

## **COTTON INDUSTRY IN UZBEKISTAN: STRUCTURE AND CURRENT DEVELOPMENTS**

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### **Introduction**

Uzbekistan is the world's fifth largest cotton grower - after China, the USA, India, and Pakistan. Further, it is the second largest exporter - after the USA. Cotton has always been one of the most important products in Uzbekistan. It accounts for approximately 40 percent of the total value of agricultural production and is the republic's main source of employment. Historically, cotton has been the predominant crop in Uzbekistan accounting for 70 percent of the irrigated land under cultivation and providing more than two-thirds of the total production of cotton in the former Soviet Union. An ambitious growth of cotton monoculture during the Soviet era created some major ecological problems such as the drying out of the Aral Sea, which has lost about 75 percent of its volume in the last thirty years. Increased soil salinity and climatic changes have altered cotton growing conditions. The proclamation of the Uzbek independence in 1991 brought about new goals for the agricultural and industrial sectors of the republic. During the last few years, the area used in cotton production has been decreasing as the government attempts to attain self-sufficiency in food grains. However, cotton remains a major source of hard currency for the country and is the most profitable crop. With the desintegration of the Soviet Union, the cotton industry in Uzbekistan is undergoing numerous changes. The objective of this research is to describe the current situation in the Uzbek cotton industry and to provide some perspective on trends in production, consumption, and trade.

### **Structure and Production**

The structure of the cotton industry in Uzbekistan is very different from that in the United States mainly because it is evolving from the centrally planned organizational principles. Government continues to play a dominant role in cotton industry. In fact, the entire infrastructure remains under the control of the central government. Government agencies set procurement orders and prices for seed cotton, lint cotton and for most of the inputs used in cotton production. Farmers continue to be told when, where and what to plant. However, since 1991 the government has been gradually freeing production by reducing the share of output that must be delivered to the state. According to the current provision farmers can retain up to 50 percent of total production. The government pays a procurement price for the cotton delivered

under state orders and determines a "market" price for the "free" cotton (the market price is related to the price of cotton in the Tashkent Commodity Exchange, a relatively thin market as buyers are discouraged by the export licensing and other barriers to trade, which in turn depresses the price). The government also controls the marketing and distribution system, as all cotton exports require a special license issued by a government agency. Cotton is considered a strategic crop and the industry is regulated as such.

Most of Uzbek cotton farms are still state owned, although there are some farms that are collectively and privately owned. The freedom of decision making is limited by the absence of private land ownership, the existence of government procurement orders and prices, the absence of the competitive infrastructure, the need for intense management practices, and the sometimes limited availability of inputs. The size of cotton farms in Uzbekistan varies from 3.2 hectares to more than 40 hectares, Table 1. Most of the state-owned farms are much larger than 40 hectares and sometimes reach a size of 15,000 hectares. However, the emergence of smaller farms signifies the advent of the private sector.

Advanced cotton breeding is characteristic for the Uzbek cotton industry. There are three research institutes and two universities that are responsible for breeding new seed strains. Currently, these institutes are faced with challenges associated with increased soil salinity, wilt tolerance, and shorter growing season. Reduction of the area under cotton production presents a challenge of increasing yield potential to maintain the level of production and reducing maturity period to provide for crop rotations. "New cotton seed varieties are now in prospect which differ from the previous varieties in that they are generally quicker maturing, more productive and the seed cotton obtained gives higher ginning ratios."(Shermatov) (Current ginning "turnout" ratio is 32.0-32.5%). Another challenge is that cotton is planted on sixteen different soil types and various climatic conditions, Table 3. Currently there are nineteen different varieties in commercial use and cotton breeders are striving to improve yields and qualities, Table 2.

The state order system is complemented by the central allocation of inputs such as water, land, fertilizers, herbicides, fuel, machinery, and spare machinery parts. Although the government delivers inputs free of charge (like water) or at prices below international prices, these subsidies have not compensated farmers for losses in the sales of their products under the state order system. In the last few years, the gross farm subsidy per hectare has fallen sharply. According to calculations made by Jorge Garcia Garcia and John Cameron, in 1990 the Uzbek cotton sector received a gross subsidy of about \$5,919 million while in 1994 it transferred to the government about \$2,073 million, Table 4. These income transfers resulted from the purchase of inputs and the sale of cotton at prices different from the international prices.(Garcia Garcia and Cameron) Financial

distress on Uzbek cotton farms is cited as one of the reasons for lower levels of mechanization and increases in labor use such as handpicking of cotton.

