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# AZERBAIJAN'S SILK INDUSTRY DEVELOPMENT IN HISTORICAL PERSPECTIVE

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## Abstract

**Objective:** With over 2,000 years of history, Azerbaijan has been regarded as one of the world's best silk centers. With the increasing demand for environmental- friendly products in the modern era, the purpose of this paper is to investigate the historical significance of Azerbaijan's silk industry, as well as to investigate the historical background of silkworm and silk production, and their impact on Azerbaijan's economic performance, and to establish a link between silk production and Azerbaijan's economic performance.

**Methodology:** The data was collected descriptive statistics from a variety of sources, including the Ministry of Culture and Tourism of the Republic of Azerbaijan, Ministry of Agriculture of the Republic of Azerbaijan, World Bank, 2018, State Statistical Committee of the Republic of Azerbaijan, and Saltanat Zulfugarova and Tom Marsden, by highlighting the important trends in data. Tables, graphs, and charts have been used to present the results of descriptive statistics.

**Findings:** Azerbaijan needs to resurrect its once-thriving textile, silk, and apparel industries. Azerbaijan's climate helps in the high productivity of agricultural production and farming in all parts of the country. In terms of policy recommendations, the study emphasizes the need for deep manufacturing of silk products, as well as the expansion of domestic production of specialized silk products that needed in electrical engineering, radio engineering, cinematography, aerospace, astronautics, precision system, and cable production, healthcare, and other fields.

**Implication:** Furthermore, this research focuses on the regions where the majority of the silk is produced. The report makes policy recommendations based on the current situation and challenges of Azerbaijan's silk industry.

**Keywords:** silk industry; historical perspective; sericulture; Azerbaijan; silk products, silkworm breeding, silkworm farming

## Introduction

Silk is the key input used in the textile industry since ancient times. Due to its specific properties, silk is considered an important source in the textile industry. It is widely recognized that silk farming (sericulture) was established for-low-scale farming and its use in large-scale farming has failed in different parts of the world. Population density, wages, and availability of the labor force are important factors in affecting sericulture growth. The cycle of sericulture starts from nourishing the silkworm and ends with receiving cocoons and seeds. Since ancient times, silk production is labor-consuming and profitable at the same time due to its easy accessibility. Hence, due to its high payoffs, the majority of local businessmen were involved in the silk business. Hence, in the Caucasian region, silk was considered a profitable exportable commodity (Gugushvili, 1959).

This paper aims to examine the historical

importance of the silk industry of Azerbaijan and explores the historical background of silkworm and silk production and their impact on Azerbaijan's economic performance. Hence, this study aims to establish a link between silk production and the economic performance of Azerbaijan. Moreover, this study highlights the area where the main silk production takes place. The paper further explores the current situation and challenges of Azerbaijan's silk industry. The study recommends policies for the future development of the silk industry.

## Limitation of the Study

The main limitations of this research are as follow:

- The lack of an appropriate sample size for descriptive statistical research.
- There were limited previous research studies on the subject.
- Data access was limited.

- There were time constraints.
- Conflicts arising from ethnic bias and other personal problems.

### Literature Review

Azerbaijani silk industry has its roots since ancient times. The industry has gained worldwide appreciation since the 5th to 7th centuries and till the end of the 19th century. Silks were the main export item of Azerbaijan and other South Caucasian countries to the world. The silk business got huge advancement in the 9th and 10th hundreds of years A.D. Due to its geographical location, the silk forming in Azerbaijan received more importance. Azerbaijan is located on the main route of the silk road between Europe and Asia. The areas of Shemakha, Barda, Sheki, and Ganja were the epicenter of silk manufacturing activity. Silk exchanging business sector especially in Sheki and Shemakha, have worldwide effects, notably in the business field. Due to the availability of silk at premium costs, businessmen from different regions such as South Asia, Central Asia, and some parts of Europe were the main importers of Silk produced in Shemakha. Due to the most volatile activities, Sheki and Shemakha were considered the biggest silk-delivering center in the Caucasus region. These cities were famous for silk farming (sericulture). Sericulture, being a low capital intensive agro-based industry, several commercial species of silkworms were imported by different nations across the globe. *Bombyx mori* was the most famous among different silkworms' species (Shakhmaliev, 1958). The products made of silk such as sensitive textures, garments, and traditional women's headgear known as Kelaghayi made by Sheki's experts from crude silk were exported to different regions of the World. Hence, Sheki was famous for its huge contributions to the worlds of sericulture and commercial species of silkworms (Avdeev, 1926). Till the end of the 19th century, silk territories were built to produce traditional silk products. However, after the collapse of the Soviet Union in 1991, the industries were shut down and a recession was observed in the silk industry of Azerbaijan. During the transformation crisis, the traditional sericulture industry of Azerbaijan was on the edge of destruction. Nevertheless, in recent times, several initiatives have been taken place for the revival of the traditional silk industry in Azerbaijan. The silk industry is expected to make a fresh start (Aliyev, 2019). For instance, the Museum of silk waving was

reestablished in the Baskal town of Ismayilli. The whole chain of this work concentrated on the custom of hand-made silk items. The Kelaghayi is listed as the intangible cultural heritage of Azerbaijan by UNESCO<sup>b</sup>



Pic.1. Traditional art and symbolism of Kelaghayi  
Source: M. Rahimov / Ministry of Culture and Tourism of Azerbaijan Republic (2010).

Shamakhi, Ganja, Ordubad assumed a significant part in silk-producing in Azerbaijan during the 9<sup>th</sup> to 18<sup>th</sup> centuries. Found straightforwardly on Great Silk Way, every year 100 thousand puds crude silk was sent out from Shamakhi to Russia, Iran, Ottoman Empire, Italy, France, India, and different nations through Baku. Another significant parade course went through Shamakhi, Aresh, and Ganja to Tbilisi. Sheki was found somewhat away and silk case exchange was brought out through a little later archaic town of Aresh (Aliyarov, 1996).

The decline of travel exchange in the 17<sup>th</sup> century brought about the deterioration of the town of Aresh and afterward shippers themselves started to go to Sheki and fare casings to various nations. Solid Sheki khanate subjecting the neighbor domains, and having created horticulture, craftsmanship, and silk cocoon creation drew an ever-increasing number of dealers. The city was adjusted for economic accords. There started to build caravansaries, little shops, bazaars and the private populace started to join in the merchants. Cover creation was restricted to casing rising and offer of crude silk that didn't need uncommon developments for this reason.

