The wool sector

THE WOOL SUB-SECTOR

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Highlights on four livestock sub-sectors in Kazakhstan

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ACRONYMS

ACC	Agro Credit Corporation	FMD	foot-and-mouth disease
ACEPAS	Analytical Centre of Economic Policy for the Agricultural Sector	FOB	free on board
		GAIN	Global Alliance for Improved Nutrition
ACP	Agricultural Competitiveness Project	GATT	General Agreement on Tariffs and Trade
ADG	average daily gain	GDP	gross domestic product
AE	agricultural enterprise	GEF	Global Environment Facility
AI	artificial insemination		
AWEX	Australian Wool Exchange	GlobalGAP	Global Partnership for Good Agricultural Practice
CIP	carriage and insurance paid		
CIS	Commonwealth of Independent States	GMP	good management practice
		GPS	Global Positioning System
CKD	centre for knowledge dissemination	HACCP	Hazard Analysis and Critical Control Points
CPI	Consumer Price Index	HHF	household farm
CU	Customs Union	HPAI	highly pathogenic avian influenza
DOC	day-old chick		
DP	duty paid	ICT	information and communication technology
ELISA	enzyme linked immunosorbent assay	IFI	international financial institution
EMI	AWEX Eastern Market Indicator	ISO	International Organization for Standardization
EU	European Union	ISTC	International Science and Technology Center
FAS	Foreign Agriculture Service		
FCC	Food Contract Corporation	IWTO	International Wool Textile Organization
FCR	feed conversion ratio	JSC	joint stock company

KAF	Kaz-Agro-Finance
KAI	Kaz-Agro-Innovation
KAM	Kaz-Agro-Marketing
KPI	key performance indicator
Kaz-Memst	Committee for Technical Regulation and Metrology
LEI	Agricultural Economic Institute at Wageningen University in the Neterrlands
LLP	limited liability partnership
LSU	livestock unit
LW	live weight
M&E	monitoring and evaluation
MDF	modern dairy farm
MDP	milk and dairy product
MoA	Ministry of Agriculture
MOC	Mal Onimderi State Company
MPE	milk processing enterprise
NWA/C	national wool association/ council
OECD	Organisation for Economic Co-operation and Development
OIE	World Organisation for Animal Health
PF	peasant farmer
R&D	research and development
SBM	soybean meal

SFM	sunflower meal
SPS	sanitary and phytosanitary standards
SZTS	service-purchasing centre
SW	slaughter weight
SWOT	strengths, weaknesses, opportunities and threats
T	tenge
TB	tuberculosis
TBT	technical barriers to trade
TCP	Technical Cooperation Programme
TRQ	tariff rate quota
UHT	ultra-high temperature-treated
UKPF	Ust-Komenogorsk Poultry Farm
USDA	United States Department of Agriculture
VAT	value-added tax
WAHID	World Animal Health Information Database
WAHIS	World Animal Health Information System
WHO	World Health Organization
WME	whole-milk equivalent
WPT	wool primary treatment
WTO	World Trade Organization

A

GLOBAL OVERVIEW

Currently, about 2.1 million tonnes of greasy wool (Table A.1) are produced annually on world farms from 1 billion sheep.[1] Greasy wool is then marketed for further processing, mainly through wool primary treatment (WPT) factories (Annex 1).

Table A.1: Leading global wool producers
(thousand tonnes of greasy wool)

No.	Country	2005	2006	2007	Share (2007), %
1	Australia	519.7	486.7	464.7	21.4%
2	China	393.2	388.8	395.0	18.2%
3	New Zealand	215.5	224.7	217.9	10.0%
4	Islamic Republic of Iran	73.0	75.0	75.0	3.5%
5	United Kingdom	60.0	60.0	62.0	2.9%
6	Argentina	60.0	60.0	60.0	2.8%
7	Russian Federation	48.0	49.3	50.6	2.3%
8	Sudan	46.0	46.0	46.0	2.1%
9	Turkey	46.2	46.0	46.0	2.1%
10	India	44.9	45.2	45.9	2.1%
15	Kazakhstan	30.4	32.4	34.2	1.6%
	World	**2 223.8**	**2 183.7**	**2 172.1**	**100.0%**

Source: FAOSTAT.

The global raw wool market is currently worth about USD4 billion. Australia and New Zealand are the leading market players, controlling 60 percent of the supply in the international market, although they have rather small light industries for processing. China is the world's biggest wool processor and fabrics producer; it is also a major importer, followed by Italy, India and the United Kingdom, France and Germany (Tables A.2 and A.3). At the spinning (or yarn) and weaving (or fabric) production stages,

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1.- FAOSTAT database; Wool roadmap / IWTO presentation, 2009.

wool use is concentrated in the Far East (mainly China), Western Europe (mainly Italy and the United Kingdom) and the Indian subcontinent (mainly India and Pakistan). At the garment manufacturing stage, the regional concentration is similar, but Western Europe is less important than the Indian subcontinent. The consumption of wool at the retail stage (in the form of apparel, carpets, etc.) is fairly evenly distributed, with Western Europe (mainly the United Kingdom, Italy and Germany) and the Far East (mainly China and Japan) being equally important. Kazakhstan is currently a very minor player in the international wool market. Given the complexity and different types of wool statistics on imports and exports, they have been standardized for this report and are expressed in greasy form equivalent.

Table A.2: Main wool importers (thousand tonnes of greasy wool)

No.	Country	2005	2006	2007	2007 (%)	Greasy as % of total import volume (2007)
1	China	294	325	350	32.6%	75%
2	Italy	98	112	88	8.2%	52%
3	Germany	58	67	62	5.8%	72%
4	Belgium	47	53	51	4.7%	23%
5	Turkey	33	36	40	3.8%	59%
6	India	33	35	36	3.3%	27%
7	Russian Federation	22	23	25	2.4%	5%
8	Japan	25	24	24	2.2%	0%
9	United Kingdom	21	17	17	1.6%	100%
10	Pakistan	16	15	14	1.3%	85%
	World	**1 055**	**1 129**	**1 074**	**100**	**50%**

Sources: FAOSTAT; own calculations.[2]

2.- Here and elsewhere a 60 percent ratio of scoured to greasy raw was used to aggregate statistics for scoured and greasy wool.

Table A.3: Main wool exporters (thousand tonnes of greasy wool)

No.	Country	2005	2006	2007	2007 (%)	Greasy as % of total export volume (2007))
1	Australia	452	463	437	37.2%	86%
2	New Zealand	223	234	227	19.3%	17%
3	United Kingdom	48	51	52	4.4%	20%
4	Germany	38	49	47	4.0%	83%
5	South Africa	39	38	38	3.2%	80%
6	Argentina	20	19	30	2.6%	56%
7	Uruguay	11	23	27	2.3%	57%
8	Turkey	19	18	22	1.9%	37%
9	Belgium	12	17	20	1.7%	45%
10	Romania	9	10	16	1.3%	87%
	World	**1 128**	**1 171**	**1 175**	**100.0%**	**57%**

Sources: FAOSTAT; own calculations.

Raw wool commodity marketing and prospects

Commodity exchange and prices are dictated by open-cry international auction systems; these are led by the Australian Wool Exchange Limited (AWEX), a company that provides the major industry exchange framework in Australia. Sidney and Melbourne auction sites lead the process, but Christchurch, Napier and Oakland in New Zealand are equally important. The price is defined per kilogram of scoured wool, although greasy wool is usually traded. Commodity exchange systems distinguish wool prices by micron groups, which currently range from 16.5 to 32 µm in Australia, broken down into 0.5 or 1 sub-grade steps. Currently (2009), prices range from USD2.5 to $12/kg (inversely related to the micron group). Fibre length sub-grades are also considered: the shorter the fibre length the lower the price, with drops of 10 to 20 percent per grade.[3] The AWEX Eastern Market Indicator (EMI) index is the key indicator for the state of the world fine and semi-fine wool market. EMI is the average aggregated price for all micron groups and sub-grades, and is calculated throughout the day, weekly and monthly for quotes and reports.[4]

3.- The best lots of wool with ultra fineness (less than 16 microns) are sold in Australia at special one-off auctions, called "gold bale auctions", involving companies that produce luxury high-quality products. The best bale ever sold was in June 2008, for USD247 480; it was exported to India.

4- AWEX wool market indicators

The current global market of about USD4 billion is equivalent to one-third of what it was in 1990 (Figure 1). The declining relative importance of raw wool markets over the last 20 years has led to declining sheep numbers in Australia and New Zealand (which have not been compensated for by sheep population growth in China), resulting in decreasing wool production, while lower wool prices also reflect lower global wool demand. Incomes for wool producing farms have fallen in line with wool prices,[5] encouraging wool producers to diversify their production by producing less wool and more livestock for meat, and crops.[6]

Figure 1: Dynamics of the world wool market
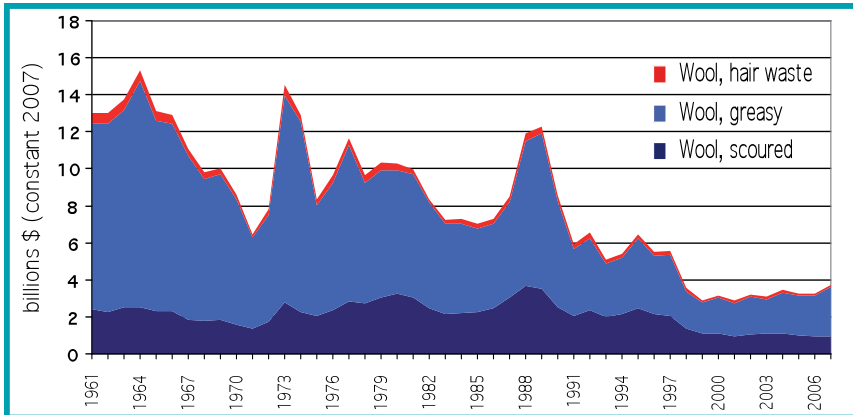
Owing to a declining world demand, by the mid-1990s China had halted its buying, and the large wool stocks previously accumulated (about 60 percent of global annual wool production) were marketed, with a crushing effect on prices.[7] In addition, consumption and marketing systems collapsed in the former Soviet Union and the socialist countries of Eastern

5.- In Australia, where the wool production system is somewhat concentrated (with 73 percent of total wool production coming from fewer than 40 percent of wool producing farms), the industry has oscillated from almost zero government intervention in the 1960s to a number of failed price support schemes in the 1970s and 1980s, and back to almost zero government intervention since the end of the 20th century.

6.- For instance, in Australia current annual revenues are A$0.7/sheep for wool against A$3/sheep for wool and meat, and A$8/lamb. This has gradually led to a decline in wool production and increased switching to dual-purpose semi-fine wool (and meat) sheep.

7.- Razumeev, K. 2000. International wool markets. Autumn 2000. *Light Industry Market*, N7, 2000; Wilcox, C. 2005. Global wool market trends and prospects: intelligence for wealthier and wiser decisions. In *Woolmark, Address to Agribusiness, 2005*, p. 12.

Europe. Population growth and increased per capita textile consumption led to improved all-fibre consumption, from 44 to 77 million tonnes per year, but the percentage of wool in total fibre production and consumption decreased dramatically (Figure 2) and wool was substituted with cheaper fibres in many application areas. In recent years, the price of fine wool is three to four times higher than the prices of synthetic materials, and five to six times higher than cotton prices.

Figure 2: Structure of world textile fibres production
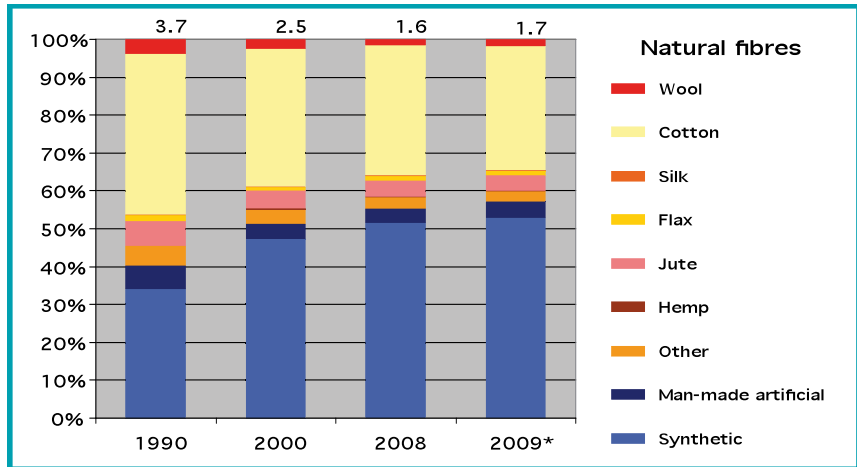
In the last decade, the wool market has performed stably in terms of production volumes, while prices (of fine and semi-fine wool) have increased slightly (Figure 3). From the mid-1990s to 2005, the market showed significant preference for high-quality wool (e.g., for off-season light apparel), shown by an increasing demand for the super-fine wool segment. Compared with the 1996 to 2000 period, Australian sales volumes for 2000 to 2005 were outstanding for the finest categories (from < 16 to 18 μm).[8] This segment is directed to the production of highest-quality garments.[9]

8.- At 2 059 percent higher for < 16 μm; 535 percent for 16 μm; 253 percent for 17 μm; and 76 percent for 18 μm.

9.- For instance, sportswear and ultra-light (190 g/m2) summer jackets containing 20 to 40 percent cotton or viscose. Super-wash yarn used for "shower suits" is another innovative product obtained from the chemical-physical treatment of conventional wool.

