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WORLD PRACTICE AND DEVELOPMENT HISTORY OF COTTON-GROWING IN KAZAKHSTAN

One of branches of agriculture, having the largest export potential, is cotton-growing. More than 70 countries of the world are engaged in cotton-growing. Major of them are China, the USA, India, Pakistan and the CIS countries. Cotton-growing in Kazakhstan has certain historical genesis of development. In each period of development of domestic cotton-growing there were features and problems. At the present stage of development in Kazakhstan all conditions for cotton-growing are created to revive the domestic textile industry, to attract foreign investors and expand assortment of the textile products of local manufacture.

Keywords: cotton fibre; raw cotton; world market; manufacture; consumption.

JEL Classifications: L88, Q17.

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СВІТОВА ПРАКТИКА ТА ІСТОРІЯ РОЗВИТКУ БАВОВНИЦТВА У КАЗАХСТАНІ

У статті показано, що з усіх галузей сільського господарства бавовництво має найбільший експортний потенціал. Більше 70 країн світу розвивають дану галузь. Ключовими гравцями на ринку є Китай, США, Індія, Пакистан та країни СНД. Бавовництво у Казахстані має певну історію розвитку, кожному періоду якої притаманні певні риси та проблеми. На даному етапі у Казахстані створено всі умови для подальшого розвитку бавовництва, пожвавлення текстильної індустрії, залучення іноземних інвесторів та розширення асортименту текстильної продукції місцевого виробництва.

Ключові слова: бавовняне волокно; бавовна-сирець; світовий ринок; виробництво; споживання.

Табл. 3. Літ. 11.

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МИРОВАЯ ПРАКТИКА И ИСТОРИЯ РАЗВИТИЯ ХЛОПКОВОДСТВА В КАЗАХСТАНЕ

В статье показано, что из всех отраслей сельского хозяйства хлопководство имеет наибольший экспортный потенциал. Более 70 стран мира развивают данную отрасль. Ключевыми игроками на рынке являются Китай, США, Индия, Пакистан и страны СНГ. Хлопководство в Казахстане имеет определенную историю развития, каждому периоду которой присущи определенные черты и проблемы. На данном этапе в Казахстане созданы все условия для дальнейшего развития хлопководства, оживления текстильной индустрии, привлечения иностранных инвесторов и расширения ассортимента текстильной продукции местного производства.

Ключевые слова: хлопковое волокно; хлопок-сырец; мировой рынок; производство; потребление.

Introduction. Cotton is the most widespread natural fibre. The life of more than 200 mln. people in more than 70 countries of the world is connected with cotton

¹ Kazakh National Pedagogical University named after Abai, Almaty city, Republic of Kazakhstan.

gathering; 60 mln. people are occupied at various enterprises processing it in to actually fabric, and also with offal (oil of seeds or the fibers used as animal food). Cotton is the most grown up non-food culture: more than 20 mln. tons of cotton fibre are received from the plants, occupying 30 mln. hectares (the area equal to Italy together with its islands!). Leading manufacturers of cotton are: China, the USA, Pakistan and Uzbekistan. These 5 countries together make 65% of all world cotton. The other 35% are from other countries – Greece, Spain and Australia. The average inhabitant of the Earth uses annually 7 kg of cotton products [12].

1. The world market of cotton. Since 1940s world consumption of cotton has been steadily increasing 2% annually. The basic contribution into it is brought by developing countries, consuming a considerable part of world cotton reserves. It is peculiar that during 1981-1998 the share of developing countries in the world consumption of cotton was 77%, and since 1999 their consumption has exceeded 80%. The significant share of produced cotton is consumed by countries-manufacturers themselves. China, the USA, India and Pakistan consume approximately 56% of the world cotton. Further growth of cotton consumption 2% a year is predicted.

World production and cotton fibre consumption are influenced by many factors, namely: prices for oil, influence on cost for artificial fibres; economic conditions of various states, politics. And still poor harvests due to weather or other conditions are the leading indicators of prices instability.

Cotton manufacture all over the world uses from 30 to 35 mln. hectares. This indicator practically has not changed from the middle 1950s. Investigating the areas taken away in the world under cotton crops, it is necessary to note that both the area under crops, and producte of cotton in the world tend to fluctuations (Table 1).