Toward the end of the 18<sup>th</sup> century East India Company, cornering the Iranian silk market lost its interest in Azerbaijani silk that normally caused fortifying of the monetary situation of Russia in this locale. Exchange relations of Sheki khanate with Russia, the fundamental buyer of silk, were brought out predominantly via land through Kizlyar and Derbent. In the principal half of the 19<sup>th</sup>-century Tsarist government, particularly the Russian bourgeoisie was firmly keen on utilizing crude material assets. It was identified with the way that, silkworms in Western European nations contracted

Source: UNESCO Intangible Cultural Heritage List in Azerbaijan.

an ailment and the Russian silk industry felt the intense need for crude silk (Abdullaev, 1965). Transcaucasia nearly was not influenced by this illness. In this way, the Tsarist government took a set of measures for additional improvement of sericulture in the Russian Empire just as in Azerbaijan. For this reason, numerous Tsarist officials were shipped off Azerbaijan to consider utilization expandability of crude material assets which was significant for the Russian industry. They offered priority to the extension of crude silk fabricating in Azerbaijan as a focal point of the silk industry in the Caucasus and to fortifying its sell-out (M.-L, 1948).



**Pic 2. The instrument used for silk production.**  
(Source: M.Rahimov / Ministry of Culture and Tourism of the Azerbaijan Republic, 2010).

#### Data Collection and Research Methods

To examine the historical importance of the silk industry of Azerbaijan, and to establish a link between silk production and the economic performance of Azerbaijan, this study collected the data from different sources such as the Ministry of Culture and Tourism of Azerbaijan Republic, Saltanat Zulfugarova & Tom Marsden, World Bank, 2018, State Statistical Committee of the Republic of Azerbaijan, State Statistical Committee of the Republic of Azerbaijan and Ministry of Agriculture of Azerbaijan Republic. This study uses descriptive statistics by highlighting the important trends in data. The results of descriptive statistics are presented in tables, graphs, and charts.

#### Major phases for the development of the silk industry

Till the end of the 18th century, silk territories were built to produce traditional silk products. According to the census, by 1922, out of the 414 registered institutions in Sheki, 248 operated, in which the average number of registered persons was 853. Out of the total number of indicated institutions, 123 were state-owned, of which only 8 were operating with 436 employees. Cooperative institutions were absent. The number of private institutions was 291, of which 240 operated. Under the guidelines of the X and XII congresses of the RCP, old industrial enterprises were restored in

Azerbaijan. Steps were taken to create new industrial centers. In February 1922, the Fourth Congress of the AKP discussed the creation of new industrial centers in Azerbaijan and decided that the industrialization of Azerbaijan should begin with Nukhi, Ganja, the Karabakh region, and Mugan. In these places, it was necessary to start the equipment of factories and plants to get raw materials. Congress paid special attention to the textile industry and considered it as an engine of development. During this period, considerable work was done to repair and restore the destroyed enterprises and to re-equip the factories and plants that had come into operation as the raw material base revived, were put into operation and repaired. In 1922, one after another, 3 state silk-winding factories in Sheki were launched. In 1922, Azshelk was in charge of three state silk-winding factories in the city of Sheki and three pressure stations in Zagatala, Sheki, and Geokchai.

**Table 3. The manufacturing sector in Shiki in 1922**

	Number
Number of registered establishments	414
Number of operated establishments	248
number of registered persons	853
Number of state-owned enterprises	123
Number of operating state-owned enterprises	8
Number of employees	436
Number of private institutions	291
Number of operating private institutions	240
Number of state silk-winding factories	03

The Fifth Congress of the AKP in March 1923 outlined several new practical measures in raising agriculture to expand the production of industrial crops (cotton and silk). The main difficulties in the revival of the silk industry were associated with the lack of a sales market in the Union republics and the relatively low price of Azerbaijani silk abroad and the lack of raw materials and fuel, which led to interruptions in the operation of enterprises (Umaev, 1974). Despite certain successes achieved in the development of the silk industry of Azerbaijan for the period from 1933 to 1940, there were significant shortcomings of both an objective and subjective nature. Due to the lack of a dyeing factory in Azerbaijan, silk was exported from the republic to Moscow, Tbilisi for the dyeing and drawing process. The organization of the final production of products was hindered by the Soviet leadership (Gubaidullin, 1971). A big break in the development of this industry was a large staff turnover. Only in 1937, 3,597 arrived at the silk

factory in Sheki, and 3,866 people left. During this period there were no trained specialists and the newly equipped factories experienced difficulties with fuel, as a result of which the machines did not work. All this led to the failure to fulfill production plans. Since 1937, in many areas of production, there was a lag in the implementation of plans. For 9 months of 1937, 10.683 kg of silk were produced in the torsion block of factory No. 3, which was 4 thousand 359 kg less than planned. In 1937, 18 million rubles were allocated for the reconstruction of old and construction of new enterprises in Sheki, of which 2.5 million rubles intended for 84 reconstructions of the torsion and weaving mill. Lenin, 2 million rubles for the construction of a dyeing factory and 1 million rubles for the construction of a new silk mill. At the end of the second five-year plan, the silk factory-produced products: pure silk group (crepe-corrugation, crepe-canvas, glass, canvas) - 43.2% against the planned 34.4%, and semi-silk group - 56.8% against the planned 65.6%. In the total volume of silk fabric production in the South Caucasus, the share of Azerbaijan amounted to 24.3%, i.e., almost a quarter. As a result of the implementation of measures to automate and mechanize production, the work of the workers was somewhat facilitated, and their working conditions improved.

In 1938, for the first time, automatic two shuttle silk-weaving machines were installed at Sheki silk processing enterprises to produce crepe de chine, which had not been produced in Azerbaijan until then. The decision to construct, organize and equip the dyeing workshop was caused by the need to complete the production cycle for the production of finished fabrics in the general long-term plan for the development of the silk industry in Sheki with a production capacity of 3 million 500 thousand meters of silk and semi-silk fabrics. It is known that until 1938, silk and semi-silk fabrics produced in Azerbaijan were dyed and trimmed in Moscow, Tashkent, Tiflis, which created oncoming traffic, difficulties in controlling product quality, and financial difficulties for enterprises. The construction of the dyeing shop was completed and put into operation in 1942. However, this year the workshop was not able to operate at full capacity due to the lack of fuel used for the needs of the front. Therefore, of the planned finished fabric in the amount of 850 thousand meters, 104 thousand meters were dyed, the rest of the manufactured products continued to be dyed in Tiflis, and at the end of the year partially at the plant named after Lenin in Baku.

