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Cotton Textile Industry in Kazakhstan: State, Problems and Prospects for the Development

Structural restructuring of the Kazakhstan economy through start-up of industrial associations and introduction of cluster technologies is possible mainly in most developed industries including cotton-textile area. Kazakhstan is situated in the centre of broad sales markets of CIS and Eastern European states, which makes it possible to apply the cluster industry development model. Resource endowment of cotton-textile industry of Kazakhstan is determined by such components as natural and climatic conditions favourable for cotton plant cultivation, professional skills of local population, irrigated farm field and manufacturing capacity of cotton processors.

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cotton-textile cluster

INTRODUCTION

Textile industry and cotton manufacture are central industries both in developed and developing countries. Today textile industry manufacturers are migrating from Europe to Asian countries. This can be explained by high-priced labour force in Europe, which affects the cost of finished goods, and also by efforts toward bringing the manufacturer closer to new markets. Textile industry is one of the main budget-setting industries in many countries throughout the world. It covers only 10% of domestic market needs in Kazakhstan. But the volume of domestic production must satisfy 30% of domestic demand at least for the purpose of economic security of the country. The raw material base of textile industry is divided into natural (cotton, wool) and synthetic (polyester, acryl, viscose, etc.) fibres. The base of natural raw material (mainly cotton) is generally developed in Kazakhstan, while chemical raw materials are basically imported. Many factors including weather conditions affect the volumes of production and consumption of lint cotton both in the world and in a single country.

HISTORY OF COTTON GROWING DEVELOPMENT IN KAZAKHSTAN

Cotton growing began in Kazakhstan in the end of the 19th century but it started to develop seriously after the October Revolution (Kenarsky 1931). World War II caused a great damage to cotton growing. In main areas some fields had been used for cotton growing were allotted for food crop. Many cotton growers, especially men, went up the lines, thus women were left with all cotton plant growing difficulties. However, despite the difficulties, the workers could maintain cotton manufacture at such level as to meet the needs of the front.

After World War II the cotton growing business had to be restored in the country. In post-war period integration in mechanization processes played a considerable role in developing cotton growing, since cotton plant differs from other agricultural crops by its labour intensity, especially during the cropping period. In post-war period this progress promoted shift to the new irrigation system consolidating irrigated plots, which to some extent improved development of lands.

Initially, cotton plant was cropped on small areas of Zhambul (until 1955) and Kyzyl-Orda (until 1957) regions. Then crops of cotton plant were stopped due to its low crop capacity (Kupeshev, 1981). Cotton plant has been cultivated in South Kazakhstan region (SKR) noted for its natural and climatic conditions and geographical environment meeting requirements to cotton plant growing. The climate is special due to abundance of heat resources.

Increase in lint cotton output required not only reconstruction of old cotton processors but also construction of new ones. In early 1960s, Kazakhstan had 6 cotton factories, while Soviet Union had 116 cotton factories (Rodychev, 1959). Development of lint cotton manufacture must have been supported by drying and cleaning facilities at cotton processors due to the increased impurity of raw cotton after mechanical harvesting. The harvested raw cotton must have been dried and cleaned duly. All available drying facilities were old and useless. All manufacturing equipment of cotton factories was partially renewed by mid 1950. Moreover, the cotton processing industry of Kazakhstan encountered some shortages, i.e. underutilization of production capacity. The main reason of it was an inconsistency between raw material resources and production capacities. As a rule, cotton

Table 1

Cotton manufacturing dynamics in the Republic of Kazakhstan

Year	Raw cotton			Cotton Lint (fibre), thousand tonnes
	Crop area, thousand hectares	Gross yield, thousand tonnes	Crop capacity, hundreds kilograms (centner) per hectare	
1980	126.5	357.8	28.3	98.2
1990	119.7	323.8	27	99.3
1991	116.4	291.1	25	100.3
1992	112.1	252.3	22.5	84.1
1993	110.6	200.1	18.1	75.3
1994	111.2	207.9	18.7	72.2
1995	109.7	223	20.3	69
1996	106.3	182.8	17.2	79.5
1997	103.6	198	19.1	66.7
1998	118	162	13.7	62.5
1999	141.3	249.4	17.7	66.7
2000	151.8	287.1	18.9	95.5
2001	184.9	417.4	22.5	112.7
2002	170.9	360.7	21.1	137.4
2003	199.9	402.1	20.1	132.6
2004	223.7	467.1	21.3	140.1
2005	204.2	465.0	23.1	156.3
2006	200.1	435.4	22.2	145.0
2007	206.1	441.7	22.1	110.5
2008	178.6	317.5	18.2	133.4
2009	139.8	270.0	19.6	97.2