Figure 3: Aggregated AWE EMI prices for wool in Australia
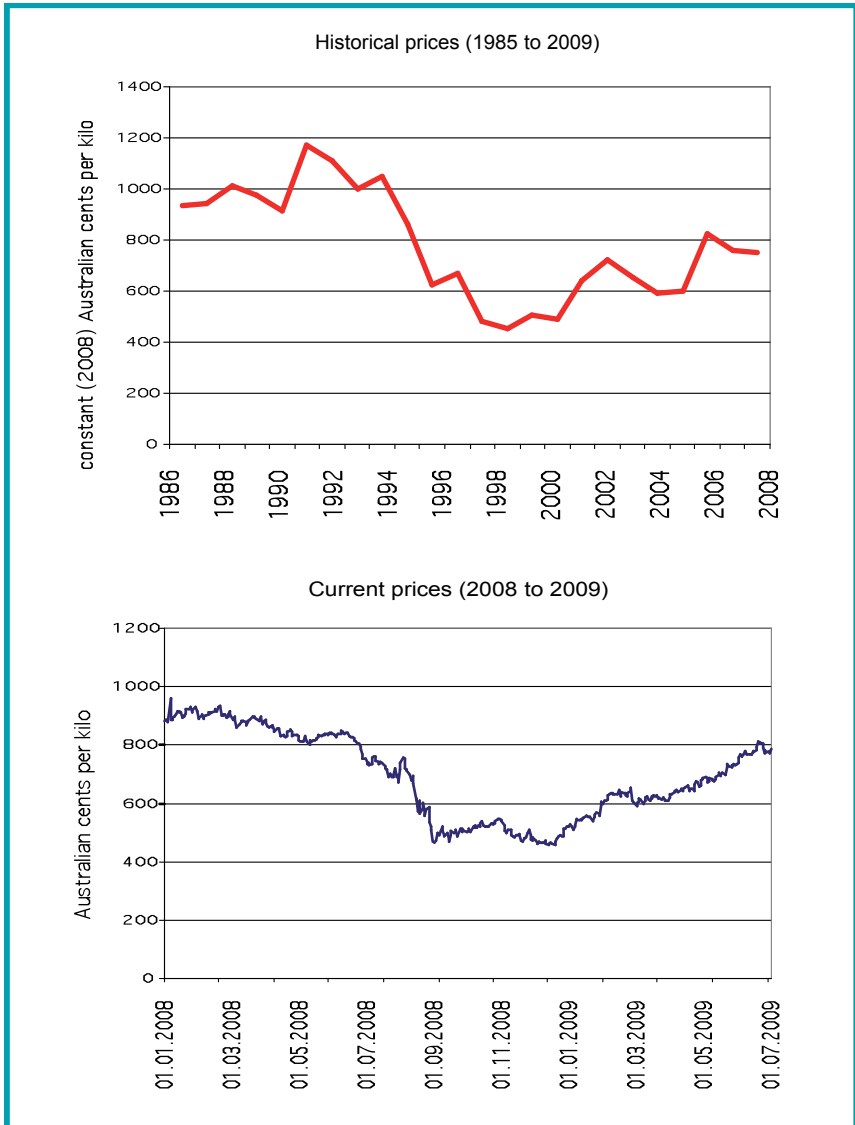
However, this trend appears to have ended; over the past two years, although the share of semi-fine wool in total world production has increased, there has also been a premium price drop (Figure 4).

Figure 4: AWEX EMI prices for wools of different fineness (A$)
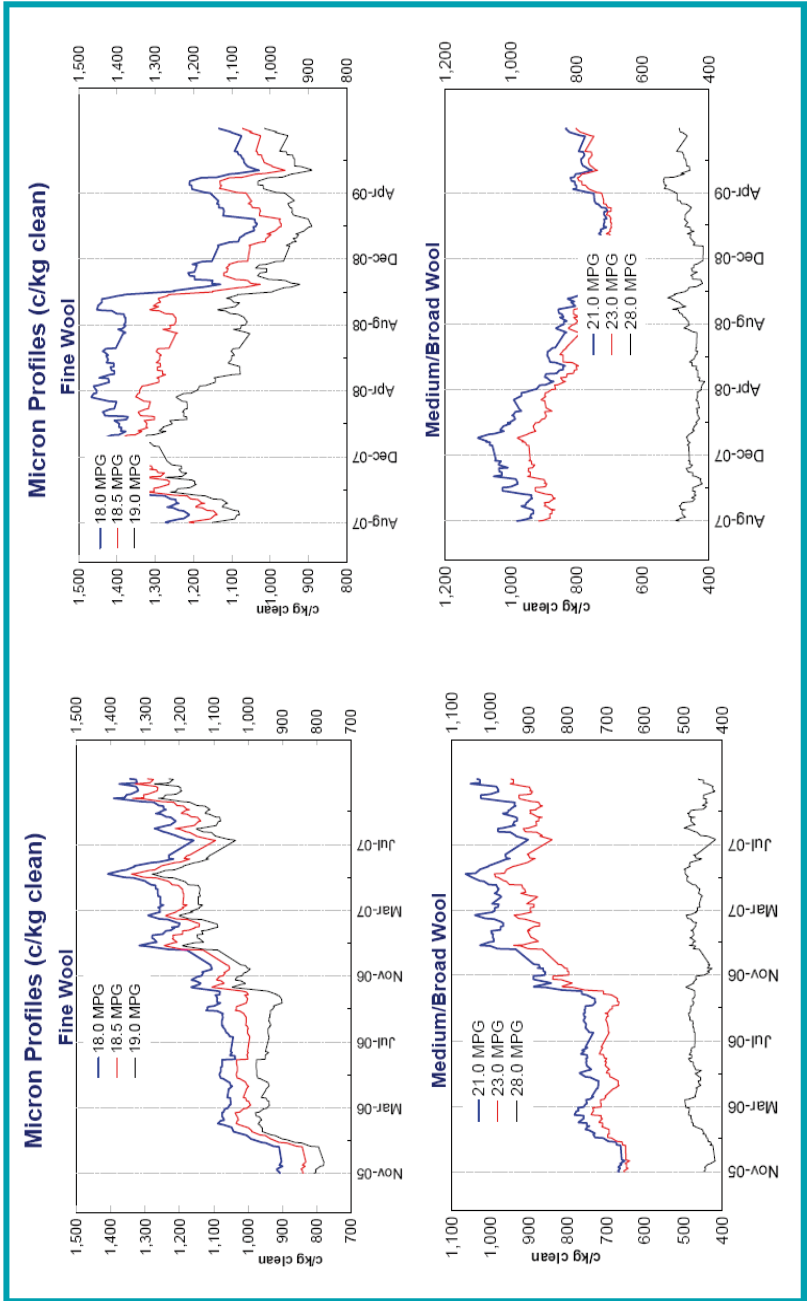
For semi-finished and final wool products, the prevailing trend shows some evidence of market rationalization, as fabric makers prefer to produce their own semi-finished inputs, thereby internalizing most of the tops and carded yarn market. Developed country customer trends towards preferences for natural and more environmentally friendly products may also play a role in keeping up the wool market. In addition, increasing amounts of cheap and abundant coarse wool (treated with chemicals for fireproof and germicidal properties) are being used as a heat *insulation material* in the housing industry, especially in New Zealand, but also in Germany.

According to recent International Wool Trade Organization (IWTO) forecasts, a moderate increase in production and consumption of wool is expected in the medium term. Volumes of demand and production for both wool and its consumer goods are expected to grow by 5 to 10 percent during 2010 to 2015. The predicted volume deficit in cotton[10] and a possible increase in the cotton price may cause a demand shift to wool and a partial re-equilibrium of its share in total fibre consumption. However, this seems less likely for the short term (2010 to 2011) because of the continuing externalities of the world financial crisis.

10.- USDA. 2008. *Cotton and Wool Situation and Outlook Yearbook,* CWS-2008. Washington, DC, United States Department of Agriculture (USDA), Market and Trade Economics Division.

B

KAZAKHSTAN WOOL SECTOR OVERVIEW

The wool sector in Kazakhstan reached its highest point at the end of the 1980s. Sheep population amounted to 35 million head, while wool production exceeded 100 000 tonnes corresponding to 4 percent of the world total. Half of the flock consisted of registered pure-bred sheep, specialized in the production of fine wool (accounting for 60 percent of total wool production). Most of these sheep were concentrated in large-scale enterprises. A transhumant raising system was practised, with animals moving annually to remote mountainous and desert pastures where infrastructure (watering, staff houses, sheds, artificial insemination facilities, etc.) existed. A centralized system of wool procurement (*zagotkontory*) worked with the large-scale *kolhozes* and *sovhozes* and with household farms (HHFs). Most of the wool was processed locally in large and fully integrated plants ranging in size from 500 to a few thousand employees. At that time, Kazakhstan wool and woollen goods were delivered throughout the Soviet Union. The Red Army (for blankets and overcoats) and other State-controlled organizations (militia, the railway, etc.) were important customers.

Following the collapse of the Soviet Union and the reforms of the 1990s (abolition of subsidies, privatization of land and farms, and redistribution of assets, including animals) the Kazakh wool production system, along with other agro-industrial systems, was completely disrupted. Processing plants with obsolete technology and Soviet-style organization became uncompetitive, and either closed down or downscaled their production levels dramatically. Long-lasting intra-Soviet Union trade relations disappeared abruptly, and domestic demand shifted from heavy apparel to cheaper goods made of artificial fibres. As a result, wool revenues collapsed and, by and large, wool became a bulky unclaimed good at the farm level. Overall tradable production declined to a mere 20 percent of past levels (Figures 5 and 6), while the share of fine wool sheep in the total herd decreased to a ninth of its former level. With meat prices driving the market, even fine wool sheep breeders started to sell lambs for meat.

Figure 5: Overall sheep stock and wool production trends
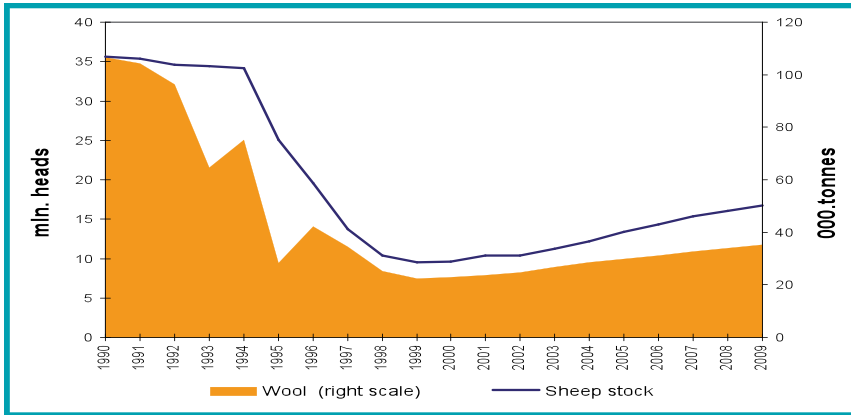
Source: Statistics Agency.

Figure 6: Wool production dynamics, by type (thousand tonnes of greasy wool)
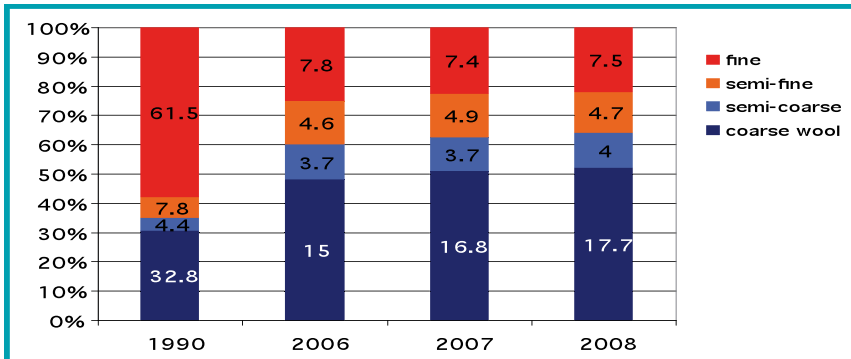
Source: Statistics Agency.

The current situation reflects the rapid changes throughout the country, including demographic growth, an oil-led economy and widely improved living standards. However, the livestock sector faces a number of structural issues and complexities. In the case of sheep, a positive trend in head numbers is reported, but only for meat-purpose cross-bred[11] sheep. This is shown by annual increases in the range of 8 to 11 percent during the early 2000s, since slowing to 4 to 5 percent (Figure 7).

11.- Throughout this report "cross-bred" refers to the results of interbreeding between different races.

Figure 7: Sheep and goat population dynamics, by owner type
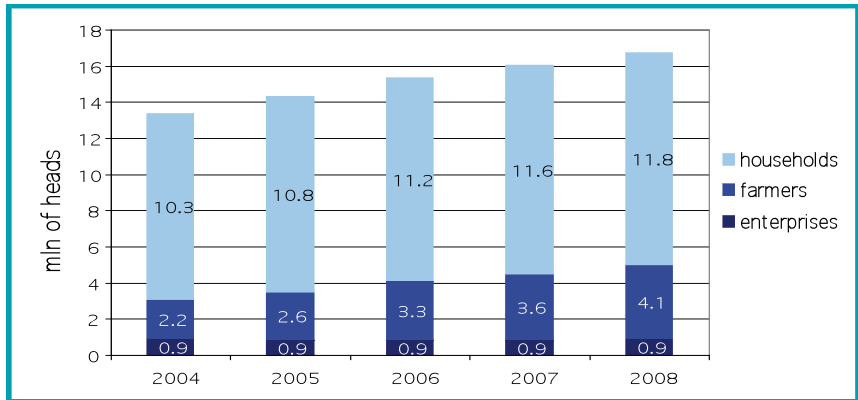
Source: Statistics Agency.

HHFs currently dominate sheep producers, followed by emerging private peasant farms (PFs), which are the only players to have almost doubled their share over the five years from 2004 to 2008. Otherwise, larger enterprises maintain a stable low share of the domestic flock. Nevertheless, any recovery in sheep farming has not affected the wool sector, or the fine wool sheep population (with a few exceptions among malfunctioning pure-bred enterprises that have survived since the Soviet era), the sector's overall production parameters and quality levels or its processing capacity (which is worsening, often beyond the option for rehabilitating plant, with several cases of bankruptcy). All this is compounded by low demand for wool, both domestically and internationally.

Chain map and analysis

Wool production is the result of the wool shearing carried out by all farm categories undertaking sheep breeding, which in Kazakhstan include about 533 agro-enterprises (AEs), 14 500 PFs and an estimated 2 million HHFs. The product of this segment is greasy wool of three basic pricing types – coarse/semi-coarse, semi-fine, and fine – which may be further separated into grades. *Processing* includes two main stages: i) *primary treatment*, which is generally performed by specialized WPT units (of which there are seven in Kazakhstan, some idle) and where the end product (scoured wool) is raw wool with key properties almost unchanged; and ii) *advanced processing* by industrial plants

(three large and four medium-sized felt factories, two large fabric factories, and a number of smaller factories) that use greasy (when they also do primary treatment) or scoured (bought from WPT plants) wool to produce semi-processed goods or final goods for consumption. *Trading*, mainly for export, includes wool buying, transporting and export activities, which are generally led by Chinese trading and procurement units. *Retail* is undertaken by processor-owned shops or independent retail units. The structure of the Kazakh wool supply chain map and its basic segments is shown in Figure 8.