Having discussed and approved the third five-

year plan for the development of the national economy of the USSR (1938-1942), the 18th Congress of the CPSU on March 10, 1939, noted that this plan was an important step in solving the country's main economic task. Over the years, it was planned to build a silk-winding factory in Sheki, cocoon-winding factories in Khankendi and Ordubad, expand the cement plant in Tovuz, commission ginneries in Salyan and Karadonly.



Figure A. Silkworm plant in Aghdam in 1935  
(Source: Saltanat Zulfugarova & Tom Marsden, 2018 ([www.visions.az](http://www.visions.az)))

In a resolution of the Council of People's Commissars and the Central Committee of the Communist Party of Azerbaijan dated February 15, 1939, the extremely unsatisfactory state of sericulture in the Azerbaijan SSR was noted. The main problems in the sericulture sector of Azerbaijan were: a decrease in the number of old mulberry stands, unsatisfactory development of new mulberry plantations, their neglected condition due to insufficient cultivation and irrigation, low technical level of existing dredging plants, insufficient production of hybrids, lack of knowledge of their regionalization, lack of cocoon dryers, failure to take measures to improve quality and primary processing of cocoons. However, after the collapse of the Soviet Union in 1991, the industries were shut down and a recession was observed in the silk industry of Azerbaijan. The traditional sericulture industry of Azerbaijan was on the edge of destruction. However, several initiatives have been taken place for the revival of the traditional silk industry in Azerbaijan.

In the second half of the twentieth century, in particular, since the 1970s, the development of silk worming in Azerbaijan had become more widespread. To reach the minimum volume of costs and overhead, the government policy paid attention to the diversification of agriculture (Latif, 2015). At that time 5-6,000 tons of cocoons were produced and 500-550 tons of silk were produced, and tens of millions of square meters of silk fabrics were woven. More than 150,000 families (about 750,000 to 800,000 people) were involved in



feeding and breeding the Silk Road. More than 14,000 people were employed in the silk industry, including more than 7,000 employees in the Sheki silk industry. Azerbaijan ranked second in the USSR for barrel production (after Uzbekistan) and the 1st in terms of quality of barrel and silk. Azerbaijani baramina and silk extracted from it have been repeatedly shown at international exhibitions and have been highly regarded by professionals.

The silk industry is expected to make a fresh start (Aliyev, 2019). Currently, there are 2 breeding and silk plants in the Republic, 7 seeding plants,

about 30 barber drying centers, about 80 barley supply and pre-processing points, Shaki Silk Complex, Ordubad, and Khankendi cotton mills. The main characteristic of the economic policy pursued by the head of state is its social orientation, as well as the presence of an economic aspect in addressing all problems (Teymurov & Practice, 2018). Execution of state programs, decrees, and orders successfully ensure acceleration of economic development in the country, continuously increasing the share and role of the private sector in the development process.

**Table 1. Macroeconomic, Social and Geographical Indicators of Azerbaijan**

Indicator Name	1993	1995	2000	2005	2010	2015	2019
Imports of goods and services (% of GDP)	76.03	53.41	38.38	52.90	20.68	34.81	36.86
Total natural resources rents (% of GDP)	15.09	17.24	33.94	37.63	32.18	14.60	29.59
Inflation, consumer prices (annual %)	1128.0	411.8	1.8	9.7	5.7	4.0	2.6
GDP per capita (constant 2010 US\$)	1787.9	1235.0	1658.8	2948.2	5842.8	6063.7	5880.0
GDP growth (annual %)	-23.10	-11.80	11.10	27.96	4.79	1.05	2.22
Labor force (in Million)	0.31	3.26	3.50	3.89	4.45	4.88	5.10
Trade (% of GDP)	133.4	85.8	78.5	115.8	74.9	72.6	86.0
Time required to start a business (days)	101	105	121	113	8	4	4
Land area (sq. km)	83217	83217	82605	82660	82656	82663	82670
GDP per capita growth (annual %)	-24.26	-12.81	10.19	26.66	3.55	-0.15	1.37
Oil rents (% of GDP)	12.57	14.58	31.10	35.95	29.30	12.04	25.28
Life expectancy at birth, total (years)	64.81	65.26	66.76	68.75	70.94	72.27	72.86
Exports of goods and services (% of GDP)	57.46	32.49	40.17	62.94	54.30	37.79	49.18

### **An overview of Economy of Azerbaijan: Macroeconomic Indicators**

With a land area of 82670 sq. km and a population of 10.02 million, Azerbaijan is a resource-rich country. The total natural resources rent of the country is 29.59-percent of GDP, which has increased at an unprecedented rate from 15.09 % of GDP in 1993. After the collapse of the Soviet Union in 1991, the industries were shut down and a recession was observed in the country's industries. The economy of Azerbaijan was on the edge of destruction. Both the agriculture and oil industry were in a recession. The GDP growth rate of the country was in negative number (-23.10% in 1993 and -11.80 in 1995). Moreover, the inflation rate in annual percent was at an unprecedented high level (1128% in 1993 and 411.8% in 1995). The country heavily depended on imports of goods and services during the recession. The total imports of goods and services were 76.03% of GDP in 1993. GDP per capita was as low as \$1787.9. During the period, the

time required to start a business was 101 days. However, several initiatives were taken place for the revival of the traditional silk industry in Azerbaijan. After the 2000s the government started to pay attention and attract investments in the development of the non-oil sector, and the agriculture sector was prioritized to revive the economy. Azerbaijan's GDP per capita at constant 2010 US\$ increased to \$2948.2 in 2005 and \$5880 in 2019. The total Merchandise trade was 41.02% of GDP in 1993, which increased to 65.56% of GDP in 2019. The GDP growth rate of the country, which was in negative number in 1993 and 1995 increased to 27.96% in 2005 and 2.22% in 2019. Moreover, the inflation rate in annual percent is 2.6 % in 2019. The country, which heavily depended on imports of goods and services in the initial years, is now earning a lot of foreign exchange reserves from exports of goods and services. The total exports of goods and services are 49.18% of GDP in 2019. GDP per capita is increased to \$5880 in 2019. The time

required to start a business is decreased to 4 working days in 2019 from 101 days in 1993. Hence, Azerbaijan has shown a remarkable performance in improving macroeconomic indicators over the years. Crude oil and gas extractions play a vital role in the outstanding economic performance of Azerbaijan. The average annual growth rate of the country is about 5% from 2003 to 2018. The high share of fuel exports as a percent of total merchandise exports indicates the dependency of the economy on oil and gas extraction. The total foreign direct investment to Azerbaijan has increased from \$627 million in 1996 to \$2.87 billion in 2018 (World Bank, 2018). Table 1 shows the

macroeconomic, social, and geographical indicators of Azerbaijan.

