both extensive and intensive cattle production systems. One of the major differences between these systems is the diet used for feeding animals: grass-based in the case of extensive production and cereals-based in intensive production methods. Grass-based diets with the use of hay, silage crop forage and cereal crops as supplementary winter feed can be used throughout the entire production cycle. At the same time, the use of cereal-based diets at the finishing stage (last few months) of the production period have a profound effect on the finish of the animal and are critical for development of a beef carcase that meets market specifications of weight, conformation, fat class, marbling, etc. (Table 3.2). Irrespective of the production or feed method used, Kazakhstan needs to increase the size of its livestock herd and expand the growth of its farm sizes. While in terms of direct production costs, there is no clear advantage of intensive production at larger farms over extensive by smallholders, larger commercial enterprises are more inclined to invest in new equipment, machinery and technology that bring in their wake shorter production time, higher productivity, better quality and more reliable supplies.

Table 3.2. **Typical slaughter ages of beef cattle**

Diet type	Breed type/sex	Age at slaughter (months)
Intensive cereal beef	Continental and dairy breeds/bulls	12
Intensive grass silage beef	Dairy cross and beef breeds/bulls and steers	16
Mixed grass/concentrate fed beef	Dairy cross/steers and heifers	18-20
Mixed grass/concentrate fed beef	Dairy cross and beef/steers	22-26
Forage based suckler beef	Beef breeds/steers and heifers	18-20

Source: Read Meat Industry Forum, *www.redmeatindustryforum.org.uk*.

Grass-based production has its advantages as well. While grass-fed cattle have lower carcass weight, their meat usually has higher value. During the last two decades, the demand for this type of meat has been growing as an increasing number of affluent consumers are prepared to pay a premium for organic or free-range livestock products. With appropriate processing and marketing, Kazakhstan's livestock sector has an opportunity to utilise its comparative advantages and cater to the needs of more affluent consumers in developed and emerging economies.

In order to improve cost competitiveness, livestock producers need to raise productivity at the farm levels. In addition to better animal health, improvements in feeding programmes and more productive breeds are key factors defining the productivity of livestock. Breeds for beef production are selected according to their traits. Among the most important traits are body size and weight, growth rate, carcass quality, marbling, age and weight at slaughter, milking potential, calving age and ease. According to data from the Agency of Statistics of the Republic of Kazakhstan, only 6% of the total headcount of dairy cattle in the country is pedigree livestock.

Processing level: Improve processes, quality, compliance and traceability

The meat processing sector in Kazakhstan is mostly represented by sausage and semi-prepared meat products and, to a lesser degree, by canned and prepared products. Some positive trends have been observed during the last years, as a number of meat processors are expanding their product lines, improving product quality and production processes, as well as introducing new technologies and modernising production facilities. At the same time, the local meat processing sector is not able to satisfy the growing demand for quality meat products. In order to increase its competitiveness on the domestic market and capture the opportunities in neighbouring countries (such as China and Russia), the beef processing sector needs to consider a number of issues.

Unlike the livestock production segment of the meat value chain, meat processing sector has been subject to considerable concentration, especially in the developed economies. The economies of scale led many companies to replace their small, old and inefficient facilities with modern, big and productive plants, which allowed for processing of larger volumes and generated higher profits by reducing the overhead per unit. Processors were able to spread fixed and overhead costs across a larger number of units. Larger processing facilities also allowed companies to divide tasks among more specialised workers, to use the most advanced technology, and, by doing so, to increase their productivity and profitability. Therefore, meat processors could reduce their costs and increase competitiveness through specialisation, introduction of new technologies and investment in productivity-improving equipment.

Beef is also a perishable product with a very short shelf life. The inability to transport meat over long distances was a limiting factor for trade in fresh meat. As a result of advancements in storage technologies, beef can now be stored at very low temperatures, but not frozen. This allows chilled beef, which is a close substitute for fresh beef, to be shipped at long distances, and thus opens new markets for processors.

Food safety and quality have come to the forefront during the last decades. Meat processors need to improve their production processes, improve quality control systems, ensure compliance with the sanitary requirements and implement technologies to provide for traceability of products throughout entire value chain. Although these developments

pose definite cost implications for businesses, compliance with these requirements can create positive outcomes in the domestic markets in the form of higher trust of consumers, as well as open opportunities for exports and integration into global supply chains.

3.5. Sector attractiveness in Kazakhstan

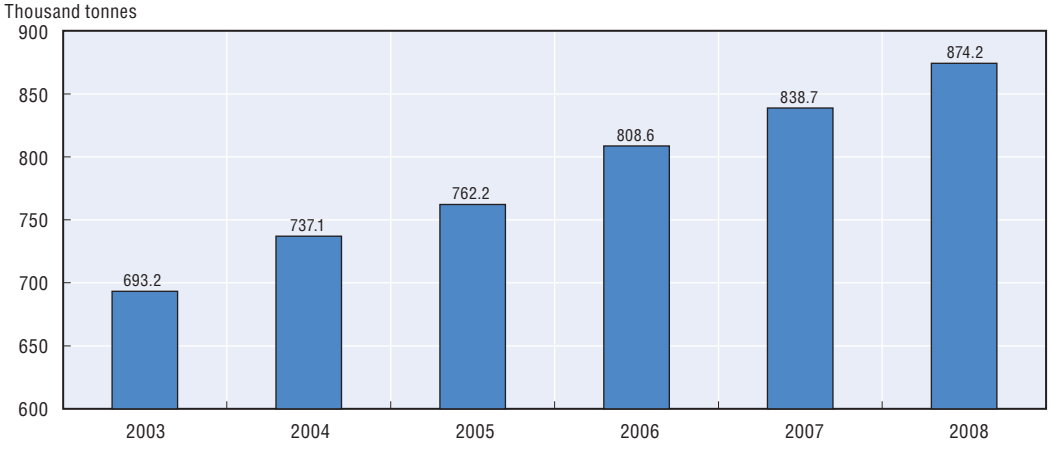
Livestock production has been one of the major activities in Kazakhstan for centuries. Abundant land resources for pasture, availability of low-cost feedstuff (by-products from large-scale processing of grains and oilseeds) and low production cost structure are some of the advantages of the livestock sector in Kazakhstan. Opportunities in this subsector come from the untapped domestic demand, a potential to satisfy it given the ample grassland available, possible production improvements, low cost position of the country and proximity to a beef importer like Russia.

Meat consumption exceeds domestic production

Livestock production is a major source of employment, food and income for the rural population. Meat production constitutes about 30% of the total food industry output and has a high growth potential (Agroworld Kazakhstan, 2010). The Government of Kazakhstan can play a significant role in exploiting this potential. Meat production is evenly distributed throughout the country as livestock farming is present in all regions of the country. The leading meat-processing enterprises are located in Semipalatinsk, Almaty, Uralsk and Petropavlovsk. A livestock development strategy has to be adopted that could contribute to the broader development objectives and ensure the environmentally sustainable development of the country.

Despite old traditions of cattle breeding and promising preconditions for meat production, meat consumption in Kazakhstan exceeds its production. According to the National Statistical Agency, consumption of meat in Kazakhstan in 2008 reached 970 thousand tonnes. The beef share in the overall meat production in 2008 amounted to 45%, pork was 24%, mutton was 14% and poultry was 8%. Meat production volume totalled 874.2 thousand tonnes in 2008, 4% up from 2007 (Figure 3.9).

Figure 3.9. **Meat production volume in Kazakhstan**



Source: ASRK, 2008b, 2009a.

Advantages in ample grasslands and livestock feed

Kazakhstan's vast grasslands provide an important production base, and improved local and world market prices provide ample opportunities for livestock development for producers. Other important advantages are the flexible, low-cost production structure of the smallholder farms, and the availability of low-cost by-products from large-scale crop production (feed grain and oilseed meals). About 50% of Kazakhstan's beef and veal production is located in regions bordering Russia which provides rich opportunities for sector collaboration.

Figure 3.10. **Beef and veal production per region in Kazakhstan**
2008, % of total production

Source: National Analytical Centre of the Republic of Kazakhstan, 2010; OECD analysis.

Because smallholder farmers now produce the bulk of the national livestock production, they constitute an important element of the livestock sector. 78% of Kazakhstan's livestock population is bred in households, 13% on small farms and only 9% on large farms. These disproportions do not represent a problem *per se* as international comparative studies demonstrate that large, intensive farms are not necessarily more competitive. Cost competitiveness depends on technology and cost structure of the respective farms and the type of technology reflects on the sources of comparative advantage (World Bank, 2004).

Beef production improvements

The Kazakhstani population traditionally eats a lot of meat products and meat can constitute more the 50% of a traditional meal. During the last years, some positive trends have been observed in the meat production sector. This includes a broadening of the assortment and improved production quality; the production process has been enhanced and modernised, new technologies are being implemented and rational techniques of livestock products processing are being introduced. In addition to traditional products,

local producers have started production of innovative products and semi-prepared products, including products in vacuum packaging.

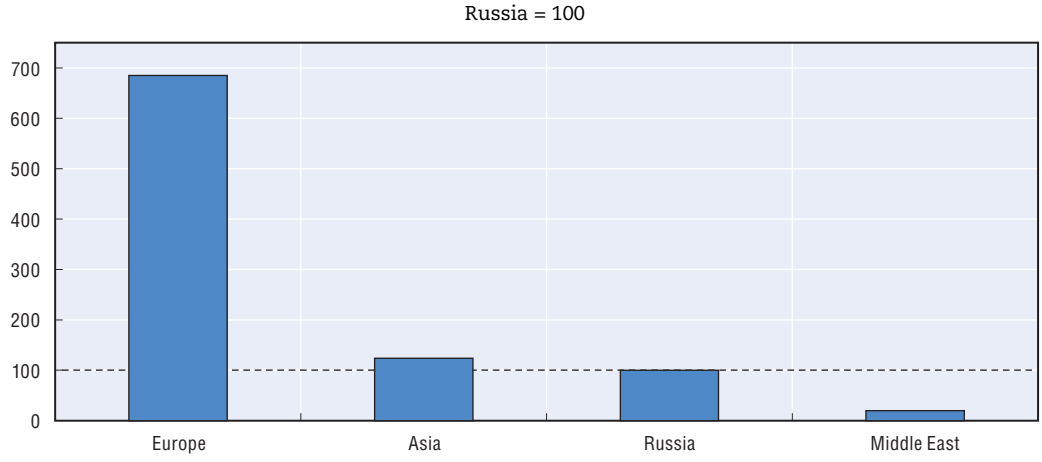
In order for the meat processing sector to thrive in Kazakhstan, it needs a regular and uninterrupted supply of good quality raw material. One way of achieving this is consolidation of the present small farms in larger enterprises. Currently over 80% of cattle in Kazakhstan are owned by private breeders and the process of consolidation might take a number of years. One of the methods is the financial support offered by the Investment Fund of Kazakhstan to develop vertically integrated processing companies, which have their own large livestock departments within their structure.

Cost reduction opportunities

On the production side, Kazakhstan has clear advantages regarding input costs (fuel, feeding, labour, cheap land). After the adoption of the Agricultural and Food Programme in 2002, the budgetary support to agricultural sector increased substantially. Many incentives are provided in the form of subsidies that reduce the cost of inputs, *e.g.* fertilisers, fuel and seeds (Pomfret, 2007). The programme is designed to increase production efficiency, step up competitiveness of local agricultural products on the world market and achieve their correspondence to international quality standards.

Kazakhstan borders with the Russian Federation, one of the most dynamic importing countries of beef. It is also located close to Asian and Middle Eastern countries, where beef consumption and imports are expected to increase over the next decade (USDA, 2010; OECD/FAO *Agricultural Outlook* 2010-19). This creates a competitive advantage for locally produced meat products bound for exports to these countries (Figure 3.11).

Figure 3.11. **Transport costs of beef from Kazakhstan to target markets**

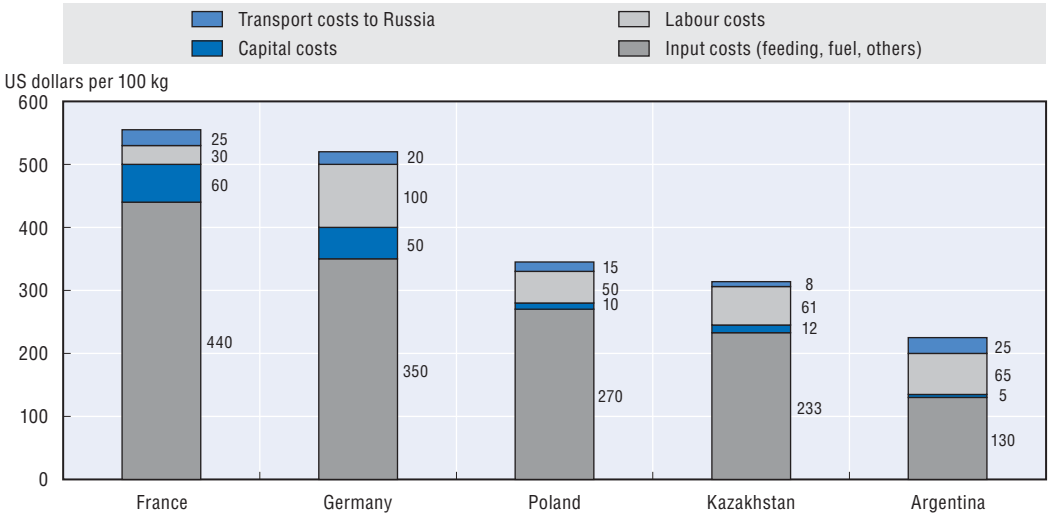


Source: OECD analysis, J.E. Austin Associates, 2004.

The analysis of production costs in Kazakhstan and four major exporters of beef to Russia reveals that Kazakhstan has a clear cost advantage over France, Germany and Poland. Benefiting from relatively cheap inputs and labour, Kazakhstan ranks second after producers from Argentina (Figure 3.12).

In 2005, the government adopted a Law on the State Regulation of Development of Agriculture and Rural Territories that reflects new agricultural policy approach in Kazakhstan. According to the Law, state regulation of agriculture aims at developing social

Figure 3.12. **Cost of beef production and exports by major producers to Russia, 2007-08**



1. Costs of production here only include breeding costs and do not cover slaughtering and primary processing costs.

Source: Asian Agribusiness Research Center, International Meat Trade Association, KazAgroMarketing, OECD.

and technical infrastructure and favourable living conditions in rural territories, food safety, sustainable economic and social development of agriculture and rural territories, and a competitive agricultural sector. The Law also mentions various measures of agricultural policy: facilitate loans at reduced interest rates; preserve and develop a bank of seeds, farm plants and animal species; increase livestock sector efficiency and produce quality; reduce the cost of fuels used for harvesting purposes; develop an agricultural markets control system; develop a livestock breeding sector; and extend permanent crop cultures. During recent years, state support towards the agricultural sector, including beef meat production, has increased considerably, within the framework set by the Government of Kazakhstan's plan of measures to realise the concept of steady agricultural development for 2006-10.

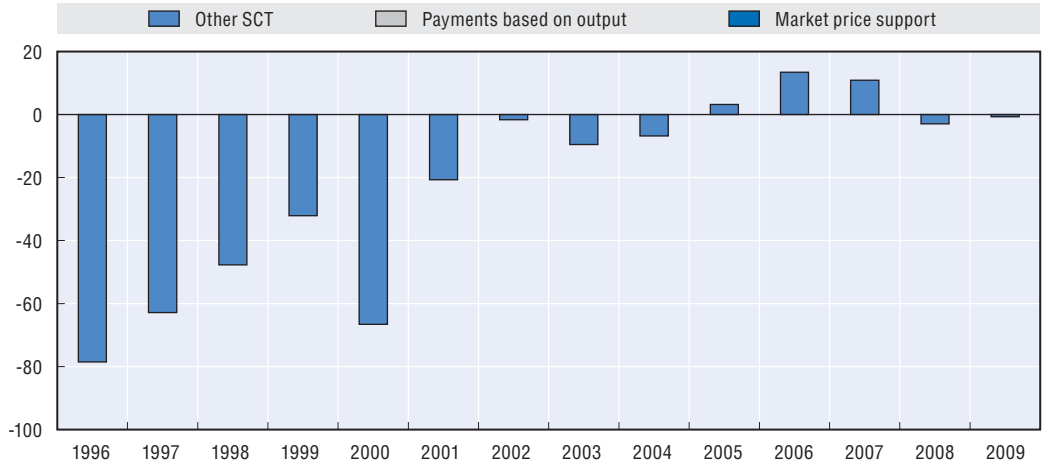
One of the policy objectives as set by the Government of Kazakhstan is to increase the share of the pedigree livestock in the total herd of the country to increase the productivity of the livestock production. This particular livestock support measure has been in place since 1995 and includes the following components:

- compensation of up to 50% of the price of pedigree livestock to farmers, who bought this livestock from domestic producers;
- compensation of up to 50% of the cost of high-bred bulls' semen;
- compensation of up to 50% of the cost of day-old chicks;
- 100% compensation of the cost of laboratory equipment and special agricultural equipment purchased by the Republican pedigree livestock centre;
- 100% compensation of the cost of high-bred bulls purchased by the Republican pedigree livestock centre, imported semen, costs of maintenance of high-bred bulls;
- 100% compensation of the cost of purchase of high-bred poultry;
- 100% compensation of the cost of purchase, maintenance and training of high-bred horses.

SCT levels turn positive

Single commodity transfers for beef have been negative until 2005. Until the beginning of 2000, the support levels ranged between –78 and –20% (Figure 3.13). At the end of the 1990s Kazakhstan was a net exporter of beef, mainly to Russia, due to the favourable price difference. However, the production of beef fell dramatically during this period because large-scale livestock farming almost disappeared and animal stock became concentrated in the small household plots and meat become almost a non-traded good.

Figure 3.13. **Single commodity transfer estimates for beef**



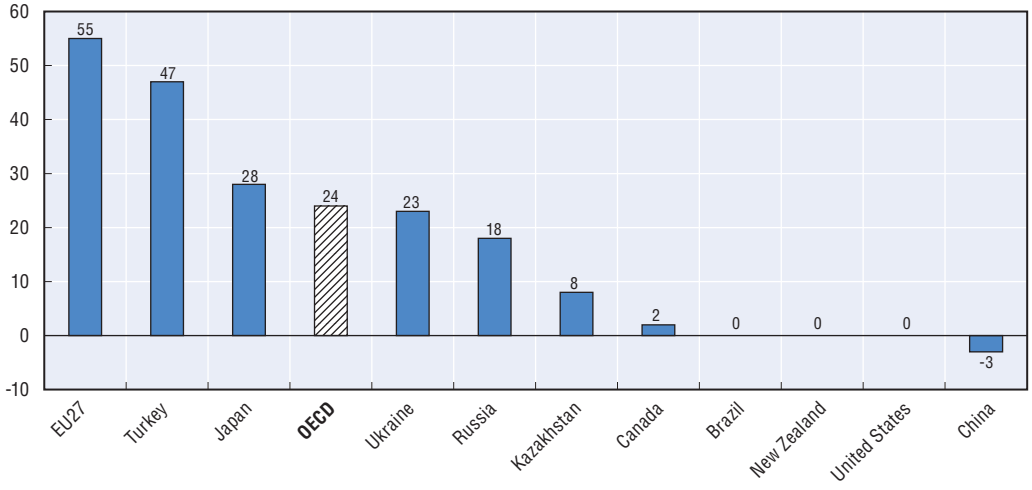
Source: OECD PSE/CSE database, 2010.

Negative SCTs observed in the 1990s for beef (but also wheat) reflect the agricultural policies during this period, most importantly price liberalisation at the beginning of the 1990s combined with a sharp depreciation of the local currency that resulted in negative price gap (farm-gate prices were below reference prices). Subsidies to agricultural producers were negligible during 1996-2000. Additionally, the hindered access to world markets for producers due to high trade costs could have been responsible for the negative price gap.

During the first half of the 2000s the negative levels of support remained between –9 and –2%, while in 2005-07 the SCT levels turned positive. From the second half of the 2000s, beef production started to recover, mostly due to stronger demand compared to limited domestic supply.

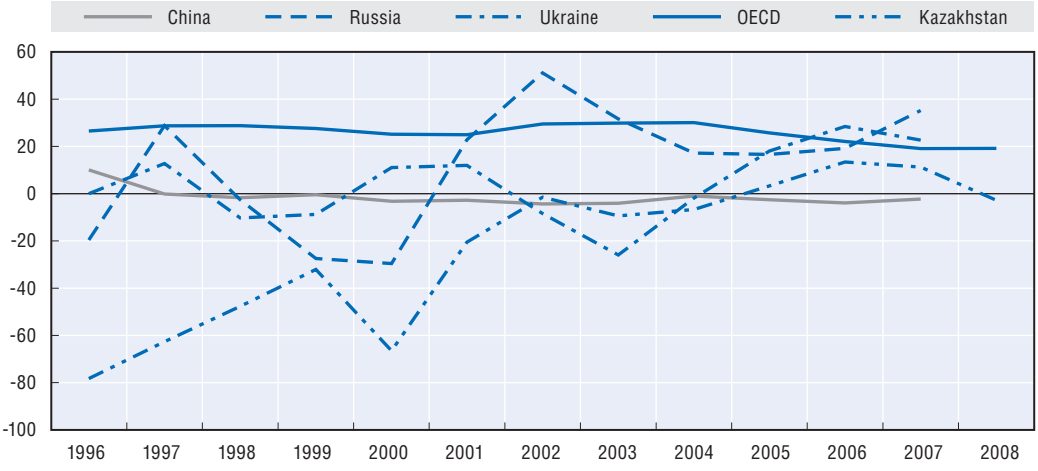
Comparison of the SCT level for beef in Kazakhstan with those for other OECD and non-OECD countries indicates that the level of support remained well below the OECD and EU27 averages. Furthermore, it remained below levels in other emerging economies such as Russia and Ukraine (Figures 3.14 and 3.15). The SCT level for beef for Kazakhstan was, however, higher than for Canada, Brazil and China in 2005-06.

Figure 3.14. **Single commodity transfer for beef by country, 2005-06**



Source: OECD PSE/CSE database, 2010.

Figure 3.15. **Single commodity transfer for beef by country, 1996-2008**



Source: OECD PSE/CSE database, 2010.

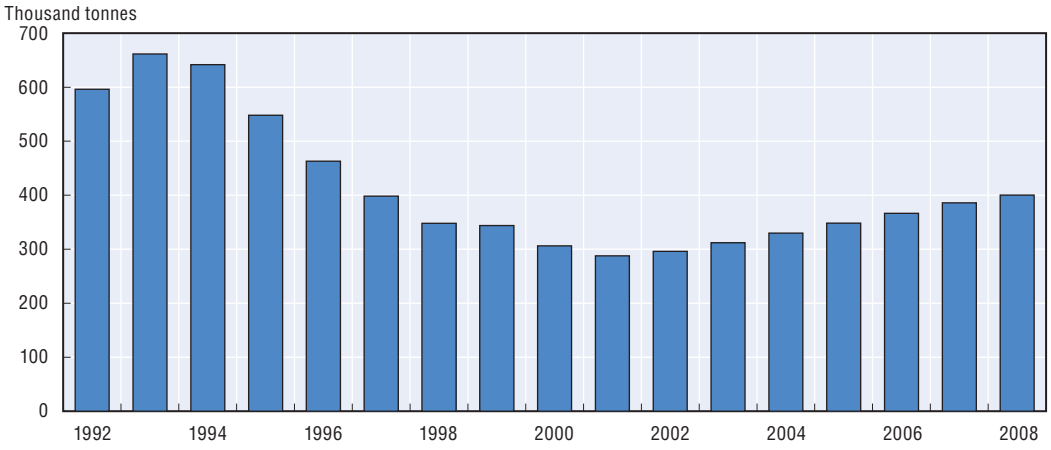
3.6. Sector challenges and policy barriers

Kazakhstan's livestock sector is characterised by low cattle inventory, as well as high fragmentation of the industry with smallholder farmers dominating the production. These factors limit the development of meat processing due to low-quality, insufficient and unstable supply of cattle.

Low production levels and cattle inventory

The meat subsector faces several principal barriers which hinder its growth. Production of beef underwent a serious contraction in the late 1990s, dropping from a peak of 661 500 tonnes in 1993 to 287 600 tonnes in 2001, more than halving in size. Production levels have recovered gradually since 2001, but remain significantly under capacity (Figure 3.16).

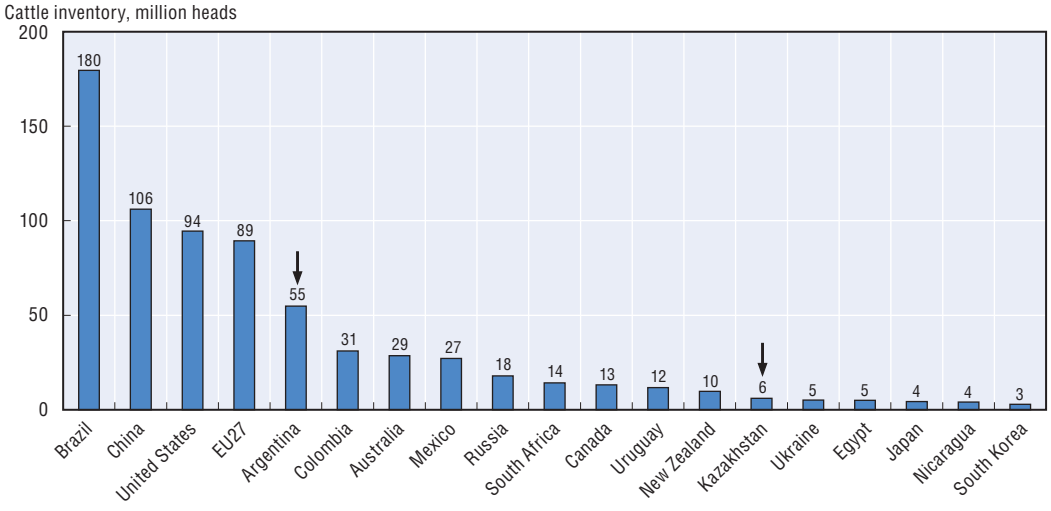
Figure 3.16. **Beef production in Kazakhstan**



Source: FAO, 2010.

Kazakhstan's cattle inventory is very low by world standards, particularly in the view of the country's vast pasture area. Kazakhstan's cattle inventory is roughly similar to that of Ukraine, for a land more than four times bigger (Figure 3.17). Kazakhstan produces 400 000 tonnes of beef annually, of which it exports 400 tonnes only (0.1%). At the same time, Kazakhstan imports approximately 12 000 tonnes of beef annually from Latin America, Poland and Australia (USITC, 2008).

Figure 3.17. **Cattle inventory in selected countries, 2008**



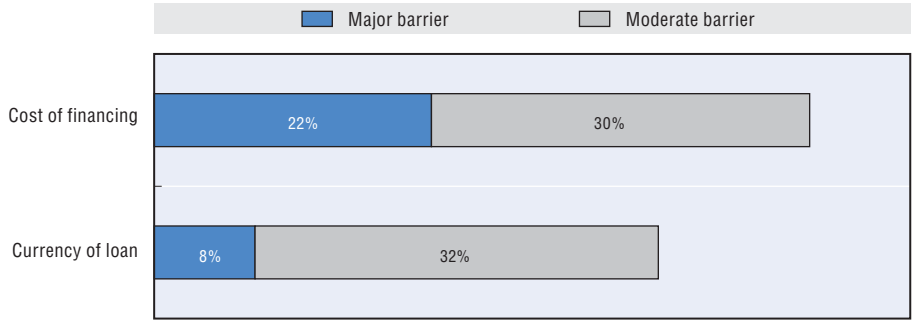
Source: USITC, 2008.

In order to facilitate the growth of the beef sector, the volume of cattle production needs to increase. Specific programmes are currently addressing this question in Kazakhstan.

Lack of access to financing

Access to financing is cited by Kazakhstan's businesses in the meat sector as one of the key challenges that hamper business activity. Cost of financing is cited by 30% of respondents as the major barrier (Figure 3.18). Lack of access to financing stifles sector

Figure 3.18. **Barriers for business development: Financing**



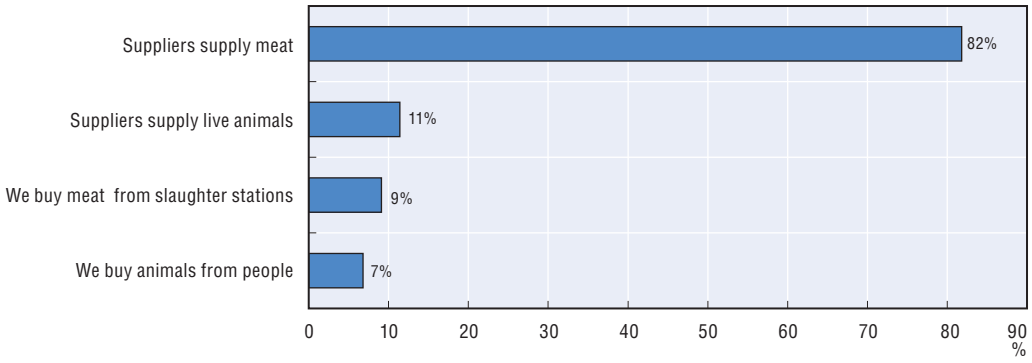
Note: Currency of loans refers to the difficulty of obtaining a loan in the national currency (not in Euros or US dollars)
Source: OECD *Country Capability Survey Kazakhstan*, 2010.

growth, especially for small and medium-sized enterprises which, in most cases, do not have sufficient collateral to receive commercial loans.

Inadequate quality standards

Low standards regarding the quality of beef (and beef end-products) produced are holding back the development of the beef sector in Kazakhstan. The quality of meat supply is cited by 58% of respondents from the meat processing sector as a problem affecting their business activities. As more than 80% of meat-processing companies depend on meat suppliers for meat inputs, the quality of meat supply becomes a critical issue for processors (Figure 3.19).

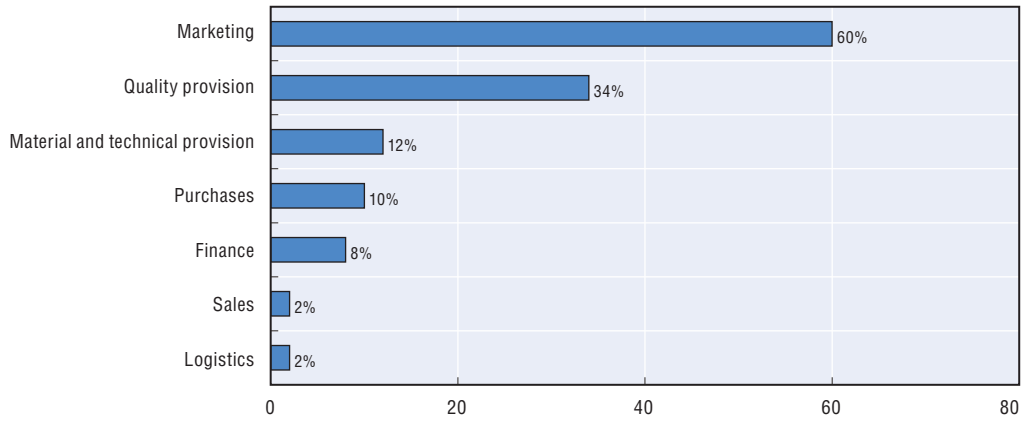
Figure 3.19. **Sources of meat input**



Source: OECD *Country Capability Survey Kazakhstan*, 2010.

A shortage of skilled labour is one of the reasons behind quality issues. According to the OECD CCS (Figure 3.20), marketing and quality provision is a top area where the meat sector experiences the most serious difficulties during recruiting.

Figure 3.20. **Barriers for business development: Challenges finding qualified staff**



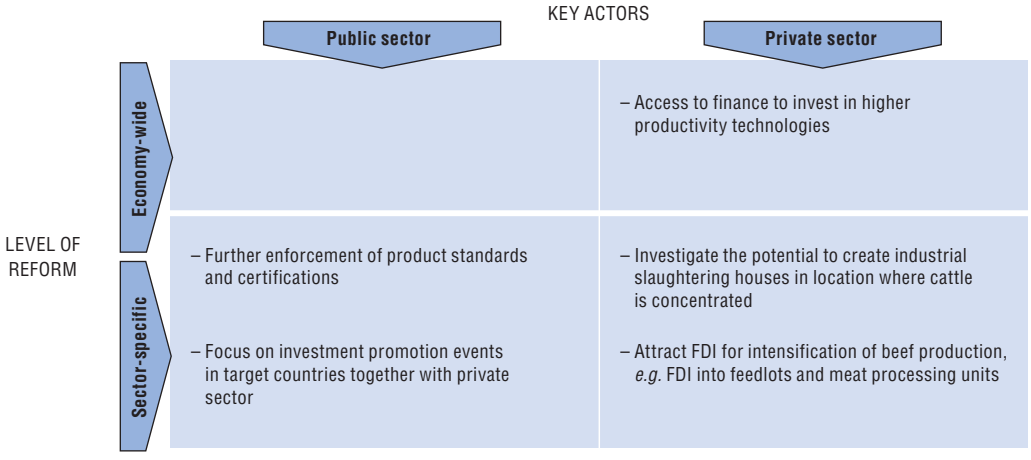
Source: OECD *Country Capability Survey Kazakhstan*, 2010.

3.7. Sector strategy and policy recommendations

Several potential policy options were identified for the meat sector at the sector-specific level, which can be embraced in order to facilitate its growth and development. In addition to the policies applicable to all the agribusiness sectors (which include investment promotion in target countries together with the private sector, modern retail development, and supply chain financing between processors and producers or between fast food outlets and farmers), the beef sector in Kazakhstan can benefit from the following policies:

- improvement of access to finance to invest in higher productivity technologies;
- attraction of FDI for intensification of beef production, *e.g.* FDI into feedlots and meat processing units;
- improvement of quality standards through further development of producers' organisations and establishment of extension programmes.

Figure 3.21. **Policy recommendations**



Source: OECD *Sector Competitiveness Strategy and Review*.

Producers' organisations (PO)

As described in more detail in the agribusiness chapter, POs are created to collaborate in certain areas, such as input purchasing, promotion and sales. Organised farmers have greater bargaining power when negotiating with other agribusiness market players to ultimately increase the profits that accrue to farmers rather than intermediaries.

The OECD countries greatly benefited from the use of producers' organisations in stimulating the meat sector development. POs are expected to bring gains in the long run and the French example highlights the need to expect longer-term impact and results concerning service co-operatives. The meat marketing co-operatives have come to supply a sizable share of the markets in France over time.

Table 3.3. **Meat marketing co-operatives' share in the overall meat market, France 2006**

Meat items	Fresh meat (%)	Processed meat (%)
Pork	93	46
Lamb	56	22
Beef and veal	38	33

Source: French Association of Cooperatives, Coop de France, 2006.

This development was facilitated but not dominated by the government. In 1962, the French legislation gave incentives to farmers to get organised by providing tax incentives and subsidies. Agricultural consumers' co-operatives marketed in 1962 virtually no beef; however, due to the governmental policies today they market 30% of beef production (Table 3.3). The transition process has taken about 30 years and the effects of this policy are felt at the country level: meat production has become homogenised, the quality improved, and the quantities and productivity increased considerably. The consolidation of small-size farms brought about these qualitative changes in the meat farming, and today the typical beef meat farm in France holds about 120 cows. It should be noted that marketing co-operatives are not production co-operatives, and farmers own their land and cows. However, they are committed to selling their live cows through the co-operatives which requires transparency from co-operative management and full trust between members.

From foreign investors' perspective, this policy option is a desirable instrument as it contributes to the improvement of the quality of meat and increases the productivity. The positive aspect of the agricultural co-operatives from foreign investors' perspective is that it is easier to have just one counterpart in negotiations. Besides, dealing with POs as a collective body facilitates payments.

Extension programmes

The key advantage of extension services is transfer of know-how and exchange of information.

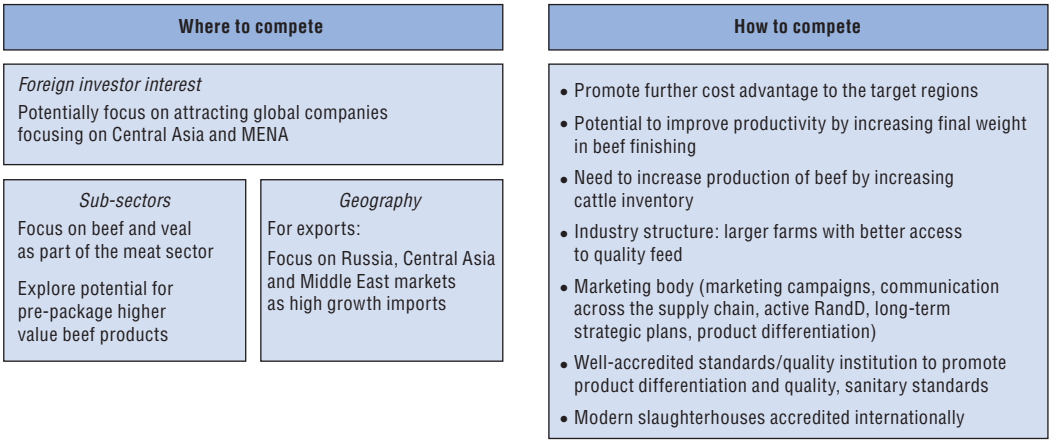
In Kazakhstan, extension programmes are only in their inception phase. The national holding KazAgroInnovatsia used to provide training services to farmers on an irregular basis throughout the limited network of training centres. In October 2008, a working group was set up to discuss the creation of a sustainable extension programme nation-wide. Foreign investors give support for this policy option and believe that the state should have a role in training of farmers and processors –in Kazakhstan, the major issue is the use of antibiotics

by farmers. The government's role is clearly to educate farmers and provide the right kind of antibiotics to farmers. But the process actually starts with education of farmers.

Extension programmes are described in more detail in Chapter 1, Agribusiness.

Kazakhstan is well positioned to respond to the growing demand for meat, with Russia, the Middle East and Asia projected to increase beef imports over the next decade. Foreign investors interested in serving the domestic markets as well as those mentioned above can bring new technologies and help to upgrade the quality and safety standards. There is also a need to explore the opportunities in moving up the value chain by further processing of meat, for example producing pre-packages higher value beef cuts. In order to compete more effectively, Kazakhstan needs to develop larger farms, increase cattle inventory, improve productivity by achieving higher final weight in beef finishing, install internationally accredited slaughterhouses, as well as improve the marketing standards and institutions in the sector (Figure 3.22).

Figure 3.22. **Where and how to compete**



Source: OECD Sector Competitiveness Strategy and Review.

Notes

1. Agricultural GDP is the contribution of the agricultural sector to GDP.
2. The Codex Alimentarius Commission was created in 1963 by FAO and WHO to develop food standards, guidelines and related texts such as codes of practice under the Joint FAO/WHO Food Standards Programme.

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Chapter 4

Dairy Sector

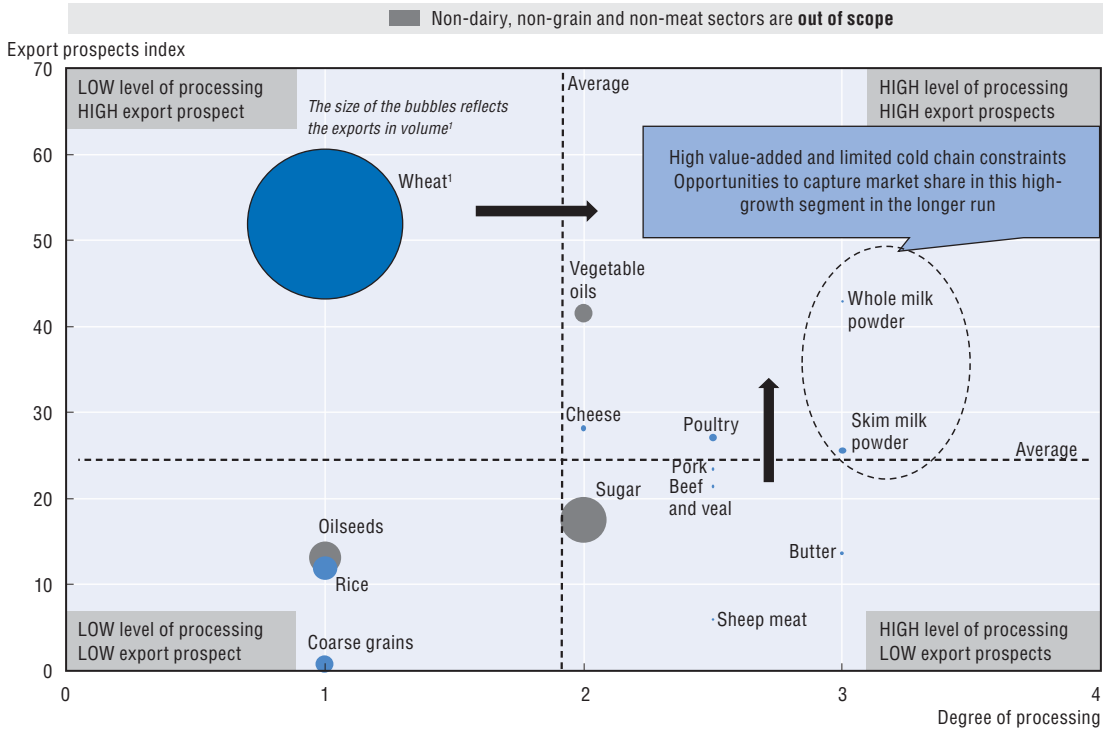
Milk consumption has almost doubled in developing countries in the last 45 years and developing economies will become the main sources of growth for the global dairy sector. Kazakhstan's dairy sector faces a number of challenges: the quantity of dairy cattle has declined, productivity is very low and the quality of raw milk is poor. Kazakhstan's domestic market currently depends on milk imports for its dairy sector. In order for Kazakhstan to increase domestic production of dairy products, focus should be on access to finance schemes for milk producers, especially supply chain financing, further development of producer organisations and extension services to promote investment and upgrading standards of milk products. Kazakhstan should concentrate on its domestic market but in the longer run could position itself as a producer of higher value-added dairy products like milk powder.