Source:
1) Industry, Agriculture and Construction in Kazakhstan in 1920 to 2000, Statistical book, Almaty 2001, pp. 43–44
2) Regional state archives and Statistics Office of SKR RK
Note: data on raw cotton manufacture in 1990s in SKR RK only

factories lacked resources due to a long distance to the raw material area. Therefore, the factories had to be built close to the raw material sources. This is one of the key requirements to correct and rational geographical distribution of industry.

In 1950–1960s the quantity of low grade fibres increased due to severe impurity of raw cotton caused by mechanical harvesting, while the quantity of choice grade fibres tended to decrease. It was caused not only by mechanical harvesting policy, but also by the lack of necessary raw cotton cleaning equipment at cotton factories and purchasing centres. Moreover, it should be emphasized that the high quality cotton lint depends on the grade of cotton plant. One of the main tasks of that time was introduction of such grades of cotton plant into manufacture as would provide for high output of lint cotton out of raw cotton, which required improved quality of raw cotton. The measures taken were improved agronomic practices of cotton plant growing, introduction of checkrowing, as well as equipment of purchasing centres and cotton factories with drying and cleaning facilities.

Table 2

Dynamics of mineral and organic fertilizer treatment of cotton plant in SKR*

Year	Mineral fertilizers, thousand tonnes	Organic fertilizers, thousand tonnes
1995	11.9	110
2000	2.5	6.6
2005	13	6.2
2006	11.8	3.9
2007	17.2	20.3
2008	8.9	3.3

Source: Statistics Office of SKR
** Note: SKR is one and main cotton growing region*

Thus, in every period of history of cotton growing development particular problems emerged with permanent demand for the product and relevancy of cotton plant growing in the national economy. Peculiarities of development of cotton factories consisted with underutilized capacity, explained a need to build new factories in certain cotton growing areas in order to have them closer to raw material sources and essential equipment of cotton factories with advanced facilities ensuring manufacture of high quality lint cotton meeting textile industry requirements.

ANALYSIS OF COTTON TEXTILE INDUSTRY IN KAZAKHSTAN

After the collapse of the Soviet Union, both Kazakhstan and all CIS states encountered drastic cutback in cotton manufacture (Table 1). Such reduction of cotton plant acreage in Kazakhstan was caused by expansion of wheat crop areas. Indeed, the earlier cotton acreage was used for grain production with the purpose of food self-sufficiency.

After Kazakhstan gained its sovereignty, all cotton processors were privatized.

The key manufacturers of raw cotton are farms possessing land allotments with 5 to 10 hectares area. This area is too small for effective manufacture, i.e. fail to comply with all necessary agro-technical measures aimed at increase in productivity and improved quality of cotton. Treatment with mineral and organic fertilizers reduced much (Table 2), no crop rotation was applied. A huge percentage of cotton growers does not use organic fertilizers because they consider mineral fertilizers basic. Mineral fertilizers must be treated along with organic ones though.

Cotton processors funded raw cotton manufacturers. So, farms received their money as loans from cotton processors in springtime prior to cotton planting. Then, in autumn, they compensated the money received by harvest. As a result, raw cotton manufacturers were sent under as compared with processor owners. Thus, the number of cotton processors was increasing year by year. In 1998 there were 14 raw cotton processors in the Republic of Kazakhstan, in 2003 there were 19, and in 2008 there were 22 processors already. There was a strong imbalance between cotton manufacturers and cotton processors. Raw cotton processors became basic monopolists at the cotton market administering their own purchase prices. Cotton processors sent more than 90% of received lint cotton to export, while less than 10% were used domestically. Many textile factories stood idle because of the lack of raw materials and depreciation of facilities. If in 1991 the industry operated at a profit and level of profitability at 24.4%, then in 2008 the industry became lame-duck, although in the last 5 years there was a drop in loss ratio (Table 3).