The following pie chart shows GDP by the sectors of the economy. It is evident from the chart that industry is the main part of the economy with 41.4%. But among the non-oil sector, areas of economy agriculture-have the least proportion of 5.7%. However, the contribution of the agriculture sector is still beyond the optimum level, which needs to be increased. By concentrating on silk worming the contribution of agriculture sector can be further increased. The government can play an effective role to take further steps to find solutions for the development of the agriculture production and silk worming sector.

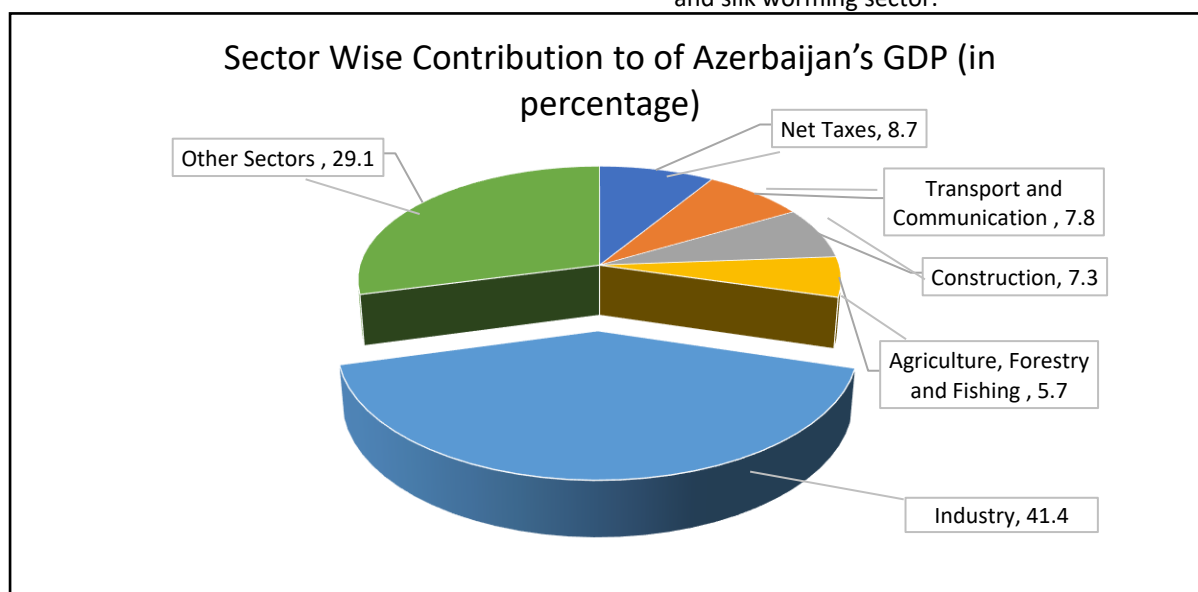


Figure 1. GDP Distribution across economic sectors, 2019 (Source: State Statistical Committee of the Republic of Azerbaijan, 2020 ([www.stat.gov.az](http://www.stat.gov.az)))

Based on the agreements made with 1,700 people, the amount of cash paid to the bank for 551.75 thousand manats was disbursed. As a result, in 2016, 9.1 tons of raw silk was produced. The sale was expected to cost 800,000 manats. In 2017, Sheki-Ipek OJSC was expected to deliver 140 tonnes of cows in 30 regions of the country, which means 14 tons of raw silk. The subsidies provided by the government of Azerbaijan to the companies in the agricultural area affected the efficiency, profitability, and competitiveness of the local enterprises (Novruzova & Sciences, 2014). The subsidies on plant growing had a positive influence on the productivity of private entrepreneurs, family farms, and households in 2019.

The development of the agriculture production and silk worming sector may generate employment and improve the standard of living of the general masses. On September 15, 2016, the decree was

signed. As per the decree, the amount and procedure of granting the type of subsidy for each kilogram of barley per year, adopted by the silkworm brewery and approved by the silk manufacturers, is approved (Allahverdiyev, 2020). Currently, the enterprise needs to produce 400 tons of dry coconut per year to produce raw silk at its full capacity. This also means that about 1,100 tons of age are being consumed. However, in recent years, the enterprise has been forced to buy dry cocoons from abroad to pay for its production capacity, partly because silk feed and maturity are not at the desired level. However, it is possible to grow up to 2,000 tons of cows in our country through the effective use of its existing potential, as well as strengthening the silkworm feed base and cocoon production. "Sheki-Ipek" Open Joint Stock Company as the only silk producer in the country embraces all the processes for obtaining natural silk

(Baku, 1991). To fulfill the tasks on the development of silk production in the republic, since April 2016, the Ministry of Agriculture received 49.5 kilograms of seeds and distributed

them to 24 districts, with 70 manats of 8 kg per kilogram produced by Sheki-Ipek JSC purchased. It is also planned to cut 62,000 pieces of butterfly and 50 square meters of carpet weave. In the future, 80-85% of ready-made silk products will be exported.

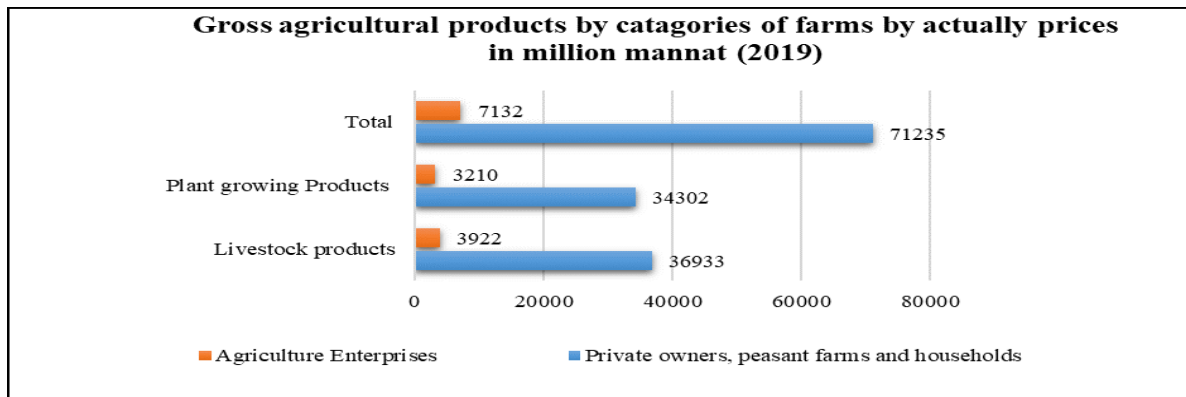


Figure 2. Gross agricultural products in 2019 (Source: State Statistical Committee of the Republic of Azerbaijan, 2020 ([www.stat.gov.az](http://www.stat.gov.az)))