4.1. Summary

The dairy sector is a major and integral part of the food industry worldwide. The sector is involved in the production of raw milk at dairy farms and processing it into products such as liquid consumer milk, yogurt, cheese, butter, condensed milk, milk powder and ice cream using chilling, pasteurisation, homogenisation and other technologies. A number of by-products, such as buttermilk, whey and other derivatives are produced during processing of milk.

During the last decades, the global dairy sector experienced significant and fundamental transformation in terms of sector structure, upward and downward integration, geographic distribution and volumes of production. Technological developments and innovations as well as the drive for increased efficiencies changed global dairy farming. The growth and concentration of modern retailers (which account for the majority of sales of dairy products) resulted in a considerable shift of power away from producers and processors to retail operators.

Figure 4.1. **Milk powder: Export prospects and degree of processing**



Source: OECD *Sector Competitiveness Strategy and Review*.

Milk consumption has seen a significant growth during the last four or five decades. Per capita milk consumption in developing countries almost doubled between 1961 and 2005. However, the growth has not been consistent across regions and countries. East and

Southeast Asia, where milk consumption was low, have seen the strongest increase. In fact, milk consumption per capita increased more than tenfold in China during this period. In Brazil, milk consumption grew by 40% while in the Near East and North and Sub-Saharan Africa, per capita milk consumption remained unchanged or declined slightly (FAO, 2009).

The global demand for dairy products will continue to grow at an estimated annual rate of 1.7% in the next decade. The large and mature dairy markets in developed countries in Europe and the United States will see little or no growth. On the other hand, developing economies in Asia, Middle East and Africa will become the main sources of growth for the global dairy sector (OECD/FAO, 2009).

Kazakhstan's dairy sector has significant potential. Dairy production in Kazakhstan enjoys several areas of comparative advantage: low-cost production structure of producing farms (in terms of input, labour and capital costs), favourable sector development trends globally, an opportunity to move up the value chain into value-added dairy products in the medium to longer term, and lastly SCT support levels near zero (reflecting the lack of distortive government support policies).

At the same time, several barriers need to be addressed in order to foster the development of the sector and to increase its competitiveness in the local market and internationally. Both quantity and quality issues need to be addressed. The sector suffered a severe blow in the aftermath of the Soviet collapse, both in terms of the herd size and volume of milk production. Cow milk production plummeted by 40% in just four years (from 5 576 thousand tonnes in 1993 to 3 335 thousand tonnes in 1997). The sector started to recover in 1999, and by 2009 the volume of milk produced in the country had recouped its 1992 level. The size of the dairy herd experienced a significant decline as well: at 2.79 million heads, it has yet to recover from its 1992 level of 4.1 million heads. In spite of the increase in yield in recent years, the average productivity of the dairy herd in Kazakhstan is very low compared to developed economies. Quality issues also plague the sector. Kazakhstan depends on milk imports for its dairy sector as the quality of raw milk is poor. 38% of milk-processing businesses surveyed in the country point to the lack of quality milk inputs as the most important business challenge. Exports are very limited: presently Kazakhstan exports less than 1% of the total milk production in the country (to neighbouring markets of Tajikistan and Kyrgyzstan).

Several potential policy options have been envisaged for the dairy sector in order to facilitate its growth and development. Access to finance schemes, in particular supply chain financing, producer organisations, and extension services hold the most promise, as means to promote investment in the sector (*e.g.* to increase the quality of feed, or the milk animals inventory) and upgrade the standards of milk products.

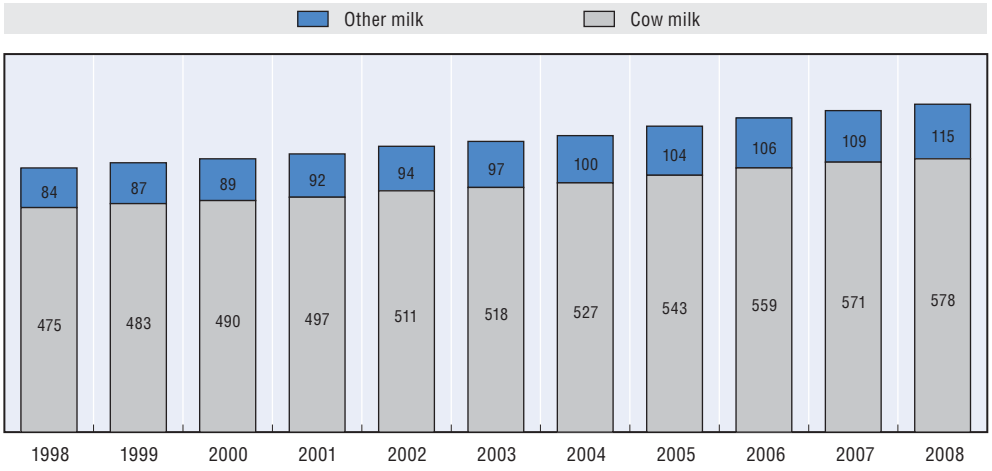
Kazakhstan is presently a dairy-importing country and local producers have to concentrate on the domestic market in the first place. In the longer run however, the country should envisage positioning itself as a producer of higher value-added dairy products, such as milk powder, which is set to experience a significant growth in global imports worldwide. Central Asia and the Middle East markets should be Kazakhstan's export focus.

4.2. Sector definition and segmentation

The global production of milk in 2008 reached over 693 million tonnes, of which 578 million tonnes was cow's milk. The remaining 115 million tonnes or 16.4% of the total were accounted for by buffalo, goat and sheep milk, which enjoy a considerable level of

consumption in some nations (*e.g.* India and Pakistan), while their share of in the majority of the other countries is marginal (Figure 4.2). Even though the share of cow's milk in total production declined from 84.9% in 1998 to 83.4% in 2008, it continues to remain the main product for the dairy sector (FAO, 2010).

Figure 4.2. **World milk production**

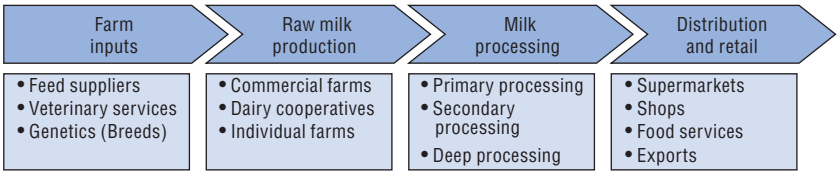


Source: FAO, 2010.

The global dairy sector responded to the constantly growing demand for dairy products and posted a 24% growth from 1998 though to 2008.

The dairy sector value chain includes the following segments: 1) input supplies; 2) raw milk production; 3) milk processing; and 4) distribution and retail (Figure 4.3).

Figure 4.3. **Dairy value chain**



1. The *farm inputs* segment of the value chain involves companies which provide all necessary supplies for dairy farm operations, including feed, breeding stock, veterinary services and medicine, fertilisers, farm machinery and equipment.

2. The *raw milk production* or *cow-breeding* segment covers all types of producers of raw milk, including large-scale operations like commercial farms (specialised or parts of agricultural holdings), dairy co-operatives and smallholder (individual) farms. This segment includes all operations at the dairy farm, from calving and cattle raising, through to milking. Farms are the foundation of the dairy sector and produce raw milk, the main ingredient in all other products of the dairy sector.

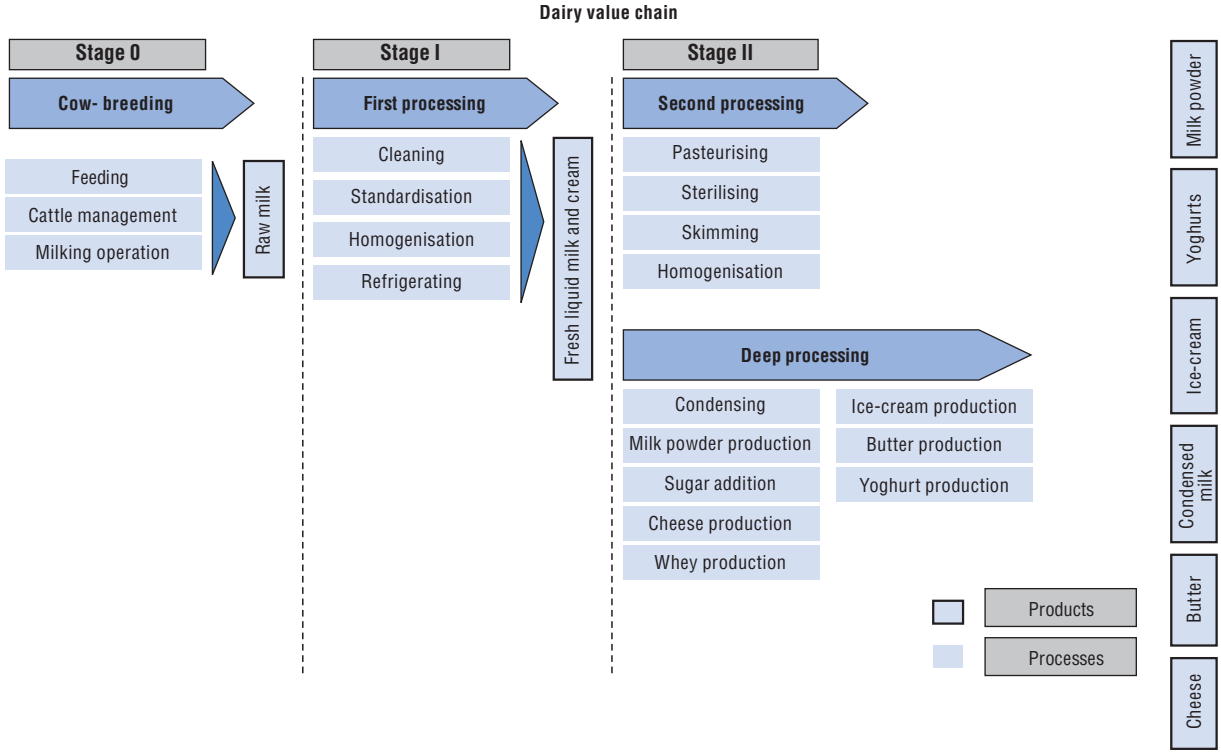
3. The *milk processing segment* deals with milk processing and production of the wide variety of dairy products for final consumption as well as inputs for use in other industries. Based on the level and types of processing and resulting products, this segment can be

subdivided into: primary, secondary and deep processing. At the first stage raw milk is cleaned, standardised and homogenised, resulting in liquid milk and cream. Processed milk ready for consumption is the output of the secondary processing stage, which involves pasteurising, sterilising, skimming and homogenisation. The deep processing stage covers production of the entire range of dairy products including cheese, yogurt, butter, condensed milk, ice-cream, milk powder and ingredients, such as casein, whey and lactose (Figure 4.4).

4. At the distribution and retailing level, dairy products are delivered to final consumers via a range of channels, including modern retailers, other shops and restaurants, while dairy ingredients are supplied to food-processing, pharmaceutical and other industries.

Due to the perishable nature of milk and its bulkiness, liquid milk products are predominantly consumed domestically, while international trade is dominated by manufactured products. The range and variety of dairy products available on the market is immense and constantly grows as a result of changes in consumer preferences and demand from food retailers, food-processing and other industries. The main groups of dairy products are: 1) liquid milk; 2) condensed milk; 3) butter; 4) cheese and cheese products; 5) yogurt and fermented milk products; 6) dry (skim) milk; 7) ice-cream and frozen desserts; and 8) whey and ingredients.

Figure 4.4. **Dairy processing chain**



Source: NAC.

4.3. Sector trends

Growth in demand in developing countries

The global demand for dairy products is forecasted to continue to grow at an estimated annual rate of 1.9% in the next decade (OECD/FAO, *Agricultural Outlook 2010-19*). Developing countries will account for major growth in consumption of milk and dairy products. The large and mature dairy markets in developed countries in Europe and the United States will see little growth as their per capita consumption is already very high. On the other hand, many developing economies in Asia, Middle East and Africa, where per capita consumption is much lower and domestic production capacities are unable to meet domestic demand, will become the main sources of growth for the global dairy sector.

One of the main reasons behind this trend is the difference in per capita consumption of dairy products in high-income and developing countries. Per capita consumption is very high in the majority of developed economies and increases in dairy product consumption will be closely linked to the growth of population. Dairy demand is expected to grow in developing countries where increased consumption is not only governed by increasing incomes and population growth, but also by changing preferences and new diet patterns, all of which are further encouraged by further urbanisation, economic growth and development.

Increasing demand for higher value-added processed products

Dairy sector growth is expected to be fuelled by processed products. As the economies of developing countries grow, so will the purchasing power of population, which will result in higher consumption of a diversified basked of processed dairy products. This trend will be further supported by the growth in dairy marketing and expanding retailing channels in developing countries (USDA, 2010).

Recent price spikes driven by the growing demand will prompt suppliers to invest, expand and restructure their production units to meet the market needs. This will gear the sector towards higher value-added processing of dairy products. Rising supply potential will enable future production growth and improved domestic marketing linkages, placing producing countries in a more competitive position.

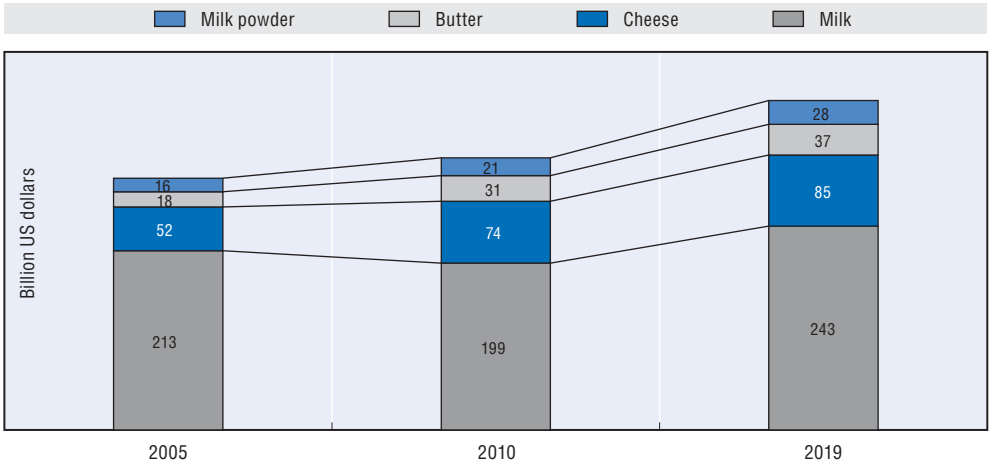
According to the most recent projections of OECD/FAO (2010), the value of the global dairy market is forecasted to increase and reach USD 392 billion by 2019. Compared with 2005, the value of the processed dairy products (milk powder, butter and cheese) market will increase by 74.4% in 2019 and will reach USD 150 billion, while milk will grow by 14.1% during this period (Figure 4.5).

Supply-side: Growth in developing countries

Global production of milk has been growing steadily over the last 20 years. While dairy production in the developed economies remained constant or grew at a very slow rate, the main source of growth came from the developing countries (Figure 4.6). India, Pakistan, Turkey, China and Brazil saw considerable increases in production of milk.

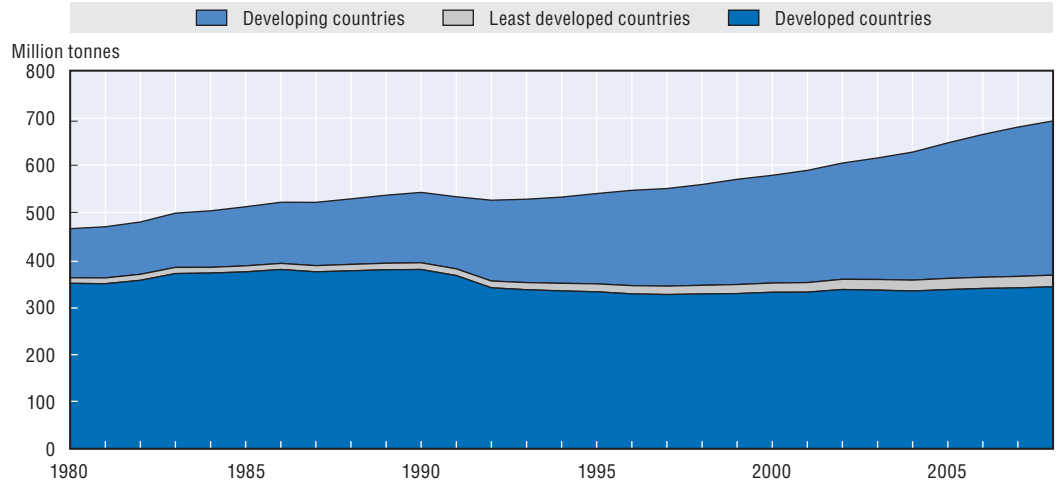
Over the next decade, global milk production will increase by 22.2% according to the latest OECD/FAO estimates, with most of the growth generated by the improvements in the yields per cow. Most of the additional milk is projected to be produced outside the OECD area. Of the 170 million tonnes of additional milk produced in 2019, as compared to the average level of 2007-09, more than 80% will come from developing countries. China, India,

Figure 4.5. **World dairy production USD billions**



Source: OECD/FAO, 2010.

Figure 4.6. **Distribution of world milk production**



Source: FAO, 2010.

Pakistan, Argentina and Brazil are set to account for more than half of the global milk production gains.

Supply-side: Concentration in the processing sector

During the last decades, the global dairy sector experienced significant and fundamental transformation in terms of industry structure, upward and downward integration, geographic distribution and volumes of production.

Technological developments and innovations as well as the drive for increased efficiencies changed global dairy farming. From a primarily manual labour-based production a few decades ago the farms have now embraced new technologies and many operations are automated and controlled by computers. The size of dairy farms in many developed countries has grown considerably and the average herd size at commercial farms is now well over 100 cows, while in the United States there are many farms with

headcount of over 5 000. At the same time, large variations in the size of dairy farms exist both among mature and developing economies.

The changing structure of the dairy sector saw a decrease in the number of farms in developed countries. At the same time, as a result of productivity gains and intensification of milk production allowed them to sustain the levels of milk output. On the other hand, the growing volume of milk production in developing countries was based on the increase in the number of dairy animals and only partially due to the gains in productivity. Between 1980 and 2004 the number of dairy farms in the United States decreased by almost 75%, while the number of cows dropped by 16.5%. During the same period the productivity of cows increased by almost 60%. The structure of the dairy sector in the United States experienced significant changes. While large commercial enterprises with the herd size of more than 500 cows represented only 3.7% of the total number of dairy farms in the country, they accounted for the production of more than 47% of milk (Manchester and Blayney, 1997; Miller and Blayney, 2006).

The levels of integration and concentration in dairy farming differ between countries and regions. Independent raw milk producers tend to integrate forwards, toward dairy co-operatives, which can offer farmers access to large markets through modern retail chains and large processors.

The trend towards concentration is also evident in the processing sector. The growing power of suppliers and buyers triggered the need to improve efficiency in the dairy processing sector and resulted in its concentration. In many countries, dairy co-operatives control considerable volumes of raw milk market and thus have the bargaining power to influence the terms of trade with the processing sector.

The 20 largest dairy processors account for the majority of dairy market sales in the world. Their sales amounted to USD 172 billion with the top six of these companies accounting for nearly 67% of turnover of these companies (Table 4.1).

Supply-side: Cheese and whole milk powder growth

The world dairy production is forecasted to increase in value by 2019 and reach USD 392 billion (OECD/FAO, 2010). Increasing demand trends should create incentives for suppliers to invest, expand and restructure their production units. This will gear the industry towards higher value added processing of dairy products. Rising supply potential will enable future production growth and improved domestic marketing linkages.

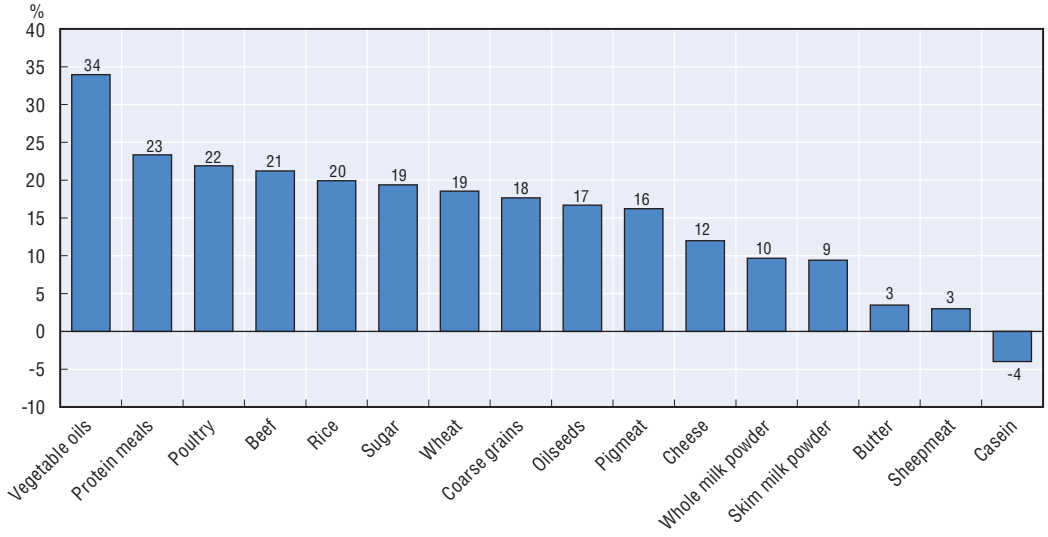
Among dairy products, cheese and whole milk powder are set to experience the largest growth in global imports by volume between 2010 and 2019, with 12 and 10% increases, respectively (Figure 4.7).

Table 4.1. **Turnover of the largest global dairy processing companies, 2009**

Company	Country	Turnover, USD billion
Nestlé	Switzerland	27.2
Danone	France	15.7
Lactalis	France	13.7
FrieslandCampina	Netherlands	13.7
Fonterra	New Zealand	12.0
Dean Foods	US	11.8
Dairy Farmers of Am.	US	10.8
Arla Foods	Denmark/Sweden	10.1
Kraft Foods	US	7.5
Unilever	Netherlands	6.6
Parmalat	Italy	5.4
Saputo	Canada	5.3
Bongrain	France	5.2
Meji Dairies	Japan	4.7
Morinaga Milk Ind.	Japan	4.3
Land O' Lakes	US	3.7
Nordmilch	Germany	3.7
Schreiber Foods	US	3.7
Mengniu	China	3.7
Muller	Germany	3.4

Source: Rabobank International, 2009.

Figure 4.7. **Projected growth in global imports by volume in 2019 compared to 2010**



Source: OECD/FAO *Agricultural Outlook 2010-19*.

4.4. Sector implications and key success factors

Trade liberalisation in the recent decades brought about significant changes in the dairy sector worldwide. Greater openness of markets and increasing international competition, coupled with the growing power of retail chains, puts significant price pressure on producers and stimulates them to improve their operations to become more competitive and remain profitable. Growing incomes of population in developing

countries, greater health awareness, as well as changing preferences and dietary diversification result in higher consumption of a more diversified basket of processed dairy products. On the supply side, the global dairy sector experienced significant changes in terms of industry structure, upward and downward integration, geographic distribution, technologies and innovations. These changes have significant implications for the dairy sector in Kazakhstan.

Increasing dairy farm competitiveness: Pedigree livestock and quality feed

The state and structure of dairy farming is of paramount importance for the entire industry as it determines whether dairy processors will have sufficient volumes of raw milk of the required quality. If local farms cannot satisfy the demand of the processing sector either in terms of quality or volumes, domestic processors will have to use imported milk and dairy ingredients, which increases production costs, undermines the competitive position and has negative long-term effects on the entire dairy value chain.

The ability to supply the required volumes of milk and improve efficiency depends on the productivity of livestock, feeding practices and the structure of dairy farms. Kazakhstan's pedigree livestock is very low and represents only 6% of the milk herd in the country, while in the United States pedigree cows represent about 25-30% of the milk herd. This results in low productivity with average annual yield of 2 250 kg of milk per cow in Kazakhstan compared with that of 9 343 kg in the United States or 7 186 in the United Kingdom in 2008 (FAO, 2010). Thus, increasing pedigree, as well as improving the quality of feed can significantly contribute to improved productivity and thus competitiveness of dairy farming.

Improved access to finance

The competitiveness and development of the sector also depend on access to technology, the state of transportation and communication infrastructure and the availability of low-cost financing. Low-cost refrigeration technologies are needed for farmers in order to store milk and ensure that the quality of milk does not deteriorate before it reaches the processor. Improvements in the chilled product supply chain can provide for greater availability and affordability of milk and dairy products to consumers. Improved access to financing can stimulate additional investments in higher productivity technologies and equipment at all levels of the supply chain, from milk production at farms, to transportation, processing and packaging, storage and distribution.

4.5. Sector attractiveness in Kazakhstan

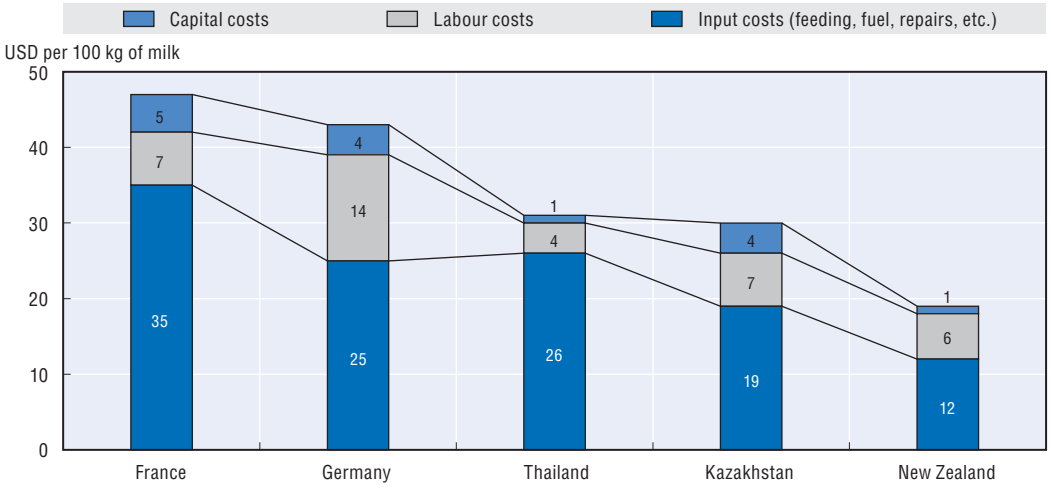
Cost competitiveness

Production of milk in Kazakhstan is relatively cost-competitive due to low input and labour costs, as evidenced by the comparative analysis of input, labour and capital costs in France, Germany, Thailand, New Zealand and Kazakhstan (Figure 4.8). However, quality of products and meeting international quality standards are crucial for the improvement of the country's performance.

SCT levels almost nil in 2008-09

The dairy sector was highly protected under the Soviet Union regime in Kazakhstan. Heavy subsidies were provided to the sector that was beset by a wide range of problems, including overcapacity, inefficiencies, outdated technologies, poor incentives and poor

Figure 4.8. **Costs of milk production in selected countries[1] (2007-08)**



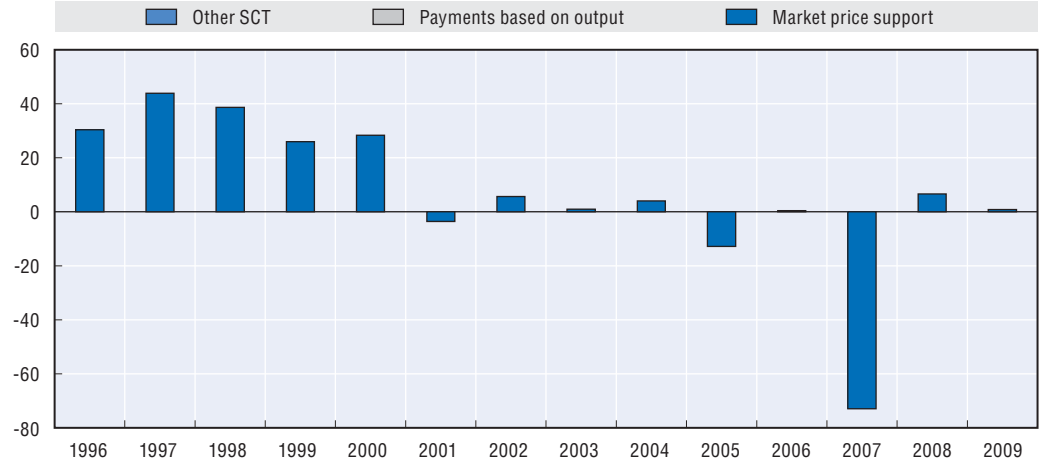
1. Costs in 2007 for foreign countries, costs in 2008 for Kazakhstan. The quality of milk is normally 4% fat and 3% proteins (Energy Corrected Milk). For Kazakhstan, the quality is unknown but likely less than this.

Source: Source: IFCN, KazAgroMarketing; OECD, 2009.

quality of the products, both at the farm level and at the processor level. However the dairy situation has in recent years moved away from a heavily supported sector to a sector much less dependent on government support. Support levels, as measured by the OECD SCT for milk, were significantly reduced in the 2000s, bringing SCT levels near healthy zero levels.

Single commodity transfers for milk in Kazakhstan ranged between –73 and 44% during 1996-2009 (Figure 4.9). In the second half of the 1990s, the SCT levels for the milk sector in Kazakhstan ranged between 26-44%. In the 2000s, domestic prices were relatively close to those of international markets with the exception of 2007 when the sharp decrease in the support level occurred as the rapid increase in world market prices was not fully transferred to domestic producers.

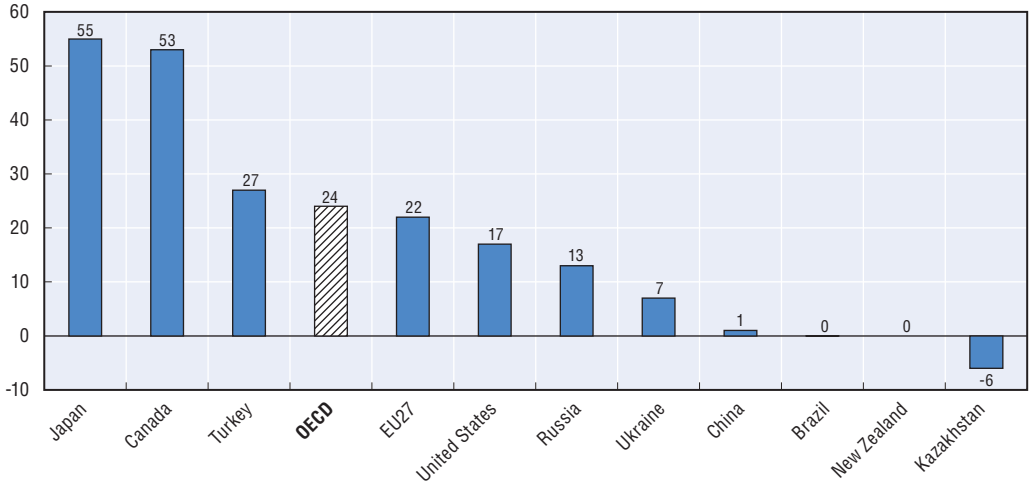
Figure 4.9. **Single commodity transfer for milk in Kazakhstan (estimates 1996-2009)**



Source: OECD *PSE/CSE database*, 2010.

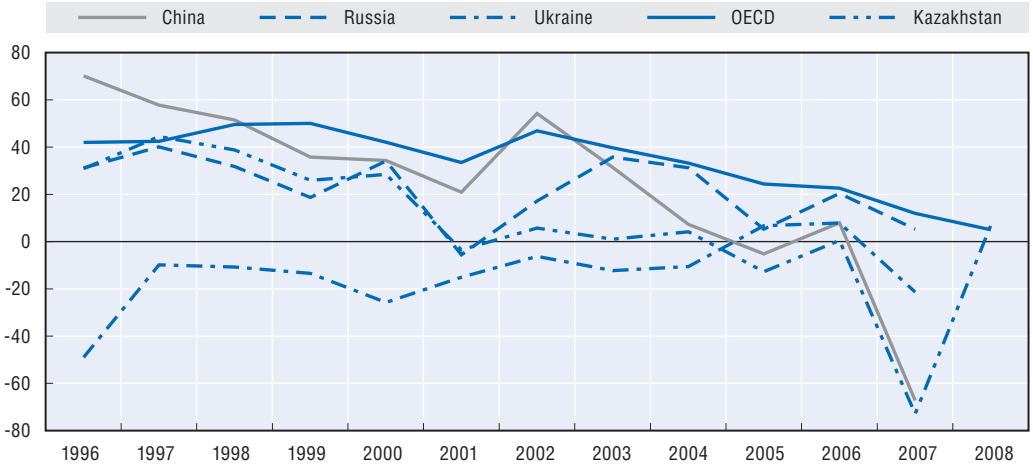
Compared to other OECD and non-OECD countries, the milk SCT level in Kazakhstan is well below the OECD and the EU27 averages (Figure 4.10). Up to 2001, the milk SCT in Kazakhstan was similar to that of Russia and from 2004 close to that of China (Figure 4.11).

Figure 4.10. **Single commodity transfer for milk by country, 2005-06**



Source: OECD *PSE/CSE database*, 2010.

Figure 4.11. **Single commodity transfer for milk by country over time**



Source: OECD *PSE/CSE database*, 2010.

4.6. Sector challenges and policy barriers

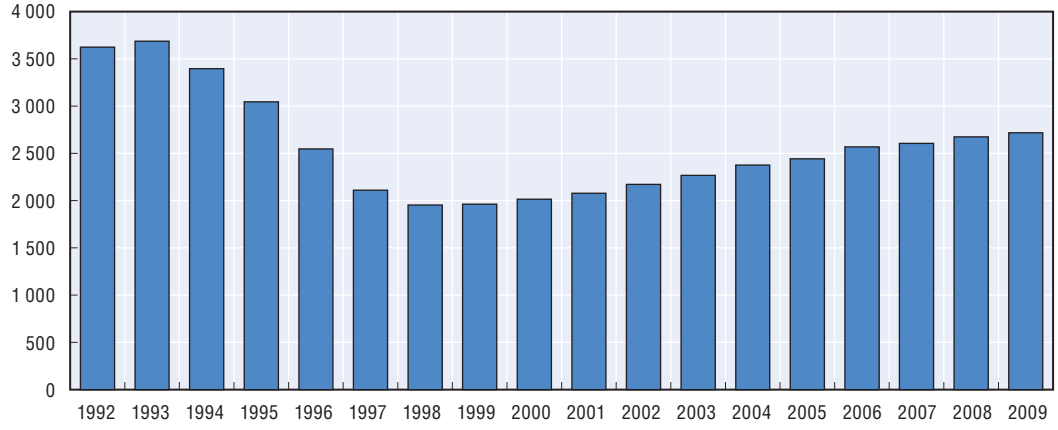
Kazakhstan's growing milk production, comparatively low labour costs and deeply rooted traditions in farming prove that the dairy sector has great potential for growth. Despite deficiencies at the input and processing levels, a few large multinational companies have already entered the market or plan to invest in the dairy processing sector in the country. However, several policy barriers need to be addressed in order to foster the development of the sector and to increase its competitiveness both at the local market and internationally. Domination of smallholder farms (households), low productivity, insufficient quality of milk and lack of access to finance are the key challenges limiting the development of Kazakhstan's dairy sector.

Insufficient milk herd

The lack of milk animals is an important bottleneck hindering the development of the dairy sector. The milk herd dropped significantly in the 1990s, from over 3.6 million heads in 1992 to less than 2.0 million heads in 1999 (Figure 4.12). The number has recovered slightly in the 2000s, but the gap is still important. At the same time, milk production has been on an upward trend since the late 1990s, now close to its 1992 level (Figure 4.13). However, domestic supply is not sufficient to meet domestic demand. Overall, the country experiences a shortage of milk for internal consumption estimated at 255 thousand tonnes.

Figure 4.12. **Kazakhstan dairy livestock**

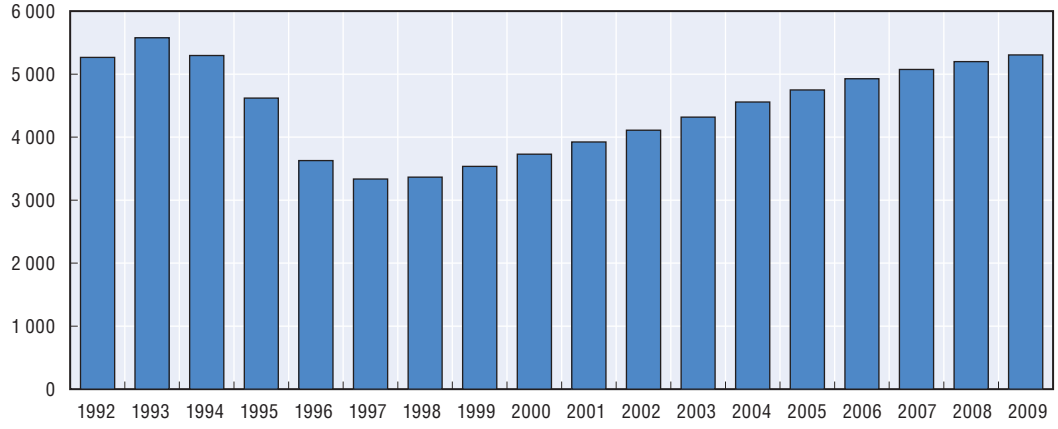
Thousand heads



Source: Agency of Statistics of the Republic of Kazakhstan, 2010.

Figure 4.13. **Milk production in Kazakhstan**

Thousand tonnes

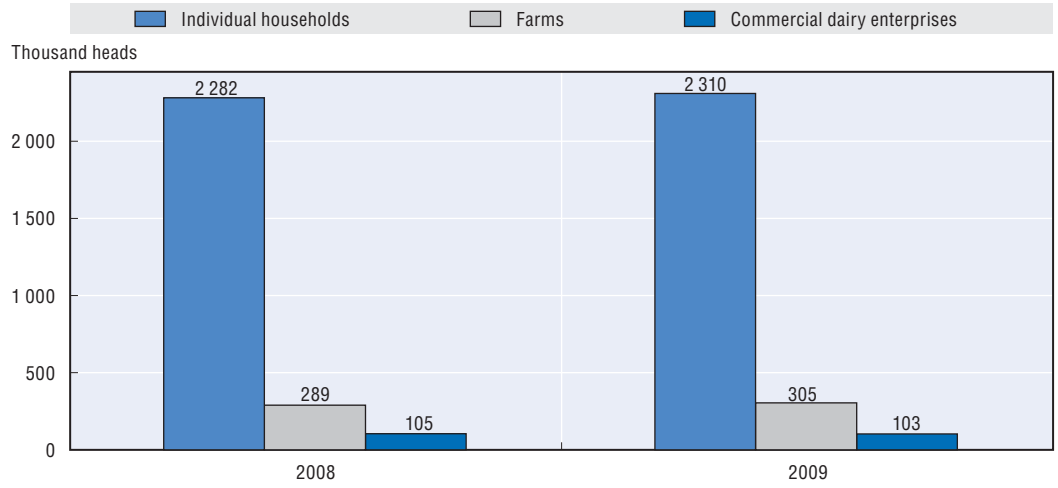


Source: Agency of Statistics of the Republic of Kazakhstan, 2010.

Domination of smallholder farms and productivity

The structure of dairy farming in Kazakhstan is dominated by individual households, with one or two cows per household, which account for more about 85% of the total number of dairy livestock in the country and almost 90% of total milk production in the country (Figure 4.14). The high fragmentation is a critical growth constraint. Large farms account for only 2.6% of the overall milking herd and 3.3% of the raw milk production.

Figure 4.14. **Kazakhstan dairy livestock distribution by producer type**



Source: Agency of Statistics of the Republic of Kazakhstan, 2010.

About 200 companies operate in the dairy processing sector of the country, with about 25% of them being large and medium.

Milk yield in Kazakhstan is low by international standards**.** One of the main reasons for very low average productivity (Table 4.2) is the low number of pedigree livestock among

Table 4.2. **Milk yield in Kazakhstan**

Average annual productivity, cow milk, whole, fresh, kilograms per animal, 2008

Country/Region	Yield
United States	9 342.8
Denmark	8 459.1
United Kingdom	7 186.4
France	6 318.6
Belarus	4 246.4
Eastern Europe	3 874.2
Russia	3 483.0
Kazakhstan	2 249.5

Source: FAO, 2010.