Figure 8: Key indicators of the Kazakh wool chain, 2008/2009 (USD)

	Wool Production	Scouring	Processing	Retail	Trading Export
Products	34 000 tonnes: 22 000 tonnes greasy wool traded + 12 000 tonnes coarse not traded	Scoured wool – 11 000 tonnes	Felt and felt boots. Knitwear, clothes, blankets. Quilts and garments	Blankets, quilts Felt boots Knitwear, socks	Greasy/ scoured wool
Operators	HHFs – 2 million PFs – 14 500 AEs – 533	WPT factories – 7	Felt factories – 3 big, 4 medium Textile plants – 2 big Small factories	Factory shops Retail networks Local shops	≈15 enterprises + ≈50 local representatives
Activ ties	**Wool production**, procurement, trading	**Scouring**, domestic wholesale, export wholesale, tilling-based operations, processing	**Processing**, scouring, processing, export wholesale, domestic wholesale, retail trading	Processing, retail **trading**	Procesing , export **wholesale**
Revenue	11.8 (13.4)*	5.1	13.7	5.7	15.8
Gross margins/ Income	-2 (-3.6)*	0.6	2.8	0.7	3.0
Value added	8.3	2.4	7.2	0.7	3.0

* Considering revenue/income of untraded wool.
Note: Own calculations based on data collected for this study

In the current situation, 70 percent (see Figure 6 for actual quantities) of *coarse wool* (or about 34 percent of total wool production) is not commercialized, and considered as wasted,[12] mainly owing to low local demand and the remoteness of producers (who are more than 300 to 400 km away), which makes transportation costs higher than the factory price of delivered wool. Tradable coarse and semi-coarse wool is mostly delivered to WPT factories (approximately 60 percent) or felt factories (approximately 25 percent) by agricultural producers themselves (smaller farmers and households usually bulk their production and sell to larger farmers that then deliver to processors). A minor part is traded in greasy form. After cleaning, WPT factories export most (about two-thirds) of treated coarse and semi-coarse wool, while the remainder is resold to the domestic processors (mainly felt processors) who lack scouring facilities.

Fine and semi-fine wool is collected by small procurement and trading companies registered in Kazakhstan and owned by Chinese entrepreneurs.[13] To ensure final consignment, advance payment (up to 50 percent of the consignment value) is often provided to the AEs that supply fine wool. The wool is then exported to intermediaries in China in both greasy (one-quarter of the total quantity) and scoured form (through WPT plants). An estimated 25 percent of semi-fine wool is processed by domestic plants that produce fabrics, clothes and quilts, and a very small (approximately 5 percent) portion of fine wool is domestically processed for tops and garment production. Figure 9 illustrates Kazakhstan's wool chain flows.

12.- Communication reported by Mal Onimderi State Company officials, quoted in Fine Wool Production and Processing Development Project, AKK presentation, 2009. 27 pp.

13.- About 15 Chinese companies have representatives in Kazakhstan, concentrated in a few regions of the country.

Figure 9: Basic wool value chain flow
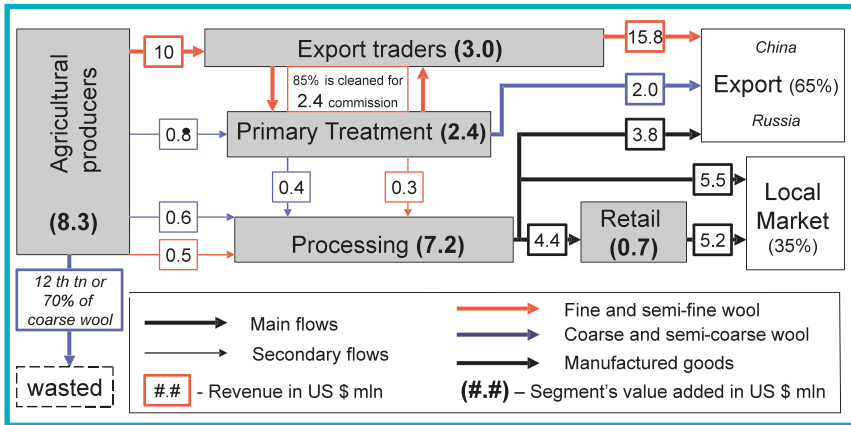
Total value added in the wool chain amounts to about USD22.6 million, and sub-sector revenue about USD52 million. The chain is short: raw wool production provides more than 38 percent of value added, followed by processors with 33 percent. Export traders (Chinese entrepreneurs) provide 13.8 percent of the total value added and have the highest gross margins/income. The share of WPT factories (primary processors) is rather low, at 11 percent of value added, and retail is the least developed segment with only about 11 percent of sales and a 3 percent share in value added. Revenues from sales vary, but are highest in both absolute and relative terms for the trading segment (USD15.8 million), while revenues (and value addition) in the production segment (USD11.8 million) are shared among a far higher number of operators. At present, and mainly owing to overall marketing constraints, a considerable portion of coarse wool is wasted. In the wool production segment, gross margins are all negative because of the low prices fetched by all categories of wool in Kazakhstan (Figure 12 and Table B.6). To change this situation, reasonable higher price values would reflect terrific changes: for example, break-even would occur with current traded volumes of coarse wool sold at USD0.32/kg instead of the current USD0.14.

Sheep wool is the main animal fibre utilized in Kazakhstan, while other animals (goats and camels) supply less than 5 percent of overall wool production. About 34 000 tonnes of all wool (2008) is produced from

an estimated 14 million sheep (Figure 15), corresponding to about 83.5 percent of the total sheep and goat population.[14] Cross-bred meat sheep numbers prevail and continue to grow; the share of coarse wool therefore also increases annually while that of semi-fine and fine decreases (Table B.1).

Table B.1: Wool production (thousand tonnes)

	2006	2007	2008
Total	32.4	34.2	35.2
Sheep wool, including:	31.2	32.8	34.0
Coarse	15	16.8	17.7
Semi-coarse	3.7	3.7	4.0
Semi-fine	4.6	4.9	4.7
Fine	7.8	7.4	7.5

Source: Statistics Agency.

Although sheep raising for wool production is spread over Kazakhstan, regional shares differ greatly. Regions in the south and southeast account for more than two-thirds of total wool production (Table B.2 and Figure 10). Regional concentration is even higher for fine wool: 95 percent is shorn in the south and southeast, and four-fifths of total production comes from Almaty region alone.

14.- Kazakhstan's Statistics Agency indicates the aggregated flock of sheep and goats every year. The Agricultural Census of 2007 indicated that the share of sheep in this aggregated indicator is about 83.47 percent.

Table B.2: Wool production, by region, 2007 (tonnes)

Region	Fine	Semi-fine	Semi-coarse	Coarse	Total
Akmola	11	18	289	303	621
Aktobe	38	493	90	1 154	1 775
Almaty	6 072	1 215	45	130	7 462
Atyrau	0	220	284	483	987
East Kazakhstan	627	320	798	1 981	3 726
Zhambyl	225	1 118	626	3 254	5 223
West Kazakhstan	176	582	170	683	1 611
Karagandy	0	0	0	1 593	1 593
Kostanay	5	444	22	2	473
Kyzylorda	0	0	0	1 062	1 062
Mangistau	0	0	0	701	701
Pavlodar	0	0	0	888	888
North Kazakhstan	47	47	615	0	709
South Kazakhstan	164	470	804	4 563	6 001
Total Kazakhstan	7 365	4 927	3 743	16 797	32 832

Source: Statistics Agency.

Figure 10: Regional concentration of wool production, 2008
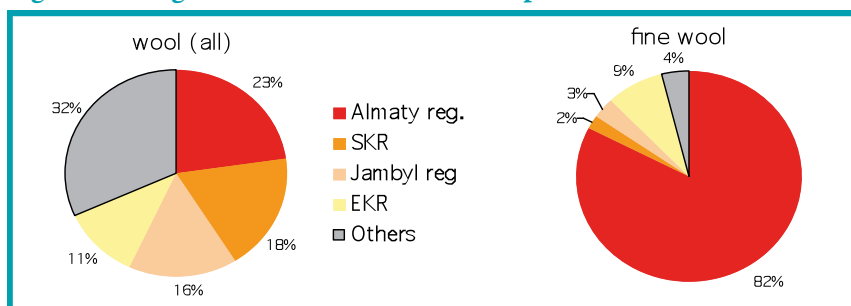
Regarding producer category shares, 75 percent of wool, mainly coarse, is shorn by households (2007), but half is burned owing to lack of market. The share of PFs and private farmers and enterprises producing wool is growing slowly, to reach 25 percent (2007) of total volume, and the highest share of commercialized wool. Large enterprises producing mainly semi-fine and fine wool hold 5 percent of the sheep population. Statistical trends imply that while PFs with sheep are increasing, specialized AEs remain stable or appear to be declining.

An estimated 70 percent of commercialized wool shorn in Kazakhstan is exported in greasy or scoured form (Table B.3), although official statistics quote a lower figure. It appears that many traders (mainly Chinese) declare higher quotas of exported wool as tops, to avoid the 10 percent custom duties on raw wool and the Chinese overall wool quota and import tariff regimes.[15] It is not clear that Kazakhstan even has the capacity to produce the amount of tops reported in trade statistics. The reported quantity of tops traded to the Kyrgyz Republic is small, and not all international trade is recorded by customs bodies. Most wool is traditionally exported to the Russian Federation (mainly scoured coarse wool traded by WPT factories) and China (fine and semi-fine wool). As shown in Figure 11, wool exports gained some momentum between 2005 and 2007, after which volumes decreased in 2008.

Table B.3: Exports of wool and tops, 2008 (tonnes)

Product	Custom statistics		Own estimates
	Official data	Tops adjusted	Total export
Greasy wool	2 427	2 427	2 700
Scoured wool	2 439	6 098	6 541
Total wool (greasy adjusted)	6 516	13 835	14 882
Tops	3 709	25	25

Source: National customs statistics and own estimates.

Figure 11: Dynamics of wool exports from Kazakhstan, 2004 to 2008 (tonnes)*
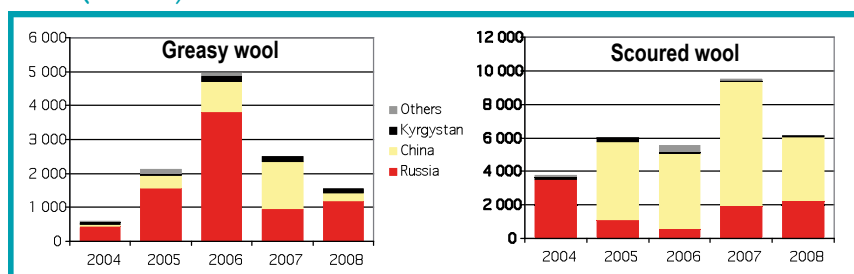
* Tops calculated as clean wool
Source: National customs statistics, own estimates

15.- Reported by interviewed industry stakeholders.

Prices: Statistical records and actual trading prices are both defined for physical weight of greasy wool (Figure 12). This is because Kazakhstan's testing system is underdeveloped and disregards pollutant contents. Along with those for other agricultural goods, wool prices are monitored by Kaz-Agro-Marketing (KAM), a subsidiary of the State-owned company Kaz-Agro. However, it was noted that actual prices are even lower at the processing factory gate (Table B.4).

Figure 12: Wool prices in Kazakhstan (USD/kg greasy)
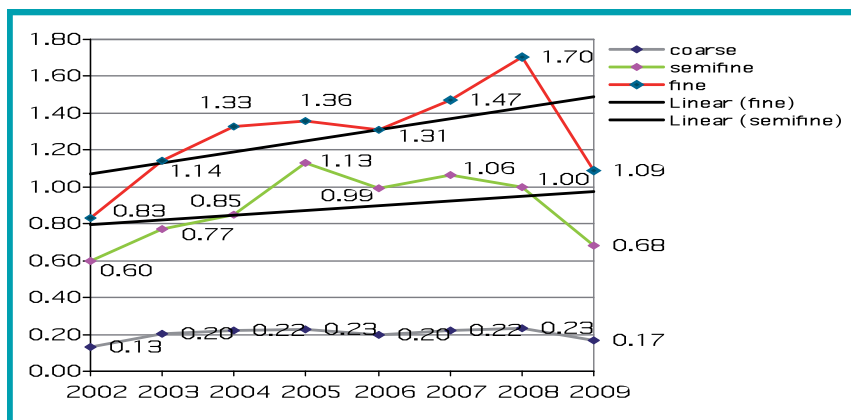
Source: KAM (preliminary data for 2009).

Table B.4: Wool prices, 2008 and 2009 (T/kg)

Type of wool	KAM data	Survey data					
		At factory gate			At farm		
		Average	Min.	Max.	Average	Min.	Max.
Fine	160-200	160	100	180	150	100	180
Coarse	25-35	20	15	30	13	5	20

Sources: Field observations; KAM.

There is a sort of single market for fine and semi-fine wool in Kazakhstan; prices do not differ much among locations. Prices for coarse and semi-coarse wool at the factory gate are also about the same, and vary only at the farm level, depending on location, size of consignment, and availability of buyers. However, the dynamics of local prices for fine and semi-fine

wool have little in common with the international prices that otherwise apply wherever fine wool sheep breeding occurs. This indicates the current disconnect of the domestic market from the international context, in spite of the comparative/competitive advantages the country might have. The Kazakhstan wool market is certainly underdeveloped, and the current size of the sector does not justify a full-fledged quality control and certifying system. Meat sheep producers do not consider coarse wool to be even a by-product, but just waste, which they are ready to sell at any price to avoid storage. Professional international traders are also discouraged by the small quantity of fine wool produced in Kazakhstan. By and large, current wool trade in Kazakhstan is opportunistic, where the major export players are non-specialized Chinese intermediaries who do not deal directly with their mainland wool industry.