At present, "Sheki-Ipek" OJSC implements several measures aimed at restoring and developing the silk industry, strengthening the feed base, increasing the production of cereals, enhancing the material interests of those engaged in the work, improving employment and social welfare was planned to be held. Thus, allocation of special land to create new mulberry plantations in the silk-growing areas of the republic, restoration and preservation of existing mulberry gardens, improvement of the high-quality elite, and hybrid seeding utilizing agrotechnical measures for the establishment of farming farms. Organization of pedigree breeding works on scientific bases, production of silkworm seed, primary processing of

barama, exemption from customs duties for imported raw materials and equipment, exemption from all taxes for 10 years, fuel, electricity, and preferential tariffs for natural gas also contribute to the development of the sector. This is because specific features of the silk industry require long-term capital investment. On the other hand, one of the main aspects, on which the efficiency depends, is the availability of utilized sown area. Taking into account, that the mulberry tree is one of the industrial crops, it can be seen from the below pie chart, industrial crops had only 7,6% of the total sown area in 2019. But the proportion of cereals and dried pulses in 2019 was 62,4% which is mostly due to the inbound demand and export.

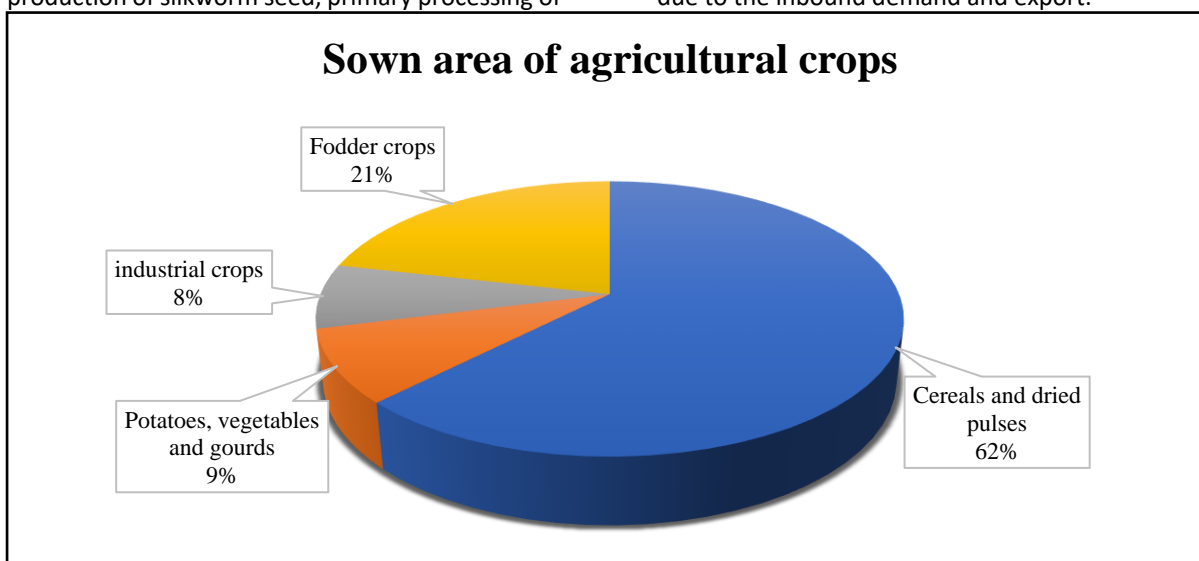


Figure 3. The sown area of crops in 2019 (Source: State Statistical Committee of the Republic of Azerbaijan, 2020 ([www.stat.gov.az](http://www.stat.gov.az)))

### Current Silk Industry: Structure, Interaction, and Politics

The share of the non-oil sector in the GDP of Azerbaijan is increasing over the years, (Gunes & Hajiyeva). Sericulture in Azerbaijan is a part of farming that raises the non-oil capability of the nation's economy. The creation of new covers in Azerbaijan to be expanded around 6,000 tons by 2025. At the state's cost, 3.5 million seedlings have been brought into the nation in recent years from

the People's Republic of China to fortify silkworm feed base and have been planted with Chinese innovation in 350 hectares in 38 districts of the republic based on division. These seedlings have leaf yields for the silkworm creation with high richness in nearby soil and atmosphere conditions. To execute the State Program, sprouts from seedlings were planted on the region of 1 hectare having a place with the Tartar Regional Agrarian Science and Innovation Center.

**Table 1. GDP by the sectors of the economy with factor costs (in Million Manats)**

Years	Total	Industry	Agriculture, Forestry & Fishing	Construction	Transport & Communication	Net Taxes	Other Sectors
2003	71465	26669	8880	8020	7138	5498	15260
2013	581820	264417	31222	67537	35808	38780	144056
2014	590141	241694	31392	74544	37268	44130	161113
2015	543800	179124	33594	64995	43296	48590	174201
2016	604252	223980	33868	63389	51338	49215	182462
2017	703378	282085	39441	67506	58626	50044	205676
2018	800920	356651	41748	61834	61832	61983	216872
2019	816810	338450	46696	63943	63933	71182	237316

Source: State Statistical Committee of the Republic of Azerbaijan, 2020 ([www.stat.gov.az](http://www.stat.gov.az))



**Figure 4. 1,000,000 mulberry seedlings from China (Source: Ministry of Agriculture of Azerbaijan Republic, 2019 ([www.agro.gov.az](http://www.agro.gov.az)))**

Generally, agriculture is still the main area of the economy of Azerbaijan and has a great positive influence on employment levels in the rural regions (Khalilov, 2011). The historical backdrop of sericulture in Azerbaijan goes back to right around 1,500 years. With regards to silk in Azerbaijan, the primary spot that strikes a chord is the antiquated city of Sheki, which was once considered the biggest place for the creation of silk and silk cultivating in the Middle Ages. Fragile textures, wonderful garments, and vivid kelagayis (silk headscarf) made by Sheki skilled workers from crude silk were traded to far-off nations, so the city got celebrated for its silk all through the world. In

the Soviet time frame, Azerbaijan positioned second after Uzbekistan for the creation of silk casing yet was viewed as first.