According to Kazakh Cotton Association, expenditures on one hectare increased almost threefold in the last four years. Thus, if in 2004 farmers spent 38 to 40

Table 3

Key indicators of textile and garment industry operations

Indicator	Year					
	1991	2000	2005	2006	2007	2008
Volume of manufacturing output, MM KZT	15798.4	37422	39759	39564	28548	24720
Index of physical volume of industrial production, in % to previous year	102.5	206.3	114	102.7	81.6	110.4
Share of production in total volume of industrial production, %	18.5	2.1	0.8	0.6	0.4	0.2
Index of prices of manufacturers: in % to previous year	324.4	138	99.8	101.2	101.2	116.7
Level of profitability (loss ration) of the industry, %	24.4	-13.7	-8.3	-5.6	-6.7	-4.5
Capital investment, MM KZT, in % to previous year	153 –	410 43.5	7526 91.3	5999 75.9	1618 25.7	513 29.5

Source: Agency of RK for statistics (Niyazbekova et al. 2006, p. 126)

thousand KZT to grow cotton plant per 1 hectare (without regard to harvesting campaign expenses), then last year this index was 100 to 105 thousand KZT per hectare (Yeliseyev, 2009). Obviously, inflation and energy supply price rise on the world market in 2004 to 2008 led to drastic appreciation of operating and natural resources. As a result, diesel fuel and mineral fertilizer prices increased as well. There is a need for relevant infrastructure containing production of domestic mineral fertilizers consistent with the agricultural demand, as well as legal regulation of relations in the field of protection and enrichment of agricultural soil.

For the purpose of government support of domestic cotton growing, the act on development of cotton industry was adopted in July 2007. The act defines explicitly the norms providing for allocation of budget funds to some portion of cotton-growing expenditures, for creation of seed resources, for timely holding of reclamation and irrigation operations. With the government support, Kazakhstan Research Institute (RI) of Cotton Growing started to operate at Maktaaral district of South Kazakhstan region and primary processor of raw cotton JSC Cotton of Kazakhstan with capacity 60 thousand tonnes of raw cotton a year was launched. The latter has to purchase raw cotton at government-fixed prices, i.e. to contain monopoly price collusion between cotton processors dictating own terms when purchasing raw materials from cotton growers.

Upon adoption of the act the country introduced the system assuring fulfilment of obligations on cotton receipts. Cotton receipts are not currency securities – they are double warehouse receipts consisting of warehouse and subscription certificates. The holder of cotton receipt may dispose of cotton by its realization or give it as security to creditors after delivering cotton for custody or processing. Clause 17 of act „On development of cotton industry" binds cotton processors to secure fulfilment of their obligations to holders of cotton receipts through participation in the

Table 4

Fabric manufacture in Kazakhstan in 2004 to 2008

Indicator	Year				
	2004	2005	2006	2007	2008
Cotton fabric – total, thousand square metres	16400.6	30440.5	47639	42423.3	42013.9
Wool fabric – total, thousand square metres	110.0	176.0	110.1	74.5	75.7
Linen fabric – total, thousand square metres	–	–	–	2.9	–
Fabric other than special one from chemical fibre – total, thousand square metres	3791.3	4913.7	8705.9	459.6	396
Pile fabric, terry cloth and other special fabric - total, thousand square metres	–	–	4.6	365	994
Fabric – total, thousand square metres	20301.9	35530.2	56459.6	43325.3	43479.6

Source: Industry in Kazakhstan and its regions in 2004 to 2008, Statistical book, Astana, 2009

Table 5

Fabric export and import in Kazakhstan in 2004 to 2008

Year	Cotton fabric, thousand square metres				Wool fabric, thousand square metres			
	Export		Import		Export		Import	
	CIS	Other world countries	CIS	Other world countries	CIS	Other world countries	CIS	Other world countries
2004	301.1	9943.1	17171.5	2988.1	–	199.5	478.9	278.7
2005	1085.7	21609	7162.1	5465.7	–	85.1	282.5	100.3
2006	2300.3	36073.9	12725.1	12285.1	–	–	240.9	268.1
2007	974.2	32726.5	7923.1	3803	–	–	400.5	163.4
2008	3151.1	40259.4	7843.1	3997.6		–	399.6	281.7