Table 1. The Area under crops and productivity of a cotton in the world

Year	Area under crops, thousand hectares	Productivity, kg/hectare
1970	31801	380
1980	32358	426
1990	33159	572
2000	32126	601
2005	29158	693
2006	29436	742
2007	28703	765
2008	27669	745
2009	27275	724

Source: www.fas.usda.gov/cots/cotton.

It is necessary to note that despite reduction of areas under cotton, the tendency of productivity increase for cotton is observed, it means volumes of cotton made in the world increase not in extensive, but in intensive way.

The world balance of cotton shows that the consumption level increases all over the world whereas manufacture in China increases the general world level of production. Owing to all these reasons the textile industry of China is in focus at the market: 95% of these enterprises are not state; the share of production focused on export exceeds 53%; concessions under taxes to export have been lowered in due time from 11% to 9%, qualitative changes in the textile industry are still expected.

In 2007 China made amendments to rates of sliding duties. The application of sliding duties on the imported cotton has been accepted for equaling internal and world prices on cotton.

Meanwhile, European cotton and textile industry, by some expert estimations, have started to lose their importance. Historical changes in cotton consumption in European countries, certain recession in the consumption volumes, caused by high labour expenses, electricity, water, land, heavy taxes, social expenses, an adverse arrangement of industrial resources now force the European countries to move textile manufacture to Asia. Only Spain and Greece still remain heavy users of cotton in Europe and keep textile production under the large EU grants.

2. Major world manufacturers of cotton. More than 70 countries of the world are engaged in cotton-growing, leaders are the USA, China, India, Pakistan and the CIS countries.

In the USA cotton-growing developed for a long time. It is concentrated in the South-East, the East, the South-West and the West. More than 19 states are engaged in manufacture of cotton [7].

The USA is one of the leaders in the world production of cotton. In the USA internal consumption of fibre decreases because the majority of enterprises in textile industry increase output by application of chemical fibres. It is necessary to note that the USA do not import cotton fibre as it does China which is one of the key manufacturers of cotton in the world (Table 2).

Table 2. Cotton fibre manufacture and consumption in some countries of the world, 2005-2009

Country	Year				
	2005	2006	2007	2008	2009
China	6,18	7,72	8,05	7,99	7,07
- Manufacture, mln. tons	9,79	10,88	11,10	9,58	10,34
- Consumption, mln. tons	-	-	-	-	-
- Export, mln. tons	4,19	2,30	2,51	1,52	2,17
- Import, mln. tons	-	-	-	-	-
USA	5,20	4,70	4,18	2,79	2,65
- Manufacture, mln. tons	1,27	1,07	999	781	740
- Consumption, mln. tons	3,82	2,83	2,97	2,89	2,61
- Export, mln. tons	-	-	-	-	-
- Import, mln. tons	-	-	-	-	-
India	4,14	4,74	5,22	4,92	5,11
- Manufacture, mln. tons	3,63	3,94	4,05	3,86	4,24
- Consumption, mln. tons	751	994	1,53	514	1,35
- Export, mln. tons	-	-	-	-	-
- Import, mln. tons	-	-	-	-	-
Pakistan	2,21	2,15	1,93	1,96	2,13
- Manufacture, mln. tons	2,50	2,61	2,61	2,44	2,44
- Consumption, mln. tons	-	-	-	-	-
- Export, mln. tons	352	502	851	425	370
- Import, mln. tons	-	-	-	-	-

Source: www.fas.usda.gov/cots/cotton.

China is one of the ancient cotton-growing countries in Asia, known as the key manufacturer of fabrics from silk, but gradually China has begun also manufacturing cotton fabrics as it is cheaper, and besides, cotton is more convenient and practical in

comparison with silk [10]. As a result, in China volumes of cotton fibre output have gradually increased.

Despite openness of textile economy, state structure and development dynamics in textile complex has strict regulation of standard items of raw materials and labour market. The government has organised Chinese federation of delivering and marketing co-operative societies which are engaged in purchases, sales, formation of the state reserve stocks and the corresponding operations connected with delivery and storage of cotton fibre. Irrespective of a situation at the markets the federation buys all cotton under the price established by the government.