The state order system creates many inefficiencies in input use in that it does not provide incentives for the farmers to increase productive efficiency. A summary of the technical efficiency of producing cotton in Uzbekistan and in other countries is presented in Table 5. Farms in Uzbekistan use more resources to produce one unit of cotton than farms in other countries. Uzbek farms use the highest amount of nitrogen per hectare and produce the lowest amount of output per kg of nutrient after Pakistan. Growers in Uzbekistan also use the highest amount of water per hectare (after Pakistan's) and produce less than half the yield of cotton produced on farms in California and Australia (with the similar weather conditions) per 1000 cubic meters of water. Finally, Uzbekistan produces about 35 percent less cotton per hectare than California and Australia. These data demonstrate that production potential in Uzbekistan is far from being realized.

International cotton marketing in Uzbekistan is a new venture. After the breakup of the Former Soviet Union, Uzbekistan had to build an export infrastructure. The first several years of independence were marked with barter sales that depressed cotton prices, internationally. Barter sales have been limited by the government since 1994. Currently most export sales go through the three government agencies: *Uzmarkazimpex* (through which most of cotton is sold), *Uzprommashimpex*, and *Innovatsia*, that operate under the aegis of the Ministry of Foreign Economic Relations and coordinate export sales, cotton prices and shipments. These companies operate under an annual export quota set by the government. In addition some quantities are allocated to other bodies, including the Ministry of Agriculture which sells cotton to generate foreign exchange necessary to buy inputs required by farmers. Some cotton is sold to Russian buyers through the Tashkent Commodity Exchange. Less than 14 percent of cotton production is consumed locally as the Uzbek textile industry is generally undeveloped.

Major problems associated with Uzbek cotton exports are the irregularity of shipments and poor quality control. Generally, this can be explained by the imperfections of the growing export sector. Most sales of Uzbek cotton are allocated in large quantities to large international merchants. The companies that operate in Uzbekistan include Dunavant Enterprises, ContiCotton, Allenburg, Ralli Bros., Meredith Jones, Paul Reinhart, and Stahel Hardmeyer. Some contracts exceed 50,000 tons. The large international merchants often absorb the risks associated with delivery and quality by prepaying some costs and helping to move sizable quantities of cotton to consumers. Higher risks are "reflected in lower prices paid by importers for Uzbek cotton, compared with other competing growths. The ratio of the Central Asian quote in Cotton Outlook to the Cotlook A Index averaged 1.01 between 1985/86 and 1989/90. The ratio averaged only

0.95 between 1990/91 and 1994/94, falling as low as 0.92 in 1992/1993. It rose to 0.965 in 1995/96." (Guitchounts)

Transportation of Uzbek cotton presents many problems because the country has no direct access to the sea. The two Uzbek organizations concerned with transportation are *Uzvneshtrans* (rail), and *Urta Osie Trans* (road). Traditional routes of shipping of Uzbek cotton via the Baltic ports and Nakhodka are becoming less attractive due to the long distances involved and the high transportation tariffs levied by transit countries (Russia and Kazakhstan). Transportation problems are further aggravated by the absence of adequate equipment facilitating loading and unloading of containers onto railway platforms. Furthermore, there are no special areas for the loading of cotton fiber into containers at the cotton gins. Other operational difficulties include the difference between the European and Soviet rail gauges and the necessity to reload containers at the border. All these problems cause delays in fulfilling contracts.

Quality control is another serious issue in Uzbek cotton industry. Uzbek cotton quality standards are different from the international system of cotton classification. This inconsistency requires additional inspections with the participation of the buyers' and sellers' representatives, which incurs extra cost. The new standards, RST UZ615-94 and RST UZ604-93, were developed and adopted by the Uzbek cotton industry in 1993. The "birinchi" growth "urta" class fiber of fifth type, similar to a middling class, has been accepted as the basis. However, it is already realized that further improvements of the classing system will be necessary. Cotton quality evaluations are done by hand and often unreliable. Modern laboratory technology, including HVI equipment and appropriately trained personnel will be needed in order to provide adequate cotton classification. Significant improvements of cotton quality assessment are being supported under the project funded by the World Bank.

The description of the structure of the Uzbek cotton industry suggests that the country has significant natural resources that are not being used effectively or efficiently. However, this problem has been recognized and some efforts have been made in order to improve the current situation.