Customs information of Azerbaijan assessed two-sided exchange at a record near \$1.3 billion out of 2017, which was 33 percent more contrasted with the earlier year. Customs information of Azerbaijan assessed two-sided exchange at a record near \$1.3 billion out of 2017, which was 33 percent more contrasted with the earlier year. Fares expanded by 63.75 percent to \$443.8 million and bought more than 21.4 percent to \$854.5 million throughout the year. The principal merchandise sent out from Azerbaijan to China a year ago were



substance items, fuel, plastic products, and items manufactured of it. Electrical gadgets, the extra parts of hardware and vehicles, apparel, and embellishments, earthenware items, family things were brought from China to Azerbaijan.

Agjabedi which is one of the Aran locale's regions is transcendently horticultural territory. Cotton, flour, and silk prosper in the area since the previous Soviet Union period. The creation of silkworm casings in the Agjabedi area of Azerbaijan is intended to arrive at 50-60 tons. In the pre-chosen zones of the areas, planting of mulberry

seedlings will be completed utilizing Chinese innovation under the management of a specialist welcomed exceptionally from China since it turned into Azerbaijan's fourth-biggest exchanging accomplice in 2017.

Proportionally, from the diagram below it is obvious, that since 2010 there was a critical increase in the square of the cotton sown area from 30,2 thousand hectares to its maximum in 2017 with 136,4 thousand hectares. Those numbers again show the positive effect of State Programs in agriculture, which at the same time, affects the proportion of the non-oil sector of the economy.



Figure 5. The sown area of cotton in 1000 ha (Source: State Statistical Committee of the Republic of Azerbaijan, 2020 ([www.stat.gov.az](http://www.stat.gov.az)))

Azerbaijan implemented the State Program (2018-2025) for the Development of Cocoon and Silk Production. Due to the ongoing State Program, the production and collection of cocoons reached the level of 245.2 tons in 2017 from 70.7 tons in 2015. The government of Azerbaijan is taking serious steps for the revival of silk industries in the country which has the potential to raise the non-oil potential of the economy. The program aims to produce 6,000 tons by 2025 with 600 tons of crude silk creation every year. The development of the silk factory Azeripek in Scheki under the state program is on the priority list. Another silk plant with a yearly limit of 3000 tons of yarn is expected to be established under the state program. Hence, the country is making efforts to develop the silk industry by investing in the reconstruction of those industries where silkworm is bred (Van Berkum, 2017). However, due to ongoing wasteful privatization, budgetary issues, and the absence of crude materials, the creation of crude silk is reduced. The yearly creation of crude silk is limited to around 135 tons. In 2016, the country planned to construct 9 manufacturing plants for the creation of a material, garment, and other textile items under the Industrial Park for Light Industry in Mingatchevir. In February 2018, the organization of

Textile Mingatchevir opened the initial two processing plants in the mechanical park, which is expected to produce 20,000 tons of cotton and mixed yarn every year. Azerkhalcha, established in 2016, the organization for the creation of hand-woven floor coverings, has an aggressive objective: 30 local rug weaving factories are to be set up by 2020. Before the finish of 2017 ten branches have just been opened and a further 20 will be opened in 2018 and 2019. From 2020, around 5,000 workers will deliver hand-woven floor coverings under the title of "Azerbaijan Carpet for homegrown and unfamiliar business sectors". The extension plans for the creation of hand-woven rugs result from the embraced state program for the advancement of rug workmanship in Azerbaijan and the Nakhchivan Autonomous Republic for the years 2018 to 2022.

Azerbaijan can be successful with certain preferences as a creative area for the material and silk industry just as for the garments business. These incorporate an adequately accessible and immediately prepared workforce, low pay costs, charge and different inclinations in mechanical zones, and great conditions for the offer of the merchandise. Great deal openings result from the international alliances with the nations of the Commonwealth of the Independent States and the

fair occasions to Turkey. No import obligations must be paid for fares to these nations. Attire producers from EU nations with the expectation of trading to these nations can profit by this. A few organizations, particularly from the Baltic States, are presently investigating their chances for a market section. The Azerbaijan Textile Industry Association sees a requirement of the administration concerning the structure conditions for the homegrown apparel producers. For instance, the duty trouble on imports of frill, for example, cements, fastens, and snap clasp and zippers ought to fundamentally be diminished.

Makers of clothing and other completed material items incorporate Baku Textile Factory, Accord Textil (Agstafa, part of the Accord Industrial Holding), Alyans Tekstil (Sumqayit), the attire manufacturing plant in the Gilan-Textile Park (Sumqayit), and Debit Uniform (Baku). The plants chiefly produce workwear and outerwear. It is known, that the state strategy spent now for the further reinforcing of the public economy is coordinated on increasing speed of improvement of the branches which are not worried to oil area, based on sane utilization of the large monetary victories accomplished in oil area of the nation. Taking into account it, the sericulture advancement can assume the significant part being developed of two significant parts of the nation not worried to oil area - light industry and the agribusiness. Simultaneously, because of sericulture advancement, the crude silk got from handling of deliberately significant crude material - covers of the silkworm, can be acknowledged on the planet showcases because of what inflow of an investment to the public economy will intensify.

The presence of administrative legitimate base

is required on the legal-based reasons of modern - innovative cycles, work and relations of creation of sericulture, and—for a right assessment of value made items (for instance, silkworm eggs, new covers, dry covers). This base will comprise of different guidelines, standards, and details of the charge of materials and time for did works in different ways of sericulture, and generally significant of state norms on casings of the silkworm - new, air-dried, and squander cases. These guidelines in sericulture of the republics are accessible (İsmayilov, Babaev, & Feyziyev, 2020). Notwithstanding, every one of them is acknowledged during the Soviet power, have gotten obsolete and today don't compare to prerequisites of the unregulated economy. Furthermore, new public principles in the republic till now are not created. Despite this, there is a straightforward choice of this inquiry.