The cotton market of China still remains rather closed import market, despite the country's entering the World Trade Organization (WTO). For cotton import the quota given by state structures is required for Chinese importers. But the state government gradually converts planned economy system to market one, and without special problems gives out and expands the importers quota for cotton import in case of a need. Internal sales of cotton fibre are made through the Chinese national cotton stock exchange, its role in cotton trade at the market of China gets stronger year from year. It has turned to be some kind of bridge for communication of the Chinese home market with the international market of cotton.

Thus, preconditions for the massed import of foreign cotton fibre, despite the given quotas, are also abolished. At the same time it is necessary to note that all lint and ulyuk, offered for export to the CIS countries, was imported to China by small and large national trading companies.

Investigating the cotton market in China, one can notice certain dynamics of manufacture and consumption of cotton fibre from which it is visible that in China cotton fibre consumption exceeds the output volumes.

The share of China in the world production of cotton fibre have been on average around 25% (2005-2009). China reaches considerable volumes of cotton output, mostly by means of productivity increase. It is the leader in achieving high productivity of cotton. India has the lowest indicator of productivity, even compared to the CIS countries. Though India gets the first place in the world by areas under cotton crops, but by manufacture – the third place only, after China and the USA. One of the reasons of such position is low productivity. In India cotton is cultivated basically on non-irrigated lands applying primitive methods of agrotechnology [6].

According to V.A. Komarov [9], India was a cotton cradle from which later it has extended to other countries of the world. At this time in India cotton was widely known under the name of karpas. Later this name got into many other languages. So, the Persian name is kirpas, Armenian – karpas, Greek and Latin – karpasos and carbasos, Arabian – qutun or kutun, and finally English – cotton.

Now in India cotton fibre consumption increases every year, the number of textile enterprises grows, it demands increase in manufacture of cotton fibre (Table 2). Cotton fibre consumption in India exceeds its manufacture. India, being the key manufacturer of cotton, imports it from other countries, in particular, from the USA.

In cotton fibre world production, Pakistan occupies the fourth place, its share on the average in 2005-2009 was 8,4% of all cotton made in the world.

For Pakistan it is the most important production, it influences the national economy incommensurably. Cotton and its production are the basis for currency receipts

to the country. Over the last 50 years cotton manufacture has grown from 240 thousand t in 1947 to 2130 thousand t in 2003, it means almost 8,5 times.

In Pakistan more than 90% of the area under crops are occupied by the Mexican types of cotton. Sowed types of cotton quite meet the requirements of the local and foreign spinning mills.

3. The market of cotton of the CIS countries. After Pakistan in the cotton fibre world production the CIS countries occupy their quite firm place, in particular Uzbekistan, its share on average in 2005-2009 was 4,4% in the world production of cotton fibre.

Uzbekistan is the largest manufacturer of cotton, its share is more than half of all cotton made in the CIS, whereas the heavy user of cotton fibre is Russia, rather small volumes of cotton fibre are also processed by Belarus and Ukraine.

Reduction of the areas under cotton in the CIS is the result of expansion of the areas under wheat and decrease in cotton manufacture for ecological reasons. Really, in the CIS countries, areas earlier occupied by cotton, began to be used for grain for the food reasons. Besides, in the CIS cotton manufacture in the beginning of 90s has strongly decreased because of excessive use of pesticides and herbicides. Along with cotton fibre manufacture, its consumption was also sharply reduced. Kyrgyzstan is the unique country where cotton manufacture started in 1991. Its share in total volume of cotton manufacture in the CIS is very insignificant, only 1-2%. The raw cotton in Kyrgyzstan is gathered manually as there is labour redundancy, and there is no corresponding equipment in necessary quantity.

It is necessary to note that among the CIS countries Kyrgyzstan is the country, in which the minimal volumes of the areas under crops are allocated for cotton. Kyrgyzstan has around 1,3% of all areas under cotton crops in the CIS, whereas Uzbekistan is the leader, having more than half in all areas under crops.