### **Trends in Cotton Industry Development**

According to government plans seed cotton production in Uzbekistan is expected to remain stable at about 4,000,000 tones until the year 2000. The area devoted to cotton will continue to decline and is expected at 1,330,000 hectares by the year 2000. "Cotton production will thus be maintained by improvements in average yield, by the development and introduction of new varieties, and by better cultural practices."(Statement) Significant improvements of the Uzbek cotton subsector are intended under the recent World Bank project in this country. A loan of approximately \$80 million was extended in 1996 to enhance major components of the cotton industry, such as (1) cotton classification; (2)

seed improvement and processing; (3) integrated pest management; and, (4) irrigation. The focus of these efforts is directed at improving the production practices in Uzbekistan. For example, the seed improvement and processing component of the project is designed to improve the germination rates and cleaning techniques of Uzbek cotton seed. The program will transform the Uzbek government-operated seed sector to a private commercially-owned seed industry consisting of several of the world's major cotton breeders. Establishing a private seed industry in Uzbekistan will allow growers to have access to all of the world's cotton germ plasma and in ample quantities to satisfy demand of farmers. Commercialization of the cotton seed industry in Uzbekistan is also consistent with the efforts of the World Bank to establish private seed sectors in many countries throughout the world.

The third and fourth elements of the project represent minor funding components of the project. Cotton can be grown only with total dependence on irrigation in Uzbekistan and the irrigation element in the project centers on the incorporation of water-conserving irrigation techniques and practices. Conserving water used for cotton irrigation is an important factor in the remedial efforts designed to replenish the area of the Aral Sea. The fourth component of the project concentrates on adapting and adopting integrated pest management technologies that reduce the amount of chemicals used to control cotton pests. Decreasing application of toxic chemicals will improve the environment of Uzbekistan that has already been stressed by the ecological disaster associated with the depletion of the Aral Sea.

### **Consumption**

Low levels of domestic consumption of cotton in Uzbekistan (under 14 percent of production) are associated with the poor condition of the Uzbek textile industry. The textile industry in Uzbekistan operates under the leadership of Uzbeklegprom, a government agency created on the basis of the former Ministry of Light Industry. A new association inherited a vast infrastructure consisting of 33 textile enterprises with over 1,000,000 spindles, more than 470,000 rotors and in excess of 25,000 looms of various types (Irgashev). However, production capacity of the textile sector is limited because of the obsolete equipment. A modernization project designed to improve the current situation in the textile sector is currently under way. The project calls for the installation of modern equipment from leading European, Asian, and American producers at cotton spinning mills. Seven new large textile plants with a total capacity of 50,000 tons of yarn and 45 million meters of high quality cotton fabric are scheduled to begin operations within the next three years. Improvements of the Uzbek textile sector will increase the levels of domestic consumption of cotton in Uzbekistan and create a potential for exports of the finished textile goods.

### **Marketing**

“A remarkable achievement of Uzbekistan during the past five years has been the substantial increase in its export share in world markets outside the former USSR, and especially in Europe, where Uzbekistan accounts for the largest share of cotton imports. Cotton exports from Uzbekistan outside the former USSR more than doubled from 1990/91 to 1995/96, and reached 850,000 tonnes. In addition to traditional European destinations, where Italy, Germany, and France imported almost 300,000 tones of Uzbek cotton in 1995/1996, new markets in Asia were expanded. China (Mainland), China (Taiwan), Hong Kong, Japan, the Republic of Korea, Indonesia and Thailand imported an estimated 250,000 tones in 1995/96 from Uzbekistan. A substantial expansion of Uzbek exports to Brazil and Turkey during recent years helped to achieve a higher share of Uzbek cotton in world trade.” (Guitchounts)

Significant efforts are under way to improve the marketing system in Uzbekistan within the framework of the investment projects funded by the World Bank and the European Bank for Reconstruction and Development (EBRD). The majority of the funds were committed for the purchase of High Volume Instrument (HVI) cotton classification equipment and cottonseed cleaning and handling equipment. Incorporation of HVI classing in the Uzbek cotton subsector will allow cotton traders to properly assess the quality of Uzbek cotton and thus price Uzbek cotton at or near the value of comparable qualities and growths of cotton. HVI classification of Uzbek cotton would not only result in more revenues for growers and others in this country, but would also benefit all cotton growers and related industries in the world through higher cotton prices.