Source: Resource balance and utilization of certain kinds of goods (raw material) in 2004 to 2008, Statistical book, Astana, 2009, pp. 55–56

system assuring fulfilment of obligations. It is based on the participating contract to be concluded by and between cotton processors and fund assuring fulfilment of obligations on cotton receipts. During participation in the fund, the cotton processor should make annual contributions to the fund for participation in the system assuring fulfilment of obligations on cotton receipts. The rate of such annual mandatory contributions was 0.2% of total volume of raw cotton. But, in opinion of raw cotton processors, such a rate was too high. Therefore, it was marked down to 0.1% in 2009.

Experts of cotton growing research institute believe that irrigation of lands should be stimulated in order to raise profitability of the cotton industry. One of the ways of solving this problem is to apply new technologies of cotton plant cropping. The most effective way is to intercrop cotton plant with 70 cm spacing. The advantage of this scheme is that the reduction of spacing by 20 cm releases up to 20% of fertile irrigated lands that can be cropped with other agricultural crops, particularly grain. If it is remembered that one irrigation hectare can bring in more than 50 hundreds kilograms of grain per hectare, then we can get more than 200 thousands tonnes of grain. This makes 1/3 of community needs of SKR. This approach will become the substantive measure in securing food safety in the country and will not impact on the volumes of cotton output.

Cotton plant has two main species of pests – red spider and cotton worm. Every year they destroy up to 10% of harvest. The government allocates millions of tenge to chemical treatment, thousands tonnes of pesticides are sprayed on the fields. Consequently, the ecology gets worse, rural people lose their health, the soil gets poisoned. There is a more effective and absolutely safe biological method of pest control, i.e. using entomophages. These are insects that are natural antagonists of red spider and cotton worm eating their larvae. However, biological control is absolutely in disrepute in cotton growing farms. They consider it a too troublesome and painstaking work. They'd better wait for help from the government and do with what is saved from pests.

In recent years harvesting is a hard time for cotton growers. First, the harvest campaign starts well after the usual time due to weather conditions (rainfall) resulting in subplanting of seeds. Eventually, the sowing campaign of cotton growers finishes only in June. Second, there is a lack of necessary harvesting equipment. For example, in Maktaaral district of SKR that plants the principal share of cotton has only 98 cotton combine harvesters, out of which 56 modern combine harvesters John Deere, while the remaining equipment requires overhaul. And third, there are cotton-pickers here. Earlier, labour force was hired from Uzbekistan for cotton harvesting. They were paid 2 to 4 tenge (depending on a year) per kilogramme of picked raw cotton. Local residents are reluctant to get this hard and low-paid work. In recent years Uzbekistan pays considerably more to cotton-pickers, so those wishing to go to SKR to harvest cotton became fewer. Currently, raw cotton-pickers are paid 7 to 9 tenge per kilogramme. However, this rate did not cause increase in the number of cotton-pickers. Last year about 40% of harvest was left on the fields at Otrar district of SKR due to the lack of labour force for cotton harvesting. In recent years, cases when schoolchildren are sent to cotton fields on a voluntary-compulsory basis have become more frequent.

Kazakhstan has a well developed manufacture of cotton fabric as compared with wool fabric (Table 4). Moreover, linen fabric is not manufactured due to the lack of raw materials.

Despite the fact that Kazakhstan evidences increase in volume of fabric manufacture since 2004, the trend of import of wool and cotton fabric continues (Table 5). Kazakhstan has a well developed manufacture of cotton fabric. In this connection, export of cotton fabric increases every year mainly to other countries of the world rather than to CIS states because Russia, among CIS states, has a developed textile industry producing various types of fabric, including linen. As compared with cotton, wool production in Kazakhstan leaves much to be desired.

Generally, Kazakhstan imports products made after high-level processing of wool, namely yarn, fabric and carpet articles. This fact is also due to the lack of high-level wool processors in the territory of the republic. Wool is exported from Kazakhstan in the form of washed and unwashed wool. When we come down to the dynamics of wool export in recent 3 years, we have to emphasize the decline in crude wool export in 2007 by 66%, while in 2008 as compared with 2007 the export volume is increased by 6%, whereas there is a decline in volume of washed wool by 12%. Currently, wool processors have no opportunity to purchase fine wool produced in the republic due to the lack of operating assets related to high interest rates fixed by banks and to the financial crisis. Low quality wool is purchased from small farms or private part-time farms. It should be emphasized that quality washed wool is exported abroad, generally to China and Russia.