The third place among the CIS countries by the areas under cotton is Tajikistan which is mostly agrarian country. The basic article of its export was and is cotton. The considerable part of its cotton fibre goes for export as the local textile industry belongs to in the worst condition in comparison with other industries. Besides, enterprises of the textile industry do not have sufficient circulating assets for acquisition of necessary quantity of raw materials, production is not in demand among local population, not mentioning finished goods export.

Among the CIS countries Turkmenistan remains the country with the lowest productivity of cotton, this is the principal cause for decrease in cotton output volumes. By cotton areas Turkmenistan takes the second place after Uzbekistan.

It is necessary to note that among the CIS countries producing cotton, only in Turkmenistan there is an increase in volume of consumption of cotton fibre.

As manufacture and trade of cotton in Turkmenistan in great degree are under the state control, in particular, the state company "Turkmenpagta" (former Turkmen "Hlopkoprom") concludes contracts with farmers on the cotton raw manufacture, providing them with fertilizers and mechanised services.

As a whole Turkmenistan occupies the second place by the area under cotton and by productivity the last (6) place in the CIS.

The largest manufacturer of cotton in the CIS is Uzbekistan. Cotton-growing remains its leading branch, making more than 40% of agricultural production, and also a significant contribution into the national economy.

In Uzbekistan there is still state order for cotton pickers on raw cotton. The state sets prices for raw cotton, but later this cover for manufacturers 50% of expenses on technologies [11].

As well as in all CIS countries engaged in cotton-growing, in Uzbekistan the tendency of production curtailment of cotton fibre is observed.

On the average in the world the volumes of cotton fibre production depend on productivity to the greatest degree.

4. The market of cotton in Republic Kazakhstan. Kazakhstan as one of the countries engaged in cotton manufacturing has its peculiar features and history of development. The beginning of cotton-growing in Kazakhstan was at the end of XIX century, and wide development of cotton-growing in Kazakhstan happened after October Revolution [2].

For cotton-growing the question of land was always actual as its considerable part was in possession of landowners whereas basic manufacturers of cotton – peasants – had a smaller part of the land in use.

Agriculture collectivization was the major stage in development of cotton-growing in Kazakhstan. The Stalin policy of industrialisation has provided supply of collective farms and state farms with tractors and agricultural cars. The organised tractor stations have armed collective farms with powerful agricultural machinery, wide mechanisation of labour-intensive processes has begun, it promoted huge growth of productive forces in villages [3].

Mechanisation of cotton cultivation was of great importance for productivity increase. Originally there were difficulties with new technics, but they have been overcome in the due course. By the end of 1928 in cotton-growing certain shifts were outlined, and the further growth of its development was carried out according to five-year plans for development of the Soviet economy.

The maximum development of cotton-growing was a problem of the first five-year period for the purpose of maintenance of independence of the textile industry of the country from the cotton import. For increase in cotton manufacture, it was necessary to increase both areas under crops and productivity. In the areas growing cotton, they began to develop new lands, use old water systems rationally and to supersede grain and other cultures from the irrigated lands. Also the increase in areas under crops was accompanied by introduction of the best types of a cotton and proper agrotechnical actions. Approximately during the same period the chemical industry began to provide the collective farms engaged in cotton cultivation with mineral fertilizers which raised the productivity [5].

The first five-year period saw the growth of cotton manufacture basically at the expense of building state farms, collectivisation of agriculture and equipment.

Further increase in cotton manufacture basically at the expense of productivity increase and mechanisation of labour-intensive processes and new equipment for state farms and collective farms (tractors and cars), and also improvement of agrotechnologies were the key problems of the second five-year period. Special value had – introduction of system of awards for performance of the state plan. This was carried out to stimulate peasants in productivity increase.

On March, 7, 1935 the Council of People's Commissars have made the decision on introduction in practice of awards – extra charges. Collective farms got addition-

al prizes for every centner produced beyond the plan. This prize (extra charge) was equal to 50% if the agreed crop capacity was below 6 centners and was 100% if the agreed crop capacity was from 6 to 9 centners and it was 150% if the crop capacity was from 10 to 15 centners [5, c.12].