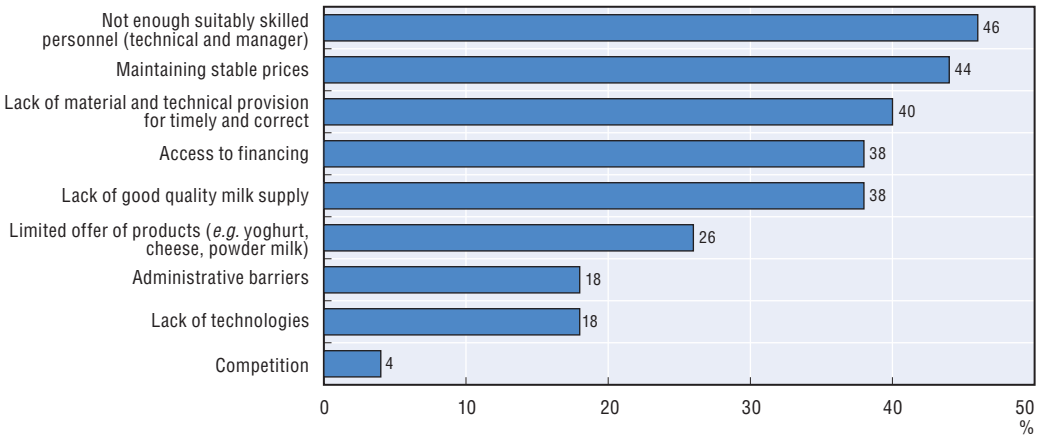
households, which constitute just over 6% of the total headcount of cows. For comparison, the pedigree cattle share in leading countries with developed agriculture such as the United States and Canada amounts to 25-30%. Due to the use of unproductive breeds of livestock, the country struggles with low milk yields at farms (Table 4.2), but also with low quality of milk supplied by private households.

Low quality of domestic milk and import dependency

Kazakhstan depends on milk imports as the quality of its raw milk is poor. 38% of respondent businesses indicate lack of quality milk inputs as the most important business challenge (Figure 4.15).

To ensure high quality milk for processors, it is necessary to establish the right conditions for the milking herd and maintain the required sanitary-hygienic norms, which appears to be a difficult task given the lack of milk refrigeration facilities. In most cases, fresh milk is not

Figure 4.15. **Key challenges for businesses in dairy sector**

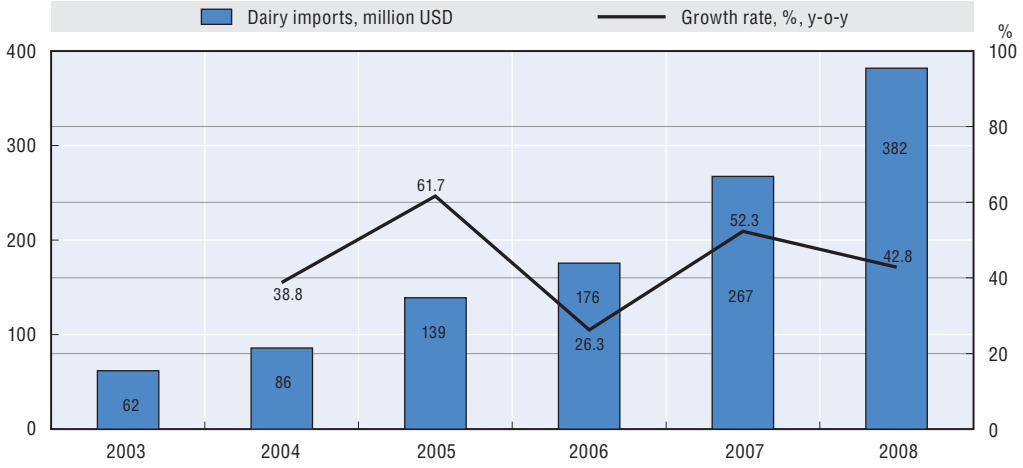


Source: OECD CCS 2010.

refrigerated immediately which worsens the quality of the raw milk. Thus, quality indicators of the milk are not in line with standards required by dairy plants for deep processing and, as a result, milk processors are forced to purchase imported milk for processing.

Imports of dairy products increased significantly during the last decade. The total value of dairy imports went up from USD 62 millions in 2003 to USD 381.8 millions in 2008, which constitutes an increase of 516% (Figure 4.16).

Figure 4.16. **Dairy products imports value and growth rate**[1]



1. The total value of dairy imports is the total for all commodities included in group 04 of the Harmonised Commodity Description and Coding System and in addition to dairy product includes: 0407: Birds' eggs, in shell, fresh, preserved or cooked; 0408: Birds eggs, other than in shell, egg yolks; 0409: Honey, natural; 0410: Edible products of animal origin.

Source: UN Comtrade, 2010.

Recent trends indicate that Kazakhstan is losing the domestic market to imported dairy products. In 2008 alone, the import of dairy products in Kazakhstan rose by 21.3%. Overall, imported dairy products reached 144.4 tonnes valued at USD 227 millions (ASRK, 2010). At the same time, domestic dairy production did not increase and dairy exports decreased threefold.

Three groups of products constituted the bulk of dairy imports in Kazakhstan in 2008 in terms of monetary value: concentrated milk and cream, including milk powder 38.6%; cheese and cheese products 29%; and fermented dairy products including yogurts and cream 16.2%. Altogether they accounted for nearly 84% of total dairy imports by value (Table 4.3).

Table 4.3. **The structure of dairy imports (Kazakhstan, 2008)**

	Value, thousand USD	%	Tonnes	%
Milk and cream, neither concentrated nor sweetened	29 665.2	8.2	37 692	21.3
Milk and cream, concentrated or sweetened	138 834.1	38.6	72 456	40.9
Buttermilk, cream, yogurt, etc.	58 505.3	16.2	34 256	19.3
Whey, natural milk products	2 207.6	0.6	1 191	0.7
Butter and other fats and oils derived from milk	26 488.4	7.4	7 327	4.1
Cheese and curd	104 390.9	29.0	24 129	13.6
Total	360 091.5	100.0	177 052	100.0

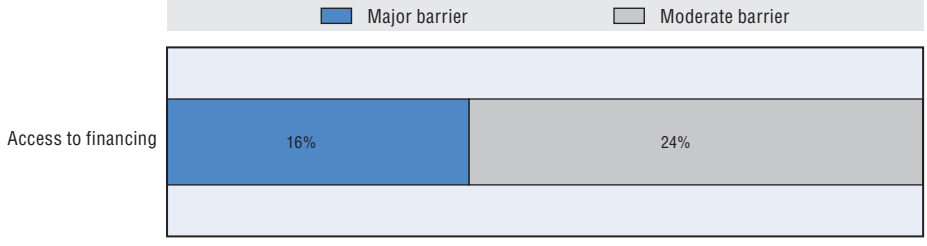
Source: UN Comtrade, 2010.

In physical terms, imports of concentrated milk and milk powder increased by 90% from 38 057 tonnes in 2002 to 72 456 tonnes in 2008. The volume of import of fermented dairy products, such as yogurts, went up by 350% during the same period. The largest import growth has been observed in the cheese and curd group, which went from 2 625 tonnes to 24 128 tonnes between 2002 and 2008, representing an increase of 819% for the period.

Lack of access to finance

Lack of access to financing is a serious growth constraint. Access to finance is needed to invest in higher productivity technologies and quality inputs. Supply chain financing is not in place to ensure the sector growth, and long-term relationships between farmers and processors are noticeably absent. The recent economic downturn has exacerbated access to finance even more. 40% of respondent businesses mention access to financing as a barrier for their business operations (Figure 4.17).

Figure 4.17. **Barriers for business growth in dairy sector: Access to finance**



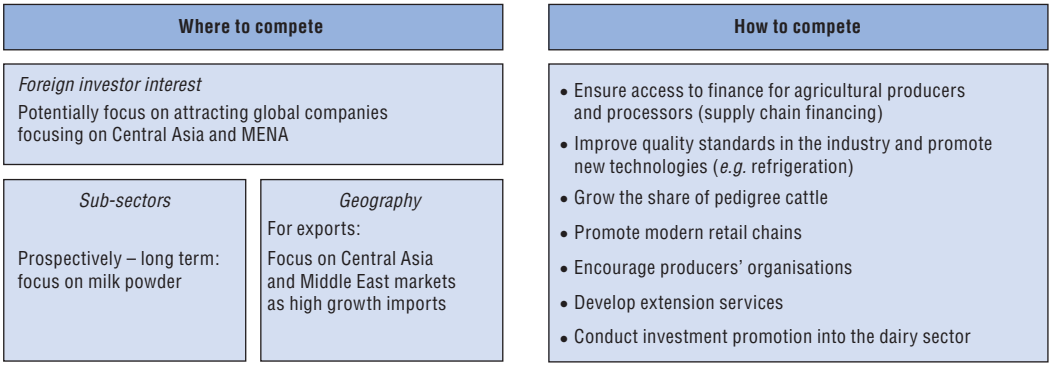
Source: OECD CCS, 2010.

4.7. Sector strategy and policy recommendations

In order to increase the competitiveness of the dairy sector, Kazakhstan needs to put substantial efforts into attracting foreign investors into the sectors. Foreign companies which already operate or have an interest in Central Asia and Middle East and North Africa (MENA) regions should be considered as the first targets (Figure 4.18).

Central Asian and Middle Eastern markets should be prioritised for exports due to their high demand growth potential.

Figure 4.18. **Where and how to compete**



Source: OECD *Sector Competitiveness Strategy and Review*.

Firstly, the Government of Kazakhstan should tackle the issue of milk quality by ensuring access to finance for agricultural producers and processors, improving quality standards in the sector, growing the share of pedigree cattle, promoting new innovative technologies, and promoting modern retail chains. Several policy options can be envisaged: producers' organisations, extension services, supply chain financing, investment promotion into the dairy sector, and the development of modern retail. Active policies aimed at developing the retail sector and conducting investment promotion in particular, which are applicable across other agribusiness sectors (namely beef and wheat), are highly relevant in the case of Kazakhstan's dairy sector. Please refer for these two to earlier descriptions in Chapter 1, Agribusiness. In addition, the following could apply at a later stage:

Producer organisations

Kazakhstan can refine the quality of raw milk through the consolidation of small farming, or the development of producers' organisations, which typically adopt higher quality control systems. Co-operatives are an example of producer organisations. In the dairy sector, the co-operative model is very promising as it ensures sufficient production volumes of milk and the highest possible quality. It facilitates the introduction of modern milking technologies and quality control at all stages, thanks to technical requirements and standards for dairy products more in compliance with international requirements. Producer organisations are also more likely to spearhead an increase in the share of the pedigree herd.

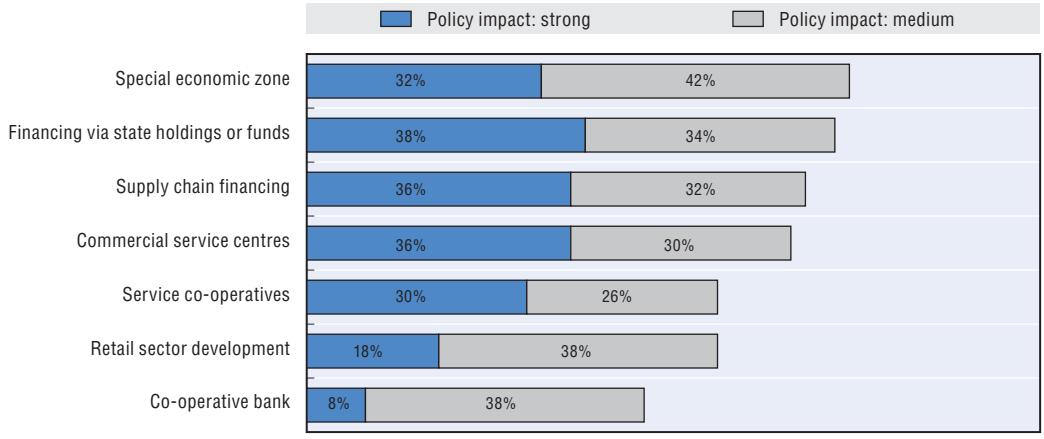
From the perspective of milk producers surveyed in the CCS, development of special economic zones is cited by 74% of respondent businesses as a policy measure that is most likely to generate the growth of their businesses. Over 60% of surveyed businesses in the sector also quoted financing via state holdings or funds, supply chain financing and commercial service centres as effective policy options.

At the same time, retail sector development is not perceived as key policy measure, which points to the lack of awareness of the importance of modern retail in driving the growth and competitiveness of the dairy sector (Figure 4.19).

Supply chain financing schemes

Access to finance appears to be one of the central factors to ensure the sector growth. In Kazakhstan, supply chain financing is used sporadically. Long-term relationships

Figure 4.19. **Key policy areas for supporting business growth in dairy sector**



Source: OECD CCS, 2010.

between farmers and processors are still quite rare. In Akmola regions, for all types of agriculture products, only 15% of farmers have a relationship with processors. It is common however for large integrated dairy processors to provide technical support to farmers, *e.g.* cooling tanks.

Box 4.1. **Quality upgrading in Poland's dairy sector**

Foreign investment and its spillover effects can lead to dramatic quality improvements by small local suppliers in a host country. In *The Impact of Globalization and Vertical Integration in Agri-Food Processing on Local Suppliers: Evidence from the Polish Dairy Sector*, Professor Swinnen and Ms. Dries present empirical evidence on how the inflow of foreign capital and the integration in international commodity markets have affected the small-scale dairy sector in Poland. Their analysis shows that foreign companies play an important role in the quality improvement strategy. Foreign dairy companies that invested in the region in the mid-1990s set out a clear strategy from the start to increase the quality of delivered milk. One of their requirements, for instance, was that milk-producing co-operatives should install cooling tanks in collection points. They also required germ count and cell count tests (in accordance with EU standard tests for milk quality classification). In addition, they provided agricultural extension to raise farmers' awareness of the importance of milk quality and to improve quality through basic hygiene rules. Farmers were allowed to have their milk tested for antibiotic residues free of charge in the investor's laboratory, in order to make sure no antibiotic residue was left in the milk. Important spillover effects were seen across the sector as local dairy companies adopted the standards set by foreign investors, leading to a dramatic milk quality improvement throughout the region in subsequent years.

Source: Dries and Swinnen (2003), *The Impact of Globalization and Vertical Integration in Agri-Food Processing on Local Suppliers: Evidence from the Polish Dairy Sector*.

In Poland, this policy option demonstrated its strength and short-term impact. Most milk suppliers in Poland benefit from assistance programmes provided by dairy processors, including credit, input supply or loan guarantee programmes. Processing companies have been key player in financial assistance for dairy-specific investments such as cooling tanks

Box 4.2. **Promoting innovations in the dairy sector: Actilait**

France's Actilait is a technical institute which provides services to the dairy sector. Its mission is to develop knowledge, ensure quality supply, optimise quality and control output, introduce new and innovative technologies, as well as promote dairy products. Its annual budget is EUR 7 million. It is a for-profit entity and 70% of its revenues come from private services (consultancy, training, expertise, analysis, audit, etc.). The state directly contributes to Actilait; governmental support amounts to 5-10% of its budget.

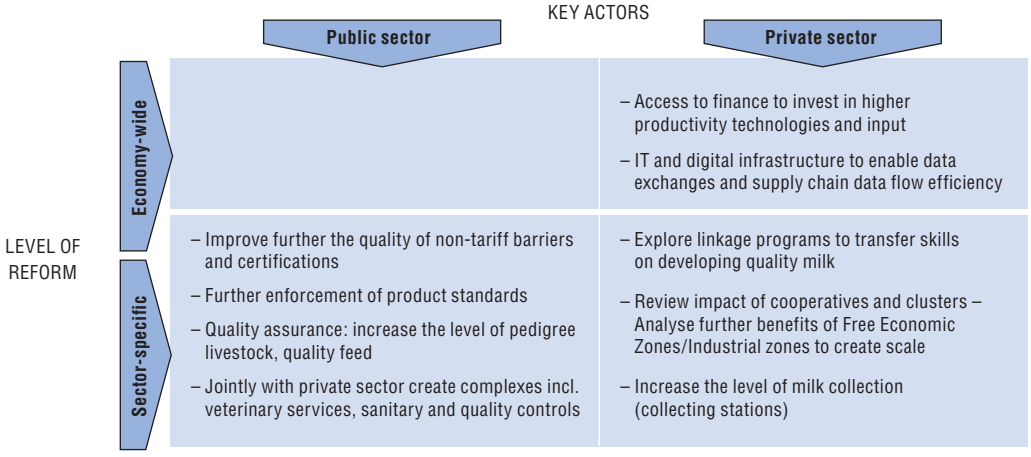
Actilait has strong ties with the government on given themes, such as food security, quality control and quality certification (red label). Actilait provides training services to farmers and processors at the universities, partly paid by the recipient and partly by the local government.

or livestock. Processors indirectly influenced farm activities and investments through their feed supply programme, affecting overall farm profitability. They also eased access to bank loans by participating in guarantee schemes. It should be noted that processors targeted assistance to both large and small farms.

Extension services

Kazakhstan has had a limited exposure to extension services to date. France, on the other hand, has a solid background in such services (Box 4.2). Extension programmes' obvious advantage is transfer of know-how and exchange of information. Foreign investors believe that the government should have a say in training farmers and processors.

Figure 4.20. **Policy recommendations**



After overcoming the issue of milk quality (one of the main barriers for sector development), in the long term Kazakhstan may consider moving up the value chain into the production of milk powder. Although milk powder production in Kazakhstan is rather nascent, the growth potential opportunities are impressive. Global demand trends in the recent decade suggest a growing preference for higher value-added dairy products, where milk powder is an essential ingredient. Milk powder also has strong export potential as

highlighted by the recent OECD/FAO (2010) projections, which forecast that global imports of whole milk powder and skim milk powder will grow by 10 and 9% respectively by 2019.

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Chapter 5

Chemicals Sector: Focus on Fertilisers

Kazakhstan's mineral fertilisers sector can boost its competitiveness by building on existing production capabilities, locally available raw materials and low production and transportation costs to supply domestic and regional markets. Poor quality and price competition are the most significant barriers for export of mineral fertilisers. Outdated technologies, low levels of investment, and low quality of products, as well as a lack of know-how on how to use mineral fertilisers are among domestic challenges. Limited financial support from the government to farmers also contributes to lower consumption of mineral fertilisers in the country. Recommendations include leveraging domestic demand and attracting foreign technologies and know-how, as well as a sector-specific promotion and facilitation strategy to spark the inflow of FDI and to introduce modern low-cost production technologies. Growing domestic demand should be considered a priority, as well as increasing know-how and economic power to purchase and use fertilisers.

5.1. Summary

The chemical sector is a processing sector involved in the conversion of natural raw materials, such as oils and natural gas, salt and other mineral deposits, into a vast array of substances for use by other industries, chemical companies or directly by consumers. Chemical products are used in the production of a wide range of consumer goods, inputs for agriculture, manufacturing, construction and service industries. Various chemicals, such as mineral fertilisers and pesticides, dyes, pigments and plastics, are vital inputs for the agribusiness sector.

The agribusiness chemicals sector comprises four major segments: 1) mineral fertilisers and nitrogen compounds; 2) crop protection (pesticides); 3) food additives (dyes and pigments); and 4) plastics in the primary forms.

The mineral fertilisers sector is by far the largest of all agri-chemical sectors in terms of volume and market value. The global value of the fertiliser market was estimated at USD 132 billion in 2008, which is 1.8 times larger than the value of herbicides and insecticides, food additives and food packaging sectors together.

The mineral fertilisers sector in Kazakhstan can boost its competitiveness by building on existing production capabilities, locally available raw materials, and low production and transportation costs to supply fast-growing domestic and regional demand. Large deposits of phosphate rock, estimated between 4 billion and 15 billion tonnes, significant reserves of natural gas and sulphur, as well as low-cost access to imported ammonia provide a solid base for development of production. On the demand side, Kazakhstan is a growing market. Nitrogen- and phosphate-based fertiliser markets are the most promising and are expected to grow the fastest. High rates of growth of demand in Kazakhstan are sustained by vast planted areas, low natural levels of nutrients, low crop yields and very low intensity of fertiliser use. Kazakhstan also offers the opportunity for producers to benefit from the growing demand for mineral fertilisers in the countries of Central Asia, China and India.

The mineral fertilisers sector in Kazakhstan also faces a number of setbacks: the use of basic and outdated technologies, low levels of investment, high transportation costs to international markets and low quality of products. Lack of investment in new technologies in the recent decades means that very basic and outdated technologies are used in production which results in low productivity, low quality and high production costs of the final products. For example, the country has a very low productivity of nitrogen, phosphorus and potassium (NPK)-based fertilisers. Moreover, the low quality of raw materials implies higher beneficiation costs and undermines the competitiveness of domestic fertilisers. According to the CCS, 42% of respondents see poor quality and price competition as a most significant barrier for export of mineral fertilisers. Due to geographic location and lack of access to sea ports, Kazakhstan has higher transportation costs and more difficult access to distant markets. The demand side is characterised by limited access to finance by small farmers and limited financial support from the government, contributing to lower consumption of mineral fertilisers in the country.

Key recommendations for boosting the competitiveness of the mineral fertilisers sector in Kazakhstan include leveraging domestic demand and attracting foreign technologies and know-how to improve quality and cost competitiveness of domestic products. A sector-specific investment promotion and facilitation strategy targeted at global fertiliser producers can connect foreign companies to investment opportunities in the country and spark inflow of FDI and introduction of modern low-cost production technologies. Joint investment projects (where foreign investors bring their technologies and domestic companies provide access to deposits) can be considered as a way to improve the competitiveness of the sector. Based on the availability of raw materials in the country, it is recommended to develop phosphate- and nitrogen-based fertilisers (N, P and NP-based). Given the growing domestic demand, estimated to reach USD 1 billion,[1] domestic market development should be considered as a priority. Educating and supporting small- and medium-sized farmers to ensure that they have enough know-how and economic power to purchase and use fertilisers would foster the growth of domestic consumption. Regional markets in Central Asia and bordering regions of China, Russia, possibly India and Pakistan should also be explored as they present ample business opportunities. Access to long-term financing for large-scale projects in the chemical sector as well as improving access to finance for the farming sector is essential for improving the competitiveness of the fertiliser sector in Kazakhstan.

5.2. Sector definition and segmentation

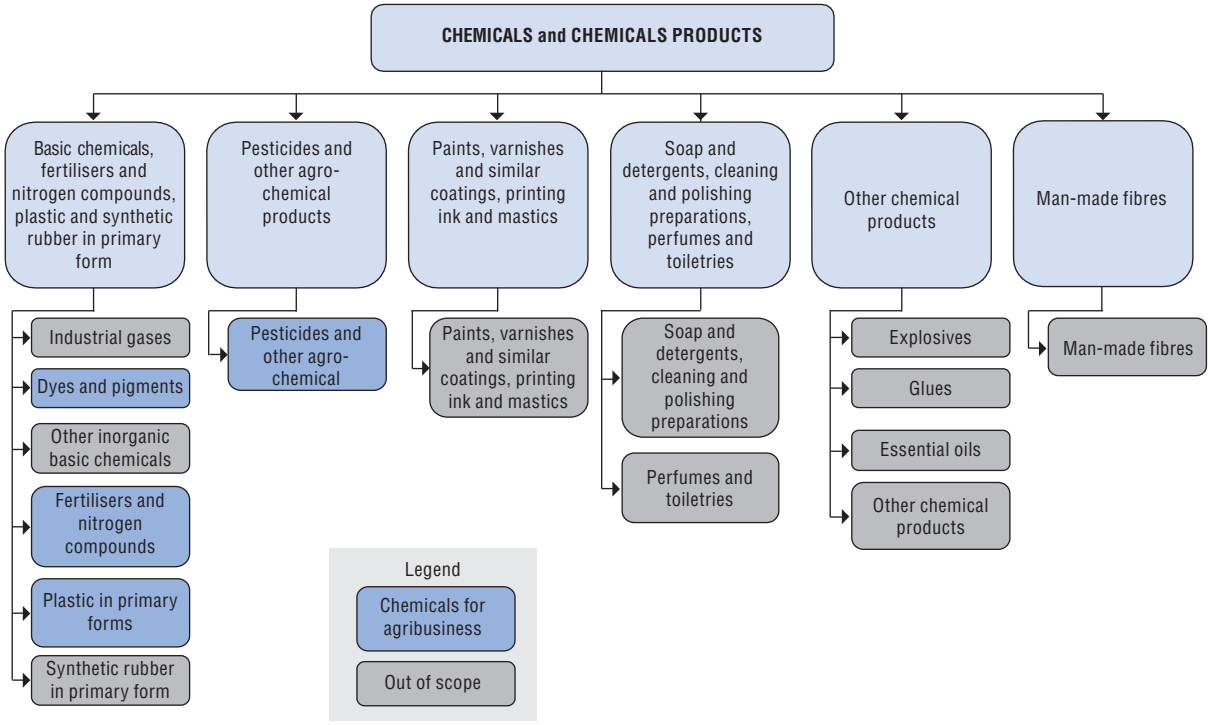
The chemical sector is a processing sector involved in the converting natural raw materials, such as oils and natural gas, salt and other mineral deposits, into a vast array of substances for use by other industries, chemical companies, or directly by consumers. The application of the sector's products is very diverse. Chemicals are used for the production of a wide variety of consumer goods as well as inputs for agriculture, manufacturing, construction, and service industries. Products range from bulk chemicals to specialised chemical compounds, and from paints to cleaning solutions and perfumes (Figure 5.1).

Various chemical products, such as fertilisers and pesticides, dyes, pigments and plastics are essential inputs for agribusiness sector. Fertilisers are a critical input for improving production technologies and increasing crop yields, pesticides are vital for controlling the health of crops, dyes and pigments are essential ingredients in food processing, and plastics are used for packaging agricultural produce and manufactured food products. Due to the great diversity of the chemical sector, this analysis will focus only on those segments concerned with the production of inputs for the agribusiness sector.

The agribusiness chemical sector can be divided into four segments: 1) fertilisers and nitrogen compounds; 2) crop protection (pesticides); 3) food additives (dyes and pigments); and 4) plastics in primary forms (Figure 5.2).

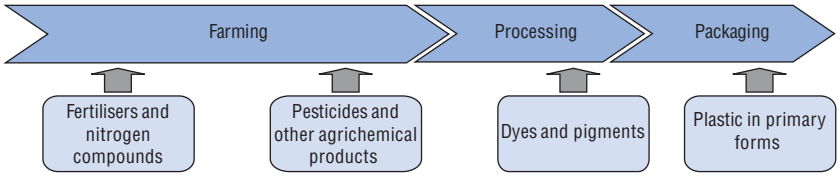
1. *The fertilisers segment* includes companies involved in manufacturing and formulation of mineral fertilisers. Mineral fertilisers are chemical compounds added to the soil to supply one or more elements (nutrients) required for plant growth and productiveness. There are three primary fertiliser nutrients: nitrogen (N), phosphorus (P) and potassium (K). The secondary elements are calcium (Ca), magnesium (Mg) and sulphur (S). Nitrogen is viewed as the most essential of the three primary nutrients, followed by phosphorus and potassium. Anhydrous ammonia is the basic feedstock for the manufacture of nitrogenous materials.

Figure 5.1. **Structure and products of the chemical sector**



Source: National Analytical Center (Kazakhstan), OECD, 2010.

Figure 5.2. **Agribusiness chemicals sector along food value chain**



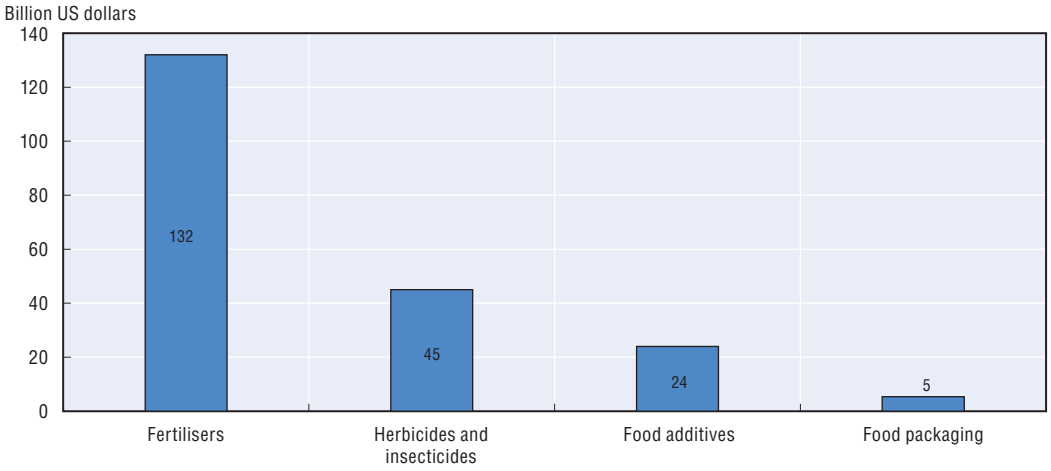
Source: European Commission, Data Monitor, 2010.

2. *The crop protection segment* covers the production and formulation of pesticides. Pesticides are widely used in agriculture for management of crop health. Herbicides are the most widely used pesticide, followed by insecticides and fungicides. This segment is subject to strict governmental regulation due to potential risks of pesticides to the health of humans, animals and the environment.
3. *Food additives* cover the production of dyes and pigments, which are chemical substances, used to improve the visual appearance of fresh and processed food products. Dyes and pigments can be organic (derived primarily from vegetables), inorganic, combinations of organic and inorganic, and synthetic.
4. *The food packaging segment* covers the production of plastics in primary forms, which are used as a main raw material in the production of packaging materials for the food processing sector.

The mineral fertilisers sector is the largest of all agri-chemical sectors both in terms of production volumes and market value. The value of the global mineral fertilisers market was estimated at USD 132 billion in 2008 (in terms of total revenues). The fertiliser market

is the largest of the four main agri-chemical sectors and is three times larger than the herbicide and insecticide market, six times larger than food additives and 25 times larger than the food packaging sector (Figure 5.3).

Figure 5.3. **Global agribussiness chemicals sector market, 2008**



Source: European Commission, Data Monitor, 2009.

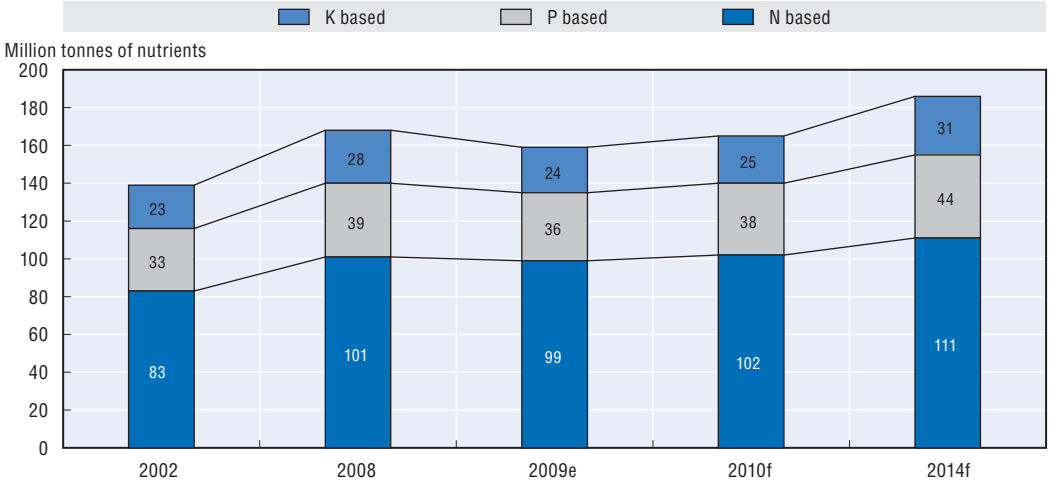
The growing demand for food products will require higher productivity of crops, as measured by output per unit of land.

5.3. Sector trends

Significant rise in consumption

Global fertiliser consumption increased considerably in recent years, growing by over 20% over the 2002 to 2008 period (from 139 to 168 million tonnes). Nitrogen in particular is viewed as the most essential of the three primary nutrients, which is reflected in the levels of consumption (Figure 5.4).

Figure 5.4. **World consumption of fertilisers (tonnes)**

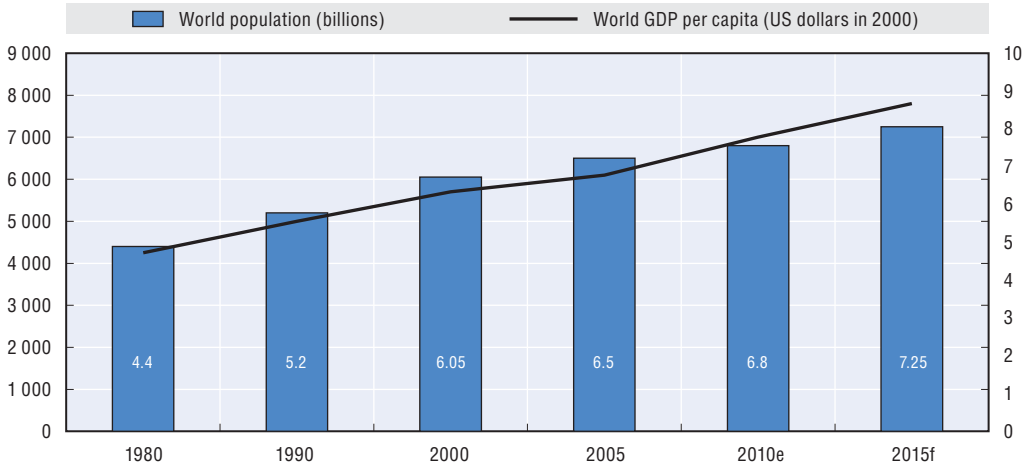


Note: K = Potassium; P = Phosphorus; N = Nitrogen.

Source: International Fertilisers Association, FAO, 2010.

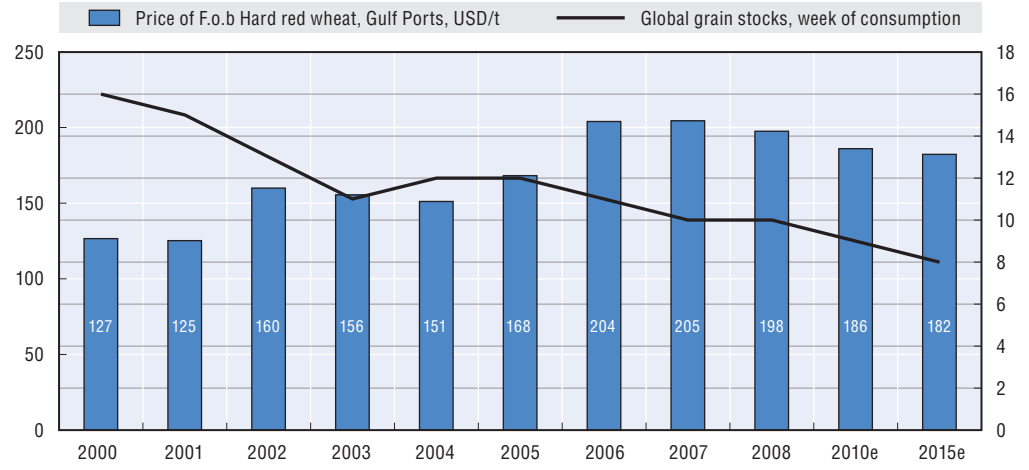
The global consumption of mineral fertilisers is forecasted to continue growing and will reach 186 million tonnes by 2014, which represents an increase of more than 35% (Figure 5.4). The development of the mineral fertilisers sector is primarily determined by the growth of the agricultural sector and economic development in general. In the medium and long term the following key factors define the world demand for fertilisers: increases in population and GDP per capita (Figure 5.5), balance of grain stock (Figure 5.6) and the balance of arable land per person (Figure 5.7). In the short term, grain-to-fertilisers price ratio has a major impact on fertiliser demand.

Figure 5.5. **Global GDP per capita and world population (trends and estimates)**



Source: British Sulphur Consultants estimates, November 2008.

Figure 5.6. **FiGrain prices and grain stocks (trends and estimates)**



Source: British Sulphur Consultants estimates, November 2008.

The projected increase in the world population and changing dietary preferences mean that global food production will have to grow by more than 40% by 2030 and 70% by 2050 compared to the average 2005-07 levels of production (FAO, 2009a). Due to the limited possibilities for arable land expansion, 80 to 90% of the increase in production of food crops will have to come from improved crop productivity which implies the adequate use of fertilisers.

Figure 5.7. **Arable land per capita in the world (trends and forecasts)**

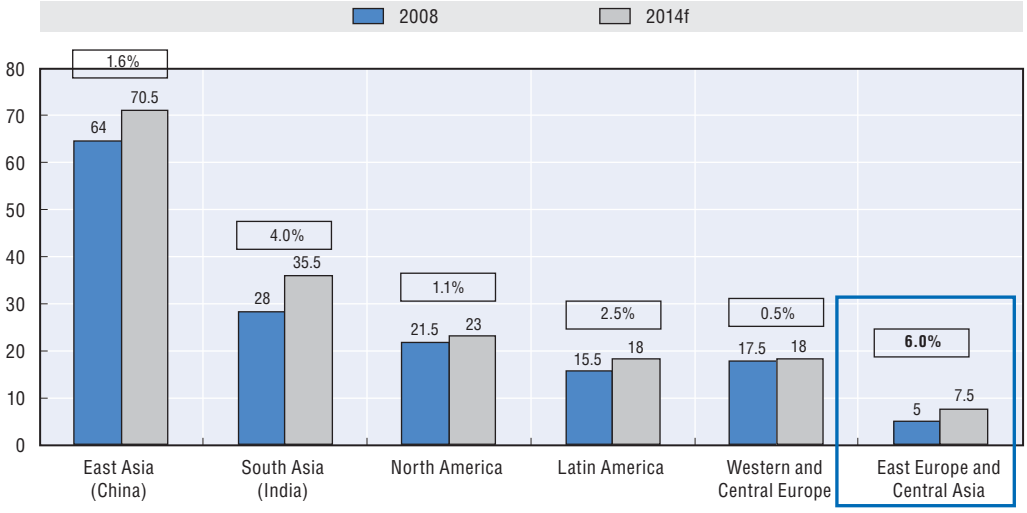
Source: World Bank, 2010.

Asia and Eastern Europe lead demand growth

The growth in fertiliser consumption should be distributed relatively evenly globally. According to projections from the International Fertilisers Association, South-East Asia, Eastern Europe and Central Asia are markets with the highest import growth potential (Figure 5.8).

Figure 5.8. **Projected medium-term evolution of regional fertiliser demand**

Million tonnes of nutrients (N, P, K), in %, average annual growth rate



Source: International Fertilisers Association, 2010.

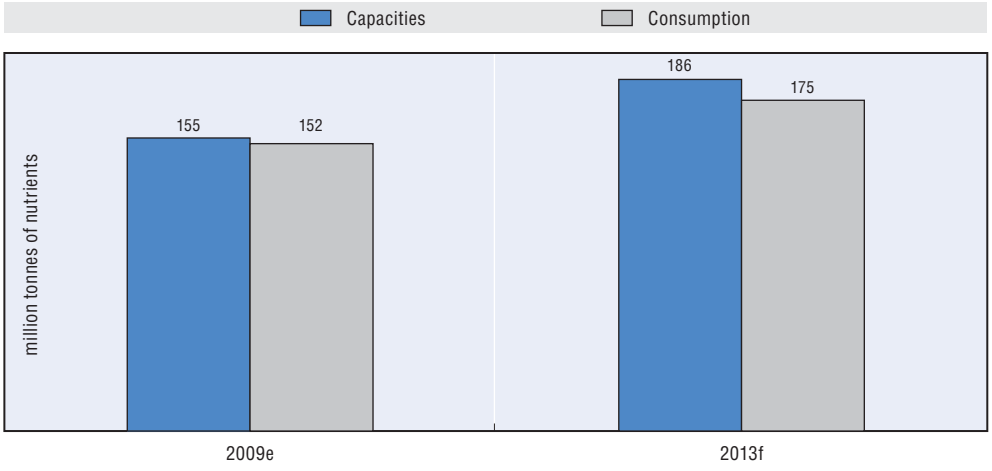
Fertiliser consumption in Eastern Europe and Central Asia is seen as dynamic in response to the potential for increasing agriculture production during a relatively short period of time. In South-East Asia, demand is projected to remain strong, as larger amounts of fertilisers are required to ensure food security. Kazakhstan has an opportunity to benefit from major importers of N and P fertilisers in the region, more than USD 12 billion annually in South-East Asian and East European regions.

5.4. Sector implications and key success factors

The world fertiliser sector experienced a considerable decline as a result of the 2008 economic crisis. The prices went down due to the drop in demand following the economic downturn and prices are not expected to reach mid-2008 high levels in the short- nor mid-term. In 2010, prices are expected to remain only slightly higher than in 2009.

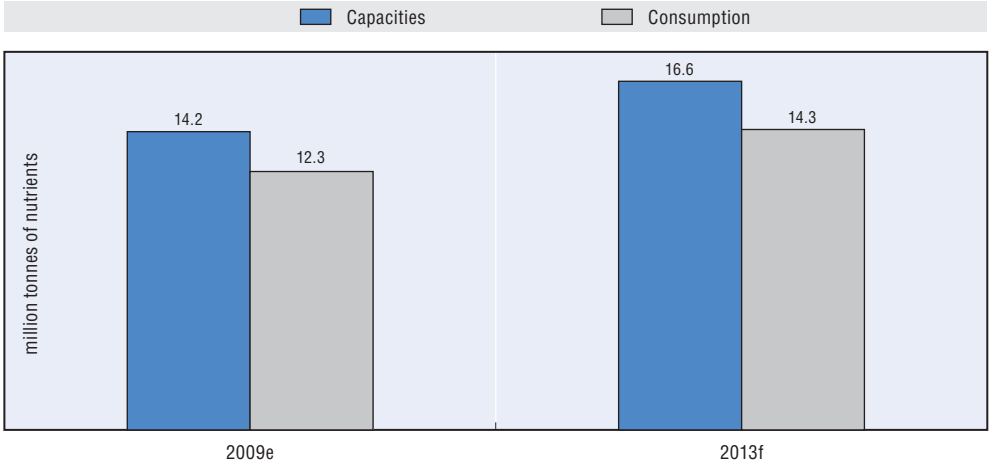
As a result of rapidly growing demand in 2002-08, mineral fertiliser producers were operating at nearly full capacities by 2008, which prompted them to invest into new production plants. As a result of the launch of the new production capacities all over the world, oversupply is likely to grow in the coming years (Figures 5.9 to 5.11).