Production costs and profitability at the production level: Statistical bodies in Kazakhstan calculate the cost and profitability of wool production on a regular basis, but only for AEs. Fixed percentages of the total costs of sheep raising are attributed to wool production. Given that most wool in Kazakhstan is produced as a by-product of sheep farming, the opportunity cost for feeding, veterinary treatment and fixed assets depreciation may be considered zero. The actual costs of wool production should only include shearing, classing, pressing and testing (in some cases), together with the investment and depreciation cost of specific equipment. Nevertheless, Statistics Agency data show a 13 percent negative gross margin for sheep wool producing AEs in 2008. A profit and loss analysis for the entire raw wool production sector (regardless of producer category) is presented in Table B.5.

Table B.5: Financial performance of the wool production segment, 2008 to 2009*

	Fine	Semi-fine	Coarse/sem-icoarse	Coarse (non-tradable)	
USD/kg of greasy wool					
Shearers' wage	0.14	0.14	0,2	0,27	
Classifiers' and clerks' wages	0.1	0	0		
Other expenses related to shearing (except sharing)	0.02	0.01	0.01		
Wages (except depreciation)	0.44	0.34	0		
Fodder	0.15	0.11	0		
Veterinary	0.06	0.04	0		
Depreciation	0.06	0.04	0		
Other	0.1	0.04	0		
Transportation	0	0	0.03		
Total costs	1.07	0.72	0.24	0.27	
Revenue	1.01	0.61	0.14		
Net income	-0.06	-0.11	-0.10	-0,27	
Value added	0.70	0.42	0.11	0.00	
Total in the segment, USD mln.					***Total[a]***
Production, '000 tonnes	7.5	4.7	10	11.7	**33.9**
Revenue	7.6	2.9	1.4		**11.8**
Cost of production	8.0	3.4	2.4	3.2	**13.8**
Gross margin	-0.4	-0.5	-1.0	-3.2	**-2.0**
Value added	5.3	2.0	1.1		**8.3**
Subsidies (official data)	0.97				

* The price for shearing varies from T 40/head (USD0.27) when a huge flock is being sheared with electric machines, to T 100/head (USD0.67) when a small flocks, usually owned by a HHF, is shorn manually with scissors. Depreciation of working tools must be calculated in the first case. Fine wool is classified only in some large AEs; coarse wool is not usually classified (except simple dividing by colour groups in some cases). Coarse wool storage costs are close to zero, because any free space is used to keep clips.
[a] Performance data do not include non-tradable production.
Sources: Statistics Agency; KAM; company data; the survey.

Profitability is negative across the board. The shearing cost is higher than the selling price of coarse and semi-coarse wool (often inducing farmers to avoid autumn shearing). This is mainly owing to the recent significant drop in domestic prices for fine and semi-fine wool, which is not in line with the long-term trend as shown in Figure 12; a mere 15 percent increase in prices would allow profitability. The 2009 drop in wool prices induced the government to provide a number of fine wool specialized enterprises with a subsidy of USD0.97/kg of scoured wool.

As a result of the current domestic market situation (independent of international market conditions), the bulk of Kazakh sheep breeders prioritize meat specialization (mainly through fat-tail breeds). Fine wool production is restricted to a decreasing number of specialized enterprises. Table B.6 provides a simulation that shows parity (between wool and meat additional income) only when the fine wool price is USD1.5/kg and wool yield amounts to 4 kg per sheep per year. The estimated yearly revenue for wool specialization, of T 900 to 1 000/ewe (USD6.0 to $6.7) is comparable to the revenue gained from a lamb of 8 to 9 kg live weight. This exercise confirms the reasons why sheep holders prefer meat specialization in current domestic conditions.

Table B.6: Simulation of the additional income from fine wool compared with lamb income, depending on wool yield and market situation (USD/ewe/year)*

		Wool yield (kg/sheep/year)						
		3	3.5	4	4.5	5	5.5	6
Price per kg of greasy fine wool*	0.80	-2.60	-2.70	-2.80	-2.90	-3.00	-3.10	-3.20
	0 95	-2.15	-2.18	-2.20	-2.23	-2.25	-2.28	-2.30
	1.10	-1.70	-1.65	-1.60	-1.55	-1.50	-1.45	-1.40
	1 20	-1.40	-1.30	-1.20	-1.10	-1.00	-0.90	-0.80
	1.35	-0.95	-0.77	-0.60	-0.43	-0.25	-0.07	0.10
	1.50	-0.50	-0.25	0.00	0.25	0.50	0.75	1.00
	1.65	-0.05	0.27	*0.60*	0.93	1.25	1.58	1.90
	1.80	0.40	0.80	1.20	1.60	2.00	2.40	2.80

Positive values indicate wool (fine) strains give more income than meat (fat-tail).				
Additional income, USD/fine ewe/year	> 0.5	> 1.0	> 1.5	> 2.5
Additional income, USD/fat-tail ewe/year	<- 0.5	<-1.0	<-1.5	<-2.5

Actual situations marked by cells with bold frames.

-2.20	Actual situation, average.	-1.45	Actual situation in best enterprises.
0.60	Actual situation when subsidy for fine wool is provided.		

* Based on the assumption that increased wool yield leads to some decrease in meat productivity.

C

WOOL PRODUCTION BASE IN KAZAKHSTAN

Ninety-four percent of the sheep flock in Kazakhstan (12.8 million head in 2007) is cross-bred (Figure 13), and no pure-bred selection has occurred during the last 20 years in the majority of small- and medium-scale breeding units:

Figure 13: Strain groups of the Kazakh sheep flock, 2007
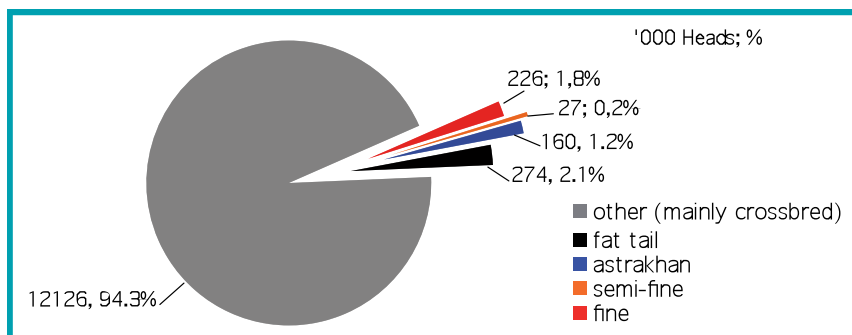
Source: Agriculture Census, 2007.

The flock of (mostly) cross-bred and pure-bred (less) sheep of semi-fine and fine wool features are estimated to amount to 2.5 to 3 million head, or 20 percent of the total sheep flock. These are concentrated in large enterprises raising from 2 000 to 20 000 head each, and – to a lesser extent – in PFs specialized in sheep husbandry. Only 10 percent of total fine and semi-fine wool produced in Kazakhstan is shorn from pure-bred fine/semi-fine wool sheep. The core pure-bred stock of fine and semi-fine sheep (200 000 to 250 000 head, or 2 percent of the sheep flock) is concentrated in fewer than 100 enterprises, all of which are of pedigree centre/enterprise status and have been active since Soviet times.

Meat breeds are also overly cross-bred (derived mainly from the local *edelbaevskaya* fat-tail strain) and provide uneven semi-coarse and coarse wool (owing to the large number of strains involved). Pure-bred coarse and semi-coarse fat-tail wool sheep are currently estimated at 2.1 percent of the total flock. In addition, there is an estimated 1.3 percent of pure-bred *karakul* sheep, which were common during the Soviet era, and were raised for *smushka* lamb skin used to produce astrakhan coats.

Breeding is spread all over Kazakhstan, but there are sharp regional variations in population density and specialization. *Southern and southeastern areas* are the best suited to both coarse and fine wool sheep raising (with 60 percent of the national flock). Accordingly, the bulk of Kazakhstan's fine wool sheep flock is concentrated in the Almaty region, held by AEs and large farms. Here the specialization in fine wool and semi-fine wool sheep breeding is facilitated by: i) mild winters with low probability of extremely low temperatures (-30 °C); ii) dryer climate, ensuring higher wool quality and scouring yields (lower grease content); ii) higher density of the research and development (R&D) network providing assistance; and iv) better processing infrastructure.

About 20 percent of Kazakhstan's sheep flock is located in the *western and central desert areas*, mainly cross-bred with some pure-bred fat-tail, karakul and semi-fine wool sheep breeds. Rangelands here are of low productivity, and animal watering facilities are scarce. However, sizeable land allocation is possible, and competition with cropland is minimal. As a result, even at the HHF and PF levels, flock sizes are the biggest in Kazakhstan, and sheep holding is a major economic undertaking. Coarse wool sheep predominate, but the area's remoteness and bad infrastructure results in its having the highest unclaimed wool quota, and only a few large-scale farms specialize in the rearing of semi-fine wool sheep. The remaining 20 percent of the sheep flock is concentrated in the *northern cropping zone*. There is little large-scale sheep breeding here, because pastureland is limited and animal movement restricted by high cropland specialization. Cross-bred sheep prevail. Owing to dispersion of the flock and the distance from WPT plants, wool is usually unclaimed. The prevalence of juicy grasses also increases the sheep fat content in wool.

Wool shearing yields

Current wool yields are stable and vary from 2 to 4 kg per sheep at both the regional and on-farm levels (Table C.1).

Table C.1: Wool yields, by regions and group of producers (kg/head/year)

Region	AEs	PFs	HHFs	All groups
Akmola	1.6	2.4	2.6	2.5
Aktobe	2.2	2.5	2.6	2.6
Almaty	3.2	3.9	3.9	3.9
Atyrau	2.7	2.3	2.8	2.7
East Kazakhstan	2.1	2.3	2.6	2.5
Zhambyl	2.6	3.5	3.6	3.5
West Kazakhstan	3.2	2.9	3.3	3.2
Karagandy	2.1	2	2.3	2.1
Kostanay	2.7	3.4	3.4	3.4
Kyzylorda	1.9	1.4	2.4	2.4
Mangistau	1.8	1.8	1.8	1.8
Pavlodar	2.3	2.7	2.8	2.8
North Kazakhstan	2.1	3.5	3.4	3.4
South Kazakhstan	2.4	2.5	2.7	2.7
Kazakhstan average	**2.5**	**2.8**	**3**	**2.9**

Source: Statistics Agency.

Farm-level studies have shown that the differences depend on two main factors:

(a) breed genetics: cross-bred and fat-tail sheep produce an average of 2 to 3 kg of wool a year, while fine and semi-fine wool sheep provide about 4 kg or more;

(b) feeding conditions: this is a less important factor, but lower yields are typical in desert and semi-desert areas.

Organizational features

Figure 14 shows the current allocation of agricultural land, according to the latest Agricultural Census. While large-scale AEs control most agricultural land, PFs are the principal sheep breeders. About 40 percent of the sheep flock is held by units with fewer than 50 animals (Figure 15). Only 8 percent of the flock is held in relatively large farms with more than 2 000 head, which include the remains of the registered pedigree stock of the best sheep wool producers.

land area 79.7 mln ha in agricultural units

1%
48%
51%

■ enterprises
■ farmers
■ households

Source: Agricultural Census.

flock sizes by group

>10000
5001-10000
2001-5000
1001-2000
501-1000
201-500
101-200
51-100
20-50
1-20

total number of sheep per group (thousands)

0   500   1000   1500   2000   2500   3000   3500

■ enterprises
■ farmers
■ households

31

D
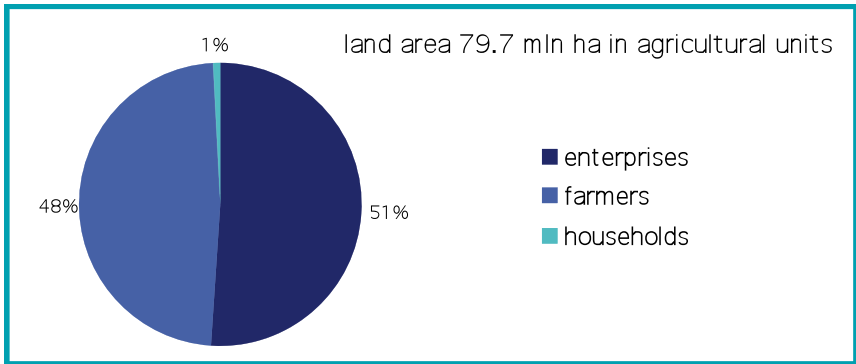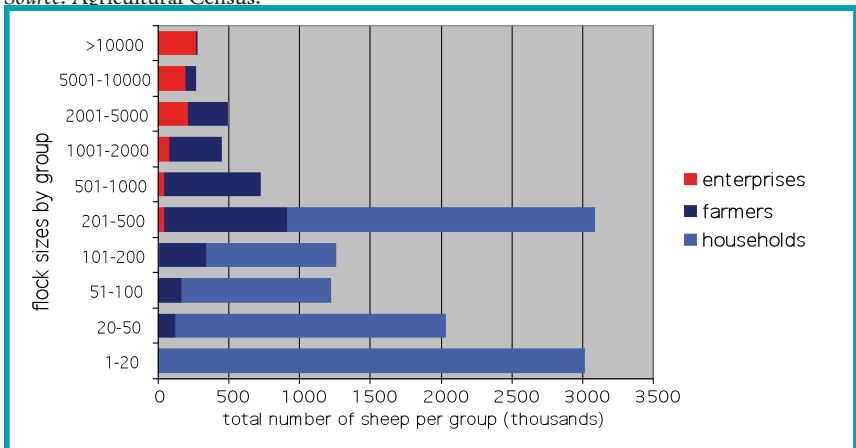
PROCESSING AND TRADING

The wool processing facilities in Kazakhstan are shown in Table D.1. The facilities fall into two principal categories: WPT units, providing only large-scale primary treatment; and advanced processing units, usually integrated to include all the technological cycles for greasy wool treatment, for the production of goods with high value added. The features and current positions of the main processing facilities are shown in Table D.2.