It is also expected that the commercial expertise of Uzbek cotton marketers will increase with greater experience and additional training. Further development of the marketing and distribution infrastructure will provide market access to smaller international cotton merchants, thus increasing competition. An improved marketing system should reduce the risks associated with cotton exports from Uzbekistan, which should in turn, increase the market value of the Uzbek cotton in the international markets.

### **Transportation**

Alternative routes of transportation have been considered in the last few years. One of these alternative routes is truck shipments of cotton via Iran to the port of Mersin in Turkey. This route was opened in 1994 with the agreement between Uzbek and Iranian governments “on international road communications” and “the control of transit communications”. The Uzbek transportation agency *Urta Osie Trans* began the transfer of 20,000 tones of cotton fibre via Turkmenistan and Iran to the port of Bandar-Abbas. Movement of cargo through the Iranian territory have experienced various difficulties associated with Iranian laws

and regulations. Considering the increasing costs of rail transportation and limited capacity of other routes, water transportation through the port of Turkmen-Bashi and the Volga-Don Canal may become a competitive logistical alternative for Central Asian cotton exports to Europe. However, the freezing of the Volga-Don Canal during the winter month hinders shipments from December through March. Another alternative includes the route - Tashkent, Ashgabat, Turkmen-Bashi, Baku, Poti or Batumi - using a steam ferry to cross the Caspian Sea, which will allow freight to go to Constanza (Romania) and from there to the European market. (Trynov) This route may provide considerable cost savings, however difficulties include the need for reconstruction of the ports of Turkmen-Bashi and Poti. The completion of the Transasian railroad in May 1996 provided a competitive route for some shipments of cotton via Turkmenistan and Iran to Mersin, Bandar-Abbas, or directly to Europe. (Prokopowicz) The Transasian railroad has a connection with the Eurasian railroad at Druzhba, which provides a connection to China.

### **Conclusions**

The cotton industry in Uzbekistan faces many challenges ranging from traditional production and marketing issues to transportation obstacles. The Government of Uzbekistan is striving to allow privatization of selected segments of the cotton industry and has promoted the establishment of small-scale private cotton farms while breaking up large-scale, state-controlled cotton farms. The Uzbek cotton sector is also allowing private firms involved in cotton marketing, farm machinery and chemicals, and seed breeders to establish operations. These privatization efforts coincide with several projects sponsored by the World Bank and the EBRD.

One of the first challenges is the development of new high-yielding cotton varieties that will allow the Uzbek cotton sector to maintain production levels while decreasing the land area used for cotton production will depend on establishing a privately-owned and operated seed industry. This industry must be capable of propagating high-quality seed in ample quantities to meet grower demands while satisfying production goals. Another issue relates to forming and cultivating an infrastructure for marketing cotton on the domestic and world markets. Historically, Uzbek cotton has been discounted by cotton merchants because of the risks associated with documenting cotton quality characteristics. Adopting HVI classification equipment and schemes for Uzbek cotton should allow traders to establish a price that reflects the "true" quality characteristics. Increasing the price for Uzbek cotton will enhance prices received for all growths of cotton around the world.

Improving the efficiencies of inputs used in Uzbek cotton production will reap benefits for growers and the environment. In the past, Uzbek cotton growers have not used inputs effectively and/or efficiently. Decreasing amounts of inputs like irrigation water and other chemicals

has the potential of lowering production costs and improving the Uzbek environment. The ecological disaster related to the Aral Sea has been connected to excessive uses of water and chemicals by cotton growers and decreasing input use may improve this environmental problem. Finally, the Uzbek cotton sector faces the challenge of augmenting transportation capabilities that would allow Uzbek cotton to have access to many new markets. Improving the rail, road, and cargo handling infrastructure in Uzbekistan and other countries should lower the costs and time required for shipping Uzbek cotton to European, Asian and other markets.

The Government of Uzbekistan and the World Bank recognize the importance of the cotton subsector in the country's ability to make a successful transition from a centrally-planned economy maintained while Uzbekistan was a republic of the Former Soviet Union to a market-driven economy. Since the cotton subsector represents the single most important foundation of the Uzbek economy, sustaining and fostering the privatization of the cotton industry is critical to the effective transition of this nation's financial and political philosophy. The prominence of the Uzbek cotton sector in the world cotton industry makes the success of the cotton modernization project important to every cotton producing nation.