Figure 5.9. **Urea (N-based fertiliser) supply-demand balance**



Source: International Fertilisers Association, OECD, 2010.

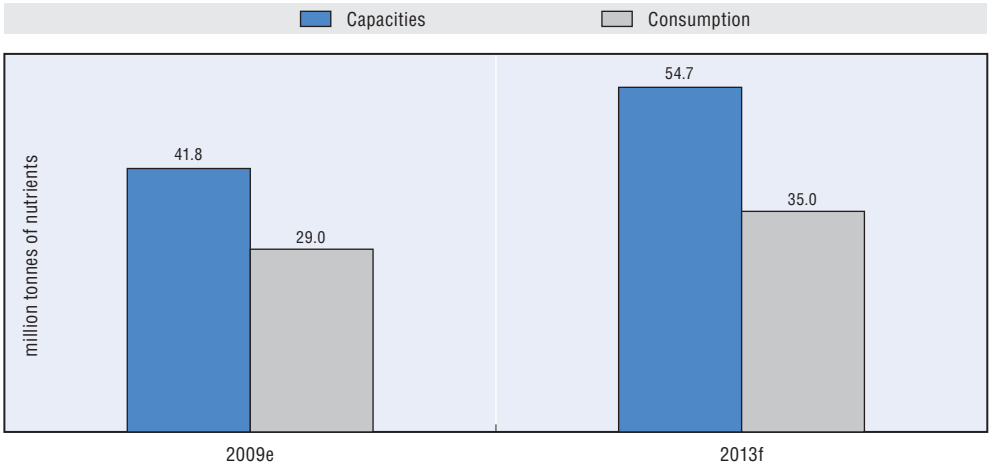
Figure 5.10. **DAP (P-based fertiliser) supply-demand balance**



Source: International Fertilisers Association, 2010.

As a result of forecasted oversupply of all major mineral fertilisers (N-, P-, K-based) the market is facing the prospect of softening balances through 2013. In such conditions, the competition will become increasingly price-sensitive and the fertilisers sector will turn into a commodities market.

Figure 5.11. **Potash (raw material for K-based fertiliser) supply-demand balance**



Source: International Fertilisers Association, 2010.

Cost efficiency

Sector development trends demonstrate that cost efficiency will prevail in world competition. The main cost drivers at the raw materials sourcing stage of the value chain are export and import taxes as well as transport costs. Sourcing a high proportion of raw materials (which is the current industry trend in domestic processing) may have a heavy impact on operating costs. The key costs drivers at the processing level (during intermediate components making and processing into fertilisers, and blending) are feedstock prices and energy costs. Other factors that affect price are environmental legislation, operating rates and extra costs generated by non-vertical integration.

The increase in world prices of natural gas, ammonia and sulphur over the last years has abruptly stopped due to the economic crisis which had a major effect on the fertilisers market. Another development has had a significant influence on the sector prospects: emerging CO_2, cap and trade legislation worldwide. This legislation has reached energy-intensive and carbon-intensive sectors. As a result, the current industry trend is to minimise sourcing costs and secure supplies through vertical integration.

The cost drivers at the stage of distribution and sales are transportation costs (maritime freight, rail and road transport) as well as export taxes. This has provided the impetus for a long-term trend toward regionalisation of mineral fertilisers trade flows. Trade-related policy issues such as protectionism (duties, subsidies) also have an impact on current and future trends of industry development.

Key success factors

With the forecasted oversupply of mineral fertilisers in the coming years, the fertilisers sector is turning into a price-sensitive commodity market. Hence, the competitive position of a company will be defined by its ability to efficiently produce quality products at low cost. Four key success factors for supplying target markets with low-cost mineral fertilisers are integration, up-to-date technology, access to markets and scale of production, assuming that that access to natural resources and feedstock is ensured.

Vertical integration at one site with unified management structures capturing synergies as well as up-to-date reliable and affordable technology are prerequisites to

achieving desired low-cost production results. Access to markets (facilitated by an adequate logistics network) translates into the ability to move the products to the target markets in a cost-effective manner. Finally, the production scale matters as sizeable production units have low fixed-unit costs.

5.5. Sector attractiveness in Kazakhstan

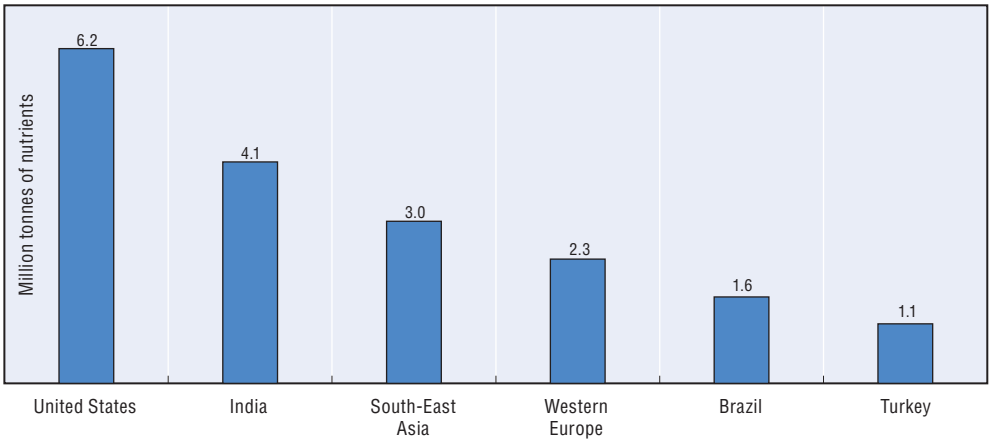
Fertilisers production in Kazakhstan has the potential to supply the fast-growing domestic and regional demand by becoming competitive by building on existing production capabilities, locally available raw materials (such as natural gas and rock) and low production/transportation costs advantage.

Kazakhstan has abundant natural resources base which makes the country's potential for the chemical sector development rather promising. The mining sector under the leadership of oil and gas field development is a core of the country's economy. The government set the ambitious goal to increase the production of mineral fertilisers in Kazakhstan and to penetrate world markets.

Taking advantage of increasing domestic and regional demand

Kazakhstan can build on its low production cost and access to the regional market. The sector has abundant and low-cost local inputs and enjoys distance advantage in supplying fertilisers to bordering countries in the region. The countries of Central Asia, China and India are forecasted to have the highest growth rate in demand for fertilisers (Figure 5.12).

Figure 5.12. **Major importers of N-based fertilisers, 2009, M tonnes of nutrients**

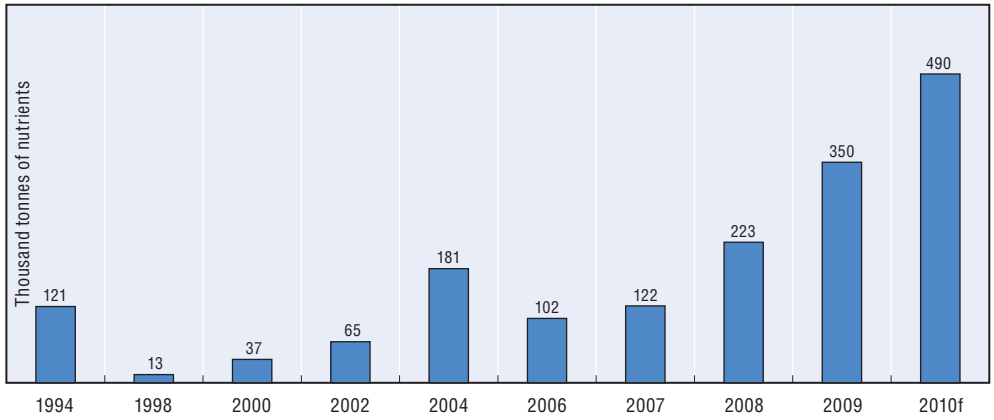


Source: ICIS, International Fertiliser Association.

In addition, there is a very high potential domestic demand in Kazakhstan. Since 2007, the consumption of fertilisers has demonstrated impressive growth rates (Figure 5.13).

In 2007, prices for phosphate fertilisers peaked, reaching USD 1 200 per ton of DAP (Diammonium Phosphate). As a result of the credit crunch and liquidity crisis, the phosphate market suffered a sharp fall in prices and a decrease in demand. Fertiliser consumption also dropped off as lower prices of agricultural crops made it less profitable for farmers to use fertilisers. At the end of 2009, the phosphate fertiliser market started to recover and this trend continues in 2010. Fertiliser demand is expected to increase rapidly,

Figure 5.13. **Fertilisers consumption trends in Kazakhstan and 2010 forecast**

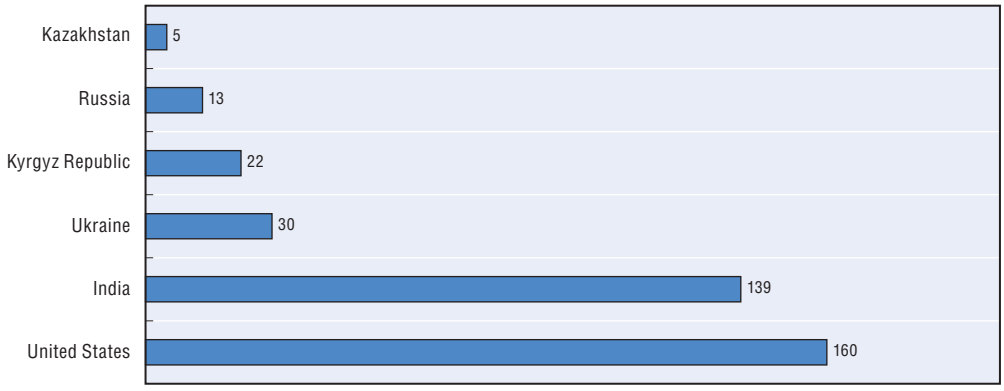


Source: FAO, Kazphosphates LLC, United Chemicals Company Kazakhstan, 2010.

especially for N- and P-based products. Nitrogen-based fertilisers account for more than 50% of the demand, while phosphate-based and potash-based fertilisers are much less used so far. Estimated potential domestic demand in Kazakhstan shows that nitrogen- and phosphate-based fertiliser markets are the most promising and are expected to grow the fastest. In fact, potential domestic demand estimates might account for USD 1 billion.[2]

High potential demand for mineral fertilisers in Kazakhstan is sustained by the vast planted area, low natural levels of nutrients in arable lands, low crop yields by world standards and a very low intensity of fertiliser use (Figure 5.14).

Figure 5.14. **Intensity of fertilisers use, kg per ha of cropland, 2006-07 average**



Source: World Bank, 2010.

Leveraging natural resources

The presence of large untapped phosphate rock deposits and significant reserves of natural gas and sulphur give Kazakhstan a competitive advantage. More than 1 billion of tonnes of phosphate rock reserves are to be mined in the coming years, while estimates of potential reserves vary between 4 billion and 15 billion tonnes.

Kazakhstan's significant reserves of natural gas and sulphur, as well as low-cost access to imported ammonia, give a competitive advantage to the country's mineral fertilisers sector. As ammonia production is heavily dependent on the availability of gas,

Figure 5.15. **Phosphoric deposits under development or to be developed soon**

Million tonnes of estimated reserves of rock

Source: IFA, OECD, 2010.

Kazakhstan's sizeable reserves of natural gas and associated gas contribute to sector competitiveness. There are several ammonia production facilities in bordering regions of Russia and Uzbekistan which have significant excess capacity, and domestic production capacities are expected to expand in the coming years. Sulphur is a by-product of oil and gas production and is abundant in North-western Kazakhstan, where many oil and gas fields are concentrated. As oil and gas producers need to dispose of the excess sulphur, fertiliser producers may source sulphur at prices below world market prices.

Figure 5.16. **Advantages of Kazakhstan's natural gas, sulphur and ammonia**

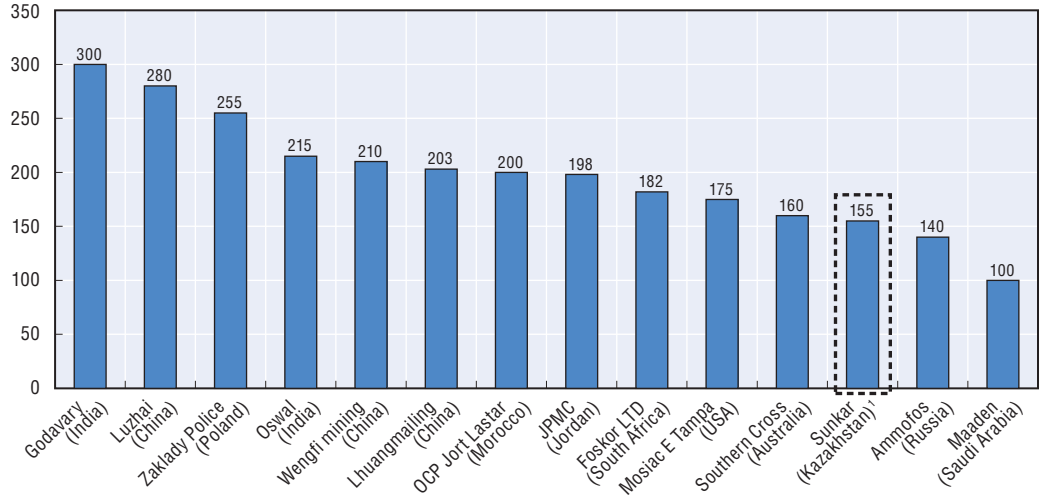
Source: Halyk Finance, 2010.

Development plans

According to investors' plans, new fertiliser facilities should be launched by 2013. KazAzot plans to build a plant with the total capacity of 680 thousand tonnes per year, and an N-based plant (Urea, carbamide) with the capacity of one million tonnes per year. Kazphosphate plans to increase P-based fertiliser production to 1 million tonnes per year. In July 2009, Kazphosphate and United Chemicals Company (owned by Samruk-Kazyna) announced their plans to create a joint venture to build and operate a plant extracting and beneficiating phosphate rock with a capacity of 4 million tonnes per year, as well as a sulphuric acid plant with a capacity of 650 thousand tonnes per year. The Russian company Eurochem recently acquired rights to mine phosphate rock and it plans to build a P-based fertiliser plant with a total capacity of 1 million tonnes per year, an N-based fertiliser plant with total capacity 800 thousand tonnes per year, and a NPK (compounded, non-basic) fertiliser plant with total capacity of 500 thousand tonnes per year. Eurochem's total investment plan amounts to USD 2.5 billion. Sunkar Resources is planning to develop an integrated large-scale, low-cost P-based fertiliser plant, with the targeted capacity of 1.8 million tonnes of DAP per year (800 thousand tonnes of nutrient). The investment plan describes a vertically integrated project comprising mining, beneficiation, sulphuric acid production, phosphoric acid production and production of phosphoric acid to DAP totalling USD 740 million. According to Sunkar's business model, thanks to the low costs of mining and beneficiation, access to cheap sulphur and ammonia, proximity to oil and gas deposits, and proximity to existing infrastructure, production costs are expected to be among the lowest in the world (Figure 5.17).

Figure 5.17. **Comparison of projected production costs of DAP facility**

Expected in 2012, Sunkar Resources, Aktobe region



Source: Halyk Finance, 2009.

5.6. Sector challenges and policy barriers

Fertiliser sector development in Kazakhstan faces a number of challenges and policy barriers which hamper cost and quality competitiveness of the fertiliser supply. Despite the clear advantages and high development prospects, sector growth has some limitations. Kazakhstan's mineral fertiliser production capacities are underutilised owing to low domestic demand, imports of higher-quality fertilisers and the use of obsolete technologies,

resulting in low profitability of the sector. Being a landlocked country, Kazakhstan has to cope with the increased cost of transportation and more difficult access to markets. Low quality of local inputs (phosphate rock), an obsolete logistics infrastructure inherited from the Soviet Union, and old and inefficient technologies seriously limit sector development. Global trends of the fertiliser sector signal that production capacities are expected to expand until 2013 which puts additional pressure on domestic producers who are already facing strong competition from China and the Russian Federation. One more threat has origins in the domestic consumption, where farmers may be unable to purchase fertilisers due to the lack of finance.

Demand-side challenges

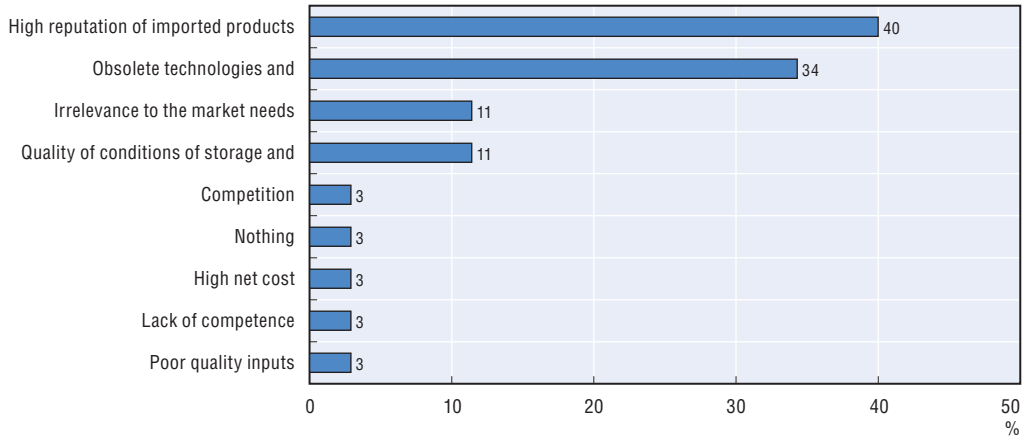
Kazakhstan's market has a growing demand for fertilisers. The main policy priority is to educate farmers and support them to ensure that they have enough know-how and economic power to purchase and use fertilisers. This task may be delivered through educational measures in the network of extension centres.

Supply-side challenges

Obsolete infrastructure and technology

Over the last 10 years, a mismatch between domestic offer and demand could be observed. Obsolete technologies and infrastructure were inherited from the Soviet era and they are still widely in use due to the lack of capital investments in new technologies and modernisation. Basic fertiliser technologies are used in processing plants (the country has a very low productivity of NPK-based fertilisers). The private sector does not sufficiently fund scientific research needed to keep the sector competitive. According to the CCS, 34% of respondent businesses see obsolete technologies and outdated equipment as a hurdle for business development (Figure 5.18). Moreover, 64% of companies (OECD CCS, 2010) have not invested in modernisation of technologies or acquired new machinery for expansion or creation of production capacity in the recent years.

Figure 5.18. **Obstacles for business development**

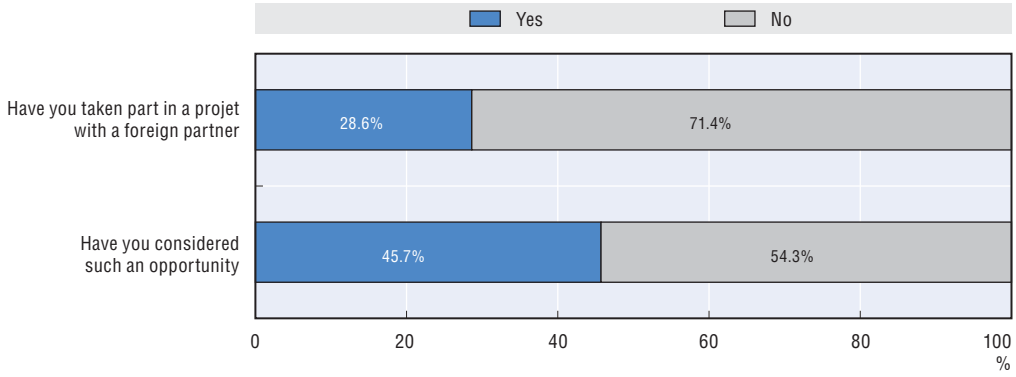


Source: OECD CCS, 2010.

Investment promotion and facilitation

Although a number of investment projects have been announced, as mentioned above, the awareness of foreign investors of business opportunities in the mineral fertiliser sector in Kazakhstan is rather low. This is supported by the results of the OECD CCS, which shows that only 28.6% of respondent businesses have taken part in projects with foreign partners and only 45.7% considered such co-operation (Figure 5.19). The latter figure shows that almost half of the companies in the country are willing to work with foreign investors, if such opportunities existed.

Figure 5.19. **Co-operation with foreign investors**

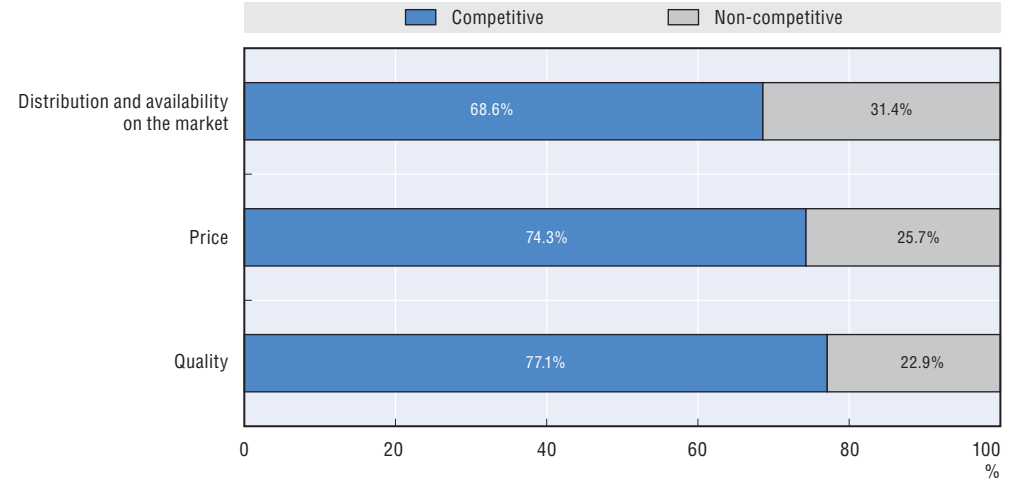


Source: OECD CCS, 2010.

Cost, quality and distribution

Cost, quality and distribution of domestic products are holding back the competitiveness of the fertiliser sector in Kazakhstan. According to the CCS of producers and distributors, 22.9% of Kazakhstan's mineral fertilisers are non-competitive in terms of quality, 25.7% in terms of price, and 31.4% in terms of distribution and availability on the market (Figure 5.20).

Figure 5.20. **Competitiveness of domestic products**



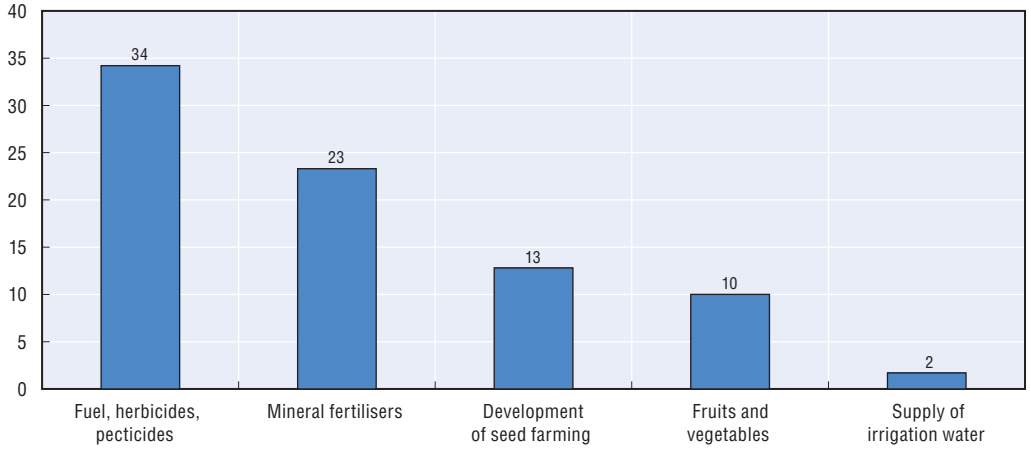
Source: OECD CCS, 2010.

The low quality of raw materials, for example fine-grained and hard-cleaning phosphate rock from Karautskiy field with a low concentration of phosphate, requires higher beneficiation costs and thus contributes to lower competitiveness of domestic fertilisers.

Support to domestic producers

To support domestic producers of chemicals for agriculture, the Government of Kazakhstan has launched a subsidy programme. As the objectives of the government in the agribusiness sector aim at increasing the gross agricultural output by 20.7% by 2011 in comparison with 2007, the government introduced a series of measures to ensure independent food supply; increase export in agricultural products; and stimulate producers to increase the use of fertilisers, herbicides and pesticides. Starting in April 2006, the government subsidised purchases of domestically produced agricultural chemicals by covering 40% of farmers' costs. This creates a rent situation for domestic producers that results in distortion of competition and gives limited incentives to domestic producers to improve the quality of domestic end product (Figure 5.21).

Figure 5.21. **Kazakhstan federal subsidies for farming inputs, 2009**



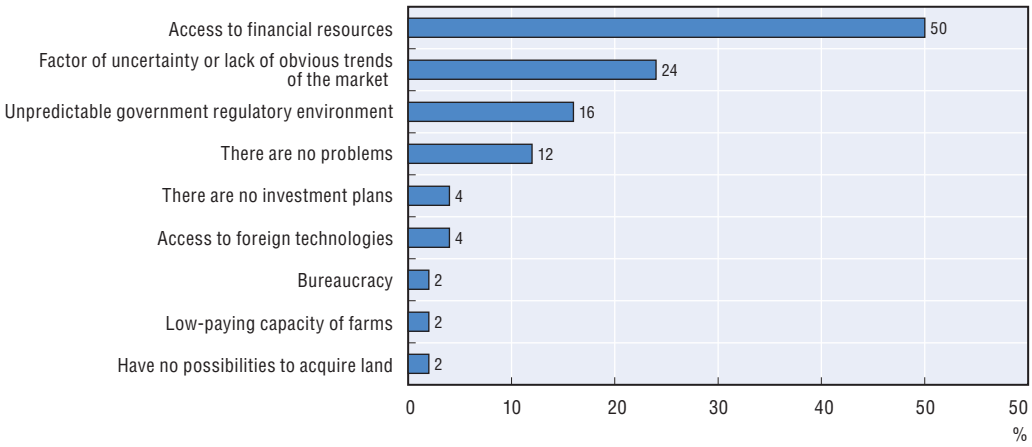
Source: US Commercial Service, International Business Strategies, Kazphosphates LLC, 2009.

Following a decline during the 1990s, fertiliser production in Kazakhstan has dropped dramatically and the quality of domestic products has gone down. Domestic production of N-based fertilisers started to recover over the last years, and Kazakhstan exported some N-based fertilisers. However, Kazakhstan is still a net importer of N-based fertilisers. By contrast, domestic production of P-based fertilisers has decreased recently, although Kazakhstan is close to self-sufficiency regarding P-based fertilisers. Domestic production of K-based fertilisers is non-existent in the country, and, as a consequence, the whole consumption of these fertilisers is imported, mainly from the Russian Federation.

Access to finance

The mineral fertilisers sector is very capital intensive and its development and modernisation depend on the availability of low-cost funds to finance large-scale projects. Access to finance is considered to be one of the major obstacles for implementation of investment projects by the fertilisers sector in Kazakhstan. According to the CCS results, 50% of surveyed companies indicated this as a major barrier (Figure 5.22).

Figure 5.22. **Major barriers for implementation of investment projects**



Source: OECD CCS, 2010.

Access to financing is also limited by high costs, with 66% of businesses underlining high interest rates as a major problem.

Affordability of financing for the growth of the fertiliser sector as well as the entire agricultural sector is of paramount importance, particularly for small- and medium-sized farmers.

5.7. Sector strategy and policy recommendations

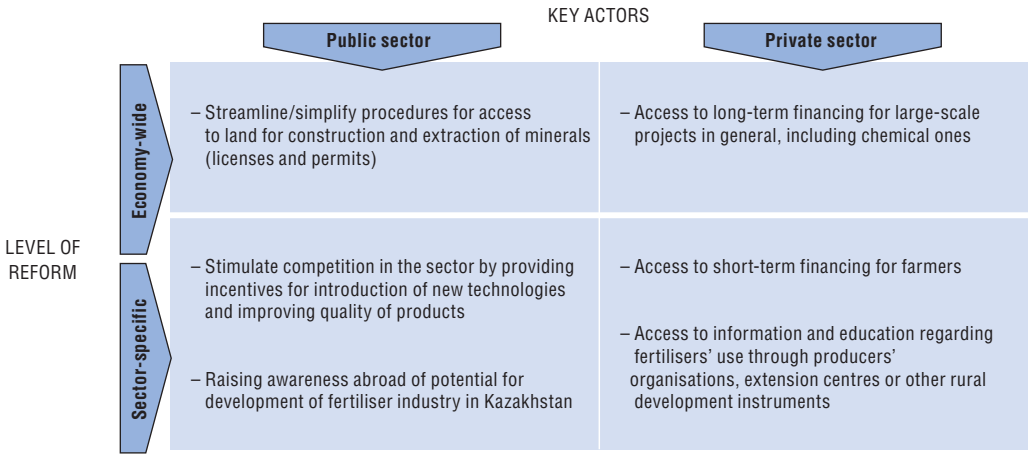
As demonstrated in the sections above, the mineral fertilisers sector has strong potential for improving its competitiveness. Large deposits of phosphate rock estimated between 4 billion and 15 billion tonnes, and significant reserves of natural gas and sulphur give Kazakhstan a clear advantage. Growing domestic demand supported by the vast planted area, low natural levels of nutrients in the soil and generally low level of fertiliser use, as well as opportunities for exporting products to countries in Central Asia and neighbouring regions of China and Russia provide an excellent opportunity for development of the sector.

Policy recommendations

Low quality of domestic product, high production costs due to low quality of raw materials, obsolete technology, outdated infrastructure and limited access to long-term financing hamper the competitiveness of the mineral fertiliser sector in Kazakhstan. A number of economy-wide and sector-specific recommendations should be considered and implemented jointly by the government and the private sector (Figure 5.23).

At the economy-wide level, the government needs to simplify procedures for access to land for construction of new production facilities and extraction of minerals. According to the CCS, 58% of respondent businesses mentioned that they have faced issues in this area. The World Bank/EBRD *Business Environment and Enterprise Performance Survey* (2010) shows that only 30% of companies in the country indicated that business licensing and permits are not a problem. Also, the government can facilitate international trade by benchmarking customs clearance procedures to international best practices; thus reducing financial and time costs of the firms and improving the competitiveness of the economy in general and fertiliser products in particular.

Figure 5.23. **Policy recommendations**



Source: OECD *Sector Competitiveness Strategy and Review*.

In order to stimulate competition in the sector, the government can provide incentives for introduction of new technologies and improving quality of products. As mentioned in the previous sections, foreign investors such as Eurochem and Sunkar announced plans to invest in fertiliser production facilities in Kazakhstan. However, at the moment there are two large producers of mineral fertilisers in Kazakhstan, namely KazAzot and Kazphosphate. This creates a duopoly situation on the domestic market and has a negative effect on the sector in terms of lower quality of products, higher prices and lack of investment in new technologies.

Kazakhstan can also improve the competitiveness of its mineral fertilisers sector by providing access to long-term financing for large-scale investment projects and promoting business opportunities in the sector to foreign investors. According to the CCS, 50% of surveyed companies indicated long-term financing as one of the major obstacles for development of their businesses. Attracting foreign investors can help introduce modern low-cost technologies and modernise production facilities, either through joint projects with domestic companies or through greenfield investments. This could also lead to moving up the value chain and production of higher value-added complex mineral fertilisers.

Sector strategy

Kazakhstan has broad opportunities for development of the mineral fertiliser sector, which has a high growth potential. Global trends in fertiliser consumption are promising and domestic demand is projected to grow considerably in the coming years, which makes the sector's short- and mid-term prospects quite appealing.

Kazakhstan could exploit its cost advantage at the regional level, provided that product quality, requisite technology and efficient logistics are in place. Leveraging domestic demand, attracting foreign technologies and know-how are key determinants of success and competitiveness.

Raising awareness of foreign companies with regard to business opportunities in the country can be achieved through sector-specific investment promotion and facilitation campaigns. These activities should be focused on targeting global fertiliser companies, which can bring modern low-cost technologies for production of high quality products. New projects can be implemented either independently by the foreign investors or through

joint projects with domestic producers, where investors bring their technologies and domestic companies provide access to mineral deposits.

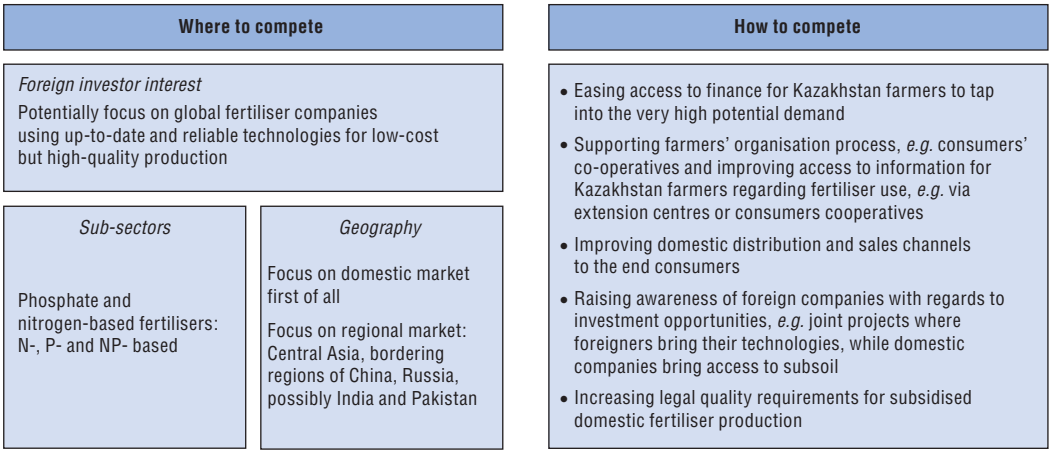
Based on the availability of raw materials in the country, development of phosphate and nitrogen-based fertilisers (N-, P- and NP-based) production has good prospects. Given the projected growing domestic market demand, initial focus should be on capturing the domestic market. Then domestic producers can explore opportunities in such markets as Central Asia, bordering regions of China, Russia, possibly India and Pakistan, where demand is also expected to grow.

In line with the government's goals to increase production and yields of agricultural crops, the industry (jointly with the government) needs to support and educate small and medium-sized farmers to ensure that they have information and knowledge on the appropriate use of fertilisers. This task can be achieved by supporting the development of farmers' organisations or extension centres.

The sector could also benefit from the improved domestic distribution and sales channels to end consumers.

Improving access to finance for small- and medium-sized farms through sustainable financing mechanisms (such as credit guarantee schemes and supply chain financing) will empower them to purchase and use fertilisers, which in turn, will support the development of the mineral fertiliser sector in the country.

Figure 5.24. **Where and how to compete**



Source: OECD *Sector Competitiveness Strategy and Review*.

Notes

1. According to estimates based on FAO, Kazphosphates LLC, United Chemicals Company Kazakhstan.
2. According to estimates based on FAO, Kazphosphates LLC, United Chemicals Company Kazakhstan.

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Chapter 6

Logistics for Agribusiness

The global transport and logistics sector, largely influenced by general business conditions and economic activity, underwent significant growth in recent decades. At the same time, the sector experienced a decline in demand and intensifying cost competition as a result of the recent economic downturn and subsequent decreases in volumes of international trade. Kazakhstan's transportation sector faces key challenges because it has not been modernised sufficiently. This includes physical infrastructure and transport facilities, institutional policies and regulations as well as operations capability and logistics. However, Kazakhstan has an opportunity to turn its transport and logistics sector into a vehicle of economic diversification and competitiveness.

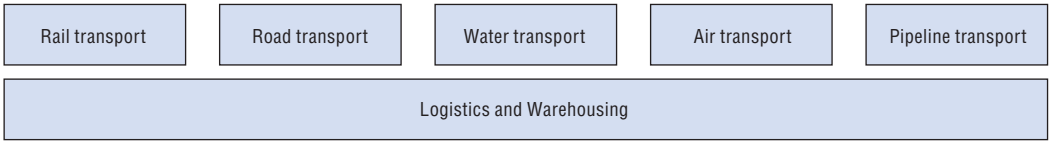
6.1. Summary

Transportation and logistics services are an essential part of agribusiness. They provide a link between all members of the agribusiness value chain who are continuously faced with moving, handling, processing and storing raw materials and products. The co-ordination, planning and implementation of efficient flow of inputs and finished products are critical for competitiveness and success of the businesses.

Logistics and transportation services are involved at all stages of business operations from acquiring raw materials to delivering the finished products to the final customer, including transport, tracking, freight forwarding, warehousing, inventory handling, customs and packaging. The goal of logistics services providers is to ensure timely and reliable delivery of goods in a cost-efficient way.

There are five main modes of transport: rail, road, water, air and pipeline transport (Figure 6.1). The choice of transport mode used to deliver merchandise depends on the availability of specific transport services at the point of origin and at destination as well as volume, weight and value of cargo, transit time and cost of delivery as well as reliability and security. It also depends on the availability of specific transport services at the point of origin and destination. In most cases, cargo is delivered by a combination of different types of transport. The logistics sector also provides storage and warehousing for goods.

Figure 6.1. **Structure of the transport and logistics sector**



Development of the global transport and logistics sector is largely defined by general business conditions and economic activity. The sector saw significant growth during the last decades, which was fuelled by globalisation and growing international trade. For example, the OECD countries exported USD 537.4 billion and imported USD 552.2 billion worth of transportation services in 2007. Between 2002 and 2007, the average annual growth rate for exports was 15.1% and for imports it was 14.4% (OECD, 2009b).

At the same time, the sector experienced a decline in demand and high cost competition as a result of the recent economic downturn and subsequent decreases in volumes of international trade.

The transportation sector in Kazakhstan and logistics services in particular face several key challenges which stifle its growth. Kazakhstan's transportation system by and large was inherited from Soviet times and had not been modernised sufficiently. Impediments fall under three categories: physical infrastructure and transport facilities, institutional policies and regulations, and operational capability and logistics industry.

At the same time, Kazakhstan has an opportunity to turn the transport and logistics sector into a vehicle of economic diversification and competitiveness.

6.2. Sector definition and segmentation

Transportation and logistics is one of the world's largest service sectors and its value is estimated at 14% of global GDP (Pesut, 2009). It involves a range of services and processes related to the movement of goods from the point of origin to the point of consumption in a most cost-efficient, timely and reliable way. Transportation services are vital for production and trade in all sectors of economy. Raw materials, parts and supplies need to be moved between different locations in order for businesses to produce goods and provide services. Ready products need to be delivered from production sites to consumers through various sales channels. While products can be delivered directly to consumers, most often they will pass through warehouses, distribution centres and sales outlets.

Railroads provide a cost-effective way to deliver large volumes of low-value bulk cargo at large distances. With the increase in the use of containers, railways became an important mode of transport for non-bulk cargo.

Road transport is the most flexible way to move freight on land. It is used to transport higher value cargo both at short and long distances. Road trucks can deliver goods door-to-door from the seller to the buyer.

Air transport is mostly used to transport high-value, low-volume goods; for certain types of goods it can be the most efficient means of transport due to its speed and reliability.

Water transport provides an inexpensive way to transport freight at long distances but at a much longer time. It is used for transporting both bulk cargo (oil, construction material) and to ship containers.

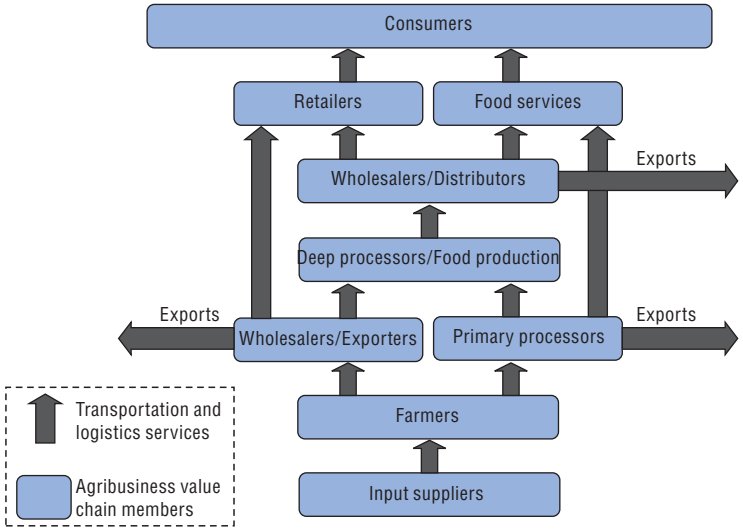
Pipelines are purpose built to transport a specific commodity, such as gas or oil. Although pipelines are completely inflexible from the geographic point of view, they provide the most cost-efficient, safe and reliable way to deliver specific commodities.

Logistics services are involved at all stages of business operations from acquiring raw materials to delivering the finished products to the final customer, including transport, tracking, freight forwarding, storage, warehousing, inventory handling, customs and packaging. The goal of the logistics services providers is to ensure timely and reliable delivery of goods in the most efficient way.