Table D.1: Wool processing, 2007

Region	Factories (no.)	Capacity (tonnes/year)	Capacity (% loaded)	Local wool processed (% of production)
Kostanay	4	600	38.6	19.1
Pavlodar	2	2 000	28.6	5.5
North Kazakhstan	1	550	34	12.3
Aktobe	1	5 000	41.4	11
West Kazakhstan	1	1 056	33.5	21
Mangistau	2	132	33.6	14.3
East Kazakhstan	1	7 260	21.6	53.6
Almaty	3	6 000	53.5	20.1
Zhambyl	17	6 600	37.8	61.8
Kyzylorda	1	2 200	22.3	10.2
South Kazakhstan	2	880	101.6	20
Kazakhstan, total	**36**	**34 678**	**20.4**	**21.2**

Source: Tokseitova R.A. et alia 2008. Spatial distribution of animal breeding in natural and economical zones of regions of Kazakhstan. Almaty. pp. 30

Table D.2. Wool processing plants, 2008/2009

Name	Location	Poduct	Staff	Capacity	Production	Unit
Primary treatment						
TOO Taraz-Zhibek zhun	Zhambul reg. Taraz	Scoured wool	150	6	0.8	'000 tonnes
TOO Fabrika POSh	Zhambul reg. Taraz	Scoured wool	300	7	5	'000 tonnes
AO Kazruno	East Kazakhstan, Semey	Scoured wool	115	7	2	'000 tonnes
AO Kazruno	Almaty reg. pos. Kardaj	Scoured wool	225	16	N/A	'000 tonnes
SPK Bijazy	South Kazakhstan, Shymkent	Scoured wool, felt	47	2.5	1.5	'000 tonnes
TOO Shymkentskij kombinat pervichnoj obrabotki shersti	South Kazakhstan, Shymkent	Scoured wool	N/A	7	N/A	'000 tonnes
TOO Ak-runo	West Kazakhstan, Aktobe	Scoured wool	idle	10	idle	'000 tonnes
TOO Runo	West Kazakhstan, Taraz	Scoured wool	idle	2	idle	'000 tonnes
Felt factories						
TOO Vojlochnaja fabrika	North reg. Kokshetau	Felt, felt boots	95	0.5	0.25	'000 tonnes
TOO Roza-valjal'no-vojlochnyj kombinat	East Kazakhstan, Semey	Felt, felt boots, quilts	77	0.7	0.35	'000 tonnes
TOO Ajaz	West Kazakhstan, Uralsk	Felt, felt boots	86	0.7	0.30	'000 tonnes
TOO Shvejnik	West Kazakhstan, Uralsk	Felt	N/A	0.1	0.02	'000 tonnes
TOO Kostanajskaja fabrika valjanoj obuvi	North Kazakhstan, Kostanaj	Felt, felt boots	195	0.2	0.15	'000 tonnes
TOO Petropavlovskaja fabrika zimnej obuvi	North Kazakhstan, Petropavlovsk	Felt, felt boots	33	0.2	0.15	'000 tonnes
TOO Talkiz	South Kazakhstan, Talgar	Felt, felt mat		0.1	Idle	'000 tonnes

Name	Location	Poduct	Staff	Capacity	Production	Unit
Textile plants						
TOO Kostanajskaja prjadil'no-trikotazhnaja fabrika	North Kazakhstan, Kostanay	Knitted fabric		N.A.	10-100	'000 items
		Knitting yarn yarn		0.25	0.1	'000 tonnes
		Batting		N.A.	70-200	'000 linear m
AO Kargaly	Almaty reg. Fabrichnyj	Wool	250	1.0	0.15	'000 tonnes
		Clothes, blankets		3.0	0.3	million linear m
Zava St	East Kazakhstan, Semey	Knitted fabric	closed	480	idle	'000 items
Murager	East Kazakhstan, Semey	Semi-coarse wool	70		0.05	'000 tonnes
		Working clothes			18.5	'000 items
TOO Kijal	Aktobe reg.	Knitted fabric		450	130	'000 items
		Quilts		10	10	'000 items

Primary treatment

Primary treatment of wool aims to remove pollutants (mud, vegetable matter, etc.) and sheep fat. Thereafter, wool is sorted by type and quality or ownership (when treatment is provided as a service). Current yield is 40 to 45 percent for scoured fine and semi-fine wool and 60 to 65 percent for semi-fine, semi-coarse and coarse wool. WPT equipment is usually old and obsolete; plants have few treatment lines and the shift from one wool category to another requires interruption and re-setting. However, plants' design features allow treatment of the long fibres of cross-bred sheep.

Official statistics do not provide data on the volumes of wool that are domestically scoured. This analysis estimates that about 50 percent of all wool shorn is currently treated in WPT facilities and about 10 percent is scoured directly at the plant level. Only some 5 percent of shorn wool is exported in greasy form.[16] The remaining wool produced (i.e., about 35 percent), as mentioned earlier, is wasted. As a result, 11 000 tonnes of scoured wool is the output from about 20 000 tonnes of greasy wool treatment (Table D.3)

Table D.3: Wool production, export and consumption, 2008

Type of wool	Wool shorn	Primary treatment		Export		Consumption
		% greasy	Scoured output	Greasy	Clean	
Fine	7 500	79	2 655	1 600	2 537	118
Semi-fine	4 700	78	2 190	1 050	1 606	584
Coarse, semi-coarse	21 700	46	6 200	50	2 397	3 803
Total, including	33 900	58	11 045	1 550	6 541	4 504
Waste	11 650					

Sources: Own estimates; Statistics Agency; the Ministry of Agriculture (MoA).

In the past, WPT units played a major direct trading role for the wool produced in Kazakhstan and were equipped with classifying and testing capacity, which in most cases still exists. These units used to be the main

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16.- Imports of wool from the Russian Federation, the Kyrgyz Republic and Uzbekistan are insignificant; volumes have decreased during the last three years. Only 44 tonnes of greasy wool and 20 tonnes of scoured wool were imported from the Russian Federation in 2008.

wool purchasers, and provided advance payment to producers. As a result of the sub-sectoral crisis, WPT units now lack financial means and their role has changed.

Currently, about 90 percent of the wool entering WPT facilities is treated by these plants on a service-fee basis.[17] Customers are: i) two-thirds Chinese intermediaries, which prefer scoured fine and semi-fine wool for export to China; and ii) one-third felt factories, which outsource the scouring of coarse and semi-coarse wool. WPT units also purchase (as 10 percent of the wool treated) greasy wool, which is traded directly after scouring. The latter is mainly coarse and semi-coarse wool, and exported to the Russian Federation (and seldom to China). A very minor part is fine and semi-fine wool, which is resold to domestic processors after scouring. WPT facilities continue to be major stakeholders, and have a relatively positive perception of sector opportunities in which demand from the Russian Federation and China (for woollen semi-products) may increase and higher prices are likely.

A profit and loss analysis for primary treatment at the WPT level is provided in Table D.4. In case of service-fee operations, costs include labour, water heating from a central system or fuel for heating, and detergents. Otherwise, for wool purchased directly by the WPT units, the price of greasy wool is the major cost, accounting for 75 to 85 percent of fine and semi-fine wool costs, and 35 percent for coarse or semi-coarse wool. The treatment cost of fine wool is slightly higher (about 15 percent) owing to higher water temperatures and additional detergent content. The segment appears marginally profitable in most cases, but loading capacity plays an important role. For this reason, most plants close in winter, when heating expenses are higher and wool inflow lower.

17.- The service fee is similar all over the country and currently amounts to about USD0.4/kg of scoured output.

Table D.4: Financial performance of the wool primary treatment (scouring) segment, 2008/2009

Indicator	Fine*	Semi fine*	Coarse and semi-coarse	Coarse and semi-coarse*	
USD/tonne of scoured wool					
Cost of wool commodity	0	0	218	0	
Reagents (sulfamate, natron, other salts)	85	85	74	74	
Water	2	2	2	2	
Electricity	27	27	24	24	
Energy (gas, coal)	93	93	81	81	
Packaging	14	14	18	18	
Salary Fund	104	104	95	95	
Depreciation	64	64	61	61	
Total costs	389	389	573	355	
Revenue	439	439	676	385	
Net income	50	50	103	30	
Value added	218	218	258	186	
Total in the segment, USD million					**Total**
Production ('000 tonnes of scoured wool)	3.4	2.8	2.4	2.1	10.7
Costs	1.3	1.1	1.4	0.8	4.5
Revenue	1.5	1.2	1.6	0.8	5.1
Income	0.2	0.1	0.2	0.1	0.6
Value added	0.7	0.6	0.6	0.4	2.4

* As a service on a fee basis.

Advanced processing

Advanced processing in Kazakhstan comprises: i) felt manufacturing; ii) weaving; and iii) knitwear manufacture. The Kazakh felt industry deals mainly with the production of felt material and felt boots from coarse wool. Weaving plants (Kargaly and Kostanay factories) utilize semi-coarse or semi-fine and fine wool to produce blankets, apparel and half-finished goods such as yarn and fabrics. Knitwear is produced by a few factories (e.g., Murager and Rosa), which import combed yarn mainly from the Kyrgyz Republic, as it is not produced domestically. The Rosa and Murager factories use semi-fine wool to make knitted quilts and pillows.

Demand for woollen goods is increasing alongside population growth and improved living standards in Kazakhstan (Figure 16), but local production has been declining since 2003 (Figure 17). This is partly due to the cancellation of favourable taxation.[18] While the production of simple goods such as felt material, felt boots and blankets remains stable,

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18.- Vaschenko, N. 2006. Not light for pickup. *Expert Kazakhstan*, 7(63): 20 February 2006.

the output of more complex goods has shrunk (Figure 17). Kazakhstan has switched to massive imports of advanced commodities with high value added, particularly fabrics. In some cases (carpets, clothes, woven fabrics), local production almost halted with the closure of the last Soviet industrial giants.

Figure 16: Domestic consumption of woollen goods
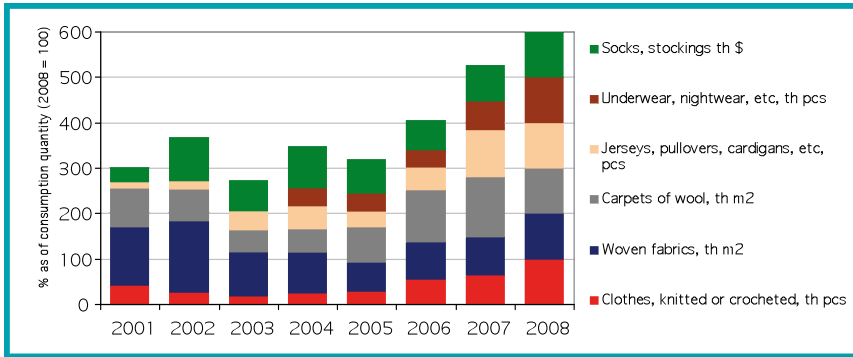
Sources: Statistics Agency; Custom Committee; United Nations COMTRADE database.

Figure 17: Domestic production of advanced woollen goods
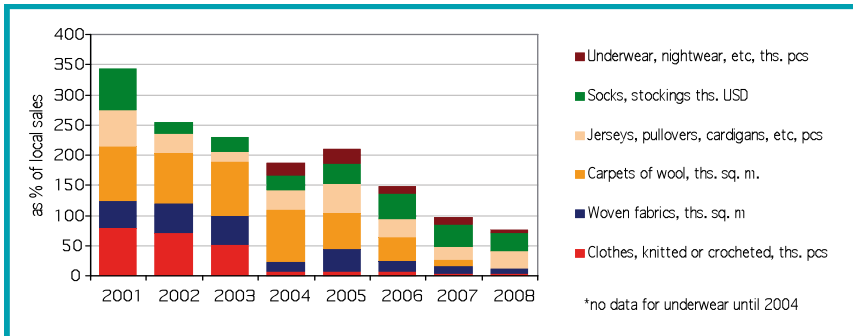
Sources: Statistics Agency; United Nations COMTRADE database; own calculations.

The processing segment is considerably small compared with overall domestic wool production, the specific market, and the Kazakh economy as a whole. The share of light industry is currently about 1 percent of total gross domestic product (GDP). The felt industry is the main segment in processing, accounting for 50 percent of total value added, while fabric

plants contribute a very minor volume of production, usually in the form of cheaper products (such as blankets and grey cloth from Kargaly factory). As a result, local plants deal mainly with coarse and semi-coarse wool (80 percent of total wool consumption by advanced processors), while only about 1.5 percent of fine wool is processed domestically.

Table D.5 provides a segment profit and loss analysis, which takes into account the different processing specializations and typologies, although labour and raw wool are the main cost elements in all cases. The revenues by sub-segment are calculated from assumed volumes of sales, which in turn are based on data collected from primary informants and other recorded information. Although the segment is small, it shows some internal profitability.

Table D.5: Wool processing profit and loss account

	Fine wool yarn	Felt	Felt boots	Blan-kets	Qui ts	Other	
USD per	kg	kg	pair	piece	piece	kg	
Wool (greasy)	3.20	0.22	0.87	019	3.22	1.5	
Electricity, fuel	0.20	1.04	1.26	1.97	1.45	1.2	
Labour	0.41	0.28	2.36	6.00	4.00	2.6	
Depreciation	0.28	0.68	1.47	0.99	1.38	1.0	
Other	0.97	0.72	1.31	6.29	2.17	2.3	
Total costs	5.06	2.95	7.26	15.44	12.22	8.59	
Revenue (wholesale price)	6.00	3.51	9.46	15.59	16.22	10.96	
Gross margin	0.94	0.56	2.20	4.26	4.00	2.37	
Value added	1.63	1.53	6.02	11.15	9.38	5.94	
Total in the segment, USD million	'000 tonnes	'000 tonnes	million pairs	million	thou-sand	'000 tonnes	Total
Production	0.2	1.0	0.4	0.0	0.0	0.4	
Costs	0.8	3.0	2.9	0.5	0.4	3.4	10.9
Revenue	0.9	3.5	3.8	0.6	0.5	4.4	13.7
Gross Margin	0.1	0.6	0.9	0.1	0.1	0.9	2.8
Value added	0.3	1.5	2.4	0.3	0.3	2.4	7.2

Sources: Interviews; CMAR. 2005. Assessment of ability of wool-yarn-clothes-knitwear chain production establishment in Kazakhstan. Almaty. 189 pp.; Pozdnjakov A.V. 1999. Technological calculations for design of woollen spinning system. Guide for specialty 280300/ Diss. Dmitrovgrad; own elaborations.

