Comparative Analysis of Cotton and Agriculture Policies in Selected Countries (Azerbaijan, Turkey, Turkmenistan and Uzbekistan)

Parviz Ahmadov
Gubad Ibadoglu

Baku 2018
Executive summary

The goal of paper is to conduct comparative analysis of cotton and agriculture policies in selected countries (Azerbaijan, Turkey, Turkmenistan and Uzbekistan), evaluation of countries’ policies and producing policy alternatives for the Azerbaijan Government.

The first section of the paper presents the country’s economic background, its climate as well as its agricultural and institutional environment.

The second section of the paper presents a perspective on the value chain of the cotton industry in the country, from the cultivation of cotton to its export, as well as market actors and market functions in the industry.

The third section of the paper reviews and analyzes the Azerbaijan Government’s prior efforts to increase cotton production in the country. This section also discusses key, primary and secondary stakeholders, their position, influence as well as resources regarding the Government policy announcement.

The fourth section of this paper performs a comparative analysis of cotton and agriculture policies in selected countries – Turkey, Turkmenistan, and Uzbekistan. Then, the policies of these countries are assessed based on scientific-research institutions, financial viability, land size and availability, technical feasibility, water and irrigation systems, social acceptance, the viability of the textile industry, market and potential economic benefit factors.

The final section of the paper discusses the current status quo and reviews four policy alternative strategies for the problem. These alternatives are evaluated based on their political feasibility, financial cost, economic benefit, social acceptability, equity considerations and effectiveness criteria. Then the conclusions of the analysis are presented.

At the end of the conclusions, it is recommended to the Government to diversify out of the cotton industry and implement a combination of fourth and fifth solutions, which involve promotion of full diversification and liberalization of the market. Promoting full-diversification and liberalization of the market could reduce the country’s economic dependence on oil revenues and its exports, as well as address economic and financial problems in the country. The recommendation and implementation strategy have been outlined in detail at the end of the paper.
Contents

Executive summary ........................................................................................................................................... 1
List of figures .................................................................................................................................................. 4
List of tables .................................................................................................................................................. 5
Introduction .................................................................................................................................................. 6
Country context ............................................................................................................................................. 8
  Background of the Country and Economic Regions ............................................................................. 8
  Macroeconomic Context ......................................................................................................................... 10
  Institutional Environment of the Agriculture Sector ............................................................................. 11
  The Climate of the Country and Physical Environment (Land Structure) ........................................ 12
Value Chain of the Cotton Industry in Azerbaijan .................................................................................. 15
  What is the Value Chain? ......................................................................................................................... 15
  Cultivation ................................................................................................................................................. 15
  Collection and Processing ....................................................................................................................... 15
  Value Chain Map of the Cotton Industry ............................................................................................... 16
Market Actors and Market Functions ........................................................................................................ 16
  Domestic Market .................................................................................................................................... 16
  Farmers ...................................................................................................................................................... 17
  Subsidies and Taxes ................................................................................................................................. 17
  Export of Cotton Products and their Destinations .............................................................................. 17
  Cotton Pricing ......................................................................................................................................... 19
Past and Present Policies ............................................................................................................................ 20
Stakeholder Analysis for the Policy Announcement .................................................................................. 21
  Key Government stakeholders ................................................................................................................ 21
    National Level Stakeholders ................................................................................................................ 21
    Local and Regional Level National Stakeholders .............................................................................. 21
  Primary Stakeholders .............................................................................................................................. 21
  Secondary Stakeholders ........................................................................................................................... 22
Comparative Analysis of Cotton and Agriculture Policies in Selected Countries .................................... 22
  Turkey ......................................................................................................................................................... 22
  Turkmenistan ........................................................................................................................................... 23
List of figures

Figure 1. Sown area under cotton, ha .............................................................................................................6
Figure 2. Production of cotton ........................................................................................................................7
Figure 3. Cotton exports, million USD dollars ...............................................................................................7
Figure 4. Population dynamics ..........................................................................................................................9
Figure 5. Share of agriculture in GDP .............................................................................................................9
Figure 6. Economic regions of Azerbaijan .......................................................................................................10
Figure 7. Total area under agricultural crops ..................................................................................................13
Figure 9: Value chain of the cotton industry in Azerbaijan ................................................................................16
Figure 10. Export of cotton fabrics (USD, thousands) .....................................................................................18
Figure 10. Export of cotton yarn to the countries (USD, thousands) .................................................................18
Figure 11. Raw cotton price ..............................................................................................................................20
List of tables

Table 1. Per hectare cost analysis (AZN) .................................................................19
Table 2. Evaluation of countries’ cotton and agriculture policies ................................26
Table 3. Evaluation of policy alternatives ..................................................................28
Introduction

Azerbaijan was once one of the largest cotton producers in the world, with 300 hectares planted at the country’s peak in 1981 year. At that time, Azerbaijan was part of the Soviet Union, with 22.25% of the country's income coming from the cotton, which earned cotton the nickname “white gold” (Karimova, 2016). By 2005, however, the country planted only 112.4 thousand hectares (ha) of cotton in 2005, and by 2015, the land dedicated to cotton production had dropped significantly, to 18.6 thousand ha, the lowest number in the history of Azerbaijan, and 18% lower than the previous year. As a result of the Government intervention, sown area under cotton increased dramatically and reached to 136 thousands ha (Figure 1).

Cotton production has likewise decreased significantly, from 196.7 thousand tons in 2005 to 35.2 thousand tons in 2016 due to a lack of the Government investments and policies. As a result, many people in rural regions have lost their jobs, and this has led to unemployment problems in the regions. The Government has also lost large amounts of revenue from cotton exports, and this has hindered its economic diversification strategy. Since 2015, the Government has been trying to increase production to 500 thousand tons. In 2017, cotton production increased to 207 thousand tons due to reducing grazing areas and grain fields in the country (Figure 2).
As shown in Figure 3, while the Azerbaijan Government was earning 124 million USD from cotton exports in 1997, this trend has decreased dramatically over the years, and the country generated only 52 million USD from cotton exports in 2017.

Initial analysis indicates that low productivity of seeds and lands, lack of advanced technology, small size farmlands, barriers to access to finance, as well as lack of domestic market actors and small size domestic market compared to the Soviet Union, institutional capacity, poor and old irrigation
systems, low price of the cotton, as well as monopsony activities have caused the reduction of the cotton cultivation in the country.

Currently, the agriculture sector is a key priority for the Government due to fall in oil prices in the world. The Government sees the cotton production as part of a diversification policy and hopes that by developing this sector, it will be able to address unemployment issues in rural areas, contribute to the rural economic development, as well as to diversify the economy, and generate additional foreign exchange reserves by exporting it. Also, the Government hopes that production of the cotton will provide raw materials for textile industry in the future (Center for Analysis of Economic Reforms and Communication, 2017).

In addition, the Government is trying to address economic and financial crises by developing agriculture sector in the country. That is why, in December 2016, it launched a Strategic Roadmap for the development of the national economy and 11 key areas. Agriculture is one of the key sectors. In the strategy paper, it is highlighted that cotton production is considered one the primary agriculture sectors to be developed (Center for Economic Analysis and Reforms, 2016).

On July 13, 2017, Azerbaijan president signed a state program to strengthen the government measures in the cotton industry. The program covers 2017-2022 years, and the main aim is to increase production of the cotton to 500,000 tons in 2022 and address employment problems in rural areas. Various institutional reforms, applying innovative technologies, attracting foreign investments, increasing knowledge of this field experts’, and improving regulatory and legal framework are part of the state program. The National Fund for Entrepreneurship Support (NFES), Azerbaijan Investment Company, the State Service for Management of Agricultural Projects and Credits under the Ministry of Agriculture (SAAC), domestic, as well as foreign investments are considered as financing source of the state program (Nazarli, 2017).

The policy question of the Master Project is to assess the feasibility of the Government policy announcement in the country.

**Country context**

**Background of the Country and Economic Regions**

Azerbaijan is a country situated in the Caucasus region on the coast of the Caspian Sea in Eurasia. In the north, Azerbaijan borders with the Russian Federation, in the south – with Islamic Republic of Iran and Republic of Turkey, in the west – with the Republic of Armenia and the Republic of Georgia. The total area of Azerbaijan is 86.6 thousand km². Baku is the capital city of the country (Khalilov, Shalbuzov, & Huseyn, 2015, p. 4).