One of the fundamental motivations behind sericulture improvement in the republic is the creation of enough nearby covers for a difficult situation-free work of the silk reeling produces of Sheki Ipak J.S.C. The administration of Sheki Ipak J.S.C., with the end goal of the making of required conditions, has done various activities. Mechanical premises of silk reeling units, units on preparing side effects, and heater house are fixed. Every single specialized development and the cycle hardware, including multi ends silk reeling machines, the ventilating framework was set up. Flammable gas was used to manufacture plants for satisfactory development and sterile standards. Moreover, to protect the soil from pollution, the government took control over the utilization of chemicals in the sector of agriculture (Mammadli & Proceedings, 2020).



Figure 6. Painting of the silk (Source: M.Rahimov / Ministry of Culture and Tourism of the Azerbaijan Republic, 2010).

More than 60 countries around the world produce silk, but the bulk production is manufactured in only a handful of places – Brazil, China, India, Japan, Korea, Thailand, Uzbekistan, and Vietnam. But, Europe plays a key role in the processing of silk. The leading countries are Italy, Germany, and France. Most famous fashion designers and designers work on silk garments. Now, silk processing is gradually moving to Eastern countries, where fashion designers set up their centers. But this does not mean that everything in the silk industry is like silk. Silk manufacturers have always had certain problems and those problems still exist to date. The emergence of new synthetic products undermines the image of silk, and economic crises cause a drop in sales. In several countries, silk-producing centers are closed. The World Trade Organization proposes to promote the benefits of this product so that it does not reduce the production of silk. Thus, silk is a natural product that is not harmful to the environment and human health. It can be used for other purposes besides clothing manufacturing.

Significant steps have been taken in Azerbaijan in recent years to develop the resources of silk production. All these activities are carried out under the control of the Head of State. The result is obvious that, for the first time since 2007, 70.7 tons of cocoon products have been produced in Azerbaijan, and about 1250 silver families have earned about 600,000 manats. In 2016, to initiate

the development program on concrete grounds, 1 million 700 thousand mulberry trees were planted in 2015, and the revival of barley breeding was started in 37 regions. As a continuation of these activities, it is planned to increase the production of barber production to 1300 tons by 2019 and to work at full capacity of the Sheki Silk Factory. A notable point is that last autumn, more than 1 million 793 thousand mulberry trees were planted in the country, and high-quality silk was distributed to 3013 families in 739 villages in 31 districts.

Another important step towards stimulation of production is the provision of 5 manat subsidies to the miners at the expense of the state budget for each kilogram of all types of silica, adopted by silk industry enterprises. According to other orders of the President, the Ministry of Agriculture has allocated 163,000 manats for the purchase of cocoons, 600,000 for mulberry seeds, and 4.5 million manats for the reconstruction of the Gakh Breeding Silk Station, additional production facilities, and modern equipment. A new season has already begun in several districts. As a whole, on June 1, "Sheki-Ipek" OJSC accepted 8717 tons of barrels and this process endures to date. Zardab (4157 tons), Aghdam (1296 tons) and Zagatala (933 tons) regions are ahead in production and supply. Production of 36.5 tons in Fizuli, 24 in Zardab, 22.5 in Sheki, 21 in Zagatala, 17.5 in Agjabadi, 15 tons in each of Agdam, Imishli, and Kurdamir regions is expected to be the largest producers.

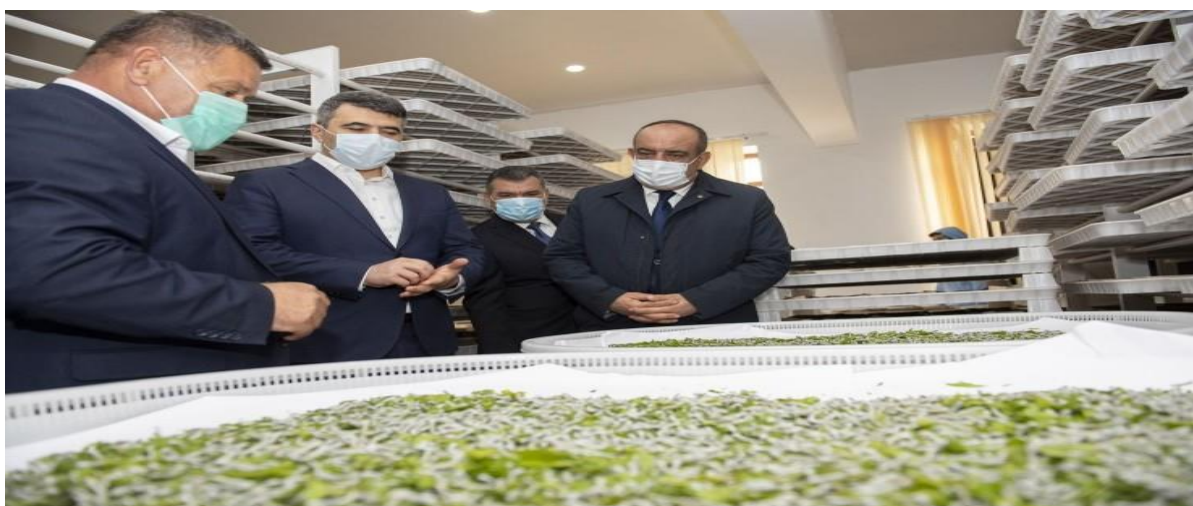


Figure 7. Gakh Breeding Silk Station (Source: Ministry of Agriculture of Azerbaijan Republic, 2020 ([www.agro.gov.az](http://www.agro.gov.az)))

### Conclusion and Strategy for future development

According to archeological and ethnographic studies, silk has more than 2,000 years of history in Azerbaijan, and it is closely connected with the creation of the Great Silk Road. For centuries,

Azerbaijan has been considered one of the world's centers of silk. According to experts, even in the 5<sup>th</sup> to 6<sup>th</sup> centuries in silk coverings with gold work in Mingachevir were fashionable. At that time, silk was supplied from Shamakhi to Russia, Iraq, Syria,

and other countries. Even in the 13<sup>th</sup> century, Italian traveler Marco Polo embodies the beauty of the silk pastures woven in Shamakhi. In the 16<sup>th</sup> and 17<sup>th</sup> centuries, Shirvan was able to maintain its dominance in the Middle East for silk production. Much of the Shirvan silk was shipped to many Asian and European countries. In the 17<sup>th</sup> century, Peter I intended to conquer the silkworms as he prepared to march across the Caspian. He was going to export raw land to Western Europe, including England, the Netherlands, France, and Poland after he seized these lands. The archives of that time can be found in the information of the Russian merchants exporting Astrakhan goods from Tabriz and Shamakhi in 1724. Sheki has been the center of silk production in Azerbaijan and the Caucasus for many years. In the 19<sup>th</sup> century, the largest silk factory in the world was operating in Sheki.