Currently, the processing segment appears to be undergoing a period of change. Some WPT facilities plan to expand and differentiate their activities (e.g., Taraz WPT is opening a tops making workshop); others are closing down or are unable to take up production even after restructuring; many are changing their managements, and others are seeking financial partners.

A fully vertical system of some importance is that of the ST Group, which integrates sheep breeding with processing and trade. It includes:

(a) LLP Alrun, with two large sheep breeding enterprises in Almaty (20 000 pure-bred fine wool sheep and 300 imported Australian merino)[19] and East Kazakhstan (8 000 pure-bred fat-tail sheep);

(b) JSC KazRuno, with WPT factories in Semey and a weaving workshop in Korday with a tops workshop (800 kg/year);

(c) Tokmak worsted yarn factory (Kyrgyzstan) producing yarn from KazRuno tops;

(d) the LLP ZAVAst knitwear factory in Semey;

(e) a network of about 25 affiliated wool procurement stations in Kazakhstan and Mongolia (By Ertis);

(f) trade agents in Altay and Moscow in the Russian Federation.

However, following over-indebtedness with public financing sources, the group's ownership became embroiled in financial and legal issues in 2008, and fled the country. The management of Alrun and KazRuno is now attempting a management buy-in operation and is seeking partnerships with more sustainable financial sources to restart operations and avoid wasting the huge investments made.

Areas of investment opportunity for the processing segment in Kazakhstan, which should be investigated further, include options such as lanolin production, improved coarse wool lines with fluff and beard fibre separation, specialization in insulation material from coarse wool, improved tops and yarn production, and innovative felt-made goods. Issues that hinder investment include the relatively high labour cost compared with other developing countries, the high investment required for restructuring obsolete sunk investments, low technical and managerial staff capacity, and – above all – poor access to financial means. A major issue is that the majority of players lack modern business planning and marketing competencies.

19.- Petrovsky, A. 2005. Fresh blood. *Bytere*, 4(12), August 2005. (in Russian)

Trading

Wool trading systems in Kazakhstan differ according to the wool type. Tradable *coarse and semi-coarse wool* is usually directly delivered and sold at the WPT (approximately 60 percent) or felt mill (about 25 percent) factory gate level by producers. Large-scale farmers and enterprises deliver wool themselves, once or (occasionally) twice a year. Farmers and households bulk their wool or deliver it to larger farmers for selling.

Fine and semi-fine wool is instead collected by small procurement and trading companies registered in Kazakhstan but owned by Chinese entrepreneurs. There are about 15 such companies operating in major producing regions through their representatives. Advance payment (50 percent of the consignment) is offered only to agricultural enterprises that can guarantee quality wool. Advance payments are made to ensure delivery, although recently they have been less common, owing to financial issues on the part of procurement agents.

By and large, the procurement relationships between Chinese entrepreneurs and sheep breeders are not regulated. Wool is generally bought in small amounts and mixed bales, and buyers pay a minimum price due to the high risks of mistake and dishonesty – consignments often include defected wool and/or foreign material. Premium prices do not exist for coarse and semi-coarse wool and are rarely used even for fine and semi-fine wool; when they are made, they total a maximum of 20 percent of the price, compared with 300 percent in the world market.

Chinese entrepreneurs are the key traders and control almost the entire export flow of fine and semi-fine wool, thus obtaining most of the economic margin of the segment. These dealers have sufficient financial liquidity and procurement capacity, full knowledge of border trade and customs arrangements, and links to entrepreneurs (although these are seldom specialized) in western China. Trading companies export the wool in both greasy (one-third of the total) and scoured forms.

WPT plants are effectively excluded from direct export ventures, and work mainly as the providers of scouring services. Only a minimal part (approximately 10 percent) of traded wool is purchased by WPT

facilities for direct trade after scouring (Table D.6). Most of this wool (approximately 80 to 90 percent) is coarse and semi-coarse, which is exported to the Russian Federation or (occasionally) China after scouring. A very small part (1 to 2 percent) of the wool bought by WPT factories is fine and semi-fine, which is then resold to local advanced processing plants. Approximately 90 percent of wool inflow into WPT facilities is scoured for a fee as a service operation. Service users are Chinese entrepreneurs for fine and semi-fine wool scouring (approximately 30 percent of total wool inflow), and felt mills for coarse and semi-coarse wool scouring (approximately 60 percent).

Table D.6: Wool scouring (excluding service-based operations)

	2004	2005	2006	2007	2008
Wool scouring, tonnes	3 195	1 227	1 034	2 880	1 071
As % of tradable wool produced (estimate)	33	12	9	24	8

Sources: Statistics Agency; own estimates.

Processing plants usually sell their final goods wholesale on both the international (approximately 25 percent) and local markets (approximately 40 percent). The share of retailing in their total sales is relatively low (approximately 35 percent) and undeveloped, through small shops at the factory gate or in nearby villages. *Felt* material is sold to large domestic enterprises and companies (airlines, railway companies) or Russian trading companies for reselling. *Felt* boots are sold to Russian trading companies or retailed at factory shops. *Quilts, outerwear and knitwear* are sold to Kazakh shops and retail networks in small batches, or through factory shops. *Blankets* are commonly wholesaled to State bodies and companies (railway, army, hospitals, etc.). *Working clothes* are sold competitively to commercial and State-owned companies. Probably owing to the minor importance of the market, unofficial and uncontrolled commercial operations are quite common. [20]

20.- The Kyrgyz textile industry, which has expanded in the last decade, exports 90 percent of its total output to Kazakhstan and the Russian Federation, thanks to a special trade regime (no custom duties). There have been cases of goods from China and Turkey intended for the Kazakh market being first delivered to the special economic zone near Bishkek, which is duty-free for import, and then – after customs clearance – being marked as made in the Kyrgyz Republic and re-exported to Kazakhstan.

The domestic market is mainly made up of imports. Fabrics are imported by retail networks or specialized companies. Although a 10 percent custom duty should be charged, informal operations appear to prevail. Sector analysts consider that some 70 to 90 percent of imports are informal deliveries into the country. Cheaper imported goods prevail, mainly from China (apparel, blankets, quilts), Turkey (apparel and rags) and, recently, the Kyrgyz Republic (apparel), which have a competitive advantage owing to these countries' tax discount programmes, low labour costs and zero custom duties on fabric imports.[21] Fabric imports amount to more than USD200 million (Table D.7) or nine times as much as the total value added of the entire wool chain. In most cases, cheaper foreign goods have a low to non-existent wool content.

Table D.7: Trade balance of main woollen goods, 2008

Item	Export		Import		
	Tonnes	'000 USD	Tonnes	'000 USD	% of local consumption
Yarn, tonnes	0	0	76.28	670.3	49
Felt, tonnes	120.5	305.3	22.5	47.2	13
Carpets	0	0	303.3	2457	99
Blankets and quilts	N/A	N/A	24.5	201.2	N/A
Clothes	0	0	191	200	65
Apparel	6	175	4 880	229 946	95

Sources: United Nations COMTRADE database; own estimates.

For this analysis, the profitability of the export trading segment of the chain was calculated, excluding the retail sub-segment, for which data are scanty. As indicated in Table D.8, export traders (Chinese entrepreneurs) achieve a high return-to-assets ratio and generate relatively high profitability, owing to their low fixed investments, asset maintenance and fast turnovers. Some advanced processing companies involved in retailing activities may have similar rates of profitability.

21.- Glumskov, V. 2009. Business sewed with threads. *Expert Kazakhstan*, 208(12–13), 6 April 2009.

Table D.8. Financial performance of the export trade segment, 2008/2009

	Fine greasy	Fine scoured	Semi-fine greasy	Semi-fine scoured	Total
USD/kg of produce					
Wool	1.01	2.25	0.68	1.50	
Scouring services		0.44		0.44	
Transport	0.07	0.07	0.07	0.07	
Production cost	1.08	2.76	0.75	2.01	
Revenue	1.65	3.38	1	2.20	
Income	0.57	0.62	0.25	0.19	
Added value	0.57	0.62	0.25	0.19	
Total in the segment, USD million					
Sales (quality in tonnes)	1 600	2 537	1 050	1 606	
Costs	1.7	7.0	0.8	3.2	**12.8**
Revenue	2.6	8.6	1.1	3.5	**15.8**
Income	0.9	1.6	0.3	0.3	**3.0**
Value added	0.9	1.6	0.3	0.3	**3.0**

Sources: Field observations; own calculations

E.

STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS ANALYSIS OF THE CHAIN

The Kazakh wool value chain is somewhat short. Sheep breeders obtain the highest share of value added (38 percent), and non-specialized intermediaries (Chinese) are the key participants controlling much volume of trade (45 percent) and receiving the highest portion (Figure 8) of total income. WPT plants are mainly on a service-fee basis. Their procurement system from producers is unstructured and occasional, and is not based on mutual trust, and the quality control and certification system is outdated. Most of the local processors manufacturing simple final goods (felt, felt boots, quilts) offer a single price for all types of wool and provide no premium payments for quality produce.

The following box shows the strengths, weaknesses, opportunities and threats (SWOT) analysis for wool.

PRIMARY PRODUCTION	
Strengths	**Weaknesses**
● Abundant pastureland (currently 20 ha per conventional animal head); access to high•yielding seasonal meadows (in the south and east, and the bushy saxaul zone); and with natural watering sources, particularly in the south (where sheep holdings are concentrated). ● Low rent values. ● Lower labour costs than in developed countries. ● Cheap feed (grain). ● Breeding traditions, advanced scientific base for fine•wool sheep breeding. ● Option of extensive low•cost sheep breeding. ● Good local facilities for cleaning. ● Availability of hardy local breeds that can withstand climatic limitations (edelbaevskaja).	● Climate rigours in the north. ● Occasional droughts in the south. ● No established channels to the world market (for fine wool). ● Dominance of small•scale holdings; low technological status and low operator overall capacity and qualifications. ● Undeveloped wool testing system and trading / market services. ● Low volumes of wool production in general and of fine wool in particular; unstable quality.

PRIMARY PRODUCTION	
Opportunities	**Threats**
● Flock can be increased sustainably. ● Refurbishment of huge sunk investment from Soviet times. ● ncrease in domestic demand is possible. ● Feasible improvements in wool quality and yields. ● Price competitiveness. ● Reconnecting to the world market.	● Decline in consumption of high•priced wool fabrics due to recession. ● World decline in wool consumption. ● Substitution of wool with cheaper fibres. ● Decline in agricultural support after entering World Trade Organization (WTO). ● Loss of acquired pedigree sheep in bankrupt enterprises. ● Gradual loss of scientific achievements.
PROCESSING	
Strengths	**Weaknesses**
Low electricity and fuel prices. ● Access to cheap water. ● Low wool prices. ● Sunk investment.	● Obsolete equipment and technology. ● Lack of marketing and business competence. ● Lack of financial resources; commercial credit is expensive and short•term. ● Pressure of informal imports. ● Undeveloped industrial infrastructure. ● Bureaucratization of legal procedures. ● Low specialization of local processing.
Opportunities	**Threats**
● Increased demand for new coarse wool semi•products in China.	● Declining market for traditional goods (e.g., felt boots).
● Easier access to Russian market ensured by Custom Union. ● Strategic alliances with foreign companies. ● Demand for niche products. ● Sunk investment and underutilized processing capacities. ● Domestic demand for wool products.	● Continued loss of qualified personnel. ● Fall in consumers' income due to financial crisis.

Overall, the yield (both animal and scouring output) and quality of Kazakh fine wool is low (Table E.1) compared with the fine wool produced by the major world players in this sector (Australia). This is mainly owing to the poor genetic state of the national flock and the high level of pollution (mud, vegetation) of the wool traded. However, the agricultural breeding enterprises of registered pure-bred sheep have good wool quality indicators (yield, clean wool content, strength), which satisfy international and local standards.[22] For example, five of the best enterprises have wool yield levels that are 40 percent higher than the average.

22.- Field observations; Mynbaev. 2006. Improvement of wool quality 2001–2005, final report. RI of Sheep Breeding, Experimental Enterprise. 61 pp.

Table E.1: Comparison of Kazakh and Australian fine wool and fine sheep

Parameters	Kazakhstan	Australia
Shear, kg clean per sheep	2	3–4
Clean wool as % of greasy wool	45	65
Average length, mm	65	75
Variation, %	19–20	25–27
Strength, cN/tex	7	8.5
Defects	Seeds, grey hairs	Rare

Source: Design report of fine wool production and processing, Presentation to AKK, 2009. 27 pp. ; own calculations based on survey interviews.

The main elements of competitiveness are the production cost and the market price for fine wool, the latter being two to almost three times lower than those for the same wool grades (fineness, quality) in Australia (Table E.2). This is because labour costs at all chain segment levels are lower than those of the major producing countries (except China),[23] and land-use cost is also low. Further cuts on production costs are unlikely for Australian wool, while there is ample room for improvement in Kazakhstan (e.g., in productivity – there are 4 800 sheep per worker in Australia, compared with a maximum of 800 in Kazakhstan).

Table E.2: Price comparison of Kazakh and Australian fine wool, 2007/2009

	USD/kg (scoured, adjusted for Kazakhstan)
Kazakhstan (WPT plant, 20–24 mkm)	2.45
Australia (auction, 25 µm)	4.65
Australia (auction, 20 µm)	6.05

Sources: AWEX Weekly Wool Market Report; Thomson Datastream; Opanda; field observations; KAM

The lower prices of Kazakhstan wool in the international market match the opportunity of increasing consumer preferences for natural fibres. In addition, the apparent halt in the expansion of wool production in neighbouring China (due to horizontal expansion limitations posed by

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23.- Up to twenty times lower: USD2 000/year against USD40 000 in Australia. Shearing costs are USD2/ewe (Australia) and USD0.3 (Kazakhstan); certification of wool clips costs are USD30/test (Australia) and USD0.2 (Kazakhstan).

land and water availability, and technological restrictions on further yield improvements for a declining flock size) also provide a good chance for Kazakhstan should it improve its quality standards.

Traditional final products from *coarse wool*, such as felt boots, are becoming less popular as consumer choices are increasingly diverting from these products. However, the very low prices and the high area concentration of a significant supply of Kazakh coarse wool may open opportunities for *niche markets* (e.g., heat insulating building material, and the Chinese demand for coarse wool semi-products), and diversified processing strategies.