With the growing complexity and geographic distribution of supply chains, logistics services are often outsourced to external service providers. This allows companies to concentrate on their core competencies and receive professional services from third-party logistics (3PL) operators, which function as full-service logistics providers. Outsourcing logistics services provides companies with increased flexibility of logistics at lower operating costs and thus contributes to increased competitiveness. Fourth-party logistics (4PL) is a relatively new concept where a 4PL provider acts as a supply chain integrator that assembles and manages the resources, capabilities and technology of its own organisation with those of additional service providers in order to deliver a comprehensive supply chain solution (OECD, 2002).

Transportation and logistics are a vital part of agribusiness as they provide a link between all members of the agribusiness value chain, from input suppliers to farmers, from farmers to processors, from processors distributors and further to retailers and food services companies (Figure 6.2).

Figure 6.2. **Transportation and logistics in the agribusiness value chain**



Source: OECD analysis.

The figure above presents a simplified flow of products within the agribusiness supply chain, which is considerably more complex and intertwined in reality. Agribusiness firms are continuously faced with the moving, handling, processing and storing inputs and finished products. There are two primary directions of product flows: inbound, which supply inputs; and outbound, which deliver products further to within the supply chain. The co-ordination, planning and implementation of efficient flow of inputs and finished products are critical for competitiveness and success of the company.

Transportation and logistics can be either handled by the company itself or outsourced to an external provider. Reliability of the service, timely delivery, security and safety of goods at storage facilities and along the route, as well as costs are among the key determinants of successful logistics and transportation services.

6.3. Sector trends

State of the global economy

Globalisation and economic development resulted in strong growth of international trade volumes. The value of global trade increased more than 20-fold since 1950 with the share of manufactured products increasing from 40 to 70% (OECD/ITF, 2009). In the period between the years 2000 and 2008, international trade in merchandise was growing at an average annual growth rate of 12% (WTO, 2009). As a result, the demand for transportation and logistics services expanded as well. The volume of ocean freight increased fourfold since the 1970s, which represents an annual average growth rate of 4%. The volume of air cargo was growing at an average annual growth rate of 9% and increased by nearly 20 times during this period. The transport and logistics sector during this period was experiencing a significant lack of capacity.

After a period of strong growth, starting from mid-2007 the global transportation sector came under pressure due to a sharp increase in the cost of fuel. The global recession of 2008-09, which caused considerable a slowdown in economic activity and global trade

volumes, had a negative impact on transportation and logistics business, owing to rapidly dropping demand, lower prices and intensified cost competition.

Energy efficiency and environment protection

Another trend in the sector is a focus on lowering carbon emissions and improving energy efficiency. This has a profound effect on all sub-sectors, from airlines to road trucks. The airlines responded to tighter regulations and higher fuel costs by placing orders for new, more efficient and environment-friendly planes, while the automotive freight sector needs to replace older trucks with those producing lower emissions.

Containerisation

Containerisation is a trend in transportation where containers of standard sizes are used for moving goods. Containerised shipping developed as a result of the need to transport general cargo or products which were too small for the traditional bulk system, as well as the need to move high-value and delicate cargo. Containerisation helps prevent poor handling of products, which is characteristic for bulk transport systems; it reduces costs related to handling, as the goods can be loaded into the container at the departure point and unloaded by the recipient at the final destination. In addition, containers can help to increase reliability, reduce delivery times and provide for better intermodal connectivity, as a container can be loaded easily loaded off the ship directly onto a truck or rail. Between 1995 and 2008, world container traffic more than tripled in volume from 137 million twenty-foot equivalent units (TEUs) to 387 million TEUs, growing at an average annual rate of about 8% (BTA, 2010).

Reefers and cold stores

Reefers refer to refrigerated vehicles, which include ships, railway wagons, refrigerated trucks and containers. Together with cold stores (warehouses) they create a cold supply chain, which provides an uninterrupted flow of storage and distribution services when products are stored at a given temperature range. The development of cold supply chains provided the ability to ship not only frozen but fresh food products at long distances while maintaining their freshness. With the increase in trade volumes of fresh products and longer distances at which they are transported, the demand for refrigerated logistics faces limited capacities which will result in higher transportation costs (Plunkett, 2008).

6.4. Sector attractiveness in Kazakhstan

Kazakhstan is located at the crossroads of transit routes between Europe to Asia. The historical Great Silk Road ran across the territory of the country. With the strong growth of global trade, and especially the trade between Europe and Asia (and China in particular), Kazakhstan has a great chance to benefit from its favourable geographic location. It can also serve as a transport link between China and countries of Central Asia, Trans-Caucasus region, Iran and the Middle East.

Kazakhstan's transport system comprises about 93 100 kilometres (km) of roadways and 15 100 km of railways, 4 100 km of waterways and 16 300 km of pipelines. The transportation sector employs 198 000 people and generates over 9% of Kazakhstan's GDP.

Road and rail account for the transportation of nearly 90% of total cargo volume. The volume of railway freight, primarily dominated by bulk commodities and heavy machinery, has been growing at the rate of 6.4% annually between 2000 and 2007. Freight volume

transported by road trucks is 6.4 times higher compared with rail and has increased by an annual average of 8.3% during the same period.

Kazakhstan has a number of logistics centres and free-trade zones to facilitate production, warehousing and transportation of products. It has two famous logistics centres. The High Tech Logistics Centre in Almaty, run by a Russian-Kazakhstani joint venture company, has two sites for warehouses measuring 35 and 130 hectares. Two warehouses operating on the smaller site have six-high pallet racks and a rail connection, and are equipped with a modern warehouse management system and bar code facility. They are used primarily for distribution of imported goods from Europe and Russia within the country and to other parts of Central Asia.

The second logistics centre, DAMU, is located on 210 hectares of land 10 km away from Almaty. Run by the Amanat Invest Group, it offers integrated logistics services including storage, handling, transport, customs clearance and repacking. The centre has 100 000 pallet spaces, one of the largest in the country.

In order to facilitate the trade flow between China and Kazakhstan, the countries are building a logistics centre, Khorgos, located at the border crossing between two countries with 185 hectares on Kazakhstan's side and 343 hectares on China's side. The construction of this logistics centre could save up to 18 days of railway and motorway shipment of goods from China to Russia and Europe.

Kazakhstan experienced strong economic development in the 2000s, which was characterised by high growth of GDP. Per capita GDP increased 5.7 times from USD 1 486 in 2001 to USD 8 535 in 2008. The country has also seen strong growth in international trade, with 12-fold growth in the value of exports, from less than USD 6 billion in 1999 to over USD 71 billion in 2008. During the same period, imports multiplied from less than USD 4 billion to nearly USD 38 billion (Figure 6.3). A growing economy and rising incomes of population supported the development of domestic trade, which grew from USD 2.3 billion in 2001 to USD 4.3 billion in 2008.

Figure 6.3. **Kazakhstan's international trade**

Source: UN data, 2010.

Fast-growing domestic and international trade and economy in general stimulated the growth of the transportation and logistics sector in Kazakhstan, which doubled from USD 1.6 billion in 2001 to over USD 3.2 billion in 2008 (Figure 6.4).

Figure 6.4. **Value added for trade and transport, at constant 1990 prices**

Source: UN data, 2010.

6.5. Sector challenges and policy barriers

In order to stimulate the development of the transportation sector and improve regional and sub-regional co-operation and utilise fully the geographic advantages of its location, the Government of Kazakhstan elaborated and approved the Strategy of Transport Sector Development to 2015. Construction and upgrading of infrastructure will require an investment of USD 26 billion. The ultimate goal of the Transport Strategy is to ensure accelerated development of the transport and logistics sector in line with the economic development strategy of the state. The Strategy covers 2006-15 and is supposed to be implemented in two stages: 2006-11 and 2011-15.

Implementation is expected to upgrade the national transport system and create an efficient transport network on a par with best international standards and practices. Financing of the infrastructure on self-sufficiency principles will ensure sustainable development and maintenance at a high technical level.[1]

Obsolete physical infrastructure and transport constraints

The cost of rail transport is quite high, and the system faces growing demand and requires facilities, especially warehouses, in certain important rail nodes that are rather outdated. Storage capacity in these nodes has to be expanded in the first place. According to the CCS, 42% of respondent businesses indicated lack of warehousing facilities as a problem for their business operations and development.

Kazakhstan has practically no Class I and Class II roads. The quality of its roads varies across regions. Besides the low quality and capacity of roads, another problem is empty

1 Kazakhstan's governmental web-portal, *http://en.government.kz/resources/docs/doc5*.

return cargo, which also increases transport costs and makes transport and logistics services less competitive. 60% of respondent businesses quoted public infrastructure as a problem for their business development.

Institutional policies and regulations

High customs levies are undermining sector development. Previously, export levies were based on volumes, with USD 250 charged per sq. m. of cargo. Recently the mode of calculation of export levies was changed, with levies being based on weight, at USD 600 per ton. Another issue is the cumbersome customs clearance procedures. An exporter spends 54 days to export a TEU while an importer spends 53 days to bring in one TEU due to complex and complicated customs procedures (ADB, 2009). Frequent changes in customs laws make the policy regime for the transport and logistics sectors too unstable for businesspeople.

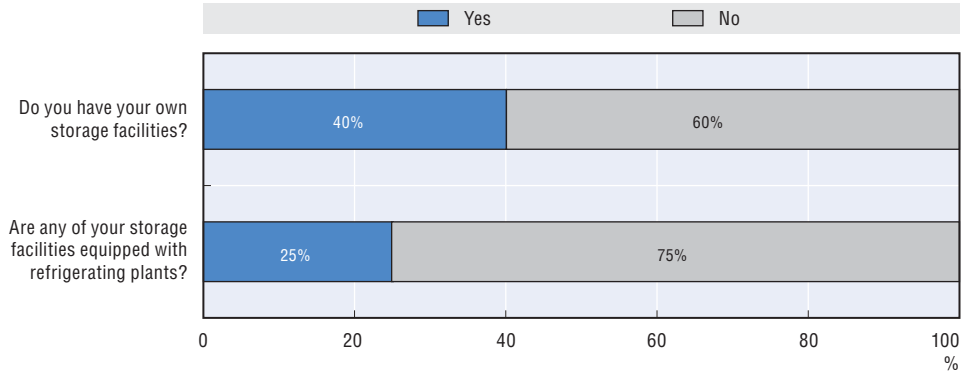
Limitations in banking and finance are stifling sector growth. The CCS revealed that more than 40% of respondent businesses experience difficulties accessing financing. The high cost of financing also deters companies from reinvesting and purchasing new equipment such as more fuel-efficient trucks. Thus, there is a need to reduce the high costs of financing and step up the number of banking sector players to meet the growing need for affordable banking sources of funding modernisation projects in the sector.

Operational capability

Kazakhstan has only 73 enterprises offering logistics services. Service providers are express and courier companies, customs brokers and freight forwarders, or manufacturers and traders. Kazakhstan has a number of logistics centres, free trade zones and exhibition marketplaces to facilitate the production, warehousing, transportation and final sale of products (ADB, 2009). Internal demand for high quality logistics services, however, is not met by supply. According to the OECD survey, more than 50% respondent businesses faced problems with regard to transport means which affected production.

According to the CCS, only 40% of surveyed logistics and transport companies own storage facilities with only 25% of those storage facilities equipped with refrigeration plants (although all companies surveyed indicated that they work with agricultural products).

Figure 6.5. **Storage facilities**

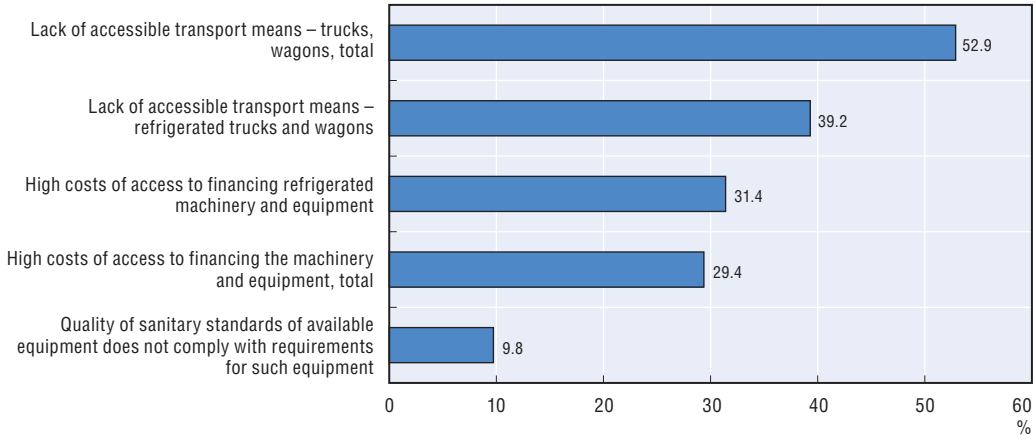


Source: OECD CCS, 2010.

Kazakhstan's human resources need training and skills improvement. The four established institutions in Almaty produce graduates in transportation. However, there is no available training in logistics (especially integrated logistics), supply chain management or innovative technological innovations. More than half of the respondents of the CCS brought up the shortage or high costs of managerial and/or logistics skills.

According to the survey there is an overwhelming lack of accessible means of transport such as trucks and wagons, with 53% of respondents citing it as one of the key barriers to development of agribusiness. More than 39% pointed out the lack of refrigerated transport means, which is essential for transportation of perishable food products such as meat or dairy. This implies that the cold chain logistics is potentially not capable of meeting the demand for transportation and storage of food products and thus limits the development of agribusiness in the country (Figure 6.6).

Figure 6.6. **Production potential limits in agribusiness**



Source: OSCE CCS, 2010.

6.6. Sector strategy and policy recommendations

In the last few decades much of the movement, packaging and storage of food products have been carried out by logistics services providers. Their services were used both by food and agricultural producers (which predominantly outsource the transportation function) and by modern retailers (which often outsource transportation, packaging and storage to third-party logistics providers). Among the major forces behind this tendency has been the desire of companies to concentrate on the core function of business, whether it is food manufacturing or retailing. Modern retailers acted for as a catalyst for growth in food logistics and transportation sector.

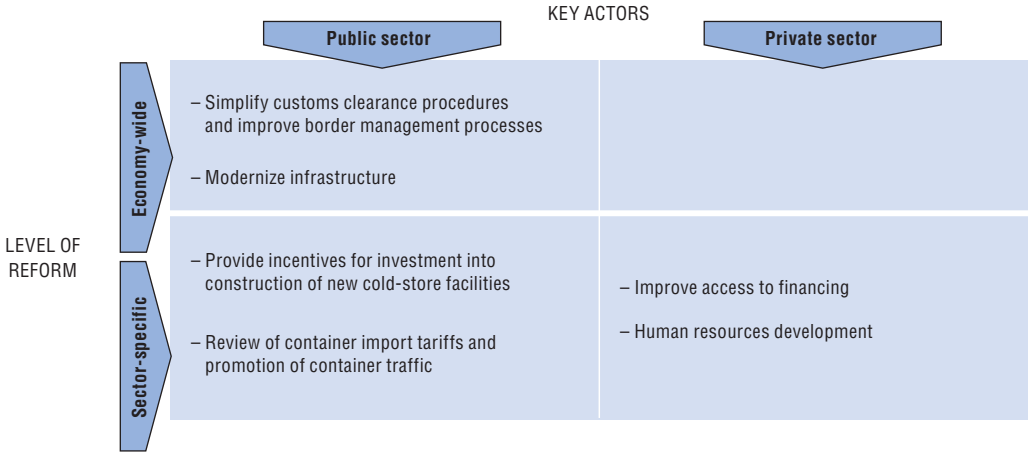
Whether internal or outsourced, logistics are vital for transportation and storage of perishable products, such as fresh and frozen meat, dairy and fresh produce. In order to maintain quality, food products need to be stored and transported in the environments with controlled temperatures, levels of humidity and free from pests.

Although often viewed only as a cost, effective and efficient logistics can actually reduce costs and provide additional benefits. For example, effective logistics can reduce wastage, provide for longer shelf life, and reduce stock-outs and restocking times.

Several potential policy options might be considered to facilitate the development of the logistics sector in the country. In the short term, there is a need to assess border

management processes, classification and valuation; improvements of the border clearance procedures may reduce the costs and time of imports and exports.

Figure 6.7. **Policy recommendations**



Source: OECD *Sector Competitiveness Strategy and Review*.

Several potential policy options might be considered to facilitate the development of the transport and logistics sector:

Modernisation of the physical infrastructure with the focus on construction of new railroads, improvement of regional road systems, development of integrated logistics centres and an increase in the throughput capacity of existing ones.

The government needs to consider providing incentives for investments in construction of new cold-store facilities and to accelerate the development of new terminals for cereals exports.

Improvement of operations capability and the policy regime, with the emphasis on review of *container import tariffs and promotion of container traffic*. Seamless movement of raw materials and finished goods across borders and overseas depends on simplification and harmonisation of trade, customs and transit documentation. Modern information systems can provide the means to expedite these processes.

Investment in human resource development can ensure long-term viability and competitiveness of the sector. In close collaboration with the private sector and educational institutions, the government needs to facilitate the introduction of modern logistics curriculum in the educational institutions in the country.

It is also important to ensure improved *access and affordability of financing* for sector players, as the infrastructure development requires significant investments.

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Chapter 7

Information Technology and Business Services Sectors

Although there is incomplete statistical data for estimating the impact of information technology (IT), outsourcing and business services have strong potential. Kazakhstan is well positioned to respond to its growing local demand and regional opportunities due to its low labour costs, language skills and proximity to Central Asian countries, which could use Kazakhstan as a platform for their own IT and business services. The skills of its user interface, designers and developers are sufficient but Kazakhstan's IT sector lacks soft skills and formal qualifications are also a major gap. There is little IT innovation and IT graduates cover only 40% of Kazakhstan's demand. A lack of public-private dialogue on the competencies required by the market as well as operational constraints such as administrative barriers, slow speed of liberalisation and taxation of foreign training firms are additional challenges. The human capital gap could be addressed through linkage programmes with multinational companies, particularly in the oil and gas sectors, healthcare, media, retail and telecommunications

7.1. Summary

The importance of the spill-over effect of information technology

Countries that successfully adopt information technology (IT) hardware, software and telecommunication equipment can be more attractive for FDI (Gholami *et al.*, 2003) which in turn, is conducive to economic diversification and competitiveness in the global economy. Measuring IT spillover effects is closely related to the so-called productivity paradox (Solow, 1987), when rapid diffusion of computer technologies in the 1980s had little impact on productivity growth (Brynjolfsson and Yang, 1996). However, as OECD (2003) reports, there is a growing number of firm-level studies that provide evidence of the abolishment of the productivity paradox with much progress in measuring IT investment and the diffusion of IT technologies in OECD countries (Shinjo and Zhang, 2003; Pilat *et al.*, 2004; Vu, 2005).

Economic literature provides many methods for estimating the contribution of IT spillover effects on performance at different levels. Even within the neoclassical growth accounting methodology, there are at least two ways of measuring IT spillover effects. The first approach deals with the decomposition of the growth rate of output into the sum of the growth rates of the factors including IT capital and total factor productivity (TFP). The second way is related to the econometrical estimation of the change in the growth of TFP as dependent on the change in the growth of IT capital. In both cases it is essential to measure IT capital stock.

Incomplete statistical data on information and communication technology (ICT) in transition economies, including Kazakhstan, limits the application of growth accounting methodology for estimating the impact of ICT. Therefore, the direct contribution of ICT production to GDP and the increase of labour productivity in the ICT sector can be used as an alternative. The results of the analysis demonstrate that the ICT sector, notably the production of ICT goods, remains small and its impact on growth is minor. Moreover, the contribution of ICT goods and services to growth is decreasing. The actual growth of the ICT sector is ensured by a higher increase in telecommunications assets than in IT hardware and IT software. Nevertheless, telecommunications and information technology impact growth differently, as the former is linked to ICT infrastructure while the latter demonstrates a potential capacity of IT absorptions.

Information technology outsourcing and business services in the context of Kazakhstan: A strong potential

IT outsourcing and business services refer to hiring an external provider to perform IT or business functions for the company. Outsourced IT activities include application development, testing and management, and quality assurance. Outsourced business activities include financial and legal services, human resources and transaction processing, etc.

The value of the IT-related outsourcing sector is currently estimated at about USD 120 billion per year.[1] The business process outsourcing market is forecast to reach USD 450 billion by 2012. India still remains the premier off-shoring destination, but more and more delivery centres emerge in Eastern Europe, Asia, and Central and South America.

Innovation is key for the development of the IT and business services sectors. Because of economic conditions, severe competition and pressure to grow, clients today need to rely more on service providers' innovation capabilities.

The IT and business services sectors are becoming increasingly important for Kazakhstan's economy and employment. There are about 500 IT and business services companies with different levels of maturity in the country. Although the sectors are still in an embryonic phase in Kazakhstan, they have a growing potential nurtured primarily by local demand. The factors which support this growth are political stability and economic freedom of the country; the government's commitment to enhance education; existing skills; relatively low cost of labour; and demand from government, local businesses and foreign investors based in the country. Besides local demand, Kazakhstan's regional opportunities favour the development of these sectors as well. Due to its lower labour cost, qualifications in the sector comparable with Russia and language skills, Kazakhstan could aim at taking a share of the Russian outsourcing market. Kazakhstan could benefit from its proximity with Central Asia countries and more advanced ICT infrastructure to become a platform for IT and business services rendered to investors and businesses operating in Central Asia.

The initial capabilities of Kazakhstani service providers were assessed by the OECD *Country Capability Survey, Kazakhstan 2010*. This survey was carried out with 300 private companies from IT and business services sectors.

Kazakhstani IT and business services firms have some capabilities to respond to local demand and seize the regional opportunities. Employees, especially those under age 40, have good language skills. The skills of user interface/multimedia designers/developers and system/network engineers are reported as good by most IT companies in the CCS. Over 50% of business services companies seem rather satisfied with their accounting, human resources, legal and financial professionals. At the same time soft skills, such as culture of communication and problem solving, are lacking. Culture of communication was pointed out as a major gap by all the IT firms interviewed in Kazakhstan and for 16 %, the formal qualifications are a major gap. Only a very small per cent of IT firms seem to innovate and 62.7% of interviewed IT businesses never participated in any ICT-related event. The largest share of interviewed IT and business services firms are not involved in any government-initiated programmes aimed at bringing together the firms belonging to the same sector. Although the higher education institutions of Kazakhstan release every year about 20 000 ICT specialists, that number only covers 40% of demand for professionals in the respective field.

The barriers hampering the development of the IT and business services sectors in Kazakhstan can be divided into three groups: lack of public-private dialogue, limited human capital capabilities and operational constraints.

The public-private dialogue is dependent on communication between the Ministry of Education, Ministry of Industry and New Technologies, and Ministry of Communication and Information, the technical and business schools of Kazakhstan, and the private sector. These institutions have a central role in developing a common outlook on competencies required by the market.

Because technical, business and marketing curricula in higher education institutions are mostly outdated and theoretical and most local faculty staff are just teaching, not practicing professionals, the level of IT and business education in the country needs to be improved.

IT and business services thrive in countries with advanced ICT infrastructure. Although ahead of its Central Asia neighbours, Kazakhstani ICT is not sufficiently liberalised, and Internet and telephone services are expensive compared to European Union countries. IT firms report that there are administrative barriers related to export and certification of IT products, and taxation of training and consulting services provided by foreign firms.

In order to support the development of IT and business services sectors in Kazakhstan, several policy changes are called for. The public-private policy dialogue has to address the human capital gap and barriers in the IT sector. A linkage programme between local IT companies with multinational enterprises will contribute to capacity and partnership building. Kazakhstani IT and business services providers need to specialise, acquire industry expertise and offer solutions. The targeted specialisation for IT firms could be in software as a service (SaaS), support to various business applications, enterprise resource planning (ERP) systems or web-related services. Business services companies could focus on mobile telecom, sales and marketing support, technical call centres or collection of accounts payable. Both sector firms would gain if they acquired expertise in oil and gas, healthcare, media, retail and telecommunications.

7.2. The ICT impact on economic growth in Kazakhstan

The ICT sector in Kazakhstan remains small with limited impact on growth

The aim of this present section is to provide an in-depth analysis of ICT[2] spillover effects on economic performance in Kazakhstan. A review of the statistical data available from the Agency of Statistics of the Republic of Kazakhstan (ASRK) showed that there is not a well-defined structure for the ICT sector in the country. Therefore, in order to estimate the ICT impact on economic growth, following Van Ark *et al.* (2002), all sectors are regrouped into three categories such as ICT-producing, ICT-using and non-ICT industries.

A review of the literature on estimating ICT spillover effects makes it possible to identify theoretical and empirical statements on the measurement of the ICT contribution to output and productivity growth. Since ICT goods and services are produced by ICT-producing industries and consumed by ICT-using sectors, the impact of ICT on economic growth can be generally listed as follows: direct contribution through the production of ICT goods and services and thus increased aggregate value added; increased TFP in the ICT sector, which in turn contributes to TFP growth in an economy; ICT sector output being used as input in the production of other goods and services; contribution to TFP from increase in productivity in non-ICT producing sectors induced by ICT spillover effects.

However, due to poor availability of data on ICT investment, ICT asset price index, total fixed capital stock and the share of ICT capital services in total income, any estimating efforts are usually not very successful for post-socialist economies.[3] Therefore, a review of the available sources of national statistical data on ICT goods and services was also conducted (applying the methodology of growth accounting for ICT impact and making only a few assumptions). In particular, estimations are provided of the contribution of ICT-producing goods and services to output and labour productivity.

The results demonstrate that the ICT sector, notably the production of ICT goods, remains small and its impact on growth is not substantial. Moreover, the contribution of the production of ICT goods and services is shrinking. The actual growth of the ICT sector is thanks to an increase in telecommunications assets (more than in IT hardware and software) that impacts growth differently.

The context

Countries that successfully adopt IT hardware, software and telecommunications equipment can be more attractive for FDI (Gholami *et al.,* 2003) and consequently more competitive in the global economy. That is particularly important for a resource-based economy which thus can tackle the difficulties of moving to a more diversified structure. Therefore, the research aims at analysing the functioning of ICT sector and assessing its impact on growth in Kazakhstan.

The main determinants of ICT spillover effects at the country level present a better understanding of the likelihood of ICT penetration channels into the economy (Kraemer *et al.,* 2000). ICT development makes a large impact on the entire economy through a variety of channels, directly and indirectly affecting economic performance. The direct effect of ICT contribution consists of the growth of the ICT sector as compared with the non-ICT sector, while indirect effect has an impact on TFP. Moreover, the literature on ICT penetration into the economy reveals a distinction with regard to developed and developing countries (Qiang and Pitt, 2004; Indjikian and Siegel, 2005; Shih, Kraemer and Dedrick, 2008).

Generally, even with the neoclassical growth accounting methodology, there are at least two ways of measuring ICT spillover effects. The first approach deals with the decomposition of the growth rate of output into the sum of the growth rates of the factors including ICT capital and TFP.[4] The second way is related to the econometrical estimation of the change in the growth of TFP as dependent on the change in the growth of ICT capital. In both cases, it is essential to measure ICT capital stock.

However, because of poor availability of ICT data in the former socialist economies, only a few empirical studies are available which provide evidence of ICT spillover effects on output growth and labour productivity in the CEE transition economies and Russia (Piatkowski and Van Ark, 2005; Perminov and Egorova, 2005).

Growth accounting for ICT impact

Measuring ICT spillover effects is closely related to the so-called productivity paradox[5] (Solow, 1987) when rapid diffusion of computer technologies in the 1980s had little impact on productivity growth (Brynjolfsson and Yang, 1996). However, as the OECD (2003) reports, there are a growing number of firm-level studies that provide evidence of the abolishment of productivity paradox with much progress in measuring ICT investment and the diffusion of IT technologies in OECD countries (Shinjo and Zhang, 2003; Pilat *et al.*, 2004; Vu, 2005).

A standard approach to the estimation of ICT spillover effects is based on growth accounting as formulated by Jorgenson *et al.* (2003):

$$Y(Y_{ICT},Y_O) = A \times F(K_{ICT},K_O,L) \quad [1]$$

where, at any given time, aggregate value added Y is assumed to consist of the production of ICT goods and services Y_{ICT} and the production of non-ICT goods and services Y_O. These outputs are produced by using ICT capital K_{ICT}, non-ICT capital K_O and labour L. TFP is presented as Hicks neutral. Hence, the change of the growth rate of output can be

decomposed from [1] under the assumptions of constant returns to scale in production as follows:

$$\omega_{ICT}\Delta lnY_{ICT} + \omega_O\Delta lnY_O = \upsilon_{ICT}\Delta lnK_{ICT} + \upsilon_O\Delta lnK_O + \upsilon_L\Delta lnL + \Delta lnA \quad [2]$$

The weights w_{ICT} and w_O denote the nominal output shares of ICT and non-ICT production respectively. Similarly, the weights v_{ICT}, v_O and v_L represent the nominal shares of ICT capital, non-ICT capital and labour. Thus, the first component on the left side in [2] represents a direct contribution of ICT production to GDP. Similarly, the first component on the right side expresses ICT capital as an input into production of non-ICT goods and services.

Defining labour productivity as Y/L and taking into account the sum of the weights as equal to one, the equation [2] can be rewritten in the following form:

$$\Delta lnY - \Delta lnL = \upsilon_{ICT}(\Delta lnK_{ICT} - \Delta lnL) + \upsilon_O(\Delta lnK_O - \Delta lnL) + \Delta lnA \quad [3]$$

In other words, labour productivity on the left side is decomposed into three sources: ICT capital services per employed person or ICT capital deepening, non-ICT capital deepening and TFP.

In order to estimate ICT capital stock, an ICT investment series is needed that can be optionally obtained by using perpetual inventory method (PIM). Due to the use of constant geometric depreciation rates ICT capital stock is defined as follows (Van Ark *et al.*, 2002):

$$K_{i,T} = K_{i,T-1}(1 - \delta_i) + I_{i,T} \quad [4]$$

where, $K_{i,T}$ – ICT capital stock, $I_{i,T}$ – ICT investment and I =1,2,3 for three types of ICT assets. For example, the rates of depreciation are taken as 0.295, 0.315 and 0.125 for IT hardware, IT software and telecommunications equipment respectively.

Statistical definition

It is commonly accepted that the ICT sector is defined as consisting of ICT-producing goods and services. In the structure of the ICT sector, given by ASRK only for 2008, the composition of the ICT sector based on the number of workers and investment in capital is shown below. The ICT sector is determined as production of computer goods, wires and cables, devices for radio, TV and communications, control and measure instruments, wholesale trade, telecommunications, renting of computers and activities related to computer technology. However, in accordance with the definition of ICT sector, given by the World Bank, wholesale trade cannot be treated as production of ICT goods and services.

Table 7.1. **The structure of Kazakhstan's ICT sector in 2008**

	Listed number of workers		Investment in capital	
	Thousands	% of total	M KZT	% of total
Total	65.6	100.00	93 696	100.00
Office equipment and computer technology	0.4	0.61	484	0.52
Isolated wires and cables	1.4	2.13	214	0.23
Devices for radio, TV and communications	1.5	2.29	501	0.53
Control and measure instruments and installation	1.2	1.83	108	0.12
Wholesale of radio-electronic apparels, office machines and equipment, computers and equipment, other electronic equipment and parts	1.3	1.98	365	0.39
Telecommunications	51.7	78.81	91 948	98.13
Rental of office machines and equipment, including computer technology	0.1	0.15	30	0.03
Activity related to computer technology	8.0	12.20	46	0.05

Source: ASRK, *Information society 2004-08*, pp. 10-11, OECD analysis.

The main subsector in the ICT sector is telecommunications that employs almost 52% of all workers, and attracts over 98% of total investment in capital. In terms of the number of people employed, the second subsector is activity related to computer technology (12.2%). Nevertheless, in terms of invested capital, production of office equipment and computer technology, isolated wires and cables, and devices for radio, TV and communications remain the most important after telecommunications (1.38%). Wholesale of radio-electronic equipment, office machines and computers take 1.1% of employed workers, but only 0.32% of investment in capital. Surprisingly, ICT services such as activity related to computer technology, is less attractive for investment (0.05%).

The same data source shows how the ICT sector relates to the total number of workers in the economy in the period 2004 to 2008. Using the total number of listed workers, the calculations show the number of people employed in the ICT sector (Table 7.2), that remains stable during the period. However, employment in the ICT sector increased by 4.5 thousand people in 2008 as compared to the previous year and that contradicts the number of workers given in Table 7.1. The difference between these numbers amounts to 8.5 thousand people. This clearly demonstrates that ICT sector has been ambiguously defined in Kazakhstan.

Table 7.2. **Number of workers**

Annual average

	2004	2005	2006	2007	2008
Total, thousands	3 164	3 309	3 470	3 665	3 902
ICT sector by ASRK, as % of total	2.2	2.1	2.0	1.9	1.9
ICT sector by ASRK, thousands	69.6	69.5	69.4	69.6	74.1
Electric, electronic and optical equipment	14.8	15.7	16.0	16.9	16.3
Office equipment and computers	n.a.	n.a.	n.a.	n.a.	0.4
Electric machines and electric equipment	n.a.	n.a.	n.a.	n.a.	n.a.
Apparels for radio, TV and communications	n.a.	n.a.	n.a.	n.a.	1.5
Medical technique industry, measures, optical instruments and apparels, watches	n.a.	n.a.	n.a.	n.a.	n.a.
Control and measure instruments	n.a.	n.a.	n.a.	n.a.	1.2
Plastics and rubber	8.1	9.3	10.9	12.9	13.1
Isolated wires and cables	n.a.	n.a.	n.a.	n.a.	1.4
Communications	99.5	100.9	104.1	110.5	122.6
Telecommunications	n.a.	n.a.	n.a.	n.a.	51.7
Activity, related to computer techniques	n.a.	n.a.	n.a.	n.a.	8.0

Source: ASRK, *Information society 2004-08*; *Transport and communications 2004-08*.

A new structure of the ICT sector in Kazakhstan can be defined using the national accounts of the country. As per classification of national accounts, "Electric, electronic and optical equipment" makes up part of the ICT-producing industries given in Table 7.2. It is known that "Control and measure instruments" is a part of "Medical technology industry, measures, optical instruments and devices, watches." Isolated wires and cables, used in the production of ICT goods and services, are a tenth of "Plastics and rubber." The next main item is "Communications," usually composed of telecommunications and post. In 2008, in terms of the number of employed people the former surpassed the latter by more than two times. For reasons of calculation, it is worth keeping "Electric machines and electric equipment" but excluding "Plastics and rubber." The sum of the workers in the

above-indicated subsectors will be 76 thousand which is close to 74.1 thousand in 2008. Thus, the ICT sector of Kazakhstan is a sector of ICT-producing industries which consists of ICT-producing goods and ICT-producing services, and given in the Appendix.

Furthermore, the "ICT-using industries" regroup "Publishing and printing" in "ICT-using goods" and "Trade, auto and households appliances repair,""Financial activities," and "Research and design" in "ICT-using services." The remaining sectors of the economy are regrouped as "Non-ICT industries" which, in contrast to the previous sectors, contains three subsectors: non-ICT goods, non-ICT-services and non-ICT other.

The present composition of the ICT sectors is in conformity with the regrouping of sectors in Russia, where the system of national accounts is similar to the classification of sectors in Kazakhstan (Perminov *et al.*, 2004). However, it does not concern ICT-producing services. In the Russian case, telecommunications as a sector has not been analysed separately from communications.[6]

IT software and IT hardware

Classification of the ICT presents a useful tool for analysing any structural movements that may occur due to ICT penetration. However, aggregated data on output and value added are beneficial for estimating non-available data on the selected sectors for the given period.

For example, there are two presentations of data on investment in IT software from ASRK. Non-material capital which is a part of gross fixed capital formation contains data on investment in IT software. The left column for each period in Table 7.3 contains the distribution of IT software investment across the sectors of economy in Kazakhstan. Thus, investments in IT software over 2004-07 were higher in transport and communications, financial activities, mining, real estate and public administration.

Table 7.3. **Structure of IT software investment**

By sectors, average per period

	2001-03		2004-07	
	As % of IT investment	As % of total investment	As % of IT investment	As % of total investment
Total	100.0	0.59	100.0	0.92
Agriculture, forestry and fishery	0.2	0.06	0.2	0.19
Mining	23.4	0.39	11.6	0.37
Manufacturing	7.4	0.41	3.0	0.25
Construction	1.2	0.25	1.7	0.46
Trade, auto and household appliances repair	3.7	0.52	3.2	0.68
Hotels and restaurants	0.4	0.66	0.6	0.74
Transport and communications	26.9	1.10	15.1	0.91
Financial activities	18.9	8.50	8.50	11.49
Real estate transactions, rent and services to consumers	12.1	0.93	9.5	0.47
Public administration	3.3	0.85	35.2	21.97
Education	0.9	0.65	0.3	0.17
Health and social services	0.2	0.28	0.01	0.01
Utilities, social and personal services	0.3	0.18	3.2	1.16
Note: IT software investment, USD millions		47.2		183.7
As % of GDP		0.17		0.26

Source: ASRK.

In turn, the right column for each period shows the main sectors where IT software investment was significant as compared to total investment in capital for these sectors.[7] From this point of view, the sectors, such as financial activities, transport and communications, and hotels and restaurants, were the most equipped by IT software. Interestingly, the size of IT software investment in public administration, utilities, social and personal services increased considerably. On the contrary, investment decreased in health and social services and education. As compared with 2001-03 period, the agricultural sector in 2004-07 experienced higher IT software investment. Mining remains a sector that needs constant investment in IT software. Investment in IT software increased from an average of USD 47.2 million during 2001-03 to an average of USD 183.7 million during 2004-07 and its share in GDP increased one and half times from the first to the second period.

There is also a data source from the Ministry of Communications and Information that contains not only software spending, but also other expenditures on ICT. Total ICT spending rose from by 14% in the 2007 to 2009 period, due to a considerable increase of expenditures in telecommunications. On the contrary, IT market size decreased and consequently the share of total IT spending in total ICT expenditure decreased from 22.8 to 17% by the end of the period. The structure of total IT expenditures favours IT hardware rather than IT services (Table 7.4). The expenditures on IT software slightly increased in 2009. Taking into account the estimation of GDP for the last year, total IT spending decreased from 0.82 to 0.57%.

Table 7.4. **The structure of ICT expenditures**

	2007			2008			2009		
	bln KZT	%	%	bln KZT	%	%	bln KZT	%	%
Total ICT	463.2		100.0	500.5		100.0	530.3		100.0
Telecommunications	357.8		77.2	403.3		80.6	440.3		83.0
Total IT	105.4	100.0	22.8	97.2	100.0	19.4	90.0	100.0	17.0
IT hardware	78.9	72.0		69.8	71.8		67.1	74.6	
IT software	8.3	7.9		7.7	7.9		8.1	8.9	
IT services	21.2	20.1		19.7	20.3		14.3	15.9	
IT internal	0	0		0	0		0.52	0.5	
Total ICT, % of GDP	3.60			3.12			3.34*		
Telecommunications, % of GDP	2.78			2.51			2.77*		
Total IT, % of GDP	0.82			0.61			0.57*		

* Based on GDP estimated by CEA Rakurs.
Source: MCI, OECD.

International Data Corporation reports that the IT market in Kazakhstan reached a maximum size of USD 1 090 million in 2007. The turnover of IT goods and services decreased from USD 990 million to USD 630 million. Notably, this loss of IT market in US dollars was due to the devaluation of the exchange rate on average by 23% last year. As for the structure of IT market, the size of the IT software sector remains stable. The share of IT hardware increased from 80% in 2008 to 83% in 2009, while the part of IT service decreased from 13 to 10%.

Thus, IT software investment in Table 7.3 is rather constituted from the aggregate expenditure on both IT software and IT services, presented in Table 7.4.

Contribution of the ICT sector

In order to analyse ICT spillover effects, one looks at the first channel through which ICT impacts growth, represented as the contribution of the ICT-producing sector to output and labour productivity. From the ASRK source *Kazakhstan in figures 2004-08* we have data on value added and output of the industries for the new ICT-producing sector, including for transport and communications. The data for communications are found by subtracting the available data for transport from the aggregated value added and output. As mentioned earlier there is no available data for telecommunications. Therefore, an estimate was made of the share of the value added and output of post to communications as 0.04. The share of employed people in telecommunications as part of communications is 0.42. Employment in the area related to computer technology is assumed as stable and equal to 8 000. The number of workers in research and design is taken from the ASRK bulletin *Science and innovative activity 2004-08*.

Below are the changes in employment, value added and output, based on the average for two periods: 2004-05 and 2006-08. The number of workers in the economy increased and that has been the case with the ICT-producing sector as a whole and the ICT-producing services, but not with the ICT-producing goods. In terms of valued added and output, the decreases are explained by similar tendencies in the structure of the ICT-producing sector (Table 7.5).

Table 7.5. **ICT-producing sector**

Average for year, % change

	Economy	ICT-producing sector		
		Total	ICT-producing goods	ICT-producing services
Employed persons				
2005-06	5.24	2.40	4.00	1.93
2007-08	6.39	5.80	1.04	7.27
Value added				
2005-06	31.58	65.24	36.03	69.27
2007-08	25.04	23.26	13.83	24.59
Output				
2005-06	31.04	78.65	143.74	69.20
2007-08	21.95	11.53	17.29	21.60

Source: ASRK, *Kazakhstan in figures 2004-08*; *Transport and communications 2004-08*; *Science and innovative activity 2004-08*.