After getting its independence in 1991, Azerbaijan has made remarkable economic progress and reduced the poverty rate from 49% to 5% due to its oil revenues. In 2014, Azerbaijan became an upper-middle income country with a Gross National Income (GNI) per capita of USD 7,700 and USD 16,715 at PPP. Current gross domestic product (GDP) is 42.8 billion USD, GDP per capita is 4438 USD, and 17857 USD at PPP (IMF, 2018) and life expectancy is 70.8 years (World Bank, 2017). Unemployment is 6% (IMF, 2018). The current inflation rate is 14% (CBAR, 2017).
The economy remains insufficiently diversified and is heavily dependent on extraction and export of oil-gas resources. Moreover, gaps between capital city and regions are still evident (UNDP, 2017). Export income which makes the most significant contribution to the development of the country also depends on oil production. Although sectors other than oil, such as construction, banking, and real estate, are also subject to growth.

Azerbaijan, with a population of 9.9 million in 2018, out of which about half live in rural areas (AzSTAT, 2018).

As it is shown in Figure 5, agriculture is the second major employer of the country after oil-gas industry, and accounts 5.6% of the country’s GDP and employs 40% of working population in 2016, while it was accounted 16.1% of GDP in 2000 (World Bank, 2018).
Azerbaijan has ten economic regions including Nakhchivan autonomous region. Some regions have more advantages to produce agricultural crops. The main production areas of the cotton are an Aran economic region in the country that cover Goychay, Beylagan, Agjabadi, Barda, Neftchala, Bilesuvar, Barda, Neftchala, Salyan, Yevlakh, Agdash, Ujar, Zardab, Kurdamir, Imishli, Saatli, Sabirabad, and Hajigabul provinces of the country. These regions have favorable climate and soil for cotton production (Business Year, 2016).

![Figure 6. Economic regions of Azerbaijan](image)

Source: The State Statistical Committee of the Republic of Azerbaijan, 2018

**Macroeconomic Context**

Azerbaijan’s economy is still highly dependent on the utilization of hydrocarbons such as oil and gas recourses and accounts nearly 90% of goods exports, and 54% of fiscal revenues in 2018. The sharp drop in global oil prices in 2014-2015 had a negative impact on the country’s economy, such as trade balance, currency, budget revenues, banking sectors, as well as foreign exchange reserves and interest rates.

This external shock affected the country’s economic growth as GDP decreased to –1.7% in 2017. Before the drop-in oil prices, the country’s GDP growth was 13% in 2004-2014, 1.1% in 2015, and declined dramatically to –3.8% in 2015. In 2017, the rate shifted to –1.7% in the country (Ministry of Finance, 2017), while the non-oil economy expanded by 1.7% for the first time in over a year, supported by the strong performance of the agriculture and manufacturing sectors in 2017 (World Bank, 2017). In 2018, Azerbaijan’s GDP growth was 1.3% (IMF, 2018).

The annual inflation rate was 13.9% in 2017 in the country due to increasing fees for electricity, water, gas utilities as well as high demand for Azerbaijani foods in the market in Russia as a result of the European Union sanction on Russia. The Central Bank of Azerbaijan (CBA) has been implementing tight monetary policy by implementing liquidity absorption operations in the country.
to reduce the inflation rate since 2017 (World Bank, 2017). As a result, annual inflation moderated to 2.3% in the first half of 2018. In response to declining inflationary pressures and more favorable external conditions, the Central Bank cut the policy rate twice in 2018 from 13 to 10% (Central Bank of Azerbaijan, 2018).

The drop in oil prices also has affected the country’s exchange rate and made pressures on the local currency – AZN. The CBA tried to reduce pressure on AZN and this lead to reducing foreign exchange reserves of the CBA. For instance, foreign exchange reserves of the CBA declined from USD 16.7 bn in 2014 to USD 5.6 bn in 2018. Eventually, the CBA devaluated the local currency (AZN) by 34% in February 2015, 48% in December 2015 and shifted exchange rate regime from pegged to the floating. Currently, the exchange rate for 1 USD is 1.70 AZN (Central Bank of Azerbaijan, 2018).

Institutional Environment of the Agriculture Sector

Agricultural research is carried out by state research institutions and universities. Agrarian Science and Information Advisory Center within the Ministry of Agriculture (MoA) coordinate national agricultural research institutes based in Baku or other provinces (FAO, 2018, p. 33). There is only one specialized agricultural university – Azerbaijan State Agricultural University. The quality of the education system at this university does not match the current market demand, and the university does not have enough capacity to advise the Government and farmers in this field. Also, the university is not well equipped, lacking essential equipment such as agricultural labs and research centers.

Educational demand for the State Agricultural University is quite low amongst students in the country. To encourage students to study in the agricultural field, MoA initiated special programs for students in 2017 (FAO, 2018, p. 35).

There was only one Scientific Research Institute of Cotton Growing in Azerbaijan which was located in Ganja city. It was founded in 1925, with the aim to seek out new methodologies for cotton cultivation that produce high-quality cotton and cotton products. Soil-protection, energy and resources savings, and ecologically efficient technology were areas of study of the Institute. However, in April 2015 the Institute was abolished, and a new Plant Protection and Technical Crops Research Institute was founded (Cabinet of Ministers, 2015).

There are few financial institutions in the country which provide short-term loans for agricultural purposes while there is huge demand for long-term loans. Agriculture is still considered a relatively high risky sector by local banks that creates barriers for farmers to access credit (World Bank, 2015, p. 11). To address the issues, it is expected to provide farmers technical and financial assistance through NFES, and Agroleasing Company, Azerbaijan Investment Company, and SAAC in the country (Nazarli, 2017).

NFES was established with the aim to take part in the development of entrepreneurship and increase of business activity of the population, implementing financial support to them. The fund

---

1 Before devaluation, the exchange rate was 1USD=0.78.53AZN [https://en.cbar.az/other/azn-rates](https://en.cbar.az/other/azn-rates)
delivers discounted credits to businessmen. In 2016, the Fund provided 3.2 million AZN to 260 cotton growing farmers (NFES, 2016), which was equal to 0.8% of GDP of the country.

SAAC was established in 2004 with the aim to provide state loans to individuals and legal entities engaged in entrepreneurial activity in the agrarian sector. According to SAAC 2017 report, 5.68 million AZN loans were given to cotton growing farmers (State Service for Management of Agricultural Projects and Credits, 2017).

Agroleasing Open Stock Company was established in 2004 under the Ministry of Agriculture to accelerate the implementation of service works intended in the agrarian sector, facilitating entrepreneurs’ work, providing them with necessary equipment through acquisition and leasing of agricultural machinery (Agroleasing, 2018).

Phytosanitary Control Service under the Ministry of Agriculture was established in 2005. Laboratory of Expertise of the Plant Quarantine, National Control Laboratory of Toxicology, National Plant Protection Centre, 16 district and regional plant quarantine offices, five regional biological laboratories, 57 regional plant protection centers go into the structure of this service (Khalilov, Shalbuzov, & Huseyn, 2015, p. 11).

There are not cotton farmers associations, farmer corporations, national cotton assembly, and unions that are related to the cotton industry in the country.

Finally, there is no State Insurance Agency in the agriculture sector, including in cotton industry in the country. Private sectors also see this sector as a high-risk sector and are not willing to take any steps in this matter.

**The Climate of the Country and Physical Environment (Land Structure)**

Azerbaijan has nine of the eleven world climatic zones that provide the country a rich agro-climatic diversification. This climate diversification allows Azerbaijan for two and three growing cycles per year (Khalilov, Shalbuzov, & Huseyn, 2015, p. 12). However, rainfall is relatively low in these zones, making the country much more dependent on irrigation. For instance, in the Aran economic region where the cotton cultivation takes place, annual average rainfall is about 180-220 millimeters, and it is strongly salinizated soils. In addition, the arid subtropical climate is characteristic of the Aran region that shows lack of water resources in the region.

Regardless Araz and Kur rivers flowing through the country, Azerbaijan has fewer water resources compared to its neighbor countries Georgia and Armenia. The water sources are rivers, lakes, water reservoirs, and springs. According to Azerbaijan Melioration and Water Management report, the water resources in Azerbaijan are assessed at 32.3 billion m³, of which 30% are generated in the country, and the rest come from adjacent territories, mainly from Georgia and Armenia. Underground water resources are 5.2 billion m³. During the summer season, the water resources decrease to 22.6 billion m³. Moreover, 10-13 km³ water resources are used per year in the country, while its 60-70% is used for agriculture purposes, 20-25% for industry and the rest of it are used for households and drinking purposes (Azerbaijan Melioration and Water Management, 2018).