Regarding *transportation* costs, Kazakhstan is landlocked, which imposes system limitations. However, wool is a bulky product with a long stocking life in both greasy and scoured forms, and transportation is usually via the cheap railway system. Most light industry plants and WPT factories are situated in special industrial zones in cities and are well connected to the central rail network by branch lines. For China and the Russian Federation – major importers of Kazakh wool – the average gate-to-gate transportation cost is about USD50/tonne, which weighs some 2 percent for scoured fine and 6 percent for coarse wool prices. For the Australian market, the free on board (FOB) freight cost is about USD120/tonne.

The domestic demand for *processed woollen goods* in 2004 was estimated to be in the order of 20 000 tonnes/year (equal to about 60 000 tonnes of greasy wool)[24], which is twice the current domestic processing capacity. Low wool prices would offer advantageous grounds for local processing of semi-products such as yarn and carded wool as a filling material (e.g., for sleeping accessories). Low energy costs improve the competitiveness of primary processing that is more energy-intensive. At the same time, however, labour costs are higher than in neighbouring countries (China and the Kyrgyz Republic), where there are preferential taxation/custom regimes (Kyrgyzstan), reducing the competitiveness of more advanced processing of goods with major labour requirements (fabric weaving, garment manufacture). Lower marketing competencies and technological capacity, and a rigid bureaucracy result in a less conducive environment for

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24.- CMAR. 2004. *Situation and perspectives of Kazakh textile industry*. Almaty. 108 pp.

the processing segment. The new Customs Union (CU) with the Russian Federation and Belarus would otherwise offer preferential grounds (through having no quotas and no tariffs) to Kazakh wool within the CU (Table E.3).

Table E.3: Light industry cost comparisons in selected countries

Index	Un t	Kazakhstan	China	Kyrgyzstan	Russian Federation
Labour	USD/month	210	140	120	400
Electricity*	USD cents/kWt [a] h	3.8	7	3.8	6
Natural gas	USD per '000 m3	69	200	300	70
Coal	USD/tonne	12	80	N/A	30–120

[a] *In 2010, Kyrgyz electricity tariffs are expect to increase twofold, and those for heat energy fivefold or more. Differentiated day and night tariffs will be applied to give industrial users more flexibility for managing their working capacity.*
Sources: Statistics Agencies of the Kyrgyz Republic and Kazakhstan; IEA; Oanda; Rosstat; own calculations.

F

DEVELOPMENT OUTLINES FOR KAZAKHSTAN'S WOOL SECTOR

The global wool market is currently worth about USD4 billion from the trading of 2.1 million tonnes of greasy wool produced by 2 billion sheep. Three countries dictate world production and commodity exchange parameters; Australia, China and New Zealand produce 50 percent of the global volume, but China overwhelmingly leads international purchasing by importing one-third of the world's exported wool.

The world market has performed somewhat stably in the last decade, in terms of both production volumes and prices. Human population growth and increased per capita textile fibre consumption are not leading to increased production and consumption of wool fibre, as its prices are still three to four times higher than those of synthetic materials and five to six times higher than cotton prices. Only fine (< 20μm) wool prices recorded increases in 2006 and 2007, due to apparent market preferences for higher-quality segments. However, during the last two years, coinciding with the global financial crunch, premium prices dropped and the positive trends seem to have come to a halt. Cheap and abundant coarse and semi-coarse wool satisfies domestic value chains, but most surpluses tend to be wasted. Should the housing industry (through demand for insulation material) and other custom and innovative uses expand beyond niche markets, this category of wool may show marginal competitiveness with alternative fibres.

Although global short-term prospects are dim, the IWTO forecasts a moderate increase in production and consumption of wool in the medium term. Volume of demand and production of both wool and its consumer goods are reportedly estimated to grow by 5 to 10 percent during 2010

to 2015. A predicted volume deficit in cotton production[25] and a possible increase in the cotton price may cause a demand shift to wool and a partial re-equilibrium of wool's share in total fibre consumption.

Kazakhstan has definitely lost the wool market position it held in the Soviet era, when it provided a 4 percent share of global wool and fine wool production. All its comparative advantages (sheep population and wool production volume; a high proportion of pure-bred fine and semi-fine wool sheep breeds in the national flock; pure-bred breeding and R&D capacity; utilization of an immense resource base and important infrastructure investments; a wool quality control and classification system; and the COMECON[26] processing capacity and its specific market outlets) have been completely disrupted or discontinued.

The current situation in Kazakhstan is complex both in general with regard to the overall livestock sector, and more specifically regarding the sheep wool sub-sector. The oil-led economy has moved the country ahead, allowing its current international position. The agriculture sector now contributes less than 6 percent of national GDP (whereas industry accounts for 39 percent and services for 55 percent) and has recovered the least since the Soviet collapse. Its estimated current year-to-year growth trend (2.2 percent in 2009) is dominated by wheat exports, which rank Kazakhstan among the world's ten leading exporters of this commodity.

The livestock industry presents a mixed and more intricate picture. There are signs of recovery wherever the market is able to drive production increases. Improved living standards and increased demand have raised domestic per capita meat consumption, which has returned to its 1992 level of about 69 kg/year (2009). Other livestock sub-sectors (milk and dairy products, as well as wool) are lagging behind, mainly owing to marketing constraints in the domestic productive structure.

Regarding the sheep wool sub-sector, the industry in Kazakhstan is

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25.- USDA. 2008. *Cotton and Wool Situation and Outlook Yearbook*, CWS-2008, p. 2. Washington, DC, United States Department of Agriculture (USDA), Market and Trade Economics Division

26.- Between 1949 and 1991, the Council for Mutual Economic Assistance (COMECON) was the economic organization of communist States, including the Soviet Republics (such as Kazakhstan), the Eastern European socialist countries, and other centrally planned economy countries that accepted the Soviet Union's leadership.

currently seriously constrained by the opportunistic nature of its market and market players. The aggregated wool chain return on value addition calculated in this analysis is about USD22 million/year. Revenues are more significant for the different segments of the chain but *profitability* is:

(a) negative at the production level;

(b) between 13 and 20 percent at the primary and advanced processing levels, respectively;

(c) estimated at about 19 percent at the export traders' level.

Price increases at the farm-gate, in the absence of a more directed chain and coherent restructuring, would be conducive to improving profitability at the production level, but may also hamper returns on other downstream chain segments, thereby constraining overall domestic market exchanges.

Kazakhstan produces an inertial annual supply of mostly coarse/semi-coarse wool (approximately 21 000 to 22 000 tonnes), of which about 70 percent is wasted, with the remainder entering the chain mainly for domestic processing into traditional goods, with only low quantities exported; and *low-quality fine/semi-fine sheep wool* (approximately 11 000 to 12 000 tonnes), mainly exported in greasy or scoured form (80 to 85 percent), with modest quantities (15 to 20 percent) being processed by in-country plants.

This wool derives from a non-specialized population of *14 million sheep*, essentially *cross-bred* (95 percent), held by HHFs (70 percent), almost 4 000 PFs (25 percent) and large enterprises (5 percent). *Sheep producers* have responded to the main market demand, which is for meat, while wool is considered a by-product, only part of which is sold through largely ineffective and non-specialized *procurement systems*. Very few sheep holders with residual fine and semi-fine wool sheep (in large part cross-bred) are resisting this trend. The *feeding base* is insufficiently and irrationally exploited. The *health management system* is improving, but only because it is twinned to that of other more rewarding sub-sectors. The pure-bred registered breeding system, still chiefly in public hands, has lost its past level of excellence and is gradually discontinuing wool speciality activities and shifting to meat

specialization. Given the present situation, the former – and now unnecessary – *classification and quality control system* has been discontinued.

At the *processing* level, only the *WPT* network for wool scouring has maintained some of its former functioning capacity, through territorial distribution. Most *advanced processing* is in bad shape, and undertaken by residual and old, inefficient plants that are devoted mainly – albeit at less than their original capacity – to the manufacture of traditional felt and felt goods, which are progressively loosing market positions. Very few plants process fine/semi-fine wool for spinning and weaving purposes. The only public-driven experiment in full vertical integration from fine wool sheep breeding to final wool goods production (the ST Group) collapsed at the outset because of overindebtedness, bad management and market short-sightedness. The bulk of the *export trading system* is in the hands of few Chinese intermediaries, which are not linked to a specialized mainland importing demand. The domestic *retail system* is underdeveloped and handicraft-biased, owing due to price and quality competition from both cheap and expensive imported woollen goods.

Overall, the wool tradition and culture of Kazakhstan has reached the point when a crucial decision has to be taken: *Should the wool sector be ended or revitalized?* Market perspectives are dim, but a niche position in the global market is available for a country with several comparative advantages that can, at least in part, be resuscitated. In addition, there are also opportunities for producing, processing (at least at the primary and perhaps also at more advanced levels) and trading competitively. Undoubtedly, much *will depend on the existence of a willing and determined private sector* with a true interest in keeping the business going. Should such an interest emerge, a specific roadmap for system rejuvenation can be designed and a multifaceted work plan would have to be worked out and pursued.

Planning and phasing of development options, including understanding the financial requirements and implementation arrangements, would form part of the design of a more in-depth investment programme. The following is a summary of the indications that emerged from the analysis, which would require further study after broad consensus is gained.

Indications for the way forward

Champions in the *private sector* first need to emerge at the end segments of the chain, i.e., among processors and traders. A possible option – and probably the most workable in the current situation – would include a *strategic alliance* among the most progressive processors and entrepreneurial traders. These would spear-head the process and provide the rationale for necessary upstream investments. At least five sizeable *WPT plants* in southern and eastern Kazakhstan are eligible to form this alliance. Processors would need to organize improved and more specialized *procurement networks* (including outsourcing arrangements) involving preferential relationships with sheep holders to ensure the agreed quality and quantity of supply are delivered. Simplified *quality control* systems (with gradual alignment to IWTO standards) at the WPT/procurement level would pave the way for price premiums until more sophisticated systems can be justified. *Better prices for the required quality* should be paid, to ensure *reciprocal profitability* at all levels. Processors need to establish good business or partnership relationships with *traders* and trading organizations, which should be specialized and have *links with professional buyers*. In some instances, traders may act as principal champions of the entire process. In all cases, champions (processors and/or traders) should have tight and acknowledged interactions with international players and stakeholders (including IWTO). It is less likely that the existing *felt factories* can play a major leading role, but be making efficiencies they will maintain their own segment as long as profitability parameters are maintained. The more progressive and business-oriented operators in the *advanced processing* segment will need to undergo important restructuring processes requiring substantial investments (e.g., TOO Kostanajskaja in Kostanay, Zava in Semey, and Kijal in Aktobe). For this, specific technical and financial feasibility analyses should be designed and implemented. All these indications are in the private goods area for private sector investment and require only improved *access to financing* and public sector *political sponsorship* of the process. Strategic decisions and actions by the public sector should focus on involving Kazakhstan's private/commercial banking and financing system in agriculture sector investments. Support may be

provided in the form of guarantee funds and improving the sector-related risk assessment capacity of participating financing institutions. The private sector could also explore and support the development of international joint ventures for trade and processing.

At the producers level, the main target category is *emergent PFs* (raising 1 000 to 4 000 sheep each and estimated to amount to at least 1 000 farmers), which are steadily upgrading their business capacity in other sub-sectors, and for whom fine/semi-fine sheep wool specialization with an ensured market may be an attractive option. The few *AEs* that still hold fine and semi-fine wool sheep (estimated to be no more than 50 enterprises) may have sufficient sunk investment to allow them to restore the former comparative advantage in this area. For **HHFs**, it is expected that a trickle-down effect from the restructured wool sector would first involve those HHFs to have business relationships with larger emergent PFs, while the great majority would receive only marginal additional income from increased coarse/semi-coarse wool sales should the overall market improve (assumptions are uncertain, but substantial system efficiency improvements on procurement in the coarse wool market could affect some 300 000 HHFs).

Areas to be improved at the producers level would include gradually *substituting cross-bred sheep* with fine/semi-fine wool pure-bred sheep, to improve and increase the supply of quality wool required by the market. *Selective support* to interested and committed farmers taking up this breed *innovation* activity may be considered. Partial restructuring and reorganization of specialized *breeding* centres and enterprises may also be required, particularly towards *privatization* and efficiency upgrading, but only after safeguarding the necessary relationships with the scientific research network (led by Mynbaevo). Expanded access to and more rational use of the huge *rangeland* resource base must also be pursued. Given the core public ownership of the bulk of the resource base, this will require a *planned and phased rehabilitation* of major existing infrastructure to recuperate basic *housing, animal shelter and watering facilities* with substantial public sector investment, although forms of *effective cost sharing* would have to be sought. Another investment area of public interest would be support to the *capacity*

building and training of wool chain operators. In particular, training on breed improvement, feeding, animal health management and business managing *curricula* should be included, through Kaz-Agro-Innovation's (KAI's) existing farmer training centres and in line with the agriculture sector extension/advisory system currently being constructed.

Stakeholders should consult and consider creating a *national wool association/council* NWA/C). This should become a commodity advisory and advocacy board for all operators and stakeholders, and membership would have to include senior representatives of MoA (policy and technical), KAI and the relevant research institutions (mainly Myanbaevo), KAM, selected concerned State joint stock companies joint stock companies (JSC) (such as Mal Onimderi Corporation), primary and advanced processing operators, traders and trading organizations, and farmers' unions. However, the major executive role of this association/council would need to stay with private sector operators, while policy advice and good governance should be provided by MoA (policy senior officials). The NWA/C's core areas of activity would include sector strategy, improvement of the policy and investment environment (including tax and trade barrier regimes), the regulatory framework, marketing advice and advocacy, and financing opportunities. The NWA/C should also house a high-level intelligence unit linked to and interacting with relevant international stakeholders and players (e.g. IWTO, AWEX, the new CU, and also WTO, etc.).

A suggested roadmap

Step 1 (year 1, twelve months), identification of interest: This is a prerequisite action that must be initiated and sponsored at the highest level by *MoA*. The aim is to identify concrete evidence of the private sector's will to maintain the wool business and its commitment to investing in the renovation of the Kazakh wool industry. MoA should identify a delegated and entrusted entity as the sponsor and start a *preparation campaign*, which would culminate in a national *wool sector conference*, one year after the campaign launch. Thereafter, once champions have lined up, the sponsor would maintain observatory functions to supervise and monitor progress.