Table 7.6 contains the number of workers in both the ICT-producing and the ICT-using sectors. Labour productivity is calculated on the basis of value added and output for these sectors and their subsectors. Thus, labour productivity growth based on value added is about three times higher for the ICT-producing sector. Labour is more productive in the ICT-producing services (KZT 4 944 and KZT 8 766) than in the ICT-producing goods (KZT 1 748 and KZT 2 221). On the contrary, the estimations based on output demonstrate that labour productivity is more significant in the ICT-producing goods (KZT 12 558 and KZT 23 083) than in the ICT-producing services (KZT 4 944 and KZT 14 454).

In spite of its larger scope, only in the first period the ICT-using sector (KZT 4 695) is more productive in labour than the ICT-producing sector (KZT 4 189) as per value added. However, labour productivity in the second period is much higher in the ICT-producing sector (KZT 13 689) as compared to the ICT-using sector (KZT 6 351).

Table 7.6. **Employed persons and labour productivity**

Annual average

Total	2005-06			2007-08		
	Employed persons, thousands	Labour productivity (KZT) based on		Employed persons, thousands	Labour productivity (KZT) based on	
		Value added	Output		Value added	Output
ICT-producing sector	67.1	4 189	8 580	73.7	13 689	7 984
Goods	15.9	1 748	12 558	16.6	2 221	23 083
Services	51.2	4 944	8 486	57.2	8 766	14 454
ICT-using sector	315.4	4 695	7 877	431.0	6 351	9 911
Goods	13.18	2 190	4 667	8.91	3 297	6 519
Services	302.3	4 802	8 006	422.1	6 420	9 993

Source: ASRK and OECD analysis.

The value of the ICT sector contribution to growth on the basis of value added and output as well as the share of ICT goods' and services' contribution are presented below. The ICT-producing sector contributes to the growth of value added and output at 7.01 and 8.63% in the first period, and at 4.66 and 3.51% in the second period respectively. In terms of both value added and output, a decreasing tendency is observed in the contribution of the production of ICT goods and services to growth. Nevertheless, ICT services have a higher contribution to value added and output growth than ICT goods (Table 7.7).

Table 7.7. **ICT-producing sector contribution to growth**

Annual average, %

	2004-05		2006-08	
	Valued added	Output	Valued added	Output
Economy	31.58	31.04	25.04	21.95
ICT-producing sector	2.21	2.68	1.17	0.77
ICT-producing goods	0.12	1.67	0.04	0.25
ICT-producing services	2.13	1.73	1.17	0.84
	in %			
Economy	100	100	100	100
ICT-producing sector	7.01	8.63	4.66	3.51
ICT-producing goods	0.38	5.39	0.15	1.15
ICT-producing services	6.75	5.57	4.68	3.85

Source: ASRK and OECD analysis.

Conclusion

Taking into account the existing classification of economic sectors in the national accounts and the difficulties with collecting data on ICT goods and services, a new outline of the ICT sector was defined. As opposed to the Russian case study, presented by Perminov *et al.* (2004), "Post" was not included in the definition of ICT sector in Kazakhstan ("Post" is considered here as being a part of ICT-using sector, not ICT-producing services).

Since ICT goods and services are both produced by ICT-producing industries and consumed by ICT-using sectors, the impact of ICT on economic growth can be generally listed as follows: direct contribution through the production of ICT goods and services and

thus increased aggregate value added; increased TFP in ICT sector, which in turn contributes to TFP growth in an economy; ICT sector output is used as input in the production of other goods and services; contribution to TFP from increase in productivity in non-ICT producing sectors induced by ICT spillover effects. For example, an estimation of ICT capital deepening requires data on indicators such as ICT investment and ICT capital stock, total fixed capital stock and ICT capital services share in total income.

However, poor availability of ICT data in transition economies, particularly in Kazakhstan, limits the application of growth accounting methodology for estimating the entire ICT impact. Therefore the direct contribution of ICT production to GDP and the increase of labour productivity in the ICT sector were presented. The results obtained demonstrate that the ICT sector, notably the production of ICT goods, remains small and its impact on growth is minor. Moreover, the contribution of ICT goods and services to growth is decreasing. The actual growth of the ICT sector is ensured by higher increase in telecommunications assets than in IT hardware and IT software. Nevertheless, telecommunications and information technology impact growth differently, as the former is linked to ICT infrastructure while the latter demonstrates a potential capacity of IT absorptions.

7.3. Definition and segmentation

General definition and segmentation of IT outsourcing and business services

Information technology outsourcing (ITO) and business services are large and fast-growing sectors globally. IT outsourcing involves hiring a third-party company or service provider to perform IT-related activities, such as application management and application development, data centre operations or testing and quality assurance. Business services entail hiring another company to handle business activities such as financial and legal services, human resources and transaction processing. The IT market contains three major segments: equipment, software and services. The business services market normally includes, but is not limited to, the following segments: finance and accounting, human resources, sales, marketing and customer services, operations and logistics.

Outsourcing, as part of the IT services, includes the following:

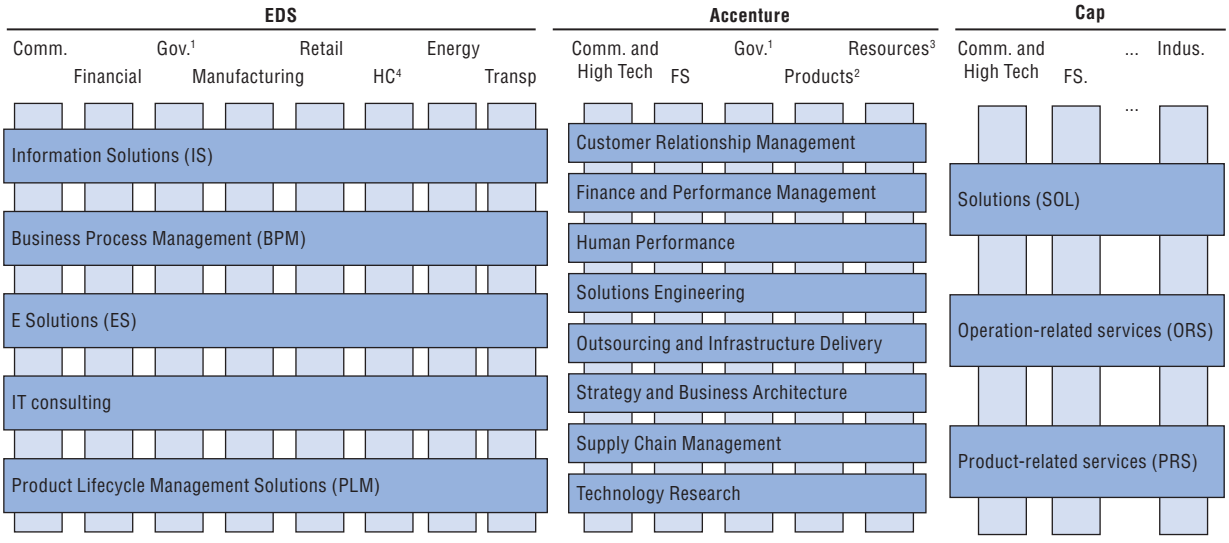
- *Complete outsourcing*: Outsourcing of a company's "central infrastructure and central application management" including the data centre as well as the operating and software development staff.
- *Application-related outsourcing* including Web hosting and Application Service Provider (ASP)/SaaS (Software as a Service), application outsourcing, business process outsourcing (BPO), *i.e.* assumption of responsibility for an entire business process (or parts of it). Only processes that to a significant degree are supported by IT (*e.g.* accounting, human resources, logistics, billing, card processing) are considered as BPO.
- *Infrastructure-related outsourcing* including: data centre management, desktop outsourcing and other infrastructure-related outsourcing.
- *Application management (AM)*: AM describes the maintenance and enhancement of existing applications, sometimes even their initial development, under a long-term (multi-year) contract with a commitment to fulfilling pre-defined service-level agreements (SLAs) on a fixed-price basis.

7.4. Sector trends: IT and business services

The IT sector is a growing market, with shifting perspective from cost management to industrial sectors specialisation

Cost reduction, solution provision and vertical expertise are the three key trends in the IT and business services sectors, based on Chief Information Officer interviews.[8] Web 2.0 is propagated beyond B2C, while enterprise 2.0, user-generated content and knowledge economy are now mainstream, and open innovation/networks and loose modularity are common facts. By and large IT is closely linked to business transformation. The expectations of clients imposed on IT vendors today are based on a solution approach rather than products or services; and vertical expertise is key to IT and business services industry growth. Nowadays all leading IT vendors have a vertical and regional-based organisational structure (see Figure 7.1).

Figure 7.1. **Example of organisation design of leading IT services providers**



Source: Annual reports/SEC filings; company Web sites; OECD analysis.

The recent world economic recession made many companies reduce their IT spending. Presently businesses are moving forward with renewed trust in the stability and growth of economic markets. They look at *outsourcing* activity as a chance to recapture innovation and maximise their return on investment.

However, there has been a certain shift in how corporations regard outsourcing. Clients are demanding quicker, more transparent results, while labour skills and specialisation are key differentiators for moving up the value chain in complex outsourced processes and this development will shape the majority of future outsourcing deals. Amongst OECD countries, Canada, Ireland and the United Kingdom are eloquent examples in this regard, as players are based in niche specialisation of knowledge and analytics despite a relatively high cost base.

IT-related outsourcing is now a business worth about USD 120 billion per year.[9] The business process outsourcing market is forecast to reach USD 450 billion by 2012[10] as organisations increasingly move operations offshore, looking to reduce costs and buy their way into emerging growth markets, particularly in the financial services and telecoms sectors.

Table 7.8. **Global offshore services market**

Segment	Details	Size (USD billion)		CAGR 2005-10 (%)	Share of total (%)	
		2005	2010		2005	2010
ITO services	Software maintenance and support; IT management; hardware management and support; development and integration.	29.3	93.1	26	36	37
Business process outsourcing services	Shared service centres (captive or outsourced) for business functions; includes human resources (HR); finance and accounting (F&A); sales, marketing and customer care; supply chain management.	19.3	58.8	25	24	23
Knowledge Processing Outsourcing (KPO) services	Knowledge-intensive high-end processes, including advanced analytical and technical skills as well as some decision making.	3.1	31.0	58	4	12
R&D engineering	R&D, prototyping, development, testing, maintenance, support and development for next generation products.	5.8	19.0	27	7	8
Content development and management	Development and management of local content for all ICT-enabled devices: internet, mobile devices, DVDs, multimedia, etc.	9.9	14.5	8	12	6
Engineering/technical support centres	Call centres and other customer relationship management methods requiring technical knowledge to provide support to internal/external customers of companies that deliver technology-enabled products and services.	4.1	12.4	25	5	5
Call centres	Call centres and customer relationship management through other methods including email newsletters, postal mail catalogues, Web site inquiries and chats.	5.9	11.4	14	7	5
Localisation and language services	Localisation of user interface (UI), user assistance (UA) printed and on-line documentation, computer-based training (CBT), Web applications and desktop publishing.	3.2	11.0	28	4	4
IT products	High-tech and software products designed as packaged solutions for multiple, off-the-shelf use.	0.9	1.2	7	1	0
Total		**81**	**252.4**	**25**	**100**	**100**

Source: A.T. Kearney, Gartner, IDC, Neo-IT, OECD analysis 2010.

India still remains the primary off-shoring destination, but there are more options available. With more delivery centres in *Eastern Europe* as well as in Asia, Central and South America the competition between outsourcing providers will strengthen and that will prompt a focus on services differentiation, bundling of services and closer relationships with customers. Those who will ride the crest of the outsourcing wave will house support functions such as finance and accounting services and benefit from the relocation of existing shared services centres. Customer management services, payments and other sector-specific financial sector services, as well as recruitment process outsourcing, will benefit directly from the trend of companies buying into growth markets.

Growth patterns for total ICT spending vary significantly across world regions. The Middle East (9.0%) and Asia/Pacific (8.3%) will enjoy the fastest growth from 2008-11. Eastern Europe and Latin America which had the fastest historical growth will still enjoy 5.6 and 4.4% growth respectively. North America and Europe with the largest established ICT markets will grow at 3.6 and 2.5% CAGR to 2011.[11]

While the recent crisis will impact the scope and nature of ICT investment by financial services companies, the sector is expected to remain an intensive user of ICT. Verticals anticipated to enjoy 6-7% CAGR over 2008-11 include Educational Services, Healthcare, Transportation, with Energy and Utilities and Communications also estimated to grow at CAGR of 5-6% over the period.[12]

Enterprise adoption of cloud computing is accelerating. Global cloud computing sales rose an estimated 21% to USD 56.3 billion in 2009. The cloud market may triple to more than USD 150 billion by 2013.[13]

Characteristics of EU demand for IT Outsourcing and considerations for Kazakhstan

Offshore/near-shore IT outsourcing is rapidly increasing in importance in the EU. According to research agency Forrester, the EU market for off-shoring/ nearshoring has recorded steady growth rates in the past five years. European spending will achieve an average annual growth of 6% between 2006 and 2011 to reach a value of USD 187 billion. The heavy competition in several industrial sectors in the EU and the current economic recession in most EU countries is expected to increase the overall EU demand for off-shoring/nearshoring.

The United Kingdom and Ireland already spend a large part of their IT budgets on off-shoring/nearshoring.

According to Forrester, the United Kingdom will account for 75% of all European offshore outsourcing by 2011. Continental Europe is a relative newcomer to offshoring/ nearshoring and currently the percentage of IT work offshored is not at the level of the United Kingdom yet. In recent years, a trend towards multi-sourcing has been observed. The majority of EU companies prefer a service provider with a local presence, even when the work, such as software application development, does not require a high level of local language knowledge. As a result, large IT projects are allocated to multiple providers in various countries at the same time. The switch towards multi-sourcing is driven by the desire of companies to spread the risk of offshore projects and to select the best provider for each service.

The EU market is characterised by the increasing presence of Indian companies like Infosys, Wipro, TCS and Genpact. These companies are expanding their European operations in order to become true multinationals. In addition they are increasingly presenting themselves as innovative players and not as merely standard service providers.

A good way for Kazakhstani companies to enter the EU market is via a partnership, such as a joint venture, with an EU software developer or system integrator. Working with brokers and consultants also provides the assistance necessary to successfully enter the EU market. Offshore Kazakhstani service providers can benefit from the trend towards near-shoring by partnering with a Central and Eastern Europe (CEE) provider or by setting up a CEE office. This near-shore presence can increase the level of trust with the customers. It is crucial to present the company interested in outsourcing contracts as a professional player that offers high quality services. Once the firm can prove that it already provides services to an EU company it is much easier to win other off-shoring projects.

7.5. Sector implications and key success factors

IT clients increasingly rely on the service provider's innovation capabilities. The key reasons include:

- the pressure to grow, the current economic conditions and the competition make businesses constantly look for ways to cut costs while improving performance;
- technology progress and globalisation are pushing the world of business to maintain complex high-quality networks across the globe;

- service providers are more and more regarded as complementary capabilities to the client's own efforts and talents;
- in addition to partnerships and platforms, service providers can bring cross-industry knowledge and experience.

Sector implications and insights for Kazakhstan

When choosing the ideal outsourcing partner the factors for consideration besides innovation are price, expertise in a particular sector, integration capabilities, training and qualifications, overall customer service strategy, company information privacy and knowledge in latest technology.

When selecting the appropriate offshore location, the aspects which count are political and economic stability of the country, languages and talent of local population, as well as the condition of the country's telecommunications infrastructure.

Contact Centre Services

Over the past five years more and more companies have chosen to turn the work over to third parties that specialise in contact centre services (CCS). The outside service providers invest heavily in equipment and facilities and expand the scope of their offerings to include global services delivery. Kazakhstani contact centres will be used by a growing number of clients if they gain vertical sector expertise and are able to provide service upgrades.

Middle office outsourcing

Leading asset management service providers, such as Bank of New York, JPMorgan Chase and Northern Trust are shifting their focus to developing and expanding middle office platforms and service offerings. In recent deals, asset managers are combining middle office (*e.g.* Trade Matching, Trade Settlement, Reconciliation, Post-Trade Compliance, Reporting and Data, Investment Accounting, Performance Analytics, Data Warehousing) with back office (*e.g.* Custody, Fund Accounting, Fund Administration, Transfer Agency) outsourcing. Kazakhstani financial services vendors should target such deals by providing more value to new and existing financial services clients, in order to maintain and expand their market share.

Multi-sourcing

Multi-sourcing entails sustained optimisation of services from both multiple external providers and internal shared services. External providers range from large service providers to smaller niche players. Essentially, mega deals with contract values exceeding USD 1 billion are broken up among multiple service providers. To carve their niche, Kazakhstani service providers should be very flexible in accommodating clients' delivery needs and adjusting and supplementing their resources when needed.

New generation of captives

Captive centres represent an opportunity to tap into the global talent pool in order to attract skills that may be in short supply elsewhere in the organisation. If Kazakhstan is to host captives going forward, efficiency enhancement and added value will be critical drivers. These will have to be specialty captives, which will follow the captive idea in adding value but will increasingly behave like a third party in their operating model.

Services bundling

Bundling occurs when a client chooses to include the IT systems and operations within the scope of a transaction that is principally aimed at contracting for a business function, such as human resources or finance and accounting operations. Firms are moving toward the integration of business and technology and Kazakhstani companies willing to compete for business transformation outsourcing and bundling have to develop expertise in both business management and IT.

Cloud sourcing

Cloud sourcing is where cloud computing meets transformational outsourcing. Running a business on a pre-integrated set of cloud-based applications results in a better integrated, more flexible and elastic technology foundation and lower costs for the business operations. If Kazakhstan would like to provide cloud sourcing services, a new generation of IT consultants will have to be educated, capable of offering strategic consulting, service prototyping and migration, cloud application development and cloud service aggregation.

Information security

The evolution and growth of outsourcing has led service providers to increasingly offer their clients services from multiple locations across the world. This raised client concerns about data security at those sites. If Kazakhstan would like to become an outsourcing destination, serious attention must be paid to information security.

Key success factors

How is success of an outsourcing project measured? The answer is simple: from the very beginning, key performance indicators should be defined and regular satisfaction surveys should be institutionalised that measure the perception of the engagement across several stakeholder levels. The following are the main factors to ensure a successful outsourcing engagement:

1. Cultural awareness: A misunderstanding of the service provider's culture may result in higher costs later. Kazakhstani outsourcing staff working with Western staff (on each level) must be trained on cultural differences.
2. Strong Management: A strong management team (onshore and in Kazakhstan) and a fully dedicated sponsorship are crucial to enable fast decisions and clear directions. For large projects, a programme management office needs to be in place.
3. Governance Framework: The governance framework ensures that all managerial rules, regulations and processes are explicitly stated and will be followed by all stakeholders. Typically, it is aligned to internationally accepted quality models and adjusted to the project needs.
4. Experience: The bigger the outsourcing initiative, the more important it is to have the right experience available. Identification of risks is crucial to ensure a successful engagement.
5. Quality: Cost is primarily the reason to outsource, nevertheless poor quality can cause considerable follow-up costs. A close adherence to industry standards, such as ITIL, ISO9000, Six Sigma, CMMI, is required.

6. Expectation Management: Outsourcing engagements have a supplier and a recipient, which causes different expectations. It is important to close expectation gaps which lead to dissatisfaction.
7. Onshore-Offshore Ratio: A 100% offshore model (all resources working from Kazakhstan) is very challenging for both the service provider and recipient, as that creates functional, technical and cultural misunderstandings. Frequent exchanges or a ratio of 20:80 or 10:90 can be recommended.

7.6. Sector attractiveness in Kazakhstan

A sector with increasing importance for the rest of the economy

Total revenues in the telecommunications sector in Kazakhstan amounted to USD 3.2 billion,[14] while the IT market accounted for USD 940 million in 2008.[15] Information technology outsourcing market size in Kazakhstan equals about 10% of the country's IT market and is growing at 30-35% annually. Currently, the ITO market share is only 7% of the sector's capacity.[16]

Currently in Kazakhstan, there are approximately 500 IT and business services companies with different levels of maturity. They specialise in software and information systems development, systems integration, servicing of ICT equipment and infrastructure, accounting, human resources, legal services, etc. Of all IT companies, about 100 are information technology consulting firms, divided into three major groups, according to domain of expertise.

Companies from the first segment carry out bundled consulting, starting with profound analysis of a company's operations' schemes and ending with personnel training and development. Their services include, besides IT consulting, the whole cycle of works, from business diagnostics to automation of business processes. This can include financial management, strategic management, public relations and human resources management. The leaders of this group are PWC, Deloitte Touche Tohmatsu, Ernst &Young, KPMG, GFA consult and IBS Group.

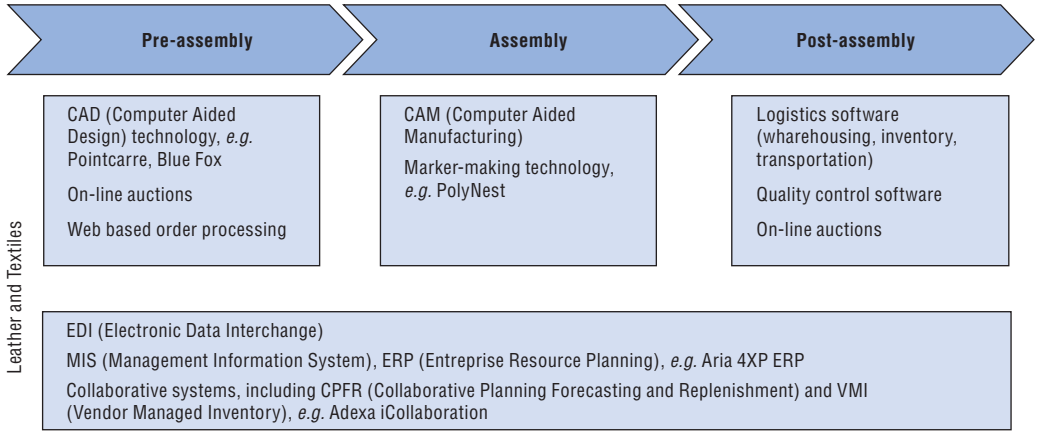
The second segment consists of system integrators and companies implementing complex solutions developed by foreign vendors. Normally, the projects implemented by those consultants include system design and integration with a very deep preliminary analysis. The solutions offered are generally SAP or Oracle products. Consultants belonging to this segment may also use applications developed by their own specialists. The major players in this segment in Kazakhstan are ABS, Asia-Soft, NAT Kazakhstan, Infosystem Jet, SynConsult and IBC Group.

The third segment is made up of companies which implement projects based on the software which they sell. Namely, these are companies which have added value to their services and moved away from simply selling software. They implement solutions and consult the IT specialists of the client firm on the hardware and software already installed. The companies most active within this segment are 1 S-SAPA, ALSI, LogyCom, Softline International Kazakhstan and Central Asia.

IT and business services are increasingly important for the economy and employment in Kazakhstan. The Sector Prioritisation Framework of the OECD Secretariat highlights a CAGR of FDI stock as share of GDP over 38% for IT and business services from 2002 to 2008. It also indicates a CAGR of employment level over 12% from 2004 to 2008 for IT and business services and a CAGR of 28% in domestic consumption of business services. The

information technology and business services sectors in Kazakhstan can support domestic and regional demand due to acceptably qualified and culturally sensitive human resources, lower labour cost compared to Russia and relatively good ICT infrastructure. ICT spending in Kazakhstan is expected to continue to grow due to the country's developing economy and business requirements for computerised operations. Both local and foreign companies have an interest in outsourcing non-core operations to Kazakhstani IT and business service providers. For the agribusiness sector, the IT and business services are essential at every step of the value chain, with agribusiness software, human resources and logistics solutions being mostly in demand (see Figure 7.2).

Figure 7.2. **Example of services provided across the value chain for leather and textiles**



Source: OECD analysis.

a. Development of Kazakhstani human resources

Kazakhstan's higher education system has gone through many changes in the last decade. The government increased its education budget seven-fold between 1999 and 2009. All universities received access to Internet and modern communication technologies, as well as funding to equip computer classes and expand libraries. The Western-style credit system was introduced and international co-operation in the field of education became very active.

b. The cost component: A competitive advantage for Kazakhstan

Kazakhstan is much more competitive in labour costs compared to Central and Eastern Europe and somewhat competitive to its neighbour Russia (see Figure 7.3).

For example, the monthly cost of accounting services differs depending on the size of the client and starts with 10 000 KZT (±68 USD) for small clients, 45 000 KZT (±306 USD) for medium-sized clients and 125 000 KZT (±849 USD) for large clients.

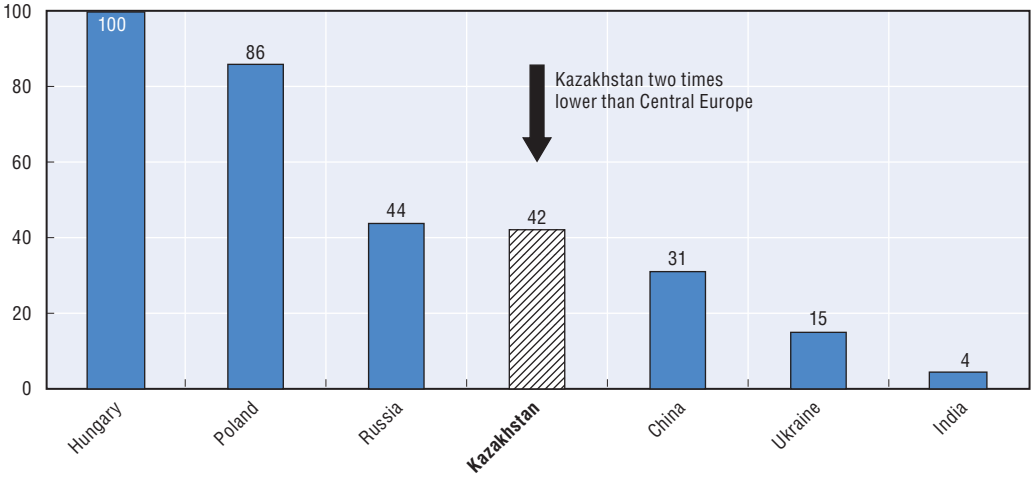
The monthly wage of a software developer in charge of design, development and testing is 84 926 KZT (±577 USD), of database administrators is 80 297 KZT (±545 USD) and of systems administrators 84 109 KZT (±571 USD).

The monthly wage of legal services, human resources or accounting outsourcing companies' staff varies between 54 230 and 100 113 KZT (±368 to 680 USD).

Box 7.1. **Kazakhstan's education system Kazakhstan's education system is well positioned to train students for technical, analytical, IT, languages, legal and accounting skills**

- Every year 37 higher education establishments of Kazakhstan release about 20 000 ICT graduates.
- The International Business Academy plans to introduce a new programme of study, Information Management, which will educate a new class of management: Chief Information Officers.
- The International IT University was established in Almaty in April 2009 in close co-operation with the US programme iCarnegie, an educational affiliate of Carnegie Mellon University. The university offers specialisations in information systems, computers and software, informatics and IT management. Cisco plans to integrate the Cisco® *Networking Academy*® curriculum into the university's core curricula.
- The New University Astana (NUA) intends to bring world-class education to the Kazakhstani people. The NUA has plans to partner with world-leading universities to deliver teaching and research across a wide variety of disciplines including Engineering and Technology. All teaching and research at the university will be in the English language.
- The Government of Kazakhstan has been funding invitations to foreign faculties to several flagship national universities and expanding its state-funded study abroad programme Bolashak from 300 (in 2000) to 3 000 (in 2008) students a year.

Figure 7.3. **Comparison of average monthly labour wages in services (2003-07)**



Source: International Labour Organization, zdnetasia; Wall Street Journal; OECD interviews and analysis.

c. Kazakhstan's ICT infrastructure undergoing positive change

Kazakhstan has been experiencing a booming telecom market that included 95% mobile penetration by early 2009. This has come about on the back of a growing economy and a positive regulatory reform programme in the telecom sector. Legislation adopted in 2004 laid the foundation for the liberalisation and development of the telecom sector.

Box 7.2. **Foreign investor interest in the telecom potential of Kazakhstan**

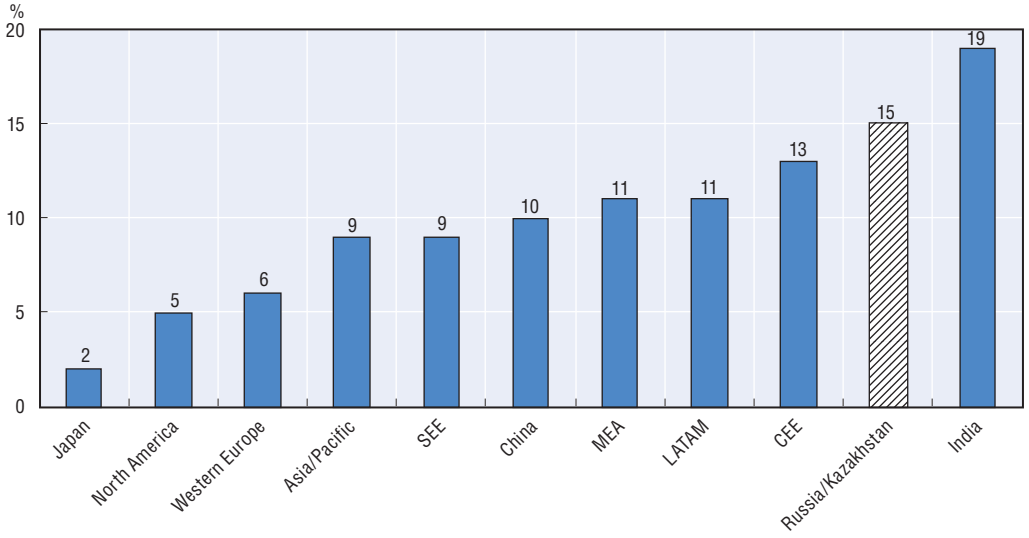
The development of telecommunications in the country encouraged several foreign suppliers to establish a presence in this emerging market. Since 1992, companies such as Motorola, Lucent, Siemens, Alcatel, Nokia, Daewoo and Nortel Networks have all been active in the market. The key development drivers in the telecom sector include:

- Kazakhtelecom's deployment of a fully digital national telecom network based on local and long-distance switches and fiber optic lines linking all major cities of the country.
- Efforts to improve international connectivity and increase the number of both mobile and fixed-line subscribers; the continuing digitalisation of exchanges.
- The further reform of telecommunications legislation.
- The process of accession to the World Trade Organization (WTO).

d. ICT spending in Kazakhstan expected to grow significantly

The information technology services markets of Kazakhstan and Russia are expected to grow above the average of OECD countries, at 15% CAGR to 2011[17] (see Figure 7.4). Information technology outsourcing in Kazakhstan is expected to grow driven primarily by two factors. Firstly the economy of Kazakhstan continues to develop and requires more extensive and sophisticated use of IT that can only be offered by firms with domain expertise. Secondly the automation boom of the Kazakhstani private sector is on the rise and the need for automation is estimated to be between 20 and 50% annually, as compared to the current need.[18]

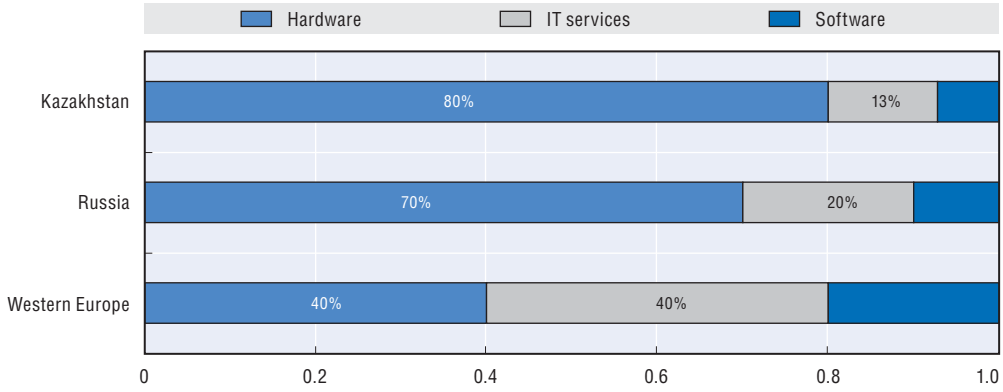
Figure 7.4. **IT spending growth rates for 2007-11**



Source: IDC, OECD analysis and estimates.

Over the last three to four years, many large Kazakhstani companies (primarily producers and retailers) have started considering the need to computerise operations due to higher competition, lower profitability and increased costs. That requires buying hardware and installing networks, but also applying expensive software. Although still behind Russia and Western Europe, Kazakhstani companies are increasingly buying software and IT services to help them re-orient business processes (see Figure 7.5).

Figure 7.5. **IT spending in Kazakhstan, Russia and Western Europe, 2008**



Source: IT Association of Kazakhstan.

The size of Kazakhstani IT and Business Services companies varies between 16 and 400 employees and their annual sales range from 100 million to 2 billion KZT per company (from ±678 933 to 13 578 654 USD).[19] The total number of specialists working in IT sector is estimated to be 25 000. Every year, about 20 000 ICT specialists graduate from 37 higher education institutions and that covers only 40% of the demand for ICT professionals.

The main clients of the IT consulting firms of Kazakhstan are finance and banking institutions, and retail, construction and insurance firms. The tasks set forth by the clients to the consulting companies are generally to increase the speed and reliability of computer systems and decrease their operating costs. The clients cannot solve problems related to personnel, logistics and high number of commodities, or find the root cause of inconsistency in cash flows and losses without computerised business processes.

e. Opportunities for Kazakhstan in IT and business services as seen by foreign investors

The OECD team interviewed 25 foreign investors present in Kazakhstan to assess their perspectives on outsourcing opportunities for local companies. The investors already familiar with the local people and companies' delivery capabilities pointed out the potential IT and business services outsourcing areas. They specified that foreign investors outside Kazakhstan would most likely consider outsourcing to Kazakhstani IT and business service providers such services as systems integration, hosting and maintenance, telesales, customer help desk and support, translation and legal research.

The interviewed foreign investors also stated that companies within Kazakhstan, both local and foreign, would be interested in outsourcing to Kazakhstani IT and business service providers payroll processing, recruitment and selection support, human resources information system, telesales, order/claims/application processing, customer service and complaints, translation services, customer help desk and support, legal research, financial reporting, financial accounting, revenue accounting, systems integration and hosting/ maintenance services.

IT and business services – A facilitator in the agribusiness sector

The food sector and food supply chains are facing mounting pressure to deliver safe, healthy and attractive food in a highly competitive environment. Moreover, claims made with respect to health effects and ethical aspects of production are expected to be transparent to society. Changing market demands, sustainability, economies of scale and

Figure 7.6. **Feedback from foreign investors on outsourcing areas they would use**

Finance and accounting	Human resources	Marketing/ Customer service	Operations/ logistic	IT services and support	Research and development
Back-office	Payroll processing	Tele-sales	Order tracking	Customised software development: financial, pharmaceutical, anti-viruses, etc.	Clinical research
Accounts payable/ receivable	Recruitment and selection support	Order processing	Order/claims/ application processing	Systems integration	Very Large Scale Integration (VLSI) design
Financial reporting	Humand resources information system	Customer service and complaints	Payments processing	Hosting/ maintenance	Digital Signal Processing (DSP) chip design
Finance accounting		Help desk	Translation services	Customer help desk/Support	Avionics research
Revenue accounting					Engineering design services
					Legal research

Source: OECD interviews with 25 foreign investors present in Kazakhstan.

international competition are the drivers behind the compelling need to apply IT and business services in agribusiness.

Changing market demands

In recent years, consumers in OECD and non-OECD countries have become more demanding of food attributes such as environmental standards, quality, integrity, sustainability, diversity and associated information services. At the same time, they demand an increased product variety which should be available at all times and places, and provided in a sustainable way.

Sustainability

Food supply chain networks face increasing demands with respect to the sustainability of production and distribution processes. Consumers, non-governmental organisations and public authorities continuously scrutinise the impact of food production and distribution on the natural resources and the environment. Food supply chain networks not only face increasing demands from societal stakeholders, but also rising prices of agricultural commodities and other natural resources such as energy.

Economies of scale

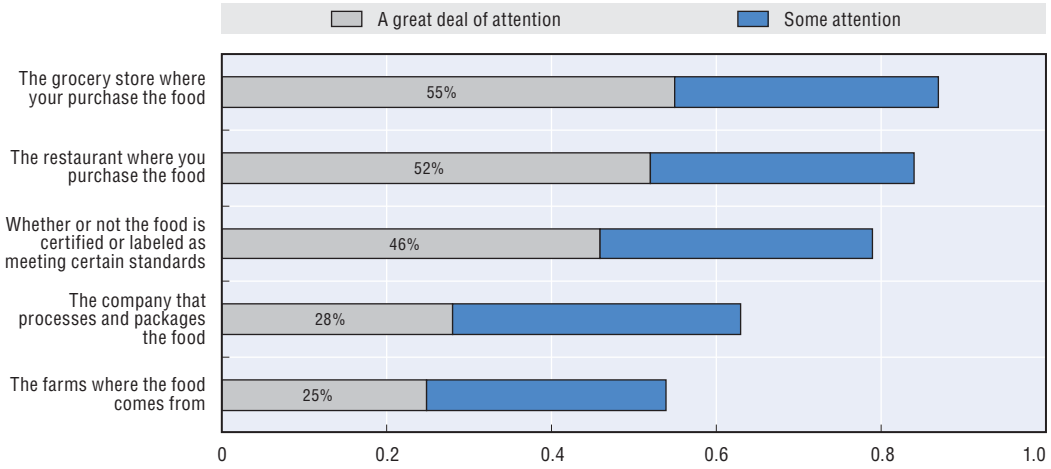
Businesses are growing in size in all stages of the supply chain network. Large retail companies dominate the market and hand their own requirements regarding logistics, quality management and sustainability over to a decreasing number of larger suppliers. The demand for responsive and lean supply chains increases, putting high demands on logistics and information systems.

Increase in international competition

Technological developments make it possible to reach suppliers and customers all over the world. Companies in the food sector are acting more and more on a global scale. This is reflected in company size, increasing cross-border flows of livestock and food

products, and international co-operation and partnerships. Although this provides inexpensive products to consumers, it raises questions regarding the quality and safety of the food (see Figure 7.7).

Figure 7.7. **Issues considered by Canadian consumers when buying food**



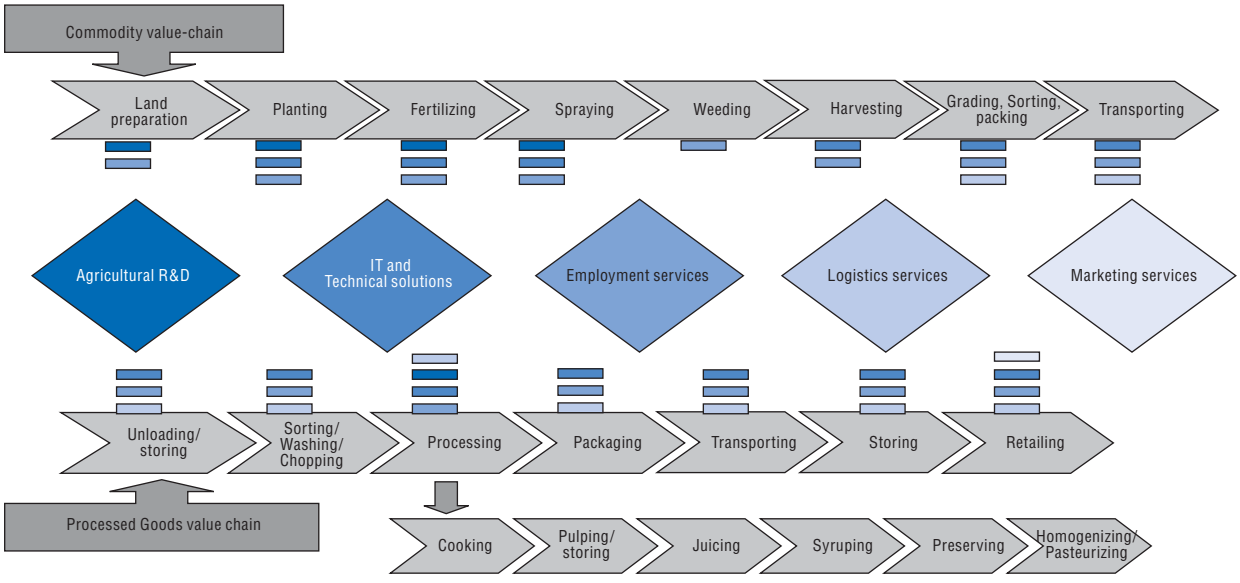
Source: Agriculture and Agri-Food Canada, 2009.

IT and business services essential for the agribusiness of Kazakhstan

The challenges faced by the global food sector and food supply chains are common to Kazakhstani agribusiness. The developments in the world food market require a reorientation of roles, activities and strategies of companies in the Kazakhstan agriculture and food sector.

For the agribusiness sector of Kazakhstan to become competitive, IT and business services are essential at every step of the value chain (see Figure 7.8).

Figure 7.8. **Agribusiness value chain and links with IT and business services**



Source: OECD Analysis, 2010.