Water losses are also high threat to water reserves in the country, and it may go up to 90% in irrigation due to lack of irrigation infrastructure (FAO, 2018, p. 29).
The total area of Azerbaijan is 86,600 km², while the utilized agricultural area is 4,769.7 km² (5.5). After the collapse of the Soviet Union, the Government started the land privatization reform in the mid-1990s, and collective farms and state farms distributed to 843,200 small private farms of 2 ha size on average, a large share of which have between 1 and 5 ha. Currently, 99.8% of agricultural lands are private, out of which 66.8% are specialized agricultural producer family farms, 32.8% are engaged as subsistence farming, and only 0.2% are large farms. Agro-industry plays a crucial role by generating 2.7 billion USD that equals to 41% of manufacturing output. Main areas are the processing of meat and dairy products, as well as canning of fruit and vegetables. Moreover, it should be noted that more than 90% of agricultural production is produced on these small farms (FAO, 2018, pp. 4, 11).

As it is shown below in Figure 7, in 2017, nearly 1.66 million ha total land was under agricultural crops, and 90% of these lands can be irrigated (Figure 8).

![Figure 7. Total area under agricultural crops](image)

Source: Author calculations based on data from the State Statistics Committee of the Republic of Azerbaijan
Figure 8. Total irrigated lands

Only 3.15% of these lands or 51.4 thousands ha of land were used for cotton purposes in 2016. As a result of the Government intervention in 2017, this trend reached to 136.4 thousands ha (Figure 9).

Figure 9. Total sown area under cotton

Source: Author calculations based on data from the State Statistics Committee of the Republic of Azerbaijan
Value Chain of the Cotton Industry in Azerbaijan

What is the Value Chain?
A value chain consists of all the actors involved in the production, processing, trading, and selling of a specific product. For example, the value chain in producing cotton includes producing raw cotton, but it also includes other inputs that affect supply and management, including, for instance the rules and regulations that impact cultivation plus the production and management of other products such as soil amendments, fertilizers, irrigation, land and plant protection agents. The value chain also is impacted by any locally adapted methods that are needed to cultivate cotton in a country.

A value chain from agricultural products to world markets also requires facilitating institutions which implement policies and enforce commercial laws. These institutions develop financial instruments, human resources, market information, standards, markets, technology, research, and innovation, as well as property rights. Facilitating services such as transports, storage, processing, packaging, imports, exports, dealers, and communicators are also needed. Moreover, incentives for individuals who add value to products in different stages make up a significant part of the value chain.

Cultivation
In Azerbaijan, small-scale farmers are the principal sources of cultivated cotton in the country. As a result of the land reforms in the country after the collapse of the Soviet Union, collective farms and state farms were given to small private farms, with 2 ha size on average. Currently, 99.8% of agricultural lands are private and in the hands of small farmers, and the cotton cultivation takes place in these small farms.

Since 2016, the Government has been forcing farmers to grow cotton and has assigned local executive authorities to monitor farmers’ activities to ensure they grow only cotton to achieve the Government’s annual cotton production quota. Most farmers do not have a choice in the Aran region to grow other agricultural crops. In addition, they must sell their cotton to Government assigned cotton collection companies at a price set by the Government.

Collection and Processing
Collection of the cotton is done mostly manually due to lack of cotton harvesting combines in the country. Mostly, women are involved in cotton picking process. Cotton pickers are paid 0.15 AZN (sometimes 0.10 AZN) per kg in cash, while cotton picking with a combine costs 100 AZN per ha in the country.

During harvesting season, students and state employees – doctors, teachers, and local government officials – are forced into to the cotton fields to help farmers to pick cotton to fulfill the Government production quota. Over the last three years, child labor has also observed in cotton production and collection process.
Value Chain Map of the Cotton Industry

Based on the author’s analysis, the current value chain of the cotton industry can be shown as below in Figure 9.\(^2\)

![Figure 8: Value chain of the cotton industry in Azerbaijan](image)

Note: Post-Production, Industrial Processing, Distribution and Marketing phases of the chain are done by MKT IK LLC, CTS Agro LLC, Goran Cotton OJSC, Gilan Agriculture Group and Agriculture LLC

Source: Author

Market Actors and Market Functions

Domestic Market

Analysis indicates that Azerbaijan’s domestic cotton market is limited. The main market players are farmers who produce cultivated cotton in their small-sized lands. The only buyers are a few local companies – MKT IK Limited Liability Company (LLC), CTS Agro LLC, Goran Cotton Open Joint Stock Company, Gilan Agriculture Group and Agriculture LLC. These companies accept, process and export cotton in the country. In fact, all these companies are connected with a single company, MKT IK LLC. Interestingly, the Ministry of Agriculture set the cotton price in the market with MKT IK and CTS Agro LLCs together. This indicates that there is a monopsony in the cotton market, which creates barriers to other companies to enter the market.

These companies have cotton processing factories and supply stations in the regions too. Cotton products are made in these processing factories, while the supply stations of the companies sell seeds, fertilizers, equipment and other essentials to the farmers to cultivate the cotton in their lands. The vast majority of farmers do not have technical or financial resources for the independent

\(^2\) Due to the sector’s neglect during the oil boom, little official data is available
sowing, cultivation, and harvesting of cotton. The last few years, the farmers are engaged in contract agreement with local cotton companies to cultivate the cotton in their lands. According to the contract, the companies provide farmers with equipment and necessary materials – seeds, fertilizer, and pesticides – as well as interest-free loans through their supply stations in the regions. The rural farmers pay them back with their harvest, giving it at fixed prices to the company with which they sign in the contract.

**Farmers**

As mentioned above farmers have average 2.5 ha lands, and they produce agricultural products in it. Analysis indicates that farmers make their production decision based on the Cobweb theory. For instance, if they observe higher prices in some agricultural crops, they decide for the next year to produce agricultural products considering previous years’ prices. Farmers used to imply the theory until 2016. Since 2016 farmers cannot decide to plant what they want. Since then, the Government sets the cotton production quota per year, and local executive authorities in the Aran economic region implement the Government’s cotton production policy. They create barriers for farmers and do not let them plant other agricultural crops except cotton.

**Subsidies and Taxes**

In Azerbaijan, there are subsidies for fuel and chemical fertilizers. These subsidies are mostly given to the farmers to use for inputs and lower production cost. Currently, the Government provides farmers with a subsidy of 50 AZN per hectare for the use of fuel and engine oil, except cotton, tobacco, and sugar beet producers (Cabinet of Ministers, 2015). Also, since 2016, the cotton producers in Azerbaijan have started to receive a subsidy in the amount of 0.1 AZN per kg of cotton brought to cotton-processing factories (Cabinet of Ministers, 2016).

The country’s Tax Code 199.9 provides five years exemption from property tax for individual and legal entities regarding properties used in the production of agricultural products (as well as production with the industrial method) starting from 1 January 2014. Also, Tax Codes 207.3 provides seven years land tax exemption for individuals and legal entities holding investment promotion certificate from the date of obtaining investment promotion certificate. Another Tax Codes 106.1.14 provides five years exemption from profit tax for legal entities income generated from the production of agricultural products (as well as production with the industrial method) starting from 1 January 2014 (Ministry of Taxes, 2018).

**Export of Cotton Products and their Destinations**

Analysis of the State Statistical Committee of the Republic of Azerbaijan (AzSTAT) 2017 data shows that the country generated 52 million USD revenues from cotton exports. For instance, 33 million USD revenues by exporting cotton fiber. The main buyers of it were Turkey with nearly 98%, and Russia with 2% respectively. In addition to, 16 million USD revenues were generated by exporting cotton fabrics to Russia, Turkey, Georgia, Ukraine and Iran countries (Figure 10).
While 1 million USD were generated by exporting cotton yarn (Figure 11).

Source: Author calculations based on data from the State Statistics Committee of the Republic of Azerbaijan
Cotton Pricing

To find the cost of the cotton production and revenues from it, the data from AzSTAT and the Ministry of Agriculture, view of local experts, and related news, as well as farmers views on the newspapers have been analyzed. As a result of the analysis, it has been found out that if farmers prefer picking cotton with a combine, they spend 897 Azerbaijan manat (AZN) for cotton production per ha. If they prefer picking the cotton with hands, it costs 1026.5 azn per ha. The details can be seen in Table 1.