The Second World War caused huge damage to cotton-growing in the countries. In areas of cotton-growing part of the areas, occupied with cotton crops, have been taken away under food cultures. Many cotton-pickers left for front, men in particular, therefore all the processes of cotton cultivation was laid down on the shoulders of women. But, despite all the difficulties, it was possible to support cotton manufacture at the level needed for the front.

After the Second World War it was necessary to restore cotton-growing in the country. Development of cotton-growing occurred both by means of expansion of areas under crops, and by means of productivity increase.

During the post-war period the big role in the development of cotton-growing was played by complex mechanisation as cotton differs from other agricultural crops by the labour input, especially during harvests. Restoration of cotton-growing was carried out in 1959-1965 under the seven-year plan.

During the post-war period complex mechanisation promoted transition to a new system of irrigation with integration of irrigation sites which somewhat improved the meliorative condition of lands. In 1954 cotton-pickers of Kazakhstan have made the decision on introduction of new ways of cotton cultivation for the purpose of cotton-growing development in the country. Introduction of a square packet planting of cotton positively influenced the productivity of cotton-raw.

Originally, cotton was grown in the areas of Zhambul (to 1955) and to Kyzyl-Orda (to 1957). Then cotton crops there have been stopped because of low productivity. The cotton was later cultivated and is still cultivated in the South Kazakhstan region which differs by its nature-climatic and geographical conditions which meet the requirements for cotton cultivation. Prominent feature of this climate is the abundance of thermal springs. [4].

For the development of cotton-growing the types of cotton were replaced with more fruitful and steady against diseases. In some cotton-growing areas seed-growing was established. However, they have not been completely equipped by necessary equipment.

Further increase in manufacture was carried out with development of new lands, complex mechanisation, observance of all necessary agrotechnical actions promoting the increase of productivity of cotton. Rational placing with observance of soil-climatic features of zones, raised the productivity of cotton in all region (Table 3).

Along with development of cotton-growing, cotton-processing industry also developed. Kazakhstan supplied with cotton fibre not only the enterprises of the Soviet Union, but also other countries, therefore, inside the republic only 10% of cotton fibre were consumed.

At the beginning of 1960s there were 6 cotton factories in Kazakhstan: Veliko-Alekseevskiy, Kelesskiy, Chimkentkiy, Pahtaaralskiy, Turkestanskiy, whereas in Soviet Union there were 116 cotton factories in total [8]. Development of cotton fibre manufacture should be accompanied by equipment of cotton-processing factories by drying-cleaning units. It was vital to use proper drying and clearing of the collected raw cotton. All available dryers however were old and unsuitable.

Table 3. Raw cotton and cotton fibre manufacture in Republic of Kazakhstan

Years	Raw cotton			Cotton fibre, thousand tons
	Sown area, thousand ha	Total yield, thousand tons	Crop capacity, centner/ha	
1940	63,6	57,3	9	32,3
1950	58,3	60,6	10,4	33,9
1960	42,6	63,3	11,5	60,7
1970	117,5	276,7	23,5	96,6
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

Sources: 1) «The industry, agriculture and building of Kazakhstan for 1920-2000» The statistical collection. — Almaty 2001, p 43-44.
2) Regional state archive and Management of statistics of SKR R?.

To the mid 1950s all process equipment at cotton factories has not been completely updated yet. Besides, there were some other lacks in the cotton-processing industry of Kazakhstan, concerning mostly the underexploitation of capacities [1]. Discrepancy between raw materials and capacities was the principal cause for underexploitation at capacities of cotton factories. As a rule, the lack of resources was felt at cotton factories which were far from raw zones. Therefore, new enterprises were built near raw material sources. This was one of basic requirements to correct and rational placing of the industry.

Besides, at that time building of drying-cleaning shops was conducted. Procuring points not only collected and sent raw cotton to factories, but also performed drying and clearing of raw cotton to keep natural properties of cotton.

One of the main tasks in that time was introduction of such types of cotton which would provide high output of fibre from raw cotton, for this purpose it was necessary to improve quality of raw cotton. Such actions were taken: improvement of agrotechnology for cotton, introduction of a square pocket way of crops, and also maintenance of procuring points and cotton-factories with drying-cleaning installations.