The customers of Kazakhstani agri-processors increasingly require them to have in place adequate electronic data interchange, logistics software (for warehousing, inventory and transportation), Web-based order processing, etc. Currently, Internet penetration is very low in the countryside and agri-processors generally do not comply with the customers' IT requirements. According to the OECD interviews carried out with 15 meat, wheat and dairy agri-processors, the respondents stated that there is need to improve digital infrastructure in general. More specifically, the IT services related to enterprise resource planning, management information systems, electronic data interchange and adaptive software require most attention. It has been mentioned that operations related to financial management, financial accounting and resource planning in agribusiness enterprises are rarely carried out by means of specialty software due to lack of it and lack of human resources able to use it. Project management software and training for people on how to use the software emerged as another critical need.

7.7. Sector challenges and barriers

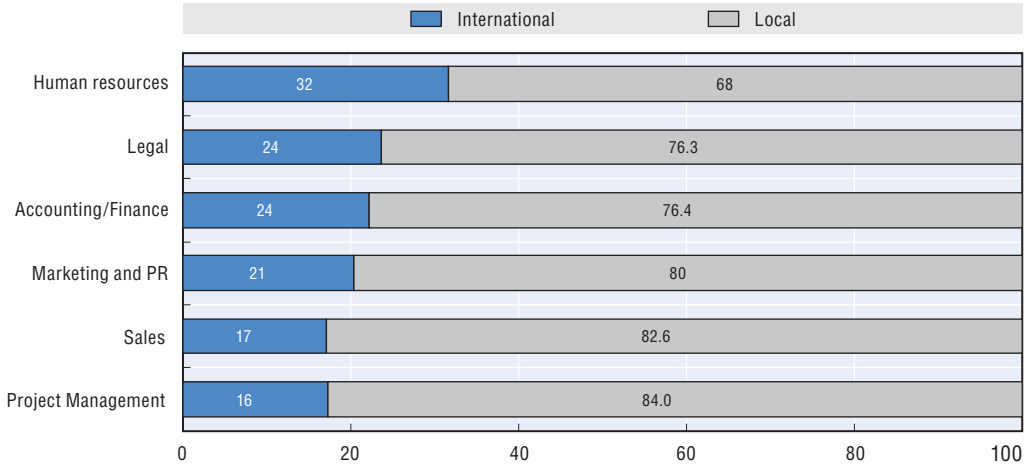
The OECD *Country Capability Survey of Kazakhstan*, among other sectors, also covered IT and business services. As such, 150 firms from the IT sector and 150 firms from business services sector were interviewed, answering 33 and 26 questions respectively. Most IT and business services companies were created 6-10 years ago and are fragmented. The firms do not seem to specialise; most of them deal in a wide array of activities. Their services are mainly focused on the domestic market with the main clients being local private businesses and government agencies. There is significant disparity between the turnover of Almaty and regional IT firms, the companies with the highest turnover being concentrated in Almaty. 91% of interviewed business services and 96% of IT firms do not participate in any government-initiated programme aiming at bringing together the companies belonging to the same sector and 62.7% of interviewed IT companies never participated in any ICT-related forum, exhibition or conference. Only a limited number of IT firms in Kazakhstan seem to innovate, since most interviewed IT firms had not registered any patent since 2006. The skills and education of available workers are major barriers, as specified by the interviewed companies. Lack of necessary skills of employees has accounted for the larger part of IT and business services firms' lack of efficiency or increased wastage and lack of quality in the services offered. At the same time, 40% of the interviewed IT firms mentioned that lack of skills did not have any impact on their business. Half of the interviewed IT and business services sector firms stated they did not face the problem of hard to fill vacancies.

Challenges identified by the OECD CCS

a. The spectrum of services provided to foreign clients is somewhat varied

The facilitate results of the Country Capabilities Survey show that 16 to 32% of services offered by Kazakhstani business services companies are targeted towards international clients, with human resources, legal, accounting/finance services being the top three services in which foreign clients are mostly interested. The local business seems more in need of project management and sales services (see Figure 7.9). As an outsourcing vendor, 70% of Kazakhstani IT companies offer general application and software development, 42% Internet/networking/LAN/WLAN services and 39% database-related services.

Figure 7.9. **Breakdown of services offered by Kazakhstani business services firms**

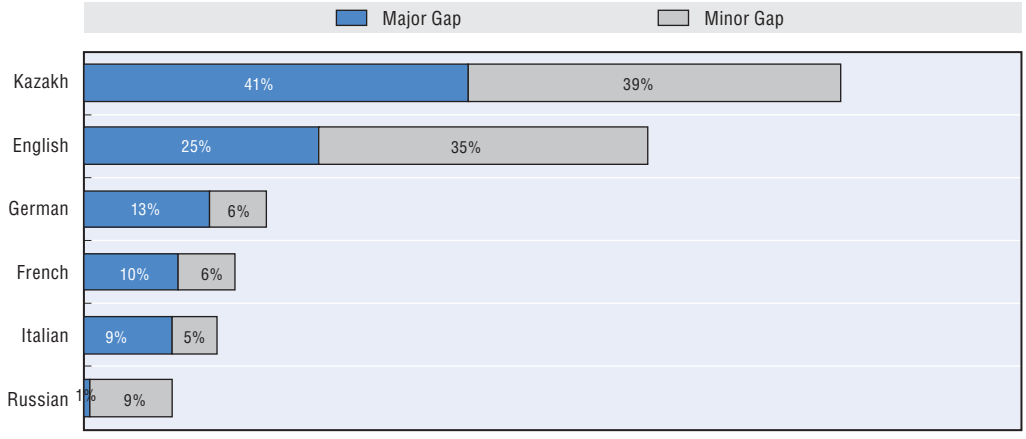


Source: OECD CCS, 2010.

b. Staff language skills are considered to be adequate by the private sector but soft skills are expected to be improved

According to the survey, almost 41% of business services companies consider the English language skills of their staff to be adequate for business operations. Only one third of firms believe there is room for minor improvement in their staff's English language skills and about 25% of firms consider that there is room for significant improvement. As for the German, French, Italian and Russian languages, from 80 to 90% of the interviewed business services companies consider their staff to have adequate skills for operation (see Figure 7.10). It should be noted that while these languages might not be spoken fluently, the fact that they are taught and spoken at all indicates a basic level of proficiency that could be improved further.

Figure 7.10. **Gap in language skills as perceived by business services firms**

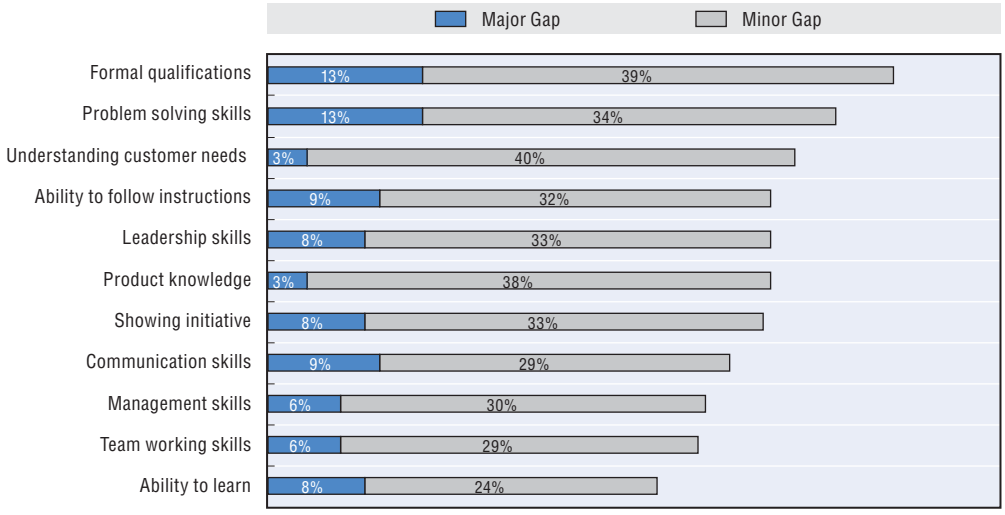


Source: OECD CCS, 2010.

Kazakhstan has high literacy and good language skills among youth and degree level qualifications are vary valued, especially in scientific and technical subjects. At the same time, limited attention is paid in Kazakhstani universities to development of skills and

competences. According to CCS, 12.7% of interviewed business services companies have stated that formal qualifications and problem solving skills are a major gap in their work (see Figure 7.11).

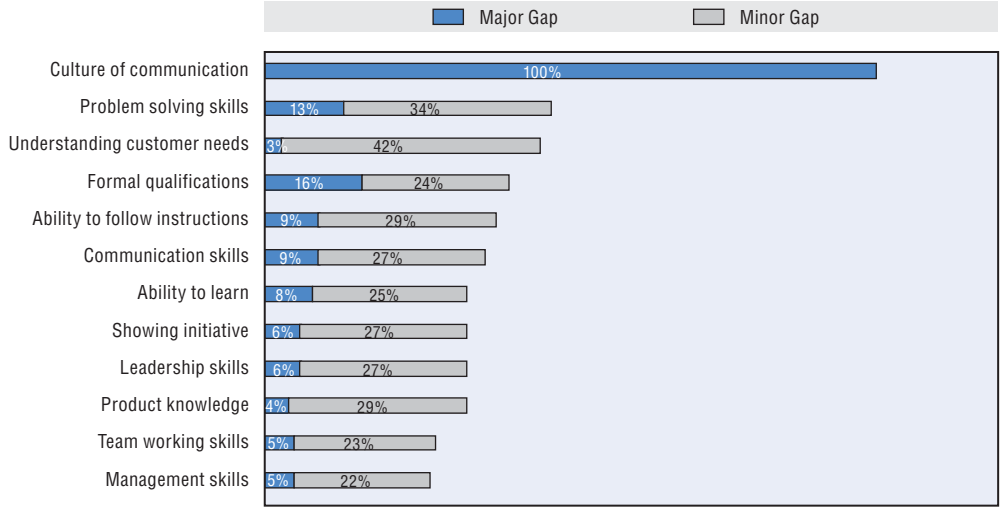
Figure 7.11. **Skill gaps as perceived by business services firms**



Source: OECD CCS, 2010.

Despite strong Russian language skills and many study abroad programmes, the CCS results indicate there is scope for employees to improve cultural understanding and other soft skills (see Figure 7.12). This is especially needed if IT services are to be developed for Russian and Central Asian markets. Culture of communication is a major gap pointed out by the IT firms in Kazakhstan.

Figure 7.12. **Skill gaps as perceived by IT firms**

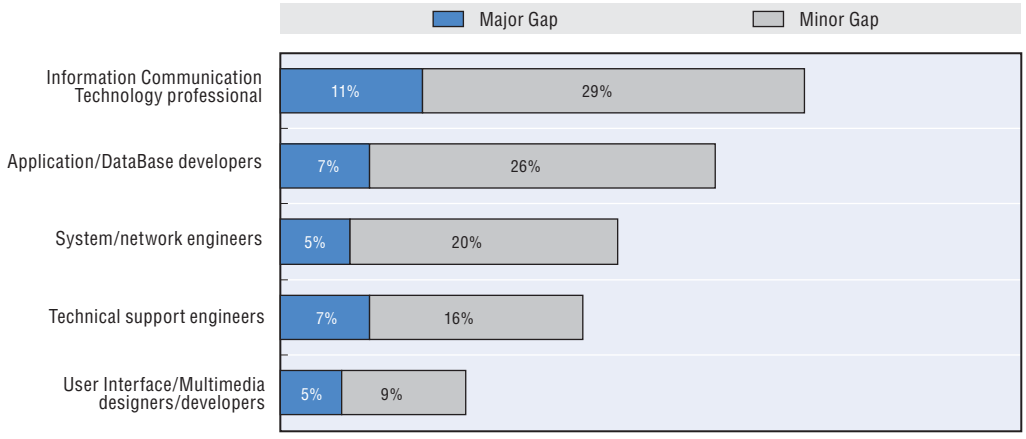


Source: OECD CCS, 2010.

c. Growing but still limited technical skills for software development and back office services

There seems to be some lack of technical skills in Kazakhstan's software development firms. Major skill gap of ICT professionals and applications/database developers was cited by 10.7 and 7% of the CCS respondents respectively (see Figure 7.13). While only a few firms reported a major gap in technical expertise, less than one third of respondents reported minor gaps in technical skills. The IT companies seem quite satisfied with existing skills in user interface/multimedia designers/developers and system/network engineers. In fact, 86 and 75% of the interviewed companies mentioned respectively that they do not experience any skill gap for the two occupations.

Figure 7.13. **Technical skills gap as perceived by IT companies**



Source: OECD CCS, 2010.

While the lack of specific technical skills as reported by the interviewed IT companies does not appear so severe, the companies reported that significant gaps exist in employees' overall skills and abilities to meet business objectives of IT firms. Companies in Almaty are mostly alarmed by the existing skill gaps.

The situation seems rather similar in the business services sector. There are not so many major gaps in technical skills of business services companies' employees. Only 17% of the participants in the survey stated there is major gap for professionals with degree type qualifications and 13% mentioned the gap is major for associate professionals.

At the same time, 62% of the interviewed firms declared there is a significant gap between the type of skills that their employees have now, and those they need to meet the current business objectives.

There are a number of public-private dialogue challenges, as well as human capital and operational barriers that limit the development of IT and business services sectors in Kazakhstan. These challenges and barriers have been identified during OECD face-to-face interviews with private sector entities and re-confirmed by the CCS.

Lack of public-private dialogue

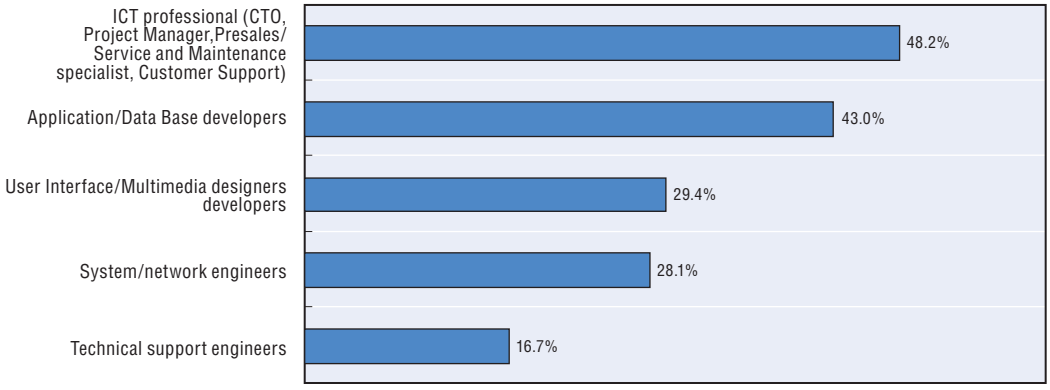
There seems to be a lack of alignment between the Ministry of Education, Ministry of Industry, Ministry of Communication, and the technical and business schools on how to best approach the development of skills required for the knowledge economy. During the

interviews, the private IT companies revealed that they do not feel any support; they feel that the government controls them rather than help them grow. The companies mentioned that the Government of Kazakhstan has no clear policy regarding the development of the ICT sector and the legislative framework is not very "IT-friendly". Currently there is no one single association in Kazakhstan to promote and polarise outsourcing firms or to collect statistics.

Limited human capital capabilities

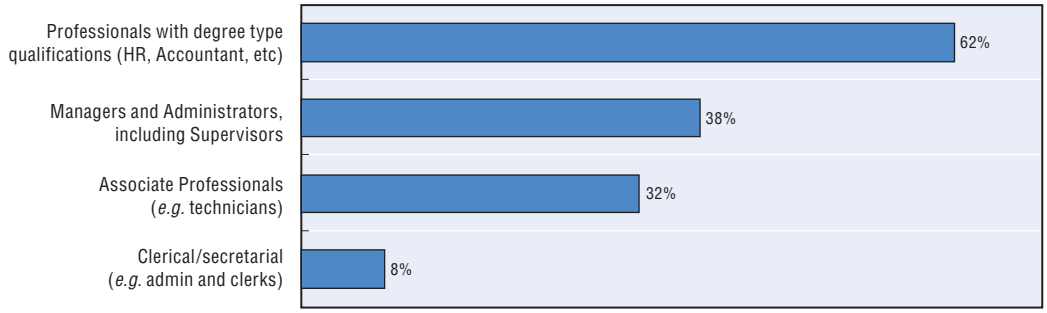
Both local and foreign investors operating in Kazakhstan consider the level of IT education in the technical universities to be limited. Technical, business and marketing curricula and specialisations in higher education institutions are all very theoretical and a large part of them do not correspond to the present market requirements. The IT companies reported that the hardest-to-fill vacancy they have is for ICT professional, *i.e.* Chief Technical Officer, Project Manager, Presales, Service and Maintenance Specialist, or Customer Support (see Figure 7.14). The business services find it most difficult to hire professionals with degree-type qualifications, *i.e.* human resources specialists, accountants, legal specialists, etc. (see Figure 7.15). Short-term training, retraining and professional development programmes are not well developed and are costly (see Figure 7.16).

Figure 7.14. **Occupational profiles for which IT firms have hard-to-fill vacancies**



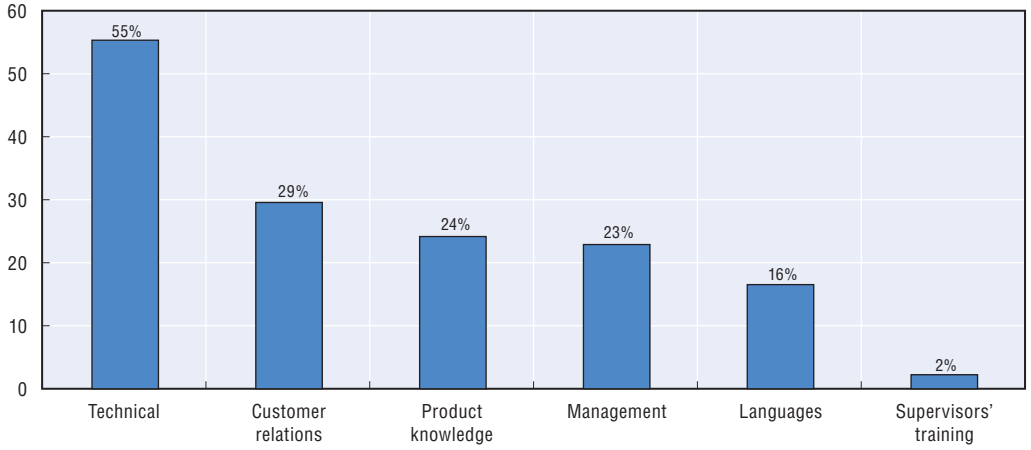
Source: OECD CCS, 2010.

Figure 7.15. **Occupational profiles for which business services firms have hard-to-fill vacancies**



Source: OECD CCS, 2010.

Figure 7.16. **Profiles for which IT firms have hard-to-find trainings through local providers**



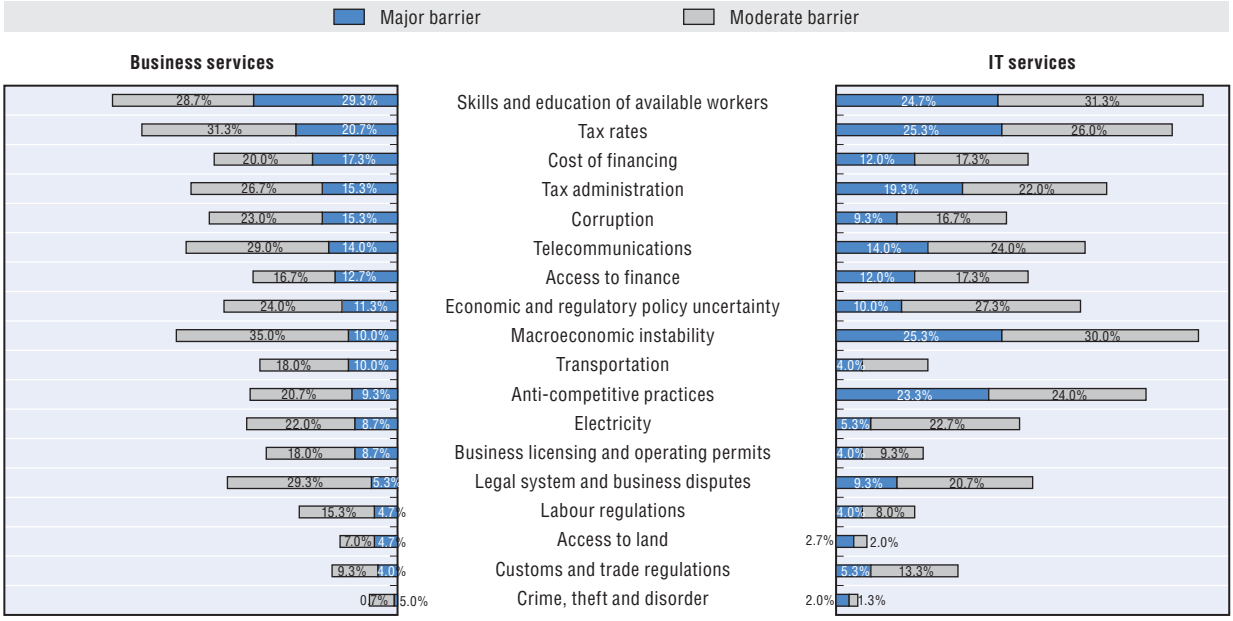
Source: OECD CCS, 2010.

Generally, the pool of human resources available in Kazakhstan is small. If a foreign IT company needs 1 000 or 2 000 testers, it will not relocate its business process to Kazakhstan, because there are not enough people to employ.

Operational constraints

The information and communication technology infrastructure is not sufficiently liberalised and services are expensive. For example, in 2008 the monthly subscription for broadband Internet of 256 kbit/s cost legal entities 55 000 KZT (±450 USD). In EU, the

Figure 7.17. **Policy barriers as seen by the business services and IT companies**



Source: OECD CCS, 2010.

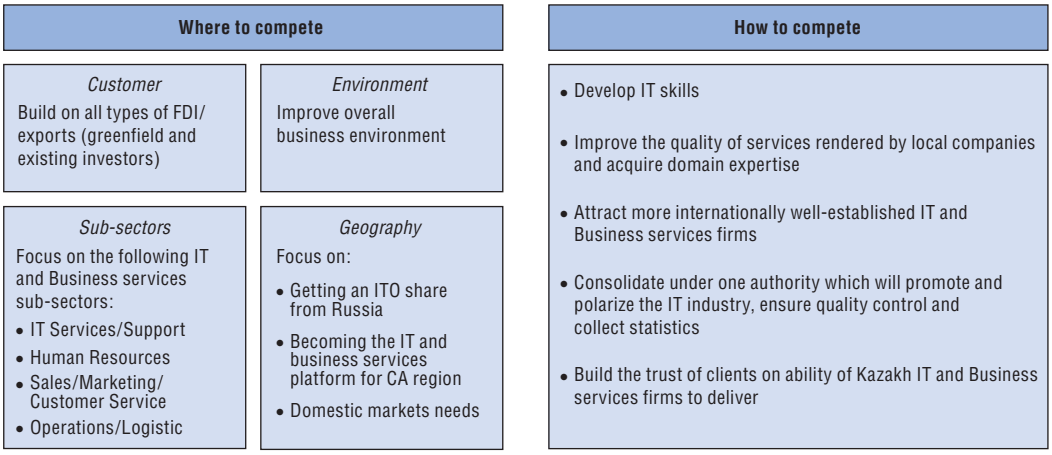
average monthly subscription for high speed internet was EUR 37 in 2008. Also, there are quite a few administrative barriers related to export and certification of IT products. Tax authorities create barriers by taxing the training and consulting services of foreign companies. Formalised or standardised methodology of service provision and mechanisms of price formation for the outsourcing services are absent. The term "consulting and informatics services" is not clearly specified in the laws and that creates confusion when dealing with issues such as licenses and taxes for certain business activities.

Both IT and business services companies face a number of challenges in expanding operations. Availability of skills, keeping the prices low and management capacity are the top three most important challenges which prevent business services companies from growing. Keeping prices low, providing more services and availability of skills are the top three most important challenges mentioned by the IT firms.

7.8. Sector strategy and policy recommendations

The IT and business services sectors are still in an embryonic phase in Kazakhstan, but there is a rapidly growing potential nurtured by local demand. The factors supporting this growth are the demand from government institutions and the regional opportunities.

Figure 7.18. **Where and how to compete**

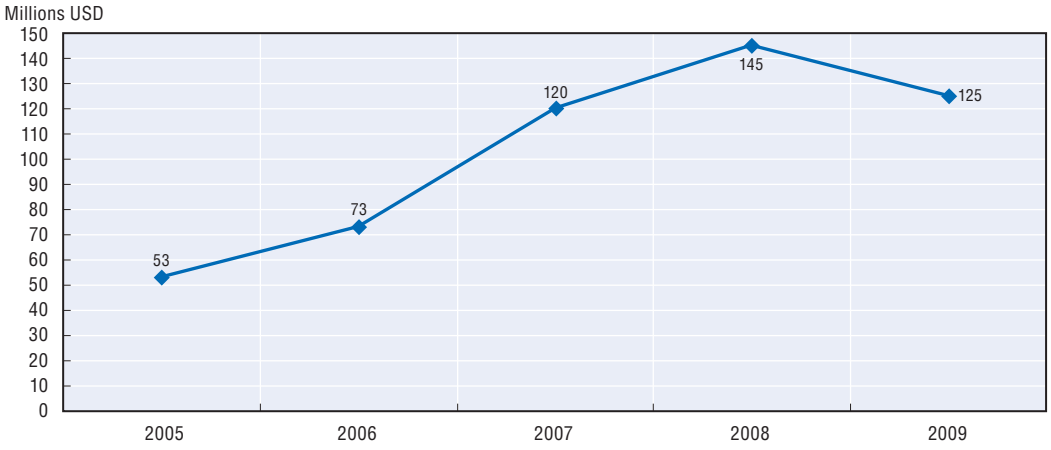


Source: OECD Analysis.

Government of Kazakhstan – An important client of IT companies

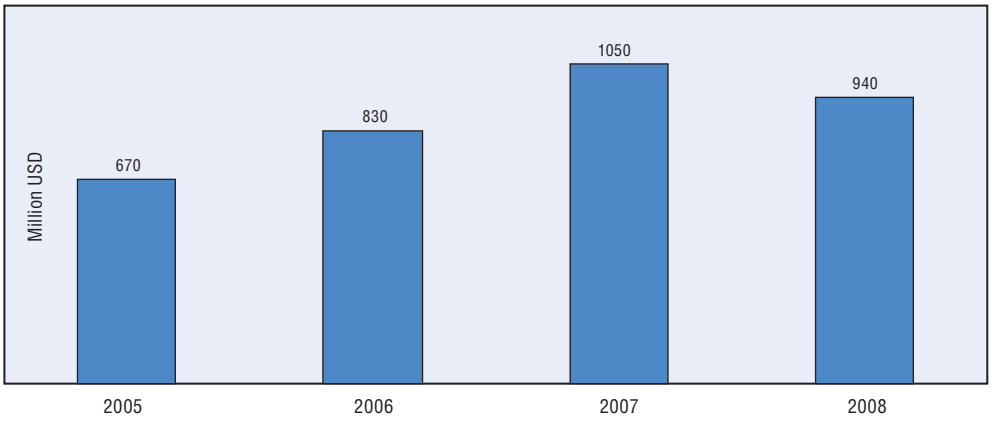
The Government of Kazakhstan has embarked on an ambitious e-government programme and has made substantial progress in introducing ICT in the public sector. The Government of Kazakhstan is a serious consumer of IT applications and services and its demand for IT consulting is permanently increasing, also due to increased attention to the information security of the country. The CAGR of government spending on IT projects has been 24% from 2005 to 2009, while the IT market has been growing at a CAGR of 11.95% from 2005 to 2008. Government spending on IT projects has been growing more than the IT market since 2005, thus reflecting the potential for the sector to build further capabilities (see Figures 7.19 and 7.20).

Figure 7.19. **Government investment costs for IT projects**



Source: www.itk.kz, IDC, OECD analysis.

Figure 7.20. **Growth of IT market in Kazakhstan**



Source: www.itk.kz, IDC, OECD analysis.

Kazakhstan's regional opportunities

The IT and outsourcing market of Russia has been developing rapidly over the past years and labour costs in the respective sectors have been growing at a CAGR of 22%[20] from 2005 to 2008. Kazakhstan is well positioned to compete for and win contracts from companies currently outsourcing to Russia due to its lower labour costs, comparable qualifications and language skills.

The ICT market of Kazakhstan is ahead other Central Asia countries' and that serves as an enabling factor for providing IT and business services to investors operating in Central Asia region.

a. Kazakhstan well positioned to compete for Russia-bound ITO projects

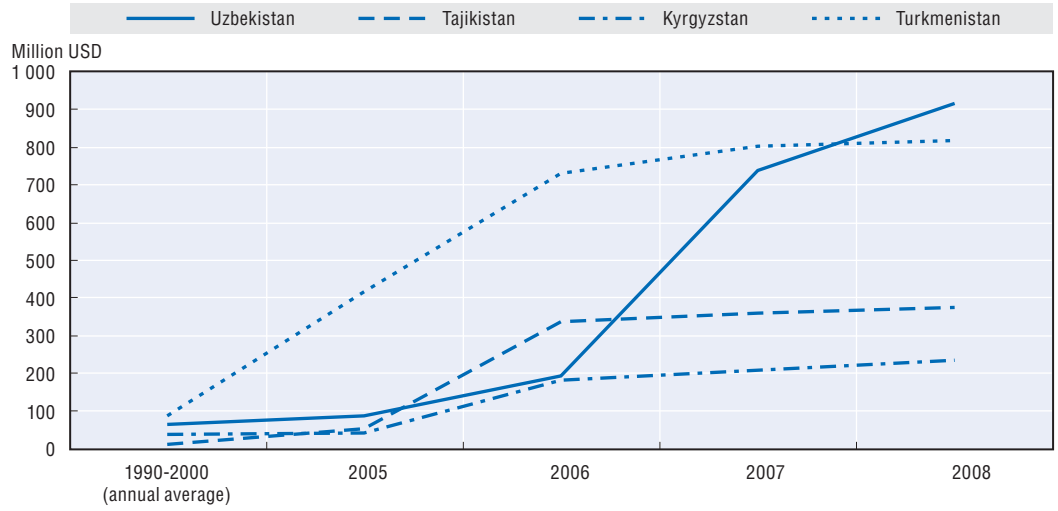
Russia is among the top three ITO destinations after India and China. In 2008, the total Russian export of software development and services was worth USD 2.65 billion. The Russian IT and outsourcing market has been growing at a rate of more than 20% over the past few years. The Russian government has increased its IT investments in order to expand and develop the IT infrastructure of the country while private sector investments

have been concentrated on the opening of new software development centres and expansion of existing ones. Russian service providers will have their future outsourcing projects come from consultancy firms, and ICT sector and R&D companies. Due to proximity with Russia, lower labour costs and comparable qualifications, Kazakhstani IT companies are well placed to take over a share of the Russian ITO market.

b. Kazakhstan could be a platform for IT and business services targeted at Central Asian countries

Kazakhstan is ahead of Central Asian neighbours like Kyrgyzstan, Tajikistan and Uzbekistan in broadband penetration and mobile connection. For instance, in 2008 broadband penetration was 15.1% in Kazakhstan and just 2.1, 0.6 and 0.5% in Kyrgyzstan, Tajikistan and Uzbekistan respectively. As for mobile penetration, Kazakhstan is almost twice as far ahead of its Central Asia neighbours. At the same time FDI inflow into Central Asian countries has been on the rise since 2005 (see Figure 7.21). The growing interest of foreign investors in the region means there will be an increasing need for IT and business services to support investors' operations in those countries. So far, investors have relied on support rendered by subsidiaries, captives or service providers based in Russia. Kazakhstan's advantages such as proximity, same time zone, political stability, economic freedom and advanced telecoms sector could make it a platform for providing IT and business services to businesses operating across Central Asia.

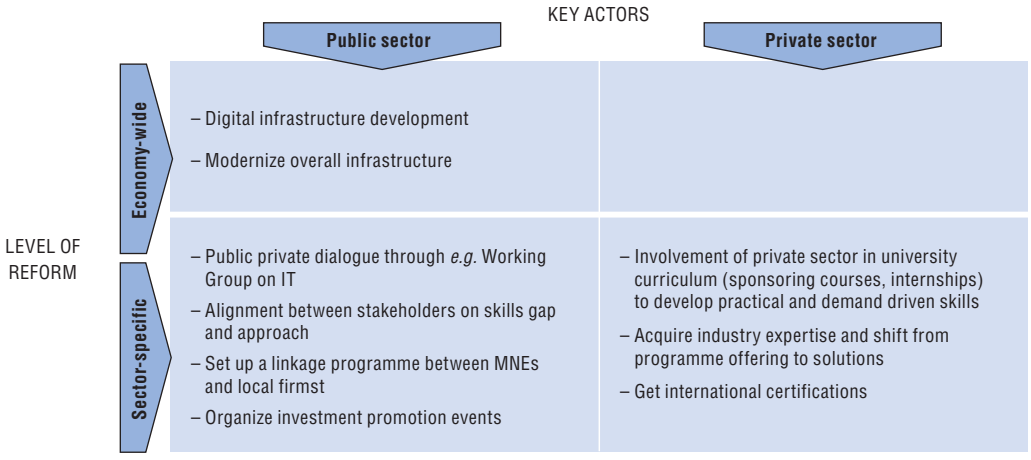
Figure 7.21. **FDI inward flow into Central Asian neighbours of Kazakhstan**



Source: UN Conference on Trade and Development.

For further growth of IT and business services sectors in Kazakhstan, the Government of Kazakhstan may want to consider implementing several policy reforms related to human capital development (see Figure 7.22). For example, further public-private policy dialogue to address the gaps in human capital and the policy barriers in the sector could be developed. A linkage programme could be created to help build the capacity of local companies. Both local and multinational companies would be part of such a programme and that would provide mutually beneficial gains for the participants. Investment promotion events create possibilities to attract investors and potential clients; by organising and participating in such events the chance to meet interested investors

Figure 7.22. **Policy recommendations: Public-private dialogue, linkage programmes and investment promotion necessary to sustain competitiveness**



Source: OECD Analysis.

increases significantly. The investors might be more convinced on the ability of Kazakhstan to deliver if successful international collaboration projects are showcased and leading players are present at the event. Successful projects in IT and business services sectors are usually backed up by solid ICT infrastructure and company specialisation.

Public-private policy dialogue

In order to address the development issues of the IT sector, including the gaps in human capital, Kazakhstan may consider creating a working group encompassing members of the private and the public sector. The overarching objective of the working group would be to improve the investment-enabling environment for the IT sector. The major tasks of the working group would be to draft an action plan for the IT sector growth as a whole; ensure availability of data on the sector; hold policy reviews; launch a linkage programme for domestic IT companies; and identify and remove policy barriers, related for example to broadband costs, export and certification, standards setting or labour movement between jobs. The public-private policy dialogue could include discussion of how to enhance on-the-job skills acquisition, because many skills required for IT are too specific to be part of formal curricula in universities.

The creation and functioning of such a working group is usually justified by the possibility that it would build trust and confidence of domestic and foreign companies, and society at large, in the policy process; improve the prioritisation of policy issues; lay the foundation for joint problem analysis; and accelerate the implementation of policy reforms. OECD countries' experience has shown that governments which are engaged in public-private policy dialogue are more likely to promote sensible, workable reforms, while the enterprises are more likely to support those reforms.

However, creating a working group is not a simple undertaking. As a starting point, it requires government commitment to private-sector development. Inter-ministerial co-operation is important when generating solutions that call for input from more than one ministry. Active participation of the private sector in presenting issues and recommending solutions is also necessary.

Below (Box 7.3) is an example of successful dialogue between the public and the private sector in India.

Box 7.3. **India-Nasscom Partnership**

When ITO was declared one of the top priorities for India, the government created a partnership with Nasscom, the premier organisation that represents and sets the tone for public policy for the Indian software industry. Nasscom took charge of setting industry standards (*e.g.* security, training, quality) and representing the industry within India and beyond.

As a result, the Indian government undertook the following key policy actions:

- licensing requirements were reduced and foreign technology became accessible;
- restrictions on investments were removed and investment process became easy;
- telecoms sector was liberalised and the way became open for more private operators (making India one of the fastest-growing countries in the field of telecoms);
- a National Venture Fund for the Software and IT Industry was set up with an amount of approximately EUR 15 million. The main aim was to provide venture capital to start up software professionals and small IT units.

Source: OECD analysis.

Building business linkages

Linkages between multinational enterprises (MNEs) and SMEs are a structured approach which foreign and local enterprises can use to support each other's economic performance, through collaboration in areas such as skills development, upgrading in technical standards, manufacturing and distribution, and access to new markets.

The main objectives of a Kazakhstani linkage programme for IT could be to foster a collaborative business environment for MNEs, facilitate the development of business in Kazakhstan for foreign companies, and mobilise foreign direct investments to support transfers of know-how and technology from multinational corporations to local SMEs.

A linkage programme normally consists of five phases: definition of the linkage strategy, establishment of the basic structure and organisation, design and launch of the programme, monitoring of results for impact determination, and actions to sustain linkages. Even though a linkage programme normally produces a significant share of benefits for both the MNEs and local firms (such as technology transfer to local companies, increased employment, more competitive local firms, penetration into global value chains, employers' freedom of training and funding operations), there are a number of challenges that have to be addressed to ensure programme success. Local companies need technological and skills upgrading to meet the requirements of foreign partners; trust and confidence between partnering firms have to be developed; and commitment and discipline of employers to finance training is required, since legal and tax control of the enterprise training expenditures is postponed until the end of each year.

Supplier database

Investors call for up-to-date, reliable and fast access to information on available skills and competences of local providers. Developing a supplier database and information

Box 7.4. **Successful business linkages**

- Between 1985 and 1997, Enterprise Ireland has involved an estimated 250 foreign affiliates in its linkage programme. During that period, affiliates operating in Ireland increased their local purchases of raw materials fourfold and more than doubled their purchases of services. Suppliers, in turn, saw their sales rise by 83%, productivity by 36% and employment by 33%. Several have become successful international sub-contractors.
- In Egypt, 100 IT companies, with export potential have enrolled in the enterprise capacity-building programme GrowIT. The companies benefit from consulting services delivered by Atos Origin, which leads an international consortium of IT consulting firms. The Egyptian IT industry development agency subsidises 85% of costs for all activities provided under the implementation phase with beneficiary companies paying the remaining 15%.
- In Singapore, the Infocomm Local Industry Upgrading Programme supports each multinational partner with a dedicated manager to develop partnerships with local companies and ensure their success. Since 2002, local companies have developed more than 560 new or enhanced products/solutions, have trained 1 700 Infocomm staff, and made more than USD 198 million revenue.
- In the Czech Republic, more than 50 firms from different selected sectors (production of components for automotive and aircraft industries, equipment, biotechnology and pharmaceuticals/health care) were involved in the linkage programme.

Source: OECD analysis.

transparency is an important element for attracting investors, both in IT sector and business services. The coding philosophy for a supplier database is to build a platform based on available free software. With the exception of the client operating system (which must be Windows), there is no need for user license payment or a high-performance computer processing unit. Based on OECD country overview, the key functionalities of a supplier database could be the following:

Data creation and storage	Data usability	Data analysis and mining
Creation and maintenance of the reference supplier database	User-friendly interface	Group/community management
Automatic update of registered information by company (in co-ordination with the National Statistical Bureau)	• UNICODE (UTF-8)	Easy-to-do assignment and monitoring
Automatic feedback between investment promotion agency (IPA) and companies included in the database	• Trilingual interface	Possibility to profile each company
Dynamic taxonomy management	Russian/English/Kazakh	Possibility to leverage the database for lead generation (identification of "active" companies)
	• Standard Query Language using QBE coding	
	Simple export of data into DOC, TXT, XLS or CSV	
	Simple export of codes for demonstration to clients or similar foreign institutions	
	Easy search functionalities	
	Web publishing	
	Sharing of information among IPA users	

Source: OECD analysis.

Other functionalities of the database could include: tracking and audit of users' activities access management (with one level for users and another for administrators), physical data back-up and data recovery. Below is given a suggested structure of the database.

IT and business services promotion

Investment promotion activities in the IT and business services arena are an opportunity to present Kazakhstan to potential business processes and IT outsourcing partners as well as to end clients. During such events, Kazakhstani IT and business services players could learn from the global players about the latest trends on the IT and BPO market, achievements and future plans. Promotion events are a good venue to meet potential clients. At the same time participation in such events could be even more beneficial if real examples of successful international collaboration projects are showcased.

Examples of successful promotion events are the regional or country level outsourcing forums such as the Asia-Pacific Outsourcing summit, RUSSOFT Annual Software Outsourcing Forum, India leadership forum or Ukrainian outsourcing forum. By participating in those events, Kazakhstan could get on the radar of international ICT companies, customer organisations, analysts, business intelligence firms and the venture capital community. Kazakhstan could focus on presenting some or all of the following:

- Emerging collaboration and business models between Kazakhstan and other IT destinations.
- Kazakhstan's talent pool: Reality check and addressing the shortfalls.
- Emerging companies: How *Asia-soft* can become the next major driver of IT-ITES sector growth and leadership.
- Innovation in Kazakhstan: The 3Ps-Processes, People, Products.
- The domestic Kazakhstan IT-business services market: How it can be efficiently addressed by the vendor community.