Table 1. Per hectare cost analysis (AZN)

<table>
<thead>
<tr>
<th>Activities</th>
<th>Unit</th>
<th>Quantity/Times</th>
<th>Price or Cost/Unit</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Land expenditures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plow the soil</td>
<td></td>
<td>2</td>
<td>30 AZN</td>
<td>60 AZN</td>
</tr>
<tr>
<td>Watering plowed soil before sowing</td>
<td></td>
<td>1</td>
<td>25 AZN</td>
<td>25 AZN</td>
</tr>
<tr>
<td>Harrow</td>
<td></td>
<td>2</td>
<td>13 AZN</td>
<td>26 AZN</td>
</tr>
<tr>
<td>Main irrigation channels (inside the field)</td>
<td></td>
<td>3</td>
<td>12 AZN</td>
<td>36 AZN</td>
</tr>
<tr>
<td>Cultivation</td>
<td></td>
<td>3</td>
<td>12 AZN</td>
<td>36 AZN</td>
</tr>
<tr>
<td>Kezo (small irrigation channels inside the field)</td>
<td></td>
<td>3</td>
<td>10 AZN</td>
<td>30 AZN</td>
</tr>
<tr>
<td>Total cost</td>
<td></td>
<td></td>
<td></td>
<td>213 AZN</td>
</tr>
<tr>
<td>2. Irrigation expenditures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watering the plant</td>
<td></td>
<td>3</td>
<td>20 AZN</td>
<td>60 AZN</td>
</tr>
<tr>
<td>Annual fee for Water Association</td>
<td></td>
<td>1</td>
<td>8 AZN</td>
<td>8 AZN</td>
</tr>
<tr>
<td>Total cost</td>
<td></td>
<td></td>
<td></td>
<td>68 AZN</td>
</tr>
<tr>
<td>3. Seed expenditures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buying seeds</td>
<td>kg</td>
<td>22</td>
<td>5 AZN</td>
<td>110 AZN</td>
</tr>
<tr>
<td>Planting seeds</td>
<td></td>
<td>1</td>
<td>10 AZN</td>
<td>10 AZN</td>
</tr>
<tr>
<td>Total cost</td>
<td></td>
<td></td>
<td></td>
<td>120 AZN</td>
</tr>
<tr>
<td>4. Pesticide expenditures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pest control (weeds, insects)</td>
<td></td>
<td></td>
<td></td>
<td>296 AZN</td>
</tr>
<tr>
<td>Machinery</td>
<td></td>
<td>7</td>
<td>10 AZN</td>
<td>70 AZN</td>
</tr>
<tr>
<td>Total cost</td>
<td></td>
<td></td>
<td></td>
<td>366 AZN</td>
</tr>
<tr>
<td>5. Picking Cotton Expenditures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With hands</td>
<td>kg</td>
<td>1500</td>
<td>0.15 AZN</td>
<td>225 AZN</td>
</tr>
<tr>
<td>With combine</td>
<td>hectare</td>
<td>1</td>
<td>100 AZN</td>
<td>100 AZN</td>
</tr>
<tr>
<td>Logistics (from land to manufacture)</td>
<td>tractor</td>
<td>1</td>
<td>30 AZN</td>
<td>30 AZN</td>
</tr>
<tr>
<td>Total cost</td>
<td></td>
<td></td>
<td></td>
<td>355 AZN</td>
</tr>
<tr>
<td>Overall total cost:</td>
<td></td>
<td></td>
<td></td>
<td>897 AZN picking with a machine</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1022 AZN picking with hands</td>
</tr>
</tbody>
</table>

Source: Author, calculations based on data from the State Statistics Committee of the Republic of Azerbaijan and the Ministry of Agriculture

According to AzSTAT 2018 report, cotton yield was 1500 kilogram (kg) per ha. After getting this data, to find the cost of cotton production per kg, cotton yield has been divided to the cost of the production per hectare as the following:

\[
\text{1022 azn/1500 kg = 0.68 azn per kg (if picking the cotton with hands)}
\]

\[
\text{897 azn/1500 kg = 0.60 azn per kg (if picking the cotton with a combine)}
\]

The analysis shows that in order to produce 1 kg cotton, it costs farmers 0.68 AZN and 0.60 AZN respectively. However, in 2018, the farmers were paid 0.65 azn (or 0.38 USD) per kg⁴ in Azerbaijan market. In fact, they were paid 0.40 azn, plus 0.10 azn subsidies by the Government. However, as

---

³ Central Bank of Azerbaijan exchange rate as of 30 December 2018 1USD=1.70 AZN https://en.cbar.az/other/azn-rates
⁴ As of December 2018: Price of cotton types per kg in Azerbaijan market: First type 0.65 AZN (0.38 USD), Second type 0.63 AZN (0.37 USD), Third type 0.59 AZN (0.35 USD), Fourth type 0.55 AZN (0.32 USD);
the Figure 11 indicates, the world price for cotton was 1.90 USD per kg in the world market in 2018. It is clear that the farmers, instead of profiting, are losing their money and time in the production of cotton. In other words, the profitability per ha shows marginal or negative results for farmers who plant cotton.

Figure 11. Raw cotton price

Source: Author calculations based on data from the Ministry of Agriculture of the Republic of Azerbaijan and the World Bank Commodity Price

**Past and Present Policies**

Oil is the main driving force of Azerbaijan’s economy and accounts 90% of the country’s exports. Since 1991, the Azerbaijan Government had not adopted serious policies to the cotton industry in the country due to oil revenues. In 2010, the first time, the Government had adopted a policy to increase cotton production in the country. However, the Government did not take its policy seriously, and as it is shown in Figure 2, its production decreased, instead of increasing. Analysis of the policy indicates that the Government had been given more privileges to processing plants rather than the farmers.

In 2015, as a result of falling oil prices in the world, the Government had started to look for non-oil alternatives to increase exports of the country and address economic and financial problems. Production of the cotton is considered one of the alternatives. The issue also was discussed at 2016 conference that dedicated the results of the second year of “the State Program for Social-Economic Development of Regions of the Republic of Azerbaijan 2014-2018” years. According to the Ministry of Economy, the Government is preparing a plan to help farmers to bring back the cotton industry in the country, and they will be supported financially to buy seeds and fertilizers, as well as agricultural technologies. Technical and financial assistance will be provided to the farmers as well through the NFES and Agroleasing (Mammadov, 2016).

---

5 Central Bank of Azerbaijan exchange rate 1AZN=0.7850 USD in 2010-2015 years, 1AZN=1.05 USD in 2015-2016 years, 1 AZN=1.70 USD for 2017 [https://en.cbar.az/](https://en.cbar.az/)
On July, 2017 the second state program signed by the President of the country and covers 2017-2022 years. The main aim of the state program is to increase production of the cotton to 500,000 tons in 2022 and address employment problems in rural areas (Nazarli, 2017).

**Stakeholder Analysis for the Policy Announcement**

Analysis indicates that there are various stakeholders in the Government’s policy announcement (See Annex 1). Key, primary and secondary stakeholders have been identified in policy announcement, and they are following:

**Key Government stakeholders**

Analysis of the State Program on cotton growing in Azerbaijan shows that there are national and local level key governmental stakeholders:

**National Level Stakeholders**

Cabinet of Ministers, Ministry of Finance, Ministry of Economy and the Ministry of Agriculture are national level key government stakeholders. They are more interested in cotton production in the country, have high power and high influence.

**Local and Regional Level National Stakeholders**

Local executive powers, municipalities, as well as regional offices of the Ministry of Economy and the Ministry of Agriculture, their entities – NFES, SAAC, and Agroleasing, locally based research institutions are local and regional level national stakeholders. Taking into consideration Azerbaijan is a highly centralized country, these stakeholders are implementers of the national level stakeholders’ policies. That is why they also have high power and influence in cotton production. In addition, Local Executive Authorities (LEAs) have more vested interests in growing cotton to get more subsidies from the Central Government. These stakeholders support the Government’s policy.

**Primary Stakeholders**

Above mentioned private cotton processing companies, farmers and rural population are primary stakeholders on the Government policy announcement.

Private cotton processing companies have more interest and high power. These companies are connected to the Government officials, and as mentioned above, they also determine official cotton procurement price with the Ministry of Agriculture and Ministry of Economy in the country. They support the Government’s policy, and they are the ones get more profit from it.

Farmers and rural population are also primary stakeholders. However, they have less interest and less power in growing cotton in the country. Though they have lands, based on the Central Government’s order, LEAs do not allow farmers and rural population to cultivate other agricultural crops in their lands. Lack of understanding their land rights gives a chance to LEAs to force them to

---

http://ereforms.org/store//media/ekspert_yazilari/islahat%20icmali/iyul/Pamb%C4%B1q%C4%B1q%C3%A7%C4%B1%C4%B1q_En.pdf
cultivate cotton in their agriculture fields. These stakeholders do not support the Government’s policy.