After the Soviet Union split, Kazakhstan became independent on the 16th of December, 1991. There were key changes in all sectors of its economy. The agrarian sector had considerable losses. They practically stopped buying new technics, industrial and social infrastructures have been destroyed. The processing sector providing

the population with food, and the industrial enterprises – with raw materials appeared to be the most vulnerable.

For food security the state gradually began to reduce areas under cotton and to increase the areas for grain. All cotton-processing factories have been privatised.

Quantity of the manufacturers of raw cotton in the country decreased. And it is not enough to conduct effective manufacture, it means to observe all necessary agrotechnical actions for increase of productivity and quality of cotton. Volumes of mineral and organic fertilizers were strongly reduced, necessary crop rotations were not carried out. Manufacturers of raw cotton financed cotton-processing factories. So, in springs before cotton crops, the country's economy provided the credit financial assets for cotton-processing factories. Then they returned the received money by the collected crop in autumns. As a result, manufacturers of raw cotton remained basically in losses, compared to the owners of factories. So, the quantity of cotton-processing factories grew every year. If in 1998 there were only 14 factories processing raw cotton, in 2003 – 19, and in 2005 – 21. The strong disproportion between manufacturers and processors of cotton was observed. Processors of cotton-raw became the basic monopolists in the cotton sector they dictated the prices. Cotton-processing factories sent more than 90% of the received cotton fibre for export, and internal consumption made less than 10%. Many textile enterprises stood idle in the absence of raw materials with their equipment deteriorated. In this relation the government started to undertake a number of measures on restoration of the cotton sector and revival of textile branch. One of measures is allocation of grants to manufacturers of raw cotton, the toughened control over activity of cotton-processing factories and tax privileges for enterprises of the textile branch. So, in 2007 the Law on the development of cotton branch has been passed in which legal, organizational and economic bases for development of cotton branch were defined, it also regulates the public relations arising in the course of manufacture, processing, storage and cotton realisation in Republic of Kazakhstan.

Besides, one of the important directions in increasing the economic efficiency of cotton-growing branch in Kazakhstan is integration of all links of the given branch on the basis of profound specialisation within cotton production. For this purpose, cotton-textile cluster was created which should provide manufacture, processing of cotton and the final stage – finished goods release to consumers. The basis for development of the given cluster is the creation of a free economic zone of "Ontustik" by the Decree of President RK № 1605 from 06.07.2005. Since January 2010 a new advanced system of grants allocation is used. Volumes of grants are increased for those manufacturers of cotton who not only raise productivity, but also quality of cotton. Thus, in Kazakhstan all preconditions for revival and development of domestic cotton-growing are created.

Conclusion. Since 1999 cotton consumption in the world began sharply to increase. Fabric consumption per capita has considerably increased, and in the last 5 years the rate of increase was annually around 15%.

Research on the historical genesis of cotton-growing in Kazakhstan proves that the South Kazakhstan region was and remains the basic region for cotton-growing of Kazakhstan.

Development of cotton factories in Kazakhstan before reorganization in 1990s, consisted of underexploitation of factories capacities, necessity for building new fac-

tories in certain cotton-growing areas for their location closer to sources of raw materials and equipping cotton-factories with modern equipment for getting fibre of the corresponding quality to meet the requirements of the textile industry.

After reorganisation in the mid-1990s in Kazakhstan there was a decrease in both sowing and cotton output volumes. There were serious disagreements between manufacturers of raw cotton and its processors, actually there was no communication between the factories which are letting out cotton fibre and the enterprises manufacturing cotton yarn and fabrics. All production in the form of cotton fibre was taken out for export thereof the enterprises manufacturing yarn and fabrics had serious lack of raw materials.

For development of cotton and textile branches in Kazakhstan the law "About development of cotton branch" №298-3 has been accepted on 21, July, 2007, in it all weaknesses of cotton branch have been considered. In 2005 the Decree of President establishes the free economic zone "Ontustik" for 2005-2030 which will promote revival and development of the textile industry of Kazakhstan. Thus, in each period of the historic development of cotton-growing there were various problems, but constant was the demand for the product and manufacturing of a cotton within the national economy was constant.

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