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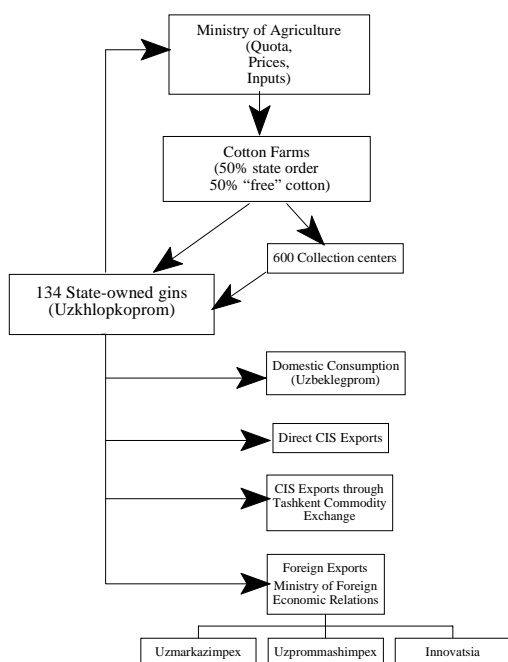


Figure 1. Flow of cotton in Uzbekistan

Table 1. Uzbekistan Farm Size.  
Average farm size = 23.4 hectares.

Distribution	Farm size, ha	%
Class 1	3.2 ha	53,5
Class 2	15 ha	20,9
Class 3	25 ha	18,8
Class 4	34 ha	4,0
Class 5	40 ha and more	2.8

Source: Uzbekistan country statement on the 55th Plenary Meeting of ICAC, Tashkent, 1996.

Table 2. Uzbekistan 1996/97 Crop Varieties Planted.

Medium Staple	Hectares
175-F	80,300
S-6524	73,400
S-6530	37,400
108-F	44,600
S-4727	107,000
Kyrgyz - 3	64,400
Tashkent - 6	39,800
Bukhara - 6	207,400
Fergana - 3	288,700
Uldus	52,200
An - Bayaut - 2	230,100
Namangan - 77	163,800
S-9070	28,700
New Varieties	14,000
Others	37,300
<b>Total</b>	<b>1,469,100</b>
Long Staple	
Termez - 24	9,300
Termez - 31	11,500
<b>Total</b>	<b>20,800</b>

Source: Cotton Outlook

Table 3. Uzbekistan Major Soil Types.

Description	Area in %
Plainy Area:	
Greyish-brown	25.3
Deserted-sandy	3.04
Dry soil	3.96
Meadow and swampy-meadow	4.12
Salt-marshes	2.81
Unsure ground	7.54
Water surface	3.14
Meadow and dry soil	1.02
Pre-mountainous and mountaneous area:	
Light-Grey soil	5.34
Typical Grey soil	6.77
Dark grey	2.33
Brown and greyish hilly	3.68
Light-greyish uplands	1.19
Meadow-greyish	1.72
Meadow and swampy-meadow	1.64
Rocky surface	6.0
<b>Total</b>	<b>100</b>

Source: Uzbekistan country statement on the 55th Plenary Meeting of ICAC, Tashkent, 1996.

Table 4. Gross Transfers From the Uzbek Cotton Sector to the State.

Year	Transfers (\$ million)
1980	(2,999)
1985	(2,816)
1986	(3,697)
1987	(3,032)
1988	(4,617)
1989	(4,502)
1990	(5,919)
1991	2,401
1992	1,393
1993	1,520
1994	2,073

Source: Garcia Garcia and Cameron, 1996.

Table 5. The Technical Efficiency of Producing Cotton in Uzbekistan and in Other Countries.

Country	Est. lint yield (kgs/ha)	Est. N use (kgs/ha)	Est. P use (kgs/ha)	Est. K use (kgs/ha)	Irr. water used ('000 m <sup>3</sup> /ha)	Kg of lint prod/ kg of N	Lint prod/ '000 m <sup>3</sup> of water
Uzbekistan	830	210	170	40	12.8	4.0	64.8
Greece	830	160	60	70	2.68	5.2	310.3
Turkey	850	150	70		n.a.	5.7	n.a.
Syria	830	175	125		7.4	4.7	112.2
Egypt	930	100	370		8.5	9.3	n.a.
Pakistan	470	155	40		19	3.0	24.7
USA (CA)	1230	120	20		8.9	10.3	138.2
Australia	1370	160			7	8.6	195.7

Source: Garcia Garcia and Cameron (1996).