**Secondary Stakeholders**

The World Bank (WB), the European Bank for Reconstruction and Development (EBRD), Asia Development Bank (ADB), Asia Infrastructure and Investment Bank (AIIB), China are secondary stakeholders. Also, non-governmental organizations (NGO), think-thank and research centers are secondary stakeholders on this policy announcement.

The WB, EBRD, ADB, AIIB, and China are more interested in the Government policy regarding investment, but they have less power and neutral position on the Government’s policy. NGOs, think-tank, and research centers are less interested in the Government’s policy, and they have less power. They openly criticize the Government’s policy announcement and against it.

**Comparative Analysis of Cotton and Agriculture Policies in Selected Countries**

Turkey, Turkmenistan, and Uzbekistan have been chosen for comparative purposes. Turkmenistan and Uzbekistan have chosen due to sharing the same historical background with Azerbaijan during the Soviet Union. These two countries including Azerbaijan were main cotton producers in the Soviet era. Also, this is shown by the Government one of the rationales for their policy announcement. The third country, Turkey has chosen due to political, economic and cultural ties, as well as sharing the same economic status – upper middle income – with Azerbaijan.

**Turkey**

Turkey is one of the leading countries in the world for its cotton production. Turkey’s textile industry is one of the important sectors in its economy in terms of employment, exports and investment. Despite Turkey is one of the biggest cotton producers in the world, the country still imports half of its cotton consumption. The demand for cotton in Turkey’s local market is 1.5 million tons due to its textile industry. Turkey’s textile industry is considered one of the leading sectors in the country and accounts 18% of its total exports. Global fashion brands such as Zara, Nike, and Adidas have factories in Turkey too. Besides these, there are also 53,000 textile companies that provide 400,000 workplaces in the country. The industry is also developing fast due to huge demand for Turkish textile products in Europe, Russia, Iran and as well as Azerbaijan markets (Sirtioglu, 2018, p. 2).

In 2018, cotton planting area was 520,000 ha in the country and produced 950,000 tons raw cotton (Sirtioglu, 2018, p. 3). Currently, the Turkish Government is implementing 10 billion USD a multi-sectoral regional development project as known Guney Anadolu Projesi in the country to improve living standards in rural areas of the country. Improving irrigation system as well as expanding cotton sown areas are part of the project (Unal, 2015).

Cotton yields are increasing in the country as well due to the farmers’ experience in cotton production and advanced agricultural technologies. In addition, the farmers have large-scale lands to
cultivate the cotton. Therefore, better economies of scale and planting techniques contribute to increasing yields.

The Turkish Government also helps farmers with subsidies to increase cotton production in the country to provide its textile industry with raw cotton. The Government provides 4 Turkish Lira (TL) for fertilizer and 36 TL for diesel per ha. Also, the Government provides 0.80 TL per kilogram to farmers for their cotton production for 2017/2018 years. The support is provided only to certified seed users (Yildirim, 2017).

Cotton is purchased in Turkey market by the Agricultural Cooperatives, 89 Agricultural Sales Cooperatives, and four Agricultural Sales Cooperative Unions, Turkish Textile Unions, Turkey Agriculture Chambers Unions, trade bureaus, ginning plants and traders. These institutions play an important role in the domestic trade of the cotton and determine its price in the local market. Currently, the price of the cotton in Turkey market is 0.82 cents per kg (as of December 30, 2018).

Also, the Turkey Government provides financial and technical assistance to the farmers to use advanced irrigation systems to prevent environmental impact and waste of water resources. The country has nearly 1,150 new modern harvesters, which reduce the cost of cotton picking and delays in the country. Currently, the Government is planning to buy more harvesters due to high cost and scarcity of labor (Sirtioglu, 2018, p. 4).

Besides factors mentioned above, Turkey also has strong research institutions that support the cotton farmers and cotton consumers. The Scientific Research and Technological Research Council of Turkey is one of them which is responsible for promoting, developing, organizing, conducting and coordinating research and development in the cotton industry in line with national targets and priorities (TUBITAK, 2018).

There is no tariff on imported cotton to the country, except cotton imports from the USA. Since April 2016 the Government has been imposing 3% anti-dumping duty on the US cotton export to protect domestic producers (Cotton Council of America, 2016). The USA cotton accounts for 42% of total cotton imports of Turkey. According to the Turkish Statistical Department, Turkey imported cotton products worth about 738 million USD in 2017 (Hurriyet Daily News, 2018).

Turkmenistan

Turkmenistan is a Central Asian country with 5.6 million people. The country is rich with natural gas resources and is among top 10 cotton producers in the world. Turkmenistan cotton is known for its quality, and the country exports its cotton to China, Russia, the United Kingdom, South Korea, Turkey, Iran, Indonesia, Singapore, Ukraine and Baltic countries.

The country ranks ninth largest cotton producer after China, India, the United States, Pakistan, Brazil, Uzbekistan, Turkey and Australia. In 2018, the country had 550,000 ha cotton sown area and harvested 1.17 million tons raw cotton (Foreign Agricultural Service USDA, 2018)

The country also has a developed textile industry which began to develop in the early 1990s, after the collapse of the Soviet Union. Currently, textile products are the third largest export items of the country after natural gas and oil products, and it generated 303.1 million USD in 2017. According to the official data of the Turkmenistan Government, more than 70 textile factories operate in the
country, and 30 of them have been built after the collapse of the Soviet Union. Since independence (1991), investment in this sector has reached to 1.8 billion USD, and its 13% is foreign direct investment. Currently, the Government is trying to reach the investment to 2 billion USD in 2020 under its state program of the textile industry. Textile companies from Turkey play an important role in developing this sector. More than 20 textile companies operate in the country, and their investment share in this sector is higher compared to other foreign investment companies (International Trade Administration, 2017). Currently, the Government is investing in textile industry, including upgrading existing facilities and building new ones.

According to Ministry of Textile Industry of Turkmenistan, main clients and customers of garment production are the world-famous companies such as IKEA, Sears, Walmart, Levi’s, Zara, Erika, and others (Ministry of Textile Industry of Turkmenistan, 2018).

In 2018, the Government paid farmers 1650 Turkmen manat or 471 USD per ton, while manual cotton pickers were paid 0.2 Turkmen manat or 0.057 USD per kg (Альтернативные Новости Туркменистана, 2018).

The Government also uses advanced agricultural technologies. In 2017, 948 cotton combines, 2,535 vehicles, 2,506 tractors, and 3,564 tractor trailers were involved in raw cotton cultivation in the country (Turkmenistan Today, 2017).

The Government also has several subsidized loan programs for agricultural production, including cotton production. Also, the state commercial bank Daikhanbank provides loans to private farmers, entrepreneurs, and collective agricultural associations (Green Climate Fund, 2017, p. 4).

**Uzbekistan**

Uzbekistan is one of the top cotton producers in the world. In 2018, the cotton planted area in the country was 1.2 million ha, while harvested raw cotton was 3.20 million tons. There are 99 gins in Uzbekistan, only one of them belongs to a private company, the Government owns the rest of it. 40% of raw cotton is consumed domestically, and the rest of it is exported, mainly to China, Bangladesh, Iran, Turkey and Russia (USDA Foreign Agricultural Service, 2017, p. 2).

The textile industry plays an important role in Uzbekistan’s economy too. It employs one-third of the industrial workforce and its share of industrial output is 26%. Currently, more than 180 textile enterprises are engaged in textile production in Uzbekistan. In 2016, Uzbekistan generated 1 billion USD by exporting cotton yarn, textiles, and readymade garment (USDA Foreign Agricultural Service, 2017, p. 3).

The Government controls price of the raw cotton procurement in the country. Its procurement price is set by the Ministry of Finance not later than 15 days before the harvesting season. The price is set based on the average cotton fiber price forecasted in the world market for raw cotton harvesting season and the Central Bank’s prediction about currency exchange rate (FAO, 2016, p. 26). From October 2017, the Government pays 700 soms (0.08 USD) for one kg of raw cotton manual picking. For the raw cotton, it pays 3,352,570 soms (413 USD) per ton (Fergana News Agency, 2017).
In 2010-2014, foreign direct investment in the country’s textile industry reached to 785 million USD, while 147 new textile enterprises were opened with the participation of investors from Germany, Switzerland, Japan, South Korea, the United States and Turkey. Export amount of these enterprises were 670 million USD in 2016 (Aliyeva, 2017).