Improvement of ICT infrastructure

ICT infrastructure is an important policy area that needs to be addressed in order to develop competitive IT and business services sectors. The Networked Readiness Index 2008-09 of the World Economic Forum ranked Kazakhstan 73rd out of 134 countries. According to data provided by the International Telecommunication Union, Kazakhstan had 22.28 fixed telephone lines, 103.6 mobile cellular subscriptions, 11 Internet users, 4.26 broadband Internet subscribers, 41.75 radio sets and 49.22 TV sets per 100 inhabitants (in 2008). In 2008, 94% of Kazakhstan's population was covered by mobile signal. While ICT statistics on Kazakhstan are comparable with those on Ukraine and Russia (except for the number of Internet users in Russia, which are three times higher), the level of competition in ICT services is more advanced in the latter two countries. For example, there is full competition in data service in Ukraine and Russia, while in Kazakhstan data service is a monopoly.[21]

The Government of Kazakhstan has announced plans to develop a competitive export-oriented ICT sector. By 2020, the government intends to build an ICT infrastructure capable of offering multimedia services, provide access of all population to basic ICT services and ensure that 60% of Kazakhs are computer literate.[22] In order for Kazakhstan to develop the IT and business services, minimal conditions for an IT or business services company's operation have to be there: 24-hour Internet access with 1 Mbps Optical Fibre

Leased line (network) connection extensible to 2 Mbps, 256 Kbps line for VoIP, 128 Kbps ISDN backup, support for disaster recovery processes with back-up of client data, back-up management and physical back-up of data maintenance in secure locations outside the premises. Kazakhstan is in a good position for leapfrogging and for focusing on most advanced mobile technologies, like 4G and WiMAX.

The need to specialise and improve the soft skills

To be able to compete on other factors than cost, Kazakhstani companies need to consider specialisation. Currently IT companies of Kazakhstan are delivering a very large spectrum of services; one and the same company can develop software and sell computer components. IT companies need to focus on acquiring industry expertise and shift from programme offering to solutions. The targeted sub-sectors could be IT services and support (SaaS, support to various business applications, enterprise resource planning ERP systems, Web-related services). Expertise in oil and gas, health care, media, retail and telecom could be valuable.

Business services companies could focus on high-growth segments like mobile telecom and high-demand areas like sales and marketing support, technical call centres or collection of accounts payable.

According to the OECD CCS, 65.5% of IT companies-respondents are ISO certified and almost 13% are Capability Maturity Model Integration (CMMI) certified.

A step forward would be to strengthen existing capabilities by encouraging the companies to get international certifications. According to the *Software Engineering Institute* (SEI, 2008), CMMI helps "integrate traditionally separate organisational functions, set process improvement goals and priorities, provide guidance for quality processes, and provide a point of reference for appraising current processes." Although 53.7% of CCS respondents mentioned they are not ready to apply for any level of CMMI certification and 36.8% mentioned they do not know which CMMI level they are ready for, companies need to understand that certification contributes to continued and increased business and maintenance of effective operations. Many European companies have agreed only to deal with certified suppliers to assure quality parts and services.

IT and business services firms across Kazakhstan need to continually improve the technical skills of their staff and invest more in their soft skills. This means hiring and training people with problem-solving skills who are culturally sensitive and able to communicate effectively with clients.

Notes

1. *www.forrester.com*
2. ICT is defined by the World Bank Group as a set of hardware, software, networks and media for collection, storage, processing, transmission and presentation of information *http://info.worldbank.org/ict/ICT_ssp.html*
3. Piatkowski (2003) presented the first evidence of ICT spillover effects on output growth and labour productivity in some CEE transition economies and Russia. The results of the study demonstrate that the contribution of IT investment to output growth and labour productivity was much higher than expected in terms of GDP per capita.
4. In order to identify the contribution of ICT investments, capital stock and labour are decomposed accordingly into ICT capital stock and non-ICT capital stock in the country studies (Van Leeuwen and Van der Wiel, 2003; Jalava and Pohjola, 2007; Antonopoulos and Sakellaris, 2009).

5. There are many reviews of literature on productivity paradox (Yorukoglu, 1998; Triplett, 1999; Oz, 2005; Draca *et al*., 2006).
6. The authors also note the main criteria of belonging to the sectors were the shares of ICT investment in total investment above 8-10%.
7. SARK, Statistical Bulletin "Kazakhstan in figures," 2007.
8. OECD analysis.
9. *www.forrester.com*
10. Global BPO Market Forecast: 2008-12, NelsonHall.
11. *www.austrade.gov.au*
12. WITSA, Digital Planet 2008.
13. *www.gartner.com*
14. US Commercial Service, 2009.
15. IDC.
16. *www.profit.kz*
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18. *www.profit.kz*.
19. OECD interviews
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APPENDIX 7.I

The classification of Kazakhstan industries by sectors

	Russia	Kazakhstan
IT-producing industries		
ICT producing manufacture	Instrument making	Electric, electronic and optical equipment
	Glass-fibrous materials	
	Medical technology industry	
ICT producing services	Communications and post	Telecommunications
	Computer services	Activity related to computers
ICT using industries		
ICT using manufacture	Machinery (without instrument making and motor industry)	Publishing and printing
	Apparel industry	
	Printing	
ICT using services	Trade and public catering (including state purchases, operations with real estate, general commercial activity on market maintenance)	Trade, auto and household appliances repair
	Finance, credit, insurance (including indirectly estimated services of financial intermediary)	Financial activities
	R&D (science and scientific service)	Research and design
Non-ICT industries		
Non-ICT producing manufacture	Chemistry and petrol chemistry (without industry of glass-fibrous materials and products)	Chemical industry
	Fuel industry	Coke, oil products and nuclear materials
	Electronic power industry	Other non-metallic mineral products
	Ferrous metallurgy	Textile industry
	Nonferrous metallurgy	Machines and equipment
	Metalworking	Transport utilities and equipment
	Motor vehicles	Cellulose and papers
	Light industry (without apparel industry)	Foods including drinks and tobacco
	Food-processing sector	Metallurgy and finished goods
	Microbiological industry	Electro-energy, gas and water distribution
	Flour-grinding industry	Mining
	Wood and paper industry	
	Building materials industry	
	Glass and ceramic industry	
Non-ICT services	Transportation and highway	Real estate transactions
	Government and public institutions (including defence and public associations)	Transportation
	Public health services and social security	Public administration
	Education, culture and art	Hotels and restaurants
	Housing and communal utilities and consumer services	Health and social services
		Education
		Utilities, social and personal services
		Renting of machines and equipment, non included in other groups
		Other services to customers
Non-ICT other	Non-ICT other manufacture	Agriculture, hunting and forestry
	Agriculture	Fishery
	Forestry	Construction
	Construction	Other industries
	Other industries (including other kinds of activity in manufacturing of goods, geology, hydro-meteorological services)	

Source: The classification of Russian industries by sectors is based on Perminov *et al.* (2004) and OECD analysis.

PART III.

Summary of Recommendations and Implementation Road Map

Chapter 8

Sector Competitiveness Strategy Recommendations and Road Map

The Sector Prioritisation Framework has identified a number of sectors within Kazakhstan's economy for further analysis: agribusiness, logistics and chemicals for agribusiness and IT/business services. Both sector-specific and economy-wide barriers can be addressed through policy measures such as investment policy, enhanced investment promotion capabilities and human capital development. The report recommends that the Government of Kazakhstan implements the OECD Investment Policy Review, while other policies will require collaboration between government and the private sector. Investment promotion capabilities include measures such as a unified national investment promotion organisation, sector-focused FDI promotion strategies, a network approach, an increased role of ministers and filling information gaps for investors. Sector-specific recommendations address specific policy barriers across the targeted sectors and focus is to be placed on these sector-specific strategies: development of modern retail, access to finance and investment policy and promotion. Within the IT sector, the government should enhance public-private policy dialogue, build business linkages, develop a supplier database and improve IT infrastructure.

8.1. Policy barriers and framework

Key policy barriers for selected sectors

Based on the analysis of sectors of the economy in Kazakhstan using the Sector Prioritisation Framework, Sector Competitiveness Review, a number of sectors have been identified for further analysis. The agribusiness value chain (consisting of the beef, dairy and wheat sectors), logistics for agribusiness, chemicals for agri-business and IT/business services sectors can contribute to stronger economic performance, diversification of the economy, reduction of the country's dependence on energy industries and a more balanced economic development of Kazakhstan's regions.

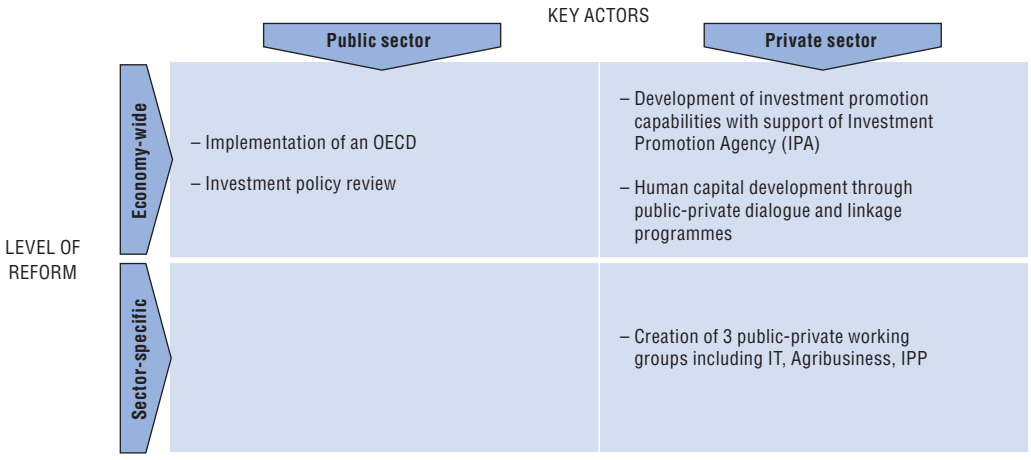
In parallel, a number of sector-specific and economy-wide barriers need to be addressed by the private sector and the Government of Kazakhstan to realise the full potential of identified sectors. Key barriers that constrain the competitiveness of Kazakhstan's sectors are summarised at the higher level below.

Agribusiness		
Limited working capital	Important skills gap	Lack of awareness of investment opportunities by foreign investors
Obsolete technology	Low quality of supplies	High number of non-tariff barriers
Limited access to land	Lack of consistency of legislative framework	
Limited logistical support		
Beef	**Dairy**	**Wheat**
Low cattle inventory and productivity	Sector fragmentation	Low levels of productivity
Limited access to finance	Limited access to finance	Low levels of investment
Low quality standards	Poor quality of raw milk	Low FDI in agro-food processing
Lack of qualified staff		Infrastructure constraints
Mineral Fertilisers	**Transportation/Logistics**	**IT services**
Investor awareness	Physical infrastructure	Lack of public-private dialogue
Low competitiveness/productivity	High number of non-tariff barriers	Operational constraints
Limited access to finance	Limited access to finance	High skills gap
	Lack of trucks/wagons	

8.2. Economy-wide policy recommendations and road map

The analysis of agribusiness, logistics, IT/business services and chemicals for agri-business sectors revealed a number of barriers that need to be addressed partly though policy measures. Investment policy, development of investment promotion capabilities and human capital development are the key policies recommended to address at the national level. An OECD Investment Policy Review is to be addressed by the Government of Kazakhstan, while other policies require a collaborative effort both from the government and the private sector.

Figure 8.1. **Policy recommendations matrix**



Source: OECD SCSR.

OECD Investment Policy Review

Foreign direct investment is a strong catalyst for economic growth and development of nations across the globe. Although the levels of FDI increased considerably during the last decades, not all countries have been able to take the advantage of this trend and reap the benefits of higher investments. Investment decisions of domestic and foreign investors are determined by many factors including market size, demand forecasts, intensity of competition, availability of inputs, cost structure, etc. However, satisfying the investor's criteria in these areas will not necessarily land an investment project unless the country boasts an attractive and robust business environment.

Kazakhstan has already put in place the basic investment framework to attract FDI. Key laws, for instance on regulation of the operations related to investments in Kazakhstan and protection of investors' rights, simplification and harmonisation of customs procedures, accounting and financial reporting, have been adopted.

Implementation of a formal OECD Investment Policy Review for Kazakhstan can facilitate even further the government's effort in improving the country's business climate and boosting the inflow of FDI. The review is conducted using the OECD legal instruments for investment and the Policy Framework for Investment (PFI). The OECD legal instruments are the principal legal commitments of OECD members and provide an essential benchmark in assessing the extent to which candidates for OECD membership adhere to the standards set by these instruments. The OECD PFI is the most comprehensive tool developed to help governments design and implement good policy practices for attracting FDI and maximising the benefits of investment for the domestic economy. PFI covers ten subject areas: investment policy, investment promotion and facilitation, trade policy, competition policy, tax policy, corporate governance, policies for promoting responsible business conduct, human resource development, infrastructure and financial sector development, and public governance.

Implementation of the formal Investment Policy Review will potentially lead to Kazakhstan's adherence to the OECD Declaration on International Investment and Multinational Enterprises. This may lead to improvements in Kazakhstan's international

ratings, Kazakhstani investments abroad will receive reciprocal treatment and the country may potentially participate in the OECD Investment Committee.

Timeframe for implementation: 12 months.

Development of investment promotion capabilities through an IPA and FDI promotion strategy

The remarkable growth of Kazakhstan's economy in the last decade was fuelled by a huge inflow of foreign direct investment. The stock of FDI in Kazakhstan increased almost fivefold from USD 10.1 billion in 2000 to USD 58.3 billion in 2008. However, most FDI goes to the oil and natural gas sector. In 2009, OECD countries accounted for about 70% of total FDI inflows to Kazakhstan with strong investments from the United States, United Kingdom, Italy, France and the Netherlands, traditional headquarters of leading oil companies.

As already indicated in the report, FDI can bring considerable benefits to various sectors of economy. One of the key goals in the promotion of Kazakhstan to foreign investors is to diversify the flow of investment among the regions and sectors of the economy. The following measures are proposed to develop strong investment promotion capabilities of Kazakhstan:

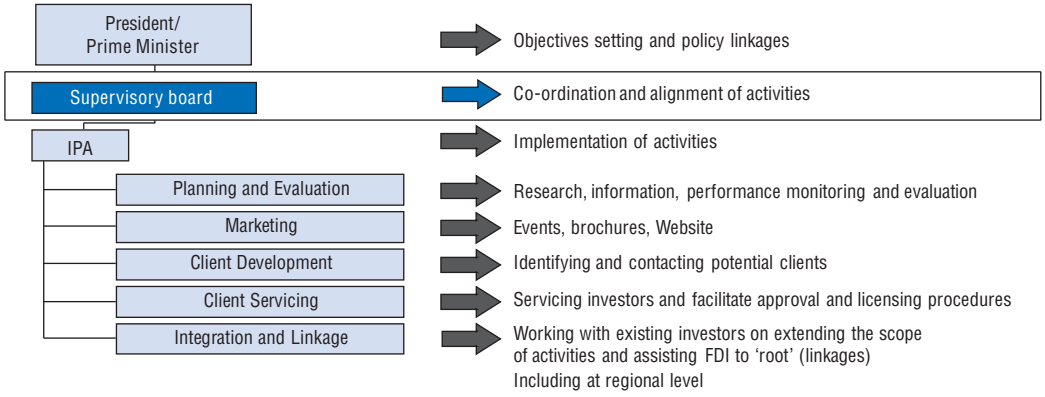
- creation of a unified national investment promotion organisation under the responsibility of the highest level of authority in the country;
- development of an effective sector-focused FDI promotion strategy and a detailed road map for its implementation;
- utilisation of a network approach, which encompasses the use of Kazakhstan's embassies abroad;
- increase the role of ministers in attracting FDI;
- focus on filling information gaps in the decision-making process of investors.

In order to develop and implement an effective investment promotion strategy, it is recommended that the government creates a single national investment promotion institution based on OECD good practices. The institution must be created under the responsibility of the highest level of authority in the country, which will ensure strong political support and leadership. This will establish co-ordination and alignment of the agency's objectives with the national and regional economic development policies and priorities. Such an approach is the practice in most OECD countries (Figure 8.2).

The new investment promotion agency should be "demand-driven", *i.e.* focused on collecting feedback from foreign investors, structured in a way which will allow it to achieve key objectives: diversification of FDI across the regions and sectors of economy. The agency also should embrace a network approach to investment promotion and actively involve Kazakhstan's embassies abroad which can support the promotion and targeting activities abroad, and act as contact points for investors and provide them with required information.

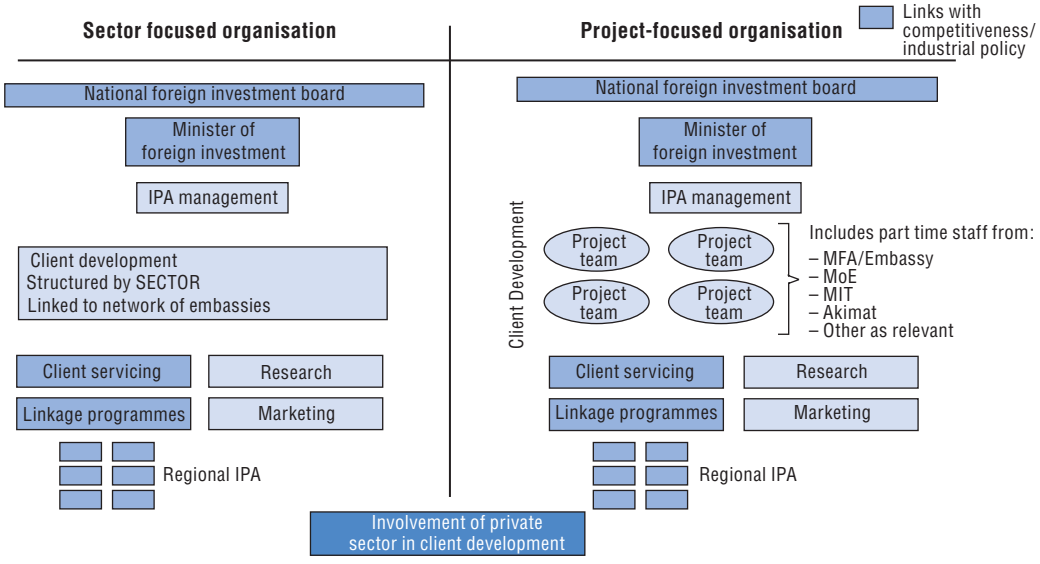
To provide effective support to potential investors and after-care services to existing investors on site, there is a need to establish a network of regional IPAs across the country. This network will help provide investors with local knowledge, and speed up and facilitate approvals and permits and other issues administered at the regional level. Regional IPAs can help to co-ordinate the links between investment promotion and industrial policies of the regions, and facilitate development of industrial zones and clusters (Figure 8.4).

Figure 8.2. **Links between policy-makers and IPA in most OECD countries**



Source: FIAS Foreign Direct Investment Promotion Center.

Figure 8.3. **Structure of a demand-driven IPA: sector/and or project focus**



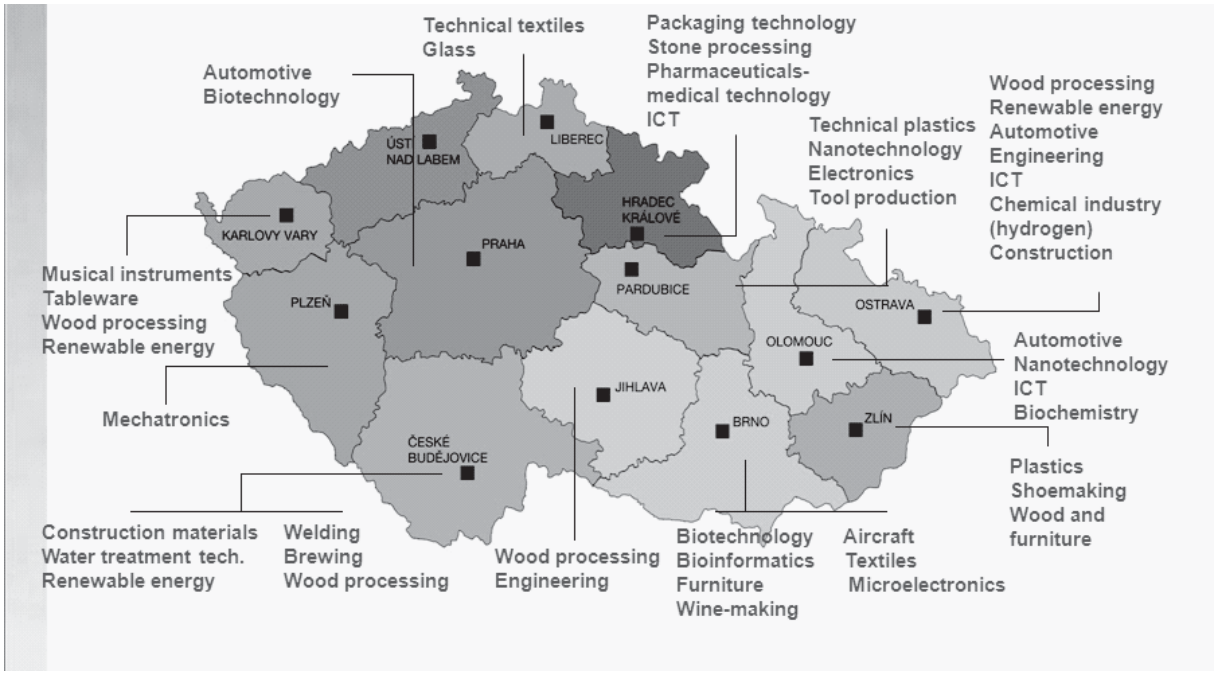
Source: OECD analysis.

Investment policy and promotion

Understanding the flow of information and investors' decision-making processes is critical for effective investment promotion. It allows IPAs to supply investors with information about the country, specific industry or region. Investment promotion good practice focuses on filling information gaps for investors.

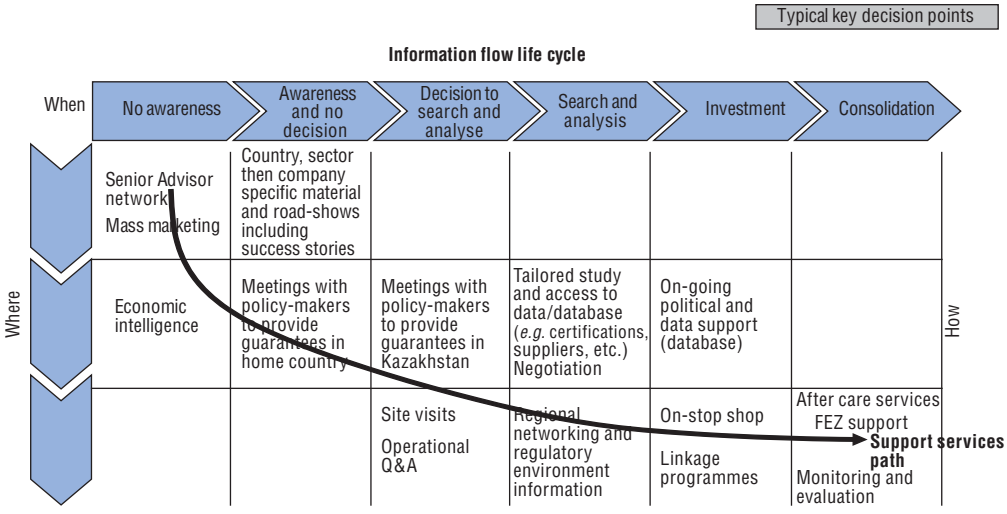
The investment promotion strategy should be focused on specific sectors and countries. The experience of OECD countries demonstrates that countries with sector-specific focus in investment promotion activities achieve better results and attract higher volumes of foreign direct investment. For example, Invest in France Agency has nine priority sectors with specific promotion and facilitation tools to attract investors. IDA Ireland, CzechInvest and many other agencies with a successful track record in attracting FDI had investment promotion strategies focused on specific sectors and regions.

Figure 8.4. **Links between investment promotion, industrial policy and regions in the Czech Republic**



Source: CzechInvest, 2010.

Figure 8.5. **Where, when and how to reduce the information gap?**



Source: OECD analysis.

Three cluster types of investors emerged from the Foreign Investor Survey (FIS)

The analysis of FDI inflows into the country over the last decade, together with the Foreign Investor Survey conducted across eighteen national employer associations of the OECD revealed a number of patterns of investor groups or clusters: 1) Energy domino; 2) Russia first; and 3) Raise awareness (Figure 8.6). Understanding the motivation and investment decision-making processes of different investor groups is vital for development and implementation of an effective investment promotion strategy.

Box 8.1. **Promoting the French food sector**

To promote the French food sector, three key channels are used: economic missions of the French agency for the international promotion of French businesses under the umbrella of the Ministry of the Economy, Ministry of Industry and Trade and Treasury; Sopexa – the French marketing and communication company focusing on agribusiness, with a strong presence abroad (35 agencies in 50 countries); as well as the international network of the French Ministry of Economy.

The French agency for the international promotion of French businesses has 43 agribusiness agents in France, supported by three regulatory experts and eight research specialists. The agency's international network consists of 16 agribusiness agents and 23 assistants within the economic missions. Sopexa works as a close partner to the French government providing advice and using its strong international presence. Economic/commercial units within the French embassies abroad assist French agribusiness with the aim of removing non-tariff barriers to trade in order to secure the market entry.

Promotion activities are conducted in three formats. Business-to-business (B2B) activities are carried out and focus mainly on market intelligence, matchmaking between companies either through individual contact, or collectively. Business-to-consumers (B2C) activities include marketing and promotion of French products to consumers, *e.g. Semaines françaises* in large retail outlets, *L'Apéritif à la française*, etc. In the policy area, the French Ministry of the Economy's network abroad aims at removal of non-tariff barriers to trade (*e.g.* technical standards, sanitary, phyto-sanitary norms).

The French food sector is promoted within France as well through activities of the national Association L'ANIA (*Association nationale des industries alimentaires*). The Association represents and promotes French businesses of all sizes across the food industries. It is the official spokesperson of France *vis-à-vis* the French government and EU authorities. L'ANIA has a network of 28 regional associations throughout France. L'ANIA priority areas are the following: assistance in export promotion through regular member meetings to exchange best practices and Web site information support on key success factors; improving competitiveness of French firms through finance and innovations; promoting quality and adherence to the international standard ISO 22000 to manage food security and safety; and providing training programmes for students, and increasing attractiveness of the sector among the young.

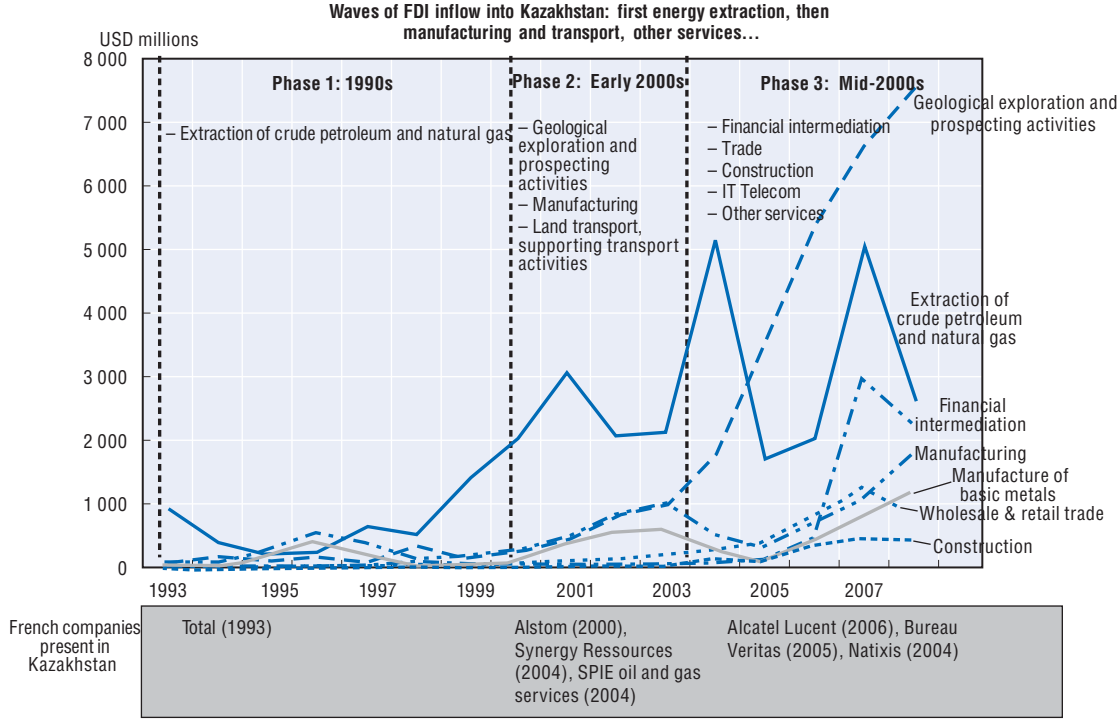
Source: French Ministry of Agriculture.

Figure 8.6. **Clusters of investor profiles**

Source: OECD interviews of national employer associations.

The "energy domino effect" investor cluster (notably France, Hungary, Spain, Turkey, United States, United Kingdom) is characterised by the fact that large oil companies pave the way for other foreign investors in different sectors from these countries (Figure 8.7).

Figure 8.7. **"Energy domino effect" cluster of investors**



Source: National Bank of Kazakhstan statistics, French economic mission in Almaty.

Investment promotion for the energy domino cluster of investors should explore: sector-specific road shows, knowledge of employer association's vision, policy trends for the country and strong leverage of high level policy-makers.

The "Russia first" cluster is characterised by the tendency of investors with experience in Russia to consider Kazakhstan as an investment destination as well. German companies started investing in Russia in 1992 and in Kazakhstan in 1995. In the case of Italian companies, they started investing in Kazakhstan only in 2003, 11 years later than in Russia. The Russia first cluster (consisting of investors primarily from Austria, Germany and Italy) could be attracted through sector-specific road shows, country-country councils and targeting of companies already present in Russia (Figure 8.8).

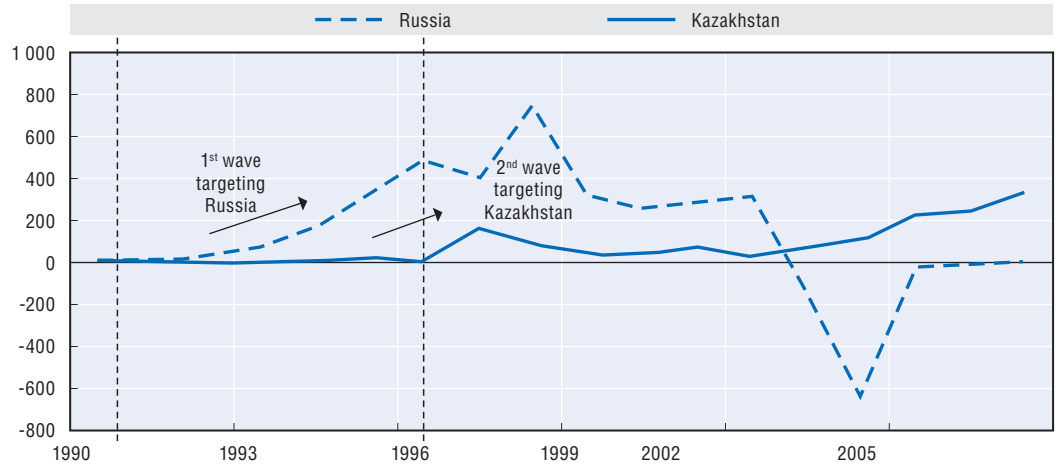
The "raise awareness" cluster is composed of investors from Canada, Denmark, Iceland, Poland and Switzerland who have a limited knowledge of or interest in the country. This group probably requires significant awareness-raising efforts. This group of investors could be targeted through a network of embassies, country-country councils and sector-specific road shows.

To be effective, investment promotion need to focus on filling information gaps of investors, to take into consideration the needs of different investor groups and be tailored for specific sectors.

Timeframe for implementation: 12-24 months.

Figure 8.8. **"Russia first cluster": German investments**

German outward FDI, million USD



Source: OECD statistics 2009.

8.3. Sector-specific recommendations and implementation

The OECD Secretariat recommends designing and implementing sector-specific policies aimed at strengthening the competitiveness of sectors by addressing specific policy barriers. This approach requires close collaboration of the government, private sector and civil society to remove sector-specific policy barriers leveraging sector and policy expertise.

Agribusiness

To support growth and increase competitiveness of the agribusiness sector, barriers which constrain its development need to be removed. Six policy options which address these constraints have been tested based on their applicability to beef, dairy and wheat subsectors, their potential to generate new FDI and their potential impact on local competitiveness:

1. Retail development (attracting foreign retailers, promoting modern retail development).
2. Access to finance (supply chain financing via guarantee schemes).
3. Investment policy and promotion.
4. Producers' organisations.
5. Extension programmes.
6. Special economic zones.

The potential policy options have been analysed using benchmarking methodology, feedback from foreign investors and feedback from the private sector, followed by an analysis of cost and time of implementation. The analysis revealed that there are three policy measures that could address the barriers for development and competitiveness of agribusiness. Thus, focus should be placed on implementation of the following sector-specific strategies:

1. Development of modern retail.
2. Access to finance.
3. Investment policy and promotion.

Development of modern retail

Modern retail development is a policy option which has high impact on the entire agribusiness value chain. Promoting private investments in modern retail enables important changes in procurement systems, resulting in the development of new distribution centres, establishment of direct contracts with suppliers, improvements in the quality and hygiene standards of local product, and increased productivity and competitiveness of local producers.

However, key areas need to be addressed to build collaboration between retailers and suppliers:

- limiting concentration and collusion of modern retail;
- implementing a strong regulation system for buyer-seller relations, through a combination of legal-regulatory and self-regulatory approaches;
- strengthening capacity to supply modern retail chains;
- strengthening suppliers, wholesalers to pursue market opportunities other than modern retailers.

The implementation of the retail development policy can be achieved through targeted investment promotion. This policy is expected to have a strong impact on key policy challenges in the sector.

Implementation timeframe: 12-24 months for a pilot project.

Access to finance

Access to finance is a universal barrier for all members of the agribusiness value chain. Private supply chain financing (SCF) motivates both farmers and processors, as processors face problems with supplies, because farms, especially small farms, are not able to supply sufficient volumes and quality of products. The major type of SCF is when a processor provides a loan guarantee to the bank on behalf of the supplier.

Guarantee schemes effectively support access to finance for SMEs. The main purpose of the guarantee schemes is to help smaller, credit-worthy companies which might otherwise fail to access finance they need for working capital or investment finance, due to a lack of collateral or credit history. OECD countries have successfully implemented guarantees schemes and OECD experience proves that this financing mechanism could work elsewhere.

Implementation of this policy option requires adequate staff training within the institution issuing the guarantee, precise claim procedures, provision of privileged interest rates on loans for the guarantee scheme, and funding to cover incentives for processors to support farmers.

Implementation timeframe: 12-18 months for a pilot

IT Services

In order to facilitate the growth and development of the IT and business services sectors in Kazakhstan, a number of policy changes need to be implemented. Based on the analysis, the government should enhance public-private policy dialogue, build business linkages, develop a supplier database and improve IT infrastructure.

Public-private dialogue

Based on the OECD experience, public-private dialogues are an effective tool for addressing policy issues and removing administrative barriers. The ultimate objective of the working group would be to improve the investment-enabling environment for the IT sector. The working group will hold policy reviews, launch a linkage programme for the domestic IT companies, identify and remove policy barriers, monitor the impact and effectiveness of reforms, and address human capital development issues for the IT sector.

The creation and functioning of the working group would potentially help build trust and confidence of domestic and foreign companies in the policy dialogue, improve the prioritisation of policy issues and accelerate the implementation of policy reforms. The working group needs to involve all relevant stakeholders and have the appropriate mandate. It should include representatives of the government, private sector and relevant professional/industry associations. The working group would need to meet regularly in order to plan its work, develop and implement the strategy, oversee the activities, propose changes or modifications, monitor and evaluate performance and results, as well as secure sufficient budget and allocate it to specific tasks.

The implementation of the working group's mandate can be performed in five stages: development of an action plan, provision of data, policy reviews, dissemination of results, and removal of barriers.

Promoting FDI-SME linkage programmes

Building linkages between multinational enterprises (MNEs) and local small and medium-size enterprises (SMEs) is an effective approach to improve capacities and performance of both groups of companies. This is achieved through collaboration in areas such as skills development, upgrading of technical standards, manufacturing and distribution, and expanding access to new markets.

Business linkages provide benefit not only to SMEs (technology transfer, skills upgrading, alignment to international quality standards, access to new markets) and MNEs (quicker delivery terms, reduced transportation and inventory costs, enhanced reputation and local license to operate, improved integration in new overseas markets), but also to the country and its economy in general (increased economic activity and employment, long-term increase in local competitiveness, better quality products and services).

The main objectives of a Kazakhstani linkage programme in the IT sector would be to foster a collaborative business environment for MNEs, facilitate the development of business in Kazakhstan for foreign companies, and mobilise foreign direct investments to support transfers of know-how and technology from multinational corporations to local small and medium-sized enterprises.

Supplier database

Investors need up-to-date, reliable and fast access to information on available skills and competences of local providers. Developing a supplier database and information transparency is a key for attracting investors, both in the IT sector and business services sectors.

Enhancing public-private dialogue

Public-private dialogue is a key to enhancing government policy and builds momentum for business environment reforms. It also ensures that reform design fits local

needs and capacities and allows setting high industry standards, reducing restrictions on investments and easing the investment process. Public-private dialogue can help smoothen and accelerate the pace of reforms and promotes accountability, transparency and good governance. PP dialogue makes it possible to shape policy-making through policy advice based on the thorough analysis of the market conditions.

This policy can be implemented via establishment of working groups.

Human capital development

Lack of qualified staff, especially at the managerial and technical level, is a serious impediment to agribusiness development in the country, as suggested by the focus groups with foreign investors. The lack of qualified resources drives the need for investment in company-sponsored professional training for local managers and technical staff. The experience of the OECD countries shows that investment in education and training can result in significant improvements in the level of skills and education of the workforce and, more fundamentally, in raising labour productivity.

8.4. Conclusion

The Government of Kazakhstan has been active in recent years in seeking to reduce the country's over-reliance on energy revenues and promote the development of other sectors of the economy, for instance by developing pilot clusters in seven sectors in the mid-2000s. In 2008, the country entered a ground-breaking agreement with the OECD to conduct a three-year project aimed at strengthening sector competitiveness and attracting a growing share of foreign direct investment in key non-energy sectors of the economy. The objective of the project is to target sectors which have the propensity to generate high spillover on the rest of the economy and to enhance capabilities in areas such as human capital, access to property, infrastructure, technology upgrade and access to finance. The approach used is "demand-driven", *i.e.* focused on gathering feedback from the private sector both in the Republic of Kazakhstan and in OECD countries. FDI can play an important role in building longer-term capabilities in those areas and in diversifying the economy. In the context of this project and for the sectors under consideration, the OECD Secretariat identified key obstacles to growth.

Agriculture-related sectors are plagued by a lack of access to financing, leading to low levels of investment across these sectors. Supply chain financing schemes among producers and processors or retailers can help successfully address this challenge. The IT and business services sectors, on the other hand, are hampered by narrow human capital capabilities. A strengthened public-private policy dialogue can serve to address the human capital gap, while a linkage programme of local IT companies with multinational companies may support transfers of know-how and technology from multinational corporations to local small and medium-sized enterprises, thereby generating capacity and partnership building. In addition to human capital and access to finance policy issues, the Government of Kazakhstan should focus on investment policy and promotion. The development of strong investment promotion capabilities is indeed a key policy recommendation for improving the country's business climate and enhancing the inflow of FDI. To that effect, the OECD will be conducting an *Investment Policy Review of Kazakhstan* in 2011 aimed at enhancing the country's policy convergence with the OECD investment instruments, in particular the OECD Declaration on International Investment and Multinational Enterprises, and preparing the ground for an eventual adherence of

Kazakhstan to the OECD Declaration on International Investment and Multinational Enterprises. Moreover, during Phase 2 of the project, detailed action plans will be developed for each sector, including one or two policy recommendations to remove key sector barriers, and public-private working groups by sector. This project is a first of its kind in terms of both scope and reach between the OECD and the Republic of Kazakhstan. It is paving the way for an ever-increasing collaboration between these two entities.

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Competitiveness and Private Sector Development

KAZAKHSTAN

SECTOR COMPETITIVENESS STRATEGY

Since 2000, the economy of the Republic of Kazakhstan has been growing at an annual rate of between 8%-9%, making it one of the ten highest performing economies in the world. Kazakhstan attracts more foreign direct investment than all other Central Asian countries together. To date, the country's strong economic performance has been driven largely by its natural resources sector. The oil and gas sectors alone attract three quarters of foreign investment inflows. However, Kazakhstan's non-energy sectors, with their competitive advantages, could be potential new sources for growth.

In 2009 Kazakhstan launched a far-reaching programme to diversify its sources of foreign direct investment. To support this effort, Kazakhstan asked the OECD to undertake a Sector Competitiveness Review. This report, which represents the first phase of the review, provides an assessment and strategy to help Kazakhstan enhance the competitiveness of its non-energy sectors including agri-business, fertilizers, logistics, business services and information technology. While it acknowledges that the government has successfully implemented a first generation of business climate reforms, the report recommends that sector-specific policy barriers be further addressed. For example, policy makers could stimulate quality improvements and modernise production in some sectors by facilitating access to finance, attracting modern retailers and addressing skills gaps in the workforce.

This review was carried out under the aegis of the OECD Eurasia Competitiveness Programme, a regional programme that contributes to economic growth and development in eleven countries of the former Soviet Union as well as Afghanistan and Mongolia.

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