At the beginning of the 19<sup>th</sup> century, Sheki was called the Caucasus Lion for its success in silk-making. The fundamental shift in the development of silk production in Azerbaijan dates back to the 70s of the last century. During this period, silkworm farming in Azerbaijan developed again, producing about 7,800 tonnes of coconut per year. On March 3, 1971, while taking the initiative of Heydar Aliyev, the Council of Ministers adopted a resolution, "On Measures for Further Development of silkworm farming in the Republic of Azerbaijan". This decision gave a powerful impetus to the development of silkworm breeding and silkworm farming, expanding its material and technical base, industrial potential, and, as a result, the country increased its barley supply by 36.1 percent.

However, after the second turn of Heydar Aliyev to power, the attitude towards silk production has changed radically, as well as in other spheres in Azerbaijan, and necessary work has been done to restore this industry. Were established goals to reach the optimal volume of the export of Azerbaijan, as well as, to achieve effectiveness in agricultural production (Mammadov, 2018). In recent times, several initiatives have been taken place for the revival of the traditional silk industry in Azerbaijan. After the 2000s the government started to pay attention and attract investments in the development of the non-oil sector. The agriculture sector was prioritized to revive the economy.

There is great potential for the development of silk production in Azerbaijan. Following the instruction of President Ilham Aliyev, the Ministry of Agriculture has begun to take measures to create a modern silk infrastructure in the country since 2016. Decrees of the President of the Republic of

Azerbaijan "On State Support to the Development of Silkworms farming and breeding in the Republic of Azerbaijan, and "On Additional Measures to Strengthen State Support for the Development of Silkworm and Hazelnut" are considered effective for the potential development of this area and promoted the employment in the production of coconut and improved social welfare. The main objective is to develop the agriculture production and silk worming sector to generate employment and improve the standard of living of the general masses. Implementation of the State Program promotes the development of silkworm breeding in the country (Mədəniyyət, 2017).

With the growing demand for ecologically clean products in the modern era, the development of the silk industry has become more relevant. Another advantage of silkworm farming is the fact that the production of products is non-waste. Both basic and secondary products, obtained at each stage of the production process are used in the manufacturing process. The need to develop silkworms is linked not only with economic factors but also by cultural and historical factors. In addition to providing direct economic benefits as the industry, silking has a positive impact on the development of tourism and the preservation of historical traditions, being part of the country's history and culture (Sadik-Zada, Loewenstein, & Hasanli, 2019). As part of the silk industry in Azerbaijan, it operates as a single complex, including silk research institutes, breeding stations, seeding plants, grenade plants, regional barbering and drying plants, silk offices, cotton farms, and processing enterprises.

The experience of China, India, and Uzbekistan, which are some of the leading countries in the field of silkworming, shows that the development of small businesses in silk is of great importance. Thus, it is more advantageous to organize the initial processing of raw materials and the production of raw silk by small businesses located close to raw materials. In Azerbaijan, the production of raw silk so far has been made by large enterprises. This is why it is important to increase productivity through the use of intensive technology techniques in cementing. Taking this into account, the former Research Institute of Silkworms has developed a package of proposals on this problem, or more precisely, 2-3 times a year.

Inadequate adherence to agricultural norms by agricultural entities, low productivity of mulberry trees and leaves, as well as the inadequate use of local breeds and hybrids also affects increasing production. According to "Sheki Ipek" OJSC, more



than 200 out of 267 farms feeding mulberry silkworms in 2010 did not meet agro-technical standards. There is a silk complex in Azerbaijan Scientific Research Institute of Silkworm, along with Ganja and Gakh breeding silk station, about 30 barber drying stations, covering about 80 barrels and processing facilities, 4 silk farms, 31 silk farms, cotton mill, Karabakh, and Sheki Silk Factory. The main objectives are to achieve the sustainable development of silk production, as well as to improve the quality and volume of production through the modernization of economic infrastructure, the application of intensive methods, and the knowledge and skills of entrepreneurs. As for the objectives, it is necessary to attract investment in the silk and silk industry, to create a favorable business environment and efficient economic support mechanism for the profitable activities of economic entities, to encourage small businesses in the silk industry, to promote anti-corruption activities. Increase the productivity of trees planted by restoring and reconstructing existing gardens, increasing the productivity of cocoon production through the use of intensive methods of gardening, bringing the technical and technological level of silk production to the modern standards, providing the population with jobs and social services (Efendiev, 1999). Also, it is indispensable to provide the business entities with the necessary information, and training, develop links between scientific research and entrepreneurial activity in the silk industry, create a technology park in silk production, enhance the role of silk products in export diversification, promote Azerbaijan's position as an environmentally friendly product and promote employment in the regions. This implies the establishment of new manufacturing facilities and the implementation of appropriate measures to rehabilitate those that have ceased to exist.

Besides, it is necessary to encourage investment opportunities to attract investors to the regions for new recruiting and take appropriate measures to prepare specific investment opportunities to be provided to investors, complementary measures for the establishment of cooperative production in the regions, development of breeding farms, and their logistics. This includes the establishment of technical and vocational education to strengthen the base and low-skilled personnel.

There are mainly about 500 tons of dry cocoons produced per year, making the silk products manufactured in Azerbaijan one of the most competitive products on the world market, creating sustainable silk clusters. Also, there is a need for

deep manufacturing of silk products, the expansion of domestic production of specific silk products required for electrical engineering, radio engineering, cinematography, aerospace, astronautics, precision devices and cable production, healthcare, and other areas. Azerbaijan needs to resuscitate its solid material, silk, and attire industry. The comfortable climate of Azerbaijan assists in achieving high efficiency in agricultural production and farming in all parts of the country.

### The Prospects of Future Research

This study provides crucial information about the history of Azerbaijan's silk industry development in history that will provide an insight for both professionals and the general public. For the latter, it may help in designing new strategies and techniques for the silk production industry in Azerbaijan. Also, it will provide a handful of knowledge for the role of programs initiated by the government and their implementation in past and present times.

### Competing Interest

No conflict of interest

### Author contribution

All authors contributed equally

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