After the death of Uzbekistan President Islam Karimov in 2016, new elected President Shavkat Mirzoyev has started to take serious measures in the cotton industry. One of them was abolishing state-owned monopoly holding company Uzpahtasanoatexport. Now, domestic textile enterprises can buy raw cotton directly from the farmers, even they can pay to the farmers in advance for production of raw cotton based on their mutual agreement. Also, currently, the Government is taking other necessary measures to liberalize cotton market and create 112 modern high-tech industrial factories. It is hoped that these factories will increase export potential of the cotton industry up to 2.5 billion USD and create more than 25,000 jobs (Aliyeva, 2017).

90% of cotton is picked manually in the country. Besides this, there are labor shortages in the country too. That is why the Government used to involve students, doctors, civil servants, including children in the production of raw cotton. Due to the pressure from international human rights organization, the Government is taking measures to prevent forced and child labor in this process. Also, the Government is negotiating with the World Bank regarding mechanization of its cotton industry.

Methodology and Evaluation factors for Comparative Analysis

The factors which are requirements for optimal productivity were used to assess the selected countries’ cotton and agriculture policies. They are followings:

Scientific-research institutions viability: This factor measures existing scientific research institutions and their capacity to support raw cotton production in the country.

Land size: It is important to have a large scale of lands to produce raw cotton. This factor assesses sown area of the cotton in the country.

Technical feasibility: It is important to have agricultural equipment and technologies in the country to produce cotton.

Water and irrigation system: To cultivate cotton, it is important to have a strong water and irrigation system, including water sources in the country.

Social acceptance: It is important that cultivation of the cotton is acceptable for farmers.

Availability of textile industry: Practice shows that most of the raw cotton-producing countries have a textile industry and there is the demand for it domestically too. It is important to assess this factor as well.

Factors and countries’ policies are ranked on a very low to high scale as the following:

- **Very low** – alternative does not meet the specific criterion
- **Low** – alternative meets a small portion of the specific criterion
- **Medium** – alternative somewhat meets the specific criterion
- **High** – alternative mostly meets the specific criterion
- **Very high** – alternative meets the specific criterion

**Evaluation of countries’ policies**

The table below shows the evaluation of countries’ agricultural and cotton policies based on above-mentioned factors.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Factors to produce raw cotton</th>
<th>Azerbaijan</th>
<th>Turkmenistan</th>
<th>Uzbekistan</th>
<th>Turkey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessing feasibility of reviving cotton industry in Azerbaijan</td>
<td>Scientific-research institutions viability</td>
<td>Very low</td>
<td>Medium</td>
<td>Medium</td>
<td>Very high</td>
</tr>
<tr>
<td></td>
<td>Land size</td>
<td>Very low</td>
<td>Very high</td>
<td>Very high</td>
<td>Very high</td>
</tr>
<tr>
<td></td>
<td>Technical feasibility</td>
<td>Very low</td>
<td>Medium</td>
<td>Low</td>
<td>Very high</td>
</tr>
<tr>
<td></td>
<td>Water and irrigation system</td>
<td>Low</td>
<td>Medium</td>
<td>Medium</td>
<td>Very high</td>
</tr>
<tr>
<td></td>
<td>Social acceptance</td>
<td>Very low</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Availability of textile industry</td>
<td>Very low</td>
<td>High</td>
<td>High</td>
<td>Very high</td>
</tr>
<tr>
<td></td>
<td>Market</td>
<td>Very low</td>
<td>Low</td>
<td>Low</td>
<td>Very High</td>
</tr>
<tr>
<td></td>
<td>Economic benefit</td>
<td>Very low</td>
<td>High</td>
<td>High</td>
<td>Very high</td>
</tr>
</tbody>
</table>

As it can be seen from the table, evaluation of country policies, clearly indicates that Azerbaijan does not meet any of these factors that play an essential role in the production of the cotton.

**Policy Alternatives**

After above-mentioned analyses, the following policy alternatives are suggested:

1. **Status Quo**

The current policies almost the same which the Government has been following since 2016, except the recent increase of raw cotton procurement price from 0.50 AZN to 0.60 AZN per kg for 2018 cotton harvesting season. Analysis of the Government report for 2017 shows that average cotton yield decreased from 1730 per ha in 2016 to 1510 kg per ha in 2017. For instance, 207-thousand-ton cotton harvested from 136.4 thousand ha cotton fields in 2017. The cotton fields increased due to reducing grazing areas and grain fields. As a result, the price of beef and its import double in the country, while grain harvesting decreased 136,237 tons.

2. **End the price control and monopsony**

This alternative aims to address one of the main root causes of the problem for low cotton production in the country. Eliminating price control and ending monopsony activities in the cotton market it will create competition in the market and increase procurement price of the cotton. The
high price of cotton procurement will encourage farmers to cultivate the cotton in their agricultural fields.

3. Technical improvement

As mentioned in problem analysis section, one of the root causes of the problem for low production was due to lack of agricultural equipment in the country to cultivate cotton and harvest it. This alternative aims to address this problem. Increasing technical improvement can contribute to increasing cotton production in the country, reducing labor cost during harvesting season, and improving cotton harvesting efficiency.

4. Promote full diversification

This alternative proposes to diversify out of cotton production and create an environment for full diversification of the economy with preparing the Government policy. Analysis indicates that promoting full diversification fits the Government medium and long-term goals, as well as helps the Government to diversify its economy and reduce dependency on oil gas-revenues. In addition, this alternative can create a great number of workplaces in the country which can contribute to addressing unemployment problems in the country, mostly in rural areas. Also, promoting full diversification will increase export potential of the country and generate more foreign exchange reserves that the country is facing. In this policy alternative, there is the need for the Government intervention to play a key role in preparing and implementing full diversification policy.

5. Liberalization

This policy alternative aims to liberalize market for the whole agriculture sector, not only for cotton production in the country. Ending monopoly and monopsony activities in the market, lifting import tariffs for agriculture-related production, including its industrial method, as well as lifting export tariffs for agriculture products are part of this policy alternative.

Evaluation criteria and outcomes ranking

The following criteria were used to evaluate policy alternatives:

Financial cost: The cost of implementation of the preferred solution should be at a minimal cost.

Political feasibility: The preferred solution should ensure that it is politically possible and should meet the needs of communities, as well as the Government’s economic development plan.

Economic benefit: The preferred solution should ensure that it has many economic benefits such as generating foreign exchange reserves, creating new workplaces, as well as contributing to the Government’s economic diversification policy.

Social acceptability: The preferred solution should assure that people support the solution and it is socially acceptable.

Equity considerations: The preferred solution should ensure that everyone benefits from it, not a few groups of people in society. Moreover, the policy is fair for every member of the society.

Effectiveness: The preferred solution should assure it is effective and sustainable, and it is going to address macroeconomic problems in the economy.
Policy alternatives are ranked on a very low to high scale as the following;

- **very low** – alternative does not meet the specific criterion
- **low** – alternative meets a small portion of the specific criterion
- **medium** – alternative somewhat meets the specific criterion
- **high** – alternative mostly meets the specific criterion
- **very high** – alternative meets the specific criterion

### Table 3. Evaluation of policy alternatives

<table>
<thead>
<tr>
<th>Goal</th>
<th>Evaluation criteria</th>
<th>Solution 1</th>
<th>Solution 2</th>
<th>Solution 3</th>
<th>Solution 4</th>
<th>Solution 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>To find solutions to reduce economy’s dependence on oil exports</td>
<td>Status quo</td>
<td>End the price control and monopsony</td>
<td>Technical improvement</td>
<td>Promote full diversification</td>
<td>Liberalization</td>
<td></td>
</tr>
<tr>
<td>Political feasibility</td>
<td>High</td>
<td>Very Low</td>
<td>High</td>
<td>Very high</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Financial cost</td>
<td>Low</td>
<td>High</td>
<td>Very low</td>
<td>High</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Economic benefit</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Very high</td>
<td>Very high</td>
<td></td>
</tr>
<tr>
<td>Social acceptability</td>
<td>Very low</td>
<td>Low</td>
<td>Low</td>
<td>Very high</td>
<td>Very high</td>
<td></td>
</tr>
<tr>
<td>Equity considerations</td>
<td>Very Low</td>
<td>Low</td>
<td>Low</td>
<td>Very high</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Effectiveness</td>
<td>Very Low</td>
<td>Low</td>
<td>Low</td>
<td>Very high</td>
<td>High</td>
<td></td>
</tr>
</tbody>
</table>

**Preferred Policy Alternatives**

The evaluation of policy alternatives demonstrates that the status quo is not a preferred solution due to very low equity considerations, socially acceptability, effectiveness criteria as well as high financial cost. The second solution does not meet any criteria except financial cost criteria. In this policy alternative, cost of the solution is low, and its implementation is easy too. However, this solution alone cannot address macroeconomic problems in the economy and reduce the country’s dependency on oil exports. The third solution in comparison to the previous ones only meets political feasibility criteria while it does not meet other criteria. That is why it cannot be a preferred solution. The fourth and fifth solutions meet all the criteria to address macroeconomic problems in the economy and as well as contribute to reduction of the country’s dependency on oil exports. The preferred solution is a combination of solution four and five: promote full diversification and liberalization. Both solutions are politically feasible, the financial cost of them is too low, and have a lot of economic benefits. In addition to, both are socially acceptable, and it takes into consideration equity issues. Also, it is effective and sustainable.