According to RK Agency for statistics, there are 14 existing registered and active enterprises engaged in preparation, spinning and production of wool fabric and production of knit fabric in the territory of RK. In the textile industry of the republic there are 497 enterprises registered as of 01 January 2010, out of which 155 active enterprises, including 12 large-scale, 24 medium and 119 small enterprises employing 7,200 workers[1].

In the long run, implementation of export of wool and its conversion products is of economic concern as a source of currency earnings. Recovery and development of raw material base of existing industrial enterprises specializing in processing of wool, lamb skin, woolskin, raw stock, carpet and other articles manufacture is of significant importance. It would promote strengthening of the regional economy in whole.

NECESSITY AND CONDITIONS OF DEVELOPMENT OF COTTON TEXTILE CLUSTER IN KAZAKHSTAN

Despite the existing problems in the industry, textile industry of Kazakhstan has the potential for successful development taking into account lower indicators of costs of production, proximity to raw materials and potential sales markets of output products. The quick-spreading number of cluster initiatives both in developed and in developing countries and throughout the world reflects their efficiency and viability.

A cluster can be defined as a group of geographically neighbouring coherent companies and related organizations operating in certain sphere, marked by commonness of activities and complementing each other. Application of the cluster model in development of textile industry of Kazakhstan is the main factor of competition among certain companies and economy in whole.

For the purpose of development of textile industry, president of the Republic of Kazakhstan issued an order no. 1605 dated 06.07.2005 about creation of Ontustik Special Economic Zone (SEZ) in South Kazakhstan Region (SKR), which is the basis of development of cotton textile cluster in Kazakhstan, because South Kazakhstan is the only region of Kazakhstan growing cotton. About 15 textile factories processing 100 thousands tonnes of cotton a year are planned to be build in the territory of SEZ, and more than 10 thousand working places will be created. President of the Republic of Kazakhstan issued an order No. 683 dated 23.10.2008 on extending the validity of Ontustik SEZ until 01.07.2030 so that textile factories could reach self-sufficiency and develop their production.

For the purpose of development of Ontustik SEZ the RK government regulation no. 895, dated 21.09.2006 approved Ontustik SEZ Development Programme for 2007 to 2015. The programme is certainly one of the steps of Kazakhstan towards the top fifty competitive developed countries and is a long-term strategic document outlining the main trends of development of textile industry and ways to increase its competitiveness. Creation and promotion of the trade mark „Textile of Kazakhstan" has been declared as the ultimate purpose of development of Ontustik SEZ as a backbone component of cotton textile cluster.

Republic of Kazakhstan started building of Koksaray reservoir that will accumulate winter water flows for the purpose of irrigation water supply of cotton

1 Report of Light Industry Association of Kazakhstan under the United States Agency for International Development (USAID) grant programme for improvement of business environment 'Investigating Small and Medium Business Issues in Light Industry of the Republic of Kazakhstan', June 2010, p. 7

fields. Moreover, one of the ways to save water resources must become the introduction of water collection technologies, for example, drop irrigation. In 2011 it is planned to expand crop area of cotton plant applying drop irrigation.

Funding plays important role in mechanisms of government regulation of the agricultural sector. In this regard, the public policy in support of agricultural producers has placed an emphasis on the support of innovations starting in 2010. Differentiation of standards and additional requirements to their beneficiaries should strengthen the promoting influence of funding. So, farming faces the increase in crop area and in volumes of production of oil crop, vegetables, fruit and grape running a deficit. Progressive cultivation technologies are welcome. Funding of mineral fertilizers cost is assigned to a separate budget programme, while fertilizers produced in Kazakhstan are given preference. Funding mechanisms have been changed, as well. Thus, cotton growers growing cotton plant in the area not less than 50 hectares of cropland, and farmers engaged in horticulture and winegrowing in the area not less than 5 hectares would receive funding twice as much. Besides, the subsidies will be paid in two stages. First stage – 70% per 1 hectare of planted area by results of sowing campaign. Second stage – 30% per 1 tonne by results of harvesting and return of products to processors. This measure will, on the one hand, aim cotton growers at receiving maximum harvest, and, on the other hand, it will furnish all existing cotton processors with maximum volume of raw materials. The standards of funding will be doubled for cotton growers applying drop irrigation.