Step 2 (year 2, first nine months), work plan elaboration: *Champions* are likely to come from the most progressive processors and/ or traders (or the strategic alliance) and to declare their commitment during the wool sector conference. They would then organize themselves and take responsibility for preparing a sector investment and work plan. The plan should include analyses and preparation of priority interventions for refurbishing processing capacity. This would be based on domestic and export market potential, identified through research and promotional work and pre-partnership arrangements with domestic and international buyers (which may include joint ventures with international stakeholders). Such an investment plan should include the organization of a procurement network capable of lean quality assessment measures, and a preferential wool supply chain of producers with whom delivery contracts can be agreed.

Step 3 (year 2, last three months), investment programme endorsement: As MoA is the first sponsor of the initiative and has responsibility for investing in public goods areas at the upstream chain level on the government's behalf, the investment plan elaborated by the wool chain champions would need MoA's endorsement during a second meeting of the wool sector conference.

Step 4 (year 3, first six to nine months), public sector investment options: The purposely created observatory (housed with the sponsor) would then need to analyse the areas for which public sector investment is required. These areas would likely concern: i) selective support for cross-bred sheep substitution; ii) reorganization of breeding centres/enterprises; iii) rehabilitation of basic infrastructure on rangelands (with effective cost-sharing arrangements); and iv) demand-driven capacity building and training programmes for wool chain operators, and consolidation of advisory services. A phased plan of action for public sector investments would be announced during a third meeting of the wool sector conference, when the parties would also decide and agree on the institution of a NWA/C.

Step 5 (year 3, last three to six months, and from year 4 onwards), launch of the NWA/C: Parties would gather, agree and assume responsibility for individual planned activities as follows:

(a) *Public sector:* approval and inclusion of financing in the Republican Budget of public sector investment options; investment start-up.

(b) *Private sector chain champions* (processors and/or traders, or the alliance): identification of financing sources for private sector investment plan (MoA to provide sponsorship and patronage while financing institutions improve their borrower worthiness assessment capacity to avoid past failures, e.g., ST Group); investment start-up.

(c) *NWA/C board:* supervision and advisory functions at all stages.

ANNEX 1:
WOOL SECTOR SPECIAL FEATURES

Highlights on four livestock sub-sectors in Kazakhstan

General

Sheep wool constitutes an important raw material for the world's light industry. Basically, traded wool and woollen products may be divided into three groups according to the degree of processing and industrial value addition:[27] i) raw wool, including greasy wool, shorn on farms, and scoured wool following grease and pollutant removal through primary processing treatment; ii) industrial semi-products, pure wool or half-woollen tops, yarn and some fabrics; and iii) final goods, carpets, felt, fabrics, garments, etc.

Raw wool classification, standards and categories

Raw wool (greasy, scoured) is commonly distinguished by fibre length and diameter. Length is quoted in millimetres, diameter in microns (μm). The properties, or qualities, of length and diameter determine the type of processing and the range of products that can be made from a given batch of wool. Consequently, the qualities give the prices of different wools by reflecting the relative value of the end-use products that they determine. In general, finer wools fetch higher prices. Finer wool (< 20 μm) is used to produce light-weight fabrics and garments. Broader wool is primarily processed into non-apparel, such as blankets, upholstery and carpets. Longer fibres (> 56 mm) enter the worsted system and are used for making suits and light-weight knitwear. Shorter fibres (< 56 mm) enter the woollen system and are used for making bulky fabrics such as tweeds, felts, flannels and knitwear (Kopke et al., 2004).

A numerical counting system is used by buyers. The system (originated in the United States of America but also acknowledged also by former Soviet Union countries) distinguishes wool into 13 basic grades (Table 1) depending on average fibre diameter and standard deviation of this feature among fibres

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27.- The wool production system begins with the output of greasy wool, which is removed from the sheep's body by shearing. Greasy wool is then washed (scoured) to remove extraneous matter, giving scoured wool (the scoured output varies between 65 to 60 percent and 50 to 45 percent). Some scoured wool is then carbonized to remove vegetable matter, and then carded; other scoured wools by-pass the carbonizing process and are carded directly and then combed (the carding and combing processes prepare wool for spinning). At this point, wools enter the spinning process where yarns are produced. In general, two types of yarn can be distinguished: worsted and woollen. Worsted yarns are produced from combed wools, woollen yarns from carded wools. The distinction between worsted and woollen yarns is maintained through the weaving process, where fabrics are produced, and the manufacturing process, where garments are produced.

in a sample: from 32s[28] (average length fineness 55.1 to 67 mm) to 80s (14.5 to 18.0 mm). Additional special classes up to 180s exist for high-quality fibre. As well as this numeric system, a wool typology classification that is widespread in Kazakhstan and other Russian-speaking countries is defined by the Former-Soviet GOST 26588-85 and 6614-84 standards adopted in the 1980s.[29] Indicators (Table 2) are used to define coarse and semi-coarse wool, their sub-grades and differences between them, such as sheep origin, average fineness, share of morphological hair, homogeneity and fleece structure.

Table 1: Comparison of wool grading systems

Numerical		Micron	Type of wool (and sheep breed)		
Count grade	Standard deviation (max µm)	Average fibre diameter (µm)	Australia	USA	Russian Federation, Kazakhstan
>80s	3.59	< 17.70	Ultra-fine	Fine	Fine
80s	4.09	17.70–19.14	Super-fine	Fine	Fine
70s	4.59	19.15–20.59	Fine (medium)	Fine	Fine
64s	5.19	20.60–22.04	Fine (medium)	Fine	Fine
62s	5.89	22.05–23.49	Medium, strong	Medium	Semi-fine
60s	6.49	23.50–24.94	Strong (medium)	Medium	Semi-fine
58s	7.09	24.95–26.39	Strong (medium)	Medium	Semi-fine
56s	7.59	26.40–27.84	Strong (medium)	Medium	Semi-fine
54s	8.19	27.85–29.29	Strong (medium)	Medium	Semi-fine
50s	8.69	29.30–30.99	Strong (medium)	Medium	Semi-fine
48s	9.09	31.00–32.69	Strong (medium)	Coarse	Semi-fine/semi-coarse
46s	9.59	32.70–34.39	Cross-bred	Coarse	Semi-fine/semi-coarse
44s	10.09	34.40–36.19	Cross-bred	Coarse	Semi-coarse
40s	10.69	36.20–38.09	Coarse (cross-bred)	Very coarse	Semi-coarse
36s	11.19	38.10–40.20	Coarse (cross-bred)	Very coarse	Semi-coarse/coarse
< 36s	--	>40.20	Coarse (cross-bred)	Very coarse	Coarse

Sources: Own compilation; USDA Standard Wool Specifications; LeValley S.B. 2004. Grades and lengths of grease wool. Colorado State University, USA; GOST 661-84 etc.

28.- The count refers to the hanks of yarn, each 560 yards (512 m) long, which can be spun from 1 pound (0.45 kg) of wool top. A 64s wool yields 35 840 yards (560 times 64) of yarn from 1 pound of 64s top.

29.- The term "tonkorunnaja" (or "tonkaja", fine or thin wool) is often used in Kazakhstan for any wool with fibre diameter less than 25 µm; "polutonkorunnaya" (semi-fine) is applied to any wool of hairy fibre or heterotypic hair with average diameter broader than 25 µm; and "polugrubaja" (semi-coarse) and "grubaja" (coarse or rough) are applied to all wool that contains not only hair but also heterotypic and beard-hair fibres.

Table 2: Types of wool and their characteristic (Russian Federation and Kazakhstan)

Type of wool	Average diameter[a]	Wool even	Wool types in fleece (staple)	Length (mm)
Fine	< 25	Low (homogenous)	Hairy	30–80
Semi-fine	25–31 (34)	Low (homogenous)	Rough hairy, transitional	40–150
Semi-Coarse	30–40 on average	Low or high (mixed)	Rough hairy, transitional, small quantity of thin beard-fibre	50–200
Coarse	40–67 on average	Low or high (mixed)	Rough hairy, transitional, beard-fibre and dead hair	10–250

[a] Although GOST 30724-2001 indicates 31 as the border value between fine and semi-fine wool, some professional sources given other values.

Sources: Smirnov L.S. et al. Cloth manufacturing technology;
GOST 30724-2001; GOST 26588-85; GOST 4-68.81; GOST 6614-84

Wool can be divided into four basic segments in terms of its initial properties: price and utilization (Figure 1.1).[30] *Coarse and semi-coarse wool* is used for manufacturing felt, felt footwear and hats; manufacturing hard-wearing garments such as coats and jackets; manufacturing of carpets (only semi-coarse wool); in handicraft production; and in other new areas such as construction. The coarse/semi-coarse wool segment has long been under pressure from artificial fibres (mainly acryl), which are gradually substituting its market share. China and New Zealand are the major producers of this wool category. The international price varies from a few cents to USD1 to $2/kg in greasy form (and USD0.5 to $3/kg scoured). It is mainly a by-product of meat specialized sheep farms, and quality features are not considered. Thus, the prices of this segment are somewhat inelastic.

Semi-fine and fine wool (19.5 µm and broader) is a major segment in terms of quantity and price. Such wool is used primarily in the fabric industry to produce apparel in the low and medium segments. Wool is usually mixed with other fibres. Short-fibre wool is increasingly used to produce smooth worsted fabrics and products, while longer-fibre wool is used to manufacture yarn and hard-wearing clothes. A minor portion of

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30.- International statistics does not take into account sheep breeds and types of produced wool. Therefore expert estimates for production of different types of wool are provided.

wool is used as filling material for sleeping accessories (pillows and quilts). This segment also faces pressure from both artificial and other natural fibres. The wool-to-cotton price ratio is a major indicator for understanding the wool sector's competitiveness.[31] More than half of world semi-fine wool comes from Australia, followed by South Africa, Argentina, Uruguay and France. Countries/regions with the most developed textile industries are the importers, China, the European Union and India. Semi-fine and fine wool are produced by semi-fine and fine wool sheep pure-breds. The Australian Merino is the most valued fine wool sheep breed.

Figure 1.1: World wool production by type
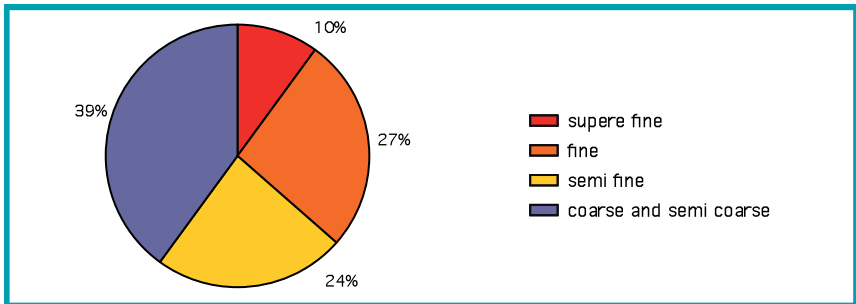
Super Fine wool (< 19.5 μm) is used in the high, premium and luxury price segments of the textile industry, mainly for light knitwear and clothing. Production is overwhelmingly concentrated in Australia, and is exported to Japan, Italy and Germany, although supplies to China are rising.

Australia specializes in fine wool sheep breeding (about 80 percent of all its livestock are pure-bred Merino sheep), and hence in raw fine wool production. New Zealand leads in the production of coarse and semi-coarse wool (70 percent), while its share of fine wool is only 12 percent.[32]

31.- Wilcox, C. 2005. Global wool market trends and prospects: Intelligence for wealthier and wiser decisions. Woolmark, Address to the Agribusiness, 3 pp.

32.- Razumeev, K. 2000. International wool markets. *Light industry market, 7*, autumn 2000.
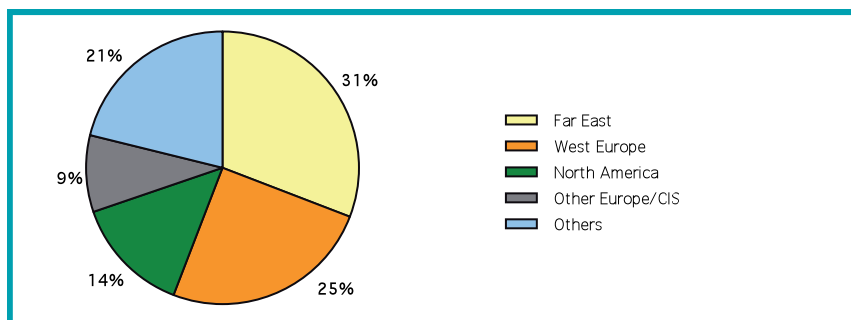
Other chain segments: semi-manufactured goods and final products

8.   A relatively small amount of raw wool is used by the felt industry as heat insulation or handicraft material. Otherwise, about 85 000 tonnes of carded and combed wool is produced annually. Half of this is used in integrated enterprises for further processing. The remaining is traded, mainly on the international market in the form of rolled tape called tops. The annual volume of this market is about USD1 billion, and China and the EU are the main players. About 2 million tonnes of yarn are produced annually. The wool content varies, and other natural and synthetic fibres (acryl, silk, cotton, etc.) enter the composition. Nevertheless, two-thirds of initial wool production is used to produce quality yarn with a high wool content (more than 85 percent) as worsted and combed yarn (made from carded and combed wool), traded in national and international markets, the latter being worth about USD4 billion. While carded and combed wool including tops are considered a primary production output, yarn is a result of a more advanced process (spinning).

9.   *Weaving and garment manufacturing* are the result of more advanced processing of wool. Final woollen products produce a yearly turn-over estimated at USD80 billion. Wool processing is concentrated in a few countries with developed export-oriented textile industries. Five countries process half of all wool, and China alone controls one-third of processing. Primary woollen goods sales are distributed more evenly (Figure 1.2).

Figure 1.2: Main market share holders for woollen goods, 2007 (in scoured equivalent)

Legend:
- Far East
- West Europe
- North America
- Other Europe/CIS
- Others

21% · 31% · 9% · 14% · 25%

Highlights on four livestock sub-sectors in Kazakhstan