**Conclusion of the Analysis**

Analysis of the country’s policy announcement, as well as comparative analysis results clearly indicate that the Government policy announcement is not feasible in the country due to the following reasons:
Analysis of the country’s data regarding agricultural equipment as well as cotton harvesters demonstrates that the number of agricultural equipment, mostly number of cotton harvesters are too low. For instance, in 2016 their number was 86, 1.7 cotton combine per 1000 ha. In 2017 the Government bought 140 new cotton harvesters and their number reached to 226. However, this is not enough for cotton harvesting season. This means that manual cotton harvesting will remain at a high level again. Due to the labor shortages, the Government uses forced labor such as sending public service servants doctors, students, teachers in regions to help farmers to pick up the cotton in the field which is not acceptable.

The productivity of land and yield of cotton are too low in the country due to high salinization of the land. Also, there is no drainage system in the regions which contributes to high salinization of the land in the country. That is why yield per ha decreased to from 1730 kg to 1510 kg in 2017 regardless of the Government interventions. The analysis shows that, to be profitable for the farmers, at least there is the need to produce 3.5-4 tons cotton per ha in the country.

Also, there is no a strong rationale for the Government policy announcement. All the Government officials claim that Azerbaijan used to be one of the leading cotton producers during the Soviet era and nearly 25% of the country’s income used to come from the cotton sector. This is not true anymore. Because the Soviet era has gone and there is no the Soviet Union and command economy anymore. For instance, during the Soviet Union, the economy was command economy, and Moscow used to determine which country should produce which agricultural products. Also, during the Soviet Union, there was no market, and all countries used to get benefits from each other’s agricultural products under the unity which was not any concern. For example, Kazakhstan and Ukraine used to produce more grain while Uzbekistan and Azerbaijan cotton.

Compared to cotton-producing countries such as Turkey, Turkmenistan, and Uzbekistan, there is no a textile industry in Azerbaijan that can create demand for raw cotton at least domestically. Also, these countries already specialized in the international market, and their cotton is known for its quality. That is why many well-known textile companies such as Zara, Nike, Adidas, and Ikea prefer to invest money in these countries.

Cultivating cotton has negative sides in the country too. For instance, as mentioned above, there is a lack of drainage system in the country which creates environmental concerns and increases salinization of lands. Also, it creates food security concern in the country, and many villagers prefer to plant grain and other agricultural crops to meet their daily needs rather than cotton. Analysis of AzSTAT 2018 report shows that production of the grain decreased 136,237 tons in the country in 2018 due to the expansion of cotton fields. Other negative impacts are reduction of alfalfa crop plants and pasture lands which have led to increasing the price of alfalfa hays twice over the last two years. As a result of it, price of beef in the local market has increased twice as well in 2018.

Profitability and productivity of the cotton production are too low due to small size lands in the country. Mainly, wheat, fruits, and vegetables are cultivated in these small size lands which require less labor hours to produce it compared to the cotton. Also, analysis of 2018 AzSTAT data shows that cotton growing requires long hours compared to other agricultural products. For example, a farmer spends 60 hours to produce 100 kg cotton, 18 hours for 100 kg sugar beets, 22.6 hours for
100 kg vegetables, 22.8 hours for 100 kg fruits, and 33.4 hours for 100 kg grapes. That is why farmers are not willing to cultivate cotton in their lands.

A recent study by Food and Agriculture Organization of the United Nations (FAO) also presents the Aran economic region has more advantages in fruits and berries (walnut, jujube, pear, pomegranate, quince, plum, fig, cherries, dates, pistachio, and medlar, apricot), cereals and pulses (barley, wheat), vegetables (head onion, cucumber, tomato, cabbage) compared to the cotton (Aksoy, Boz, Eynalov, & Guliyev, 2018, p. 76). That is why, as a result of the collapse of the Soviet Union (end of the command economy) and privatization of the lands, production of above-mentioned agricultural products increased dramatically, while cotton production decreased in the country (See Annex 2).

Another factor that it makes the Government’s policy unfeasible, it is the location of the country which is competitive. Azerbaijan is located in a competitive region where it is neighbor with Turkey and Turkmenistan. And, the country cannot compete in world markets with these countries due to its quality of the cotton.

Review of the state programs of three countries, mostly Turkey and Turkmenistan show that to reduce contamination of land, labor cost during cotton harvesting season and shorten the season time, as well as labor scarcity problem, these countries are investing heavily in mechanized harvesting. Uzbekistan also has started this process recently after the death of President Islam Karimov in 2016. Currently, the World Bank is helping Uzbekistan in mechanization process. However, the Azerbaijan Government is mostly focused on expanding of the cotton sown area and its production with forced labor methodology.

Production of cotton is not acceptable by farmers as well due to its cost and profitability. A household survey by the World Bank also demonstrates that on average farm households produce fruits and vegetables are less likely to be poor than households produce cotton. Cotton cannot be consumed that creates food security concern in the country too (World Bank, 2016, p. 16).

Also, the Azerbaijan Government imports cotton seeds, fertilizers, pesticides and technologies to produce raw cotton in the country. All of these contribute to high cost of the cotton production compared to the cotton exporting countries which reduces its competitiveness in the world market too.

Lack of research-scientific institutions is another factor that challenges the Government policy in the country.

Finally, analysis of the country and its state programs demonstrates that the Government was not ready for unexpected the sharp drop in oil prices. The fall in oil price in the world affected oil-rich countries, including Azerbaijan too. As a result of it, the Government started to face balance of payment and foreign exchange reserve problems. Also, it made pressure on the local currency which led to the devaluation of it twice in 2016. Taking these factors into consideration, the Government wanted to find an alternative to generate foreign exchange reserves in the country. The cotton production has chosen an alternative, and the reason for chosen especially the cotton was the possibility of its growth and export within a short period compared to other agricultural crops such as hazelnuts, grape, and cocoon.
Recommendation

Analysis results show that the Government should forget about production of the cotton, diversify out of cotton production, and focus on other agricultural crops’ production. For example, analysis of the country’s agriculture sector and its export show that there is no any government intervention in hazelnuts production in the country. In 2017, 66.5 thousand ha hazelnuts fields cultivated, and 20.8 thousand-ton hazelnuts kernels exported, and it generated 114.5 million USD, while 207-thousand-ton cotton harvested from 136.4 thousand ha cotton fields, and it generated 27 million USD.

Finally, the Government should focus on the proposed combination of promotion of full diversification and liberalization policy alternatives. Proposed policy alternatives fit the country’s current agricultural capacity, comparative advantage, require less investment from the Government and as well as less cost for the farmers to produce and generates more profit. Also, these policy alternatives do not affect other agricultural sectors as the current cotton policy does in terms of reducing pasture lands, alfalfa, and wheat sowed areas. Finally, these policy alternatives ensure that it is socially acceptable, ensures food security and has long-term sustainability in the country too.