Thus, the state has decided to motivate farmers for active cooperation, complying with crop rotation and introduction of farming standards. Creation of SEZ for high-level processing of cotton raw materials will promote the value chain of textile production, as well as the attraction of private investment and the introduction of new technologies. Currently Ontustik SEZ is regarded as the basis of development of cotton textile cluster, which will enter the Kazakhstan textile into the world markets. However, SEZ does not take into account, first, the availability of raw material base of chemical fibres and, second, the development of educational and research institutes.

The raw material base for cotton textile cluster is natural and chemical fibre. Lint cotton in the form of natural fibre is sufficient, which is not so with synthetic fibre. Surely, 100% cotton goods are in demand, but the world market prefers recently such fibre as contain 2% elastane and 20 to 25% polyester making it more elastic and practical in wear. However, 100% natural fibre goods do not maintain their initial form after the first washing.

As mentioned before, Kazakhstan Research Institute of Cotton Growing engaged in breeding of new grades of cotton plant and development of new innovation technologies of its cultivation was created in Maktaaral district of SKR on the basis of Maktaaral experiment station. It is planned to create a national laboratory for testing of cotton quality and providing access to marketing researches of cotton industry. However, this is not enough if we want to enter the world textile markets.

For a start, only 15% of farm managers engaged in cotton plant growing have degrees in agriculture. Therefore it is necessary to open the currently operating school on the basis of Research Institute of Cotton Growing for the purpose of professional training of farmers. The farmers have to be explained the benefits from new technology introduction. International Cotton Advisory Committee, which member our country became in 2006, resolves this issue throughout the world. As a rule, local advisory committees are organized as part of Research Institute of Cotton Growing and receive budgetary funding. For example, in China every thousand cotton hectares has its own advisor. We'd like to have at least 3 to 4 persons to adopt a role of coordinator.

Another indispensable condition of successful development of textile manufacture is the availability of quality human capital, since currently the economic growth is identified with technological advance, and, primarily, with professional quality of labour resources. Therefore we recognize such elements as universities, colleges providing professional staff for the industry.

Currently, there are few new textile manufacturers in South Kazakhstan Region that lack engineers, operators, technologists, weavers, sewers, etc. Kazakhstan possesses sufficient amount of labour force yet requiring further training and education in the field of textile production, since this is the prevailing tool of competitive ability of cotton textile cluster. Over the long term, textile departments should be opened at universities, expenses for industrial and research works and training of experts both domestically and abroad should be increased. In whole, successful development of cotton textile cluster must be emphasized in part of active interaction with universities and research institute of cotton growing.

CONCLUSION

By results of competitive advantage analysis in our country, experts have identified seven industries most ready for clustering. The cotton textile cluster in the

south of Kazakhstan should become one of prospective trends of industrial development. Cotton growing is one of the key industries of agriculture in South Kazakhstan Region, where inhabitants of 7 districts are engaged in production of raw cotton. A cotton textile cluster, which is based on Ontustik SEZ, has been created in Kazakhstan for recovery and development of competitive environment in the textile industry. The main purpose of Ontustik SEZ is to create conditions for the development of textile and sewing industry, as well as to create prerequisites for a shift to production of value added competitive goods, which exempts the investors from income tax, property tax and land tax, customs duties up to 2030.

According to Ontustik SEZ development programme, the integrated service engineering centre (ISEC) is expected to appear. It will train and improve skills of experts on newest equipment, hold researches, certify in compliance with international standards of textile products. The laboratory research centre is planned to be opened at ISEC for the purpose of research works and experimental production.

By the end of 2012, 15 textile industry enterprises are planned to be finished and about 11 new working places are planned to be created. The initial term of validity of Ontustik SEZ was fixed until 2015. But, taking into account the capital capacity of textile industry and consequences of economic crisis the term of validity was extended until 2030. In broad terms, operation of cotton textile cluster will promote rehabilitation and development of Kazakhstan textile industry.

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