Plan of Action

To implement above-mentioned policy alternatives, there is the need to call a national conference with the support of the Cabinet of Ministers. And invite key influential people from the Government, and a selected group from academia, private sector as well as other stakeholders to the national conference to prepare summaries of research and policy analysis papers which can be used and discussed to elaborate a Comprehensive Diversified Strategy for Agriculture to be included as a part of Strategic Road Map on the National Economy. Also, this strategy can contribute to the Sectoral Policies for the Strategic Management of the Economy of Azerbaijan.
Bibliography


Annexes:

Annex 1: Stakeholder analysis

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Interests in Government policy</th>
<th>Recourses</th>
<th>Influence</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>KEY GOVERNMENT STAKEHOLDERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cabinet of Ministers</td>
<td>To diversify the economy</td>
<td>Power</td>
<td>High</td>
<td>For</td>
</tr>
<tr>
<td>Ministry of Agriculture</td>
<td>To reduce the dependence on the economy oil and oil revenues</td>
<td>Budget</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ministry of Finance</td>
<td>To open new workplaces in rural areas</td>
<td>Policy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ministry of Economy</td>
<td></td>
<td>Research institutions</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>National and international partnership</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Local and Regional Level National Stakeholders:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Executive Powers</td>
<td>To meet the Central Government regional cotton production quotas</td>
<td>Assigned the Central Government policy and budget</td>
<td>High</td>
<td>For</td>
</tr>
<tr>
<td>Municipalities</td>
<td>To get more subsidies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional offices of Ministry of Agriculture, Ministry of Finance and Ministry of Economy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PRIMARY STAKEHOLDERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton processing companies</td>
<td>To increase their profits and export more cotton products</td>
<td>Cotton processing factories</td>
<td>High</td>
<td>For</td>
</tr>
<tr>
<td>Farmers and rural population</td>
<td>Less interest due to low profitability and labor cost</td>
<td>Cotton supply stations</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SECONDARY STAKEHOLDERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WB, EBRD, ADB, AIIB, China</td>
<td>To invest in the cotton industry of the country</td>
<td>Financial aid</td>
<td>Low</td>
<td>Neutral</td>
</tr>
<tr>
<td>NGOs, Think Thank Centers, Research Centers</td>
<td>To inform farmers and society regarding the Government policy</td>
<td>Technical advice</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Publishing papers and articles</td>
<td>Low</td>
<td>Against</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social media</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interviews</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Annex 2: Crop production by type, all categories of farms (thousands ton), 1991-2017

<table>
<thead>
<tr>
<th>Years</th>
<th>Cereals and dried pulses</th>
<th>Cotton</th>
<th>Tobacco</th>
<th>Potatoes</th>
<th>Vegetables</th>
<th>Watermelons and melons</th>
<th>Sugar beets</th>
<th>Sunflower for seed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>1346.4</td>
<td>539.7</td>
<td>57.3</td>
<td>179.9</td>
<td>805.3</td>
<td>61.9</td>
<td>-</td>
<td>0.5</td>
</tr>
<tr>
<td>1992</td>
<td>1337.2</td>
<td>336.3</td>
<td>52.3</td>
<td>156.0</td>
<td>555.1</td>
<td>50.1</td>
<td>19.8</td>
<td>1.2</td>
</tr>
<tr>
<td>1993</td>
<td>1147.9</td>
<td>284.5</td>
<td>44.9</td>
<td>152.2</td>
<td>487.8</td>
<td>46.9</td>
<td>14.5</td>
<td>0.5</td>
</tr>
<tr>
<td>1994</td>
<td>1039.2</td>
<td>283.7</td>
<td>20.8</td>
<td>150.3</td>
<td>482.9</td>
<td>44.9</td>
<td>17.8</td>
<td>0.7</td>
</tr>
<tr>
<td>1995</td>
<td>921.4</td>
<td>274.1</td>
<td>11.7</td>
<td>155.5</td>
<td>424.1</td>
<td>41.9</td>
<td>28.1</td>
<td>0.7</td>
</tr>
<tr>
<td>1996</td>
<td>1018.3</td>
<td>274.4</td>
<td>11.2</td>
<td>214.6</td>
<td>570.0</td>
<td>52.1</td>
<td>46.1</td>
<td>0.6</td>
</tr>
<tr>
<td>1997</td>
<td>1127.1</td>
<td>124.6</td>
<td>15.1</td>
<td>223.4</td>
<td>495.4</td>
<td>57.1</td>
<td>33.7</td>
<td>1.1</td>
</tr>
<tr>
<td>1998</td>
<td>950.3</td>
<td>112.9</td>
<td>14.6</td>
<td>312.5</td>
<td>502.3</td>
<td>78.8</td>
<td>41.4</td>
<td>1.0</td>
</tr>
<tr>
<td>1999</td>
<td>1098.3</td>
<td>96.8</td>
<td>8.6</td>
<td>394.1</td>
<td>670.8</td>
<td>206.3</td>
<td>42.2</td>
<td>2.3</td>
</tr>
<tr>
<td>2000</td>
<td>1540.2</td>
<td>91.5</td>
<td>17.3</td>
<td>469.0</td>
<td>780.8</td>
<td>261.0</td>
<td>46.7</td>
<td>3.7</td>
</tr>
<tr>
<td>2001</td>
<td>2016.1</td>
<td>83.6</td>
<td>12.7</td>
<td>605.8</td>
<td>916.4</td>
<td>290.9</td>
<td>41.3</td>
<td>5.1</td>
</tr>
<tr>
<td>2002</td>
<td>2195.9</td>
<td>80.4</td>
<td>3.3</td>
<td>694.9</td>
<td>974.6</td>
<td>330.3</td>
<td>115.8</td>
<td>10.8</td>
</tr>
<tr>
<td>2003</td>
<td>2057.8</td>
<td>99.6</td>
<td>4.7</td>
<td>769.0</td>
<td>1046.3</td>
<td>356.7</td>
<td>128.9</td>
<td>18.3</td>
</tr>
<tr>
<td>2004</td>
<td>2158.2</td>
<td>135.7</td>
<td>6.5</td>
<td>930.4</td>
<td>1076.2</td>
<td>355.3</td>
<td>56.8</td>
<td>14.3</td>
</tr>
<tr>
<td>2005</td>
<td>2126.7</td>
<td>196.6</td>
<td>7.1</td>
<td>1083.1</td>
<td>1127.3</td>
<td>363.8</td>
<td>36.6</td>
<td>16.1</td>
</tr>
<tr>
<td>2006</td>
<td>2078.9</td>
<td>130.1</td>
<td>4.8</td>
<td>999.3</td>
<td>1186.4</td>
<td>362.1</td>
<td>167.2</td>
<td>15.9</td>
</tr>
<tr>
<td>2007</td>
<td>2004.4</td>
<td>100.1</td>
<td>2.9</td>
<td>1037.3</td>
<td>1227.3</td>
<td>417.6</td>
<td>141.9</td>
<td>13.4</td>
</tr>
<tr>
<td>2008</td>
<td>2498.3</td>
<td>55.4</td>
<td>2.5</td>
<td>1077.1</td>
<td>1228.3</td>
<td>407.7</td>
<td>190.7</td>
<td>16.5</td>
</tr>
<tr>
<td>2009</td>
<td>2988.3</td>
<td>31.9</td>
<td>2.6</td>
<td>983.0</td>
<td>1178.6</td>
<td>410.8</td>
<td>188.7</td>
<td>14.4</td>
</tr>
<tr>
<td>2010</td>
<td>2000.5</td>
<td>38.2</td>
<td>3.2</td>
<td>953.7</td>
<td>1189.5</td>
<td>433.6</td>
<td>251.9</td>
<td>15.5</td>
</tr>
<tr>
<td>2011</td>
<td>2458.4</td>
<td>66.4</td>
<td>3.6</td>
<td>938.5</td>
<td>1214.8</td>
<td>478.0</td>
<td>252.9</td>
<td>19.6</td>
</tr>
<tr>
<td>2012</td>
<td>2802.2</td>
<td>57.0</td>
<td>4.3</td>
<td>968.5</td>
<td>1216.2</td>
<td>428.0</td>
<td>173.8</td>
<td>19.7</td>
</tr>
<tr>
<td>2013</td>
<td>2955.3</td>
<td>45.2</td>
<td>3.5</td>
<td>992.8</td>
<td>1236.3</td>
<td>429.8</td>
<td>187.9</td>
<td>17.7</td>
</tr>
<tr>
<td>2014</td>
<td>2383.3</td>
<td>41.0</td>
<td>2.9</td>
<td>819.3</td>
<td>1187.7</td>
<td>440.9</td>
<td>173.3</td>
<td>19.8</td>
</tr>
<tr>
<td>2015</td>
<td>2999.4</td>
<td>35.2</td>
<td>3.5</td>
<td>839.8</td>
<td>1275.3</td>
<td>484.5</td>
<td>184.3</td>
<td>18.4</td>
</tr>
<tr>
<td>2016</td>
<td>3065.1</td>
<td>89.4</td>
<td>3.6</td>
<td>902.4</td>
<td>1270.6</td>
<td>464.8</td>
<td>312.6</td>
<td>16.7</td>
</tr>
<tr>
<td>2017</td>
<td>2928.8</td>
<td>207.5</td>
<td>5.3</td>
<td>913.9</td>
<td>1405.6</td>
<td>438.1</td>
<td>410.1</td>
<td>29.8</td>
</tr>
</tbody>
</table>

Source: The State Statistics Committee of the Republic of Azerbaijan, 2018