

DEVELOPMENT POTENTIAL OF FRUIT-GROWING IN EASTERN ZANGEZUR ECONOMIC REGION

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Abstract

This article analyzes the pre-occupation status and the post-liberation development potential of fruit-growing in the newly established Eastern Zangezur economic region, based on the decree signed by the President of the Republic of Azerbaijan, Mr. Ilham Aliyev, on July 7, 2021, regarding the new division of economic regions. The research outlines the forecasts and perspectives for the liberated territories, identifies the development challenges facing fruit-growing, and proposes practical solutions to address these issues. The Eastern Zangezur economic region, which includes the administrative regions of Kalbajar, Lachin, Gubadli, Zangilan, and Jabrayil, possesses rich natural resources, fertile soils, and favorable climatic conditions, all of which create a solid foundation for fruit-growing. However, decades of occupation resulted in severe degradation of agricultural infrastructure, orchards, and irrigation systems. This study highlights the importance of large-scale restoration efforts to rehabilitate the region's agricultural capacity, emphasizing fruit-growing as a key sector for economic recovery. While natural resources provide a strong foundation, they are insufficient for sustainable fruit-growing and productivity improvements. To achieve significant progress and meet the goals set for this sector, the application of advanced agro-technical methods, including the use of modern irrigation systems, high-yield fruit varieties, and innovative agro-management practices, is essential. These methods are critical for increasing fruit-growing productivity, ensuring the production of high-quality yields, and enhancing export potential. Furthermore, policy measures, such as financial incentives for farmers, establishment of agro-industrial clusters, and training programs, will play a significant role in overcoming development challenges.

Keywords: Fruit, fruit-growing, Eastern Zangezur, development, perspectives, occupied lands, economic regions, agro-technologies, restoration, economic recovery.

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Introduction

For 30 years, the lands of the Republic of Azerbaijan were occupied by Armenia, leading to immense damage not only to the population but also to the productivity and natural resources of these territories. The occupation resulted in the destruction of agricultural infrastructure, orchards, irrigation systems, and soil quality, significantly reducing agricultural productivity. This deliberate destruction is regarded as **environmental terrorism**, which exacerbated ecological and economic challenges in the affected areas.

The occupation also had significant social impacts, including the displacement of thousands of Azerbaijani families from their ancestral lands. These families not only lost their homes but also their primary sources of income, as agriculture was the mainstay of rural economies in the occupied regions. Fertile lands, previously utilized for fruit-growing, viticulture, and grain production, were left barren and unproductive. The loss of these lands disrupted food supply chains, leading to increased reliance on imports to meet domestic agricultural demands. The turning point occurred on **September 27, 2020**, when the "Iron Fist" military operation, led by the Supreme Commander-in-Chief, President Ilham Aliyev, successfully ended the 30-year Armenian occupation and restored Azerbaijan's territorial integrity. This victory marked the beginning of an ambitious national reconstruction effort aimed at restoring the socio-economic fabric of liberated regions.

On **July 7, 2021**, President Ilham Aliyev signed a decree introducing a new division of economic regions in Azerbaijan. This strategic decision aimed to accelerate economic development, enhance administrative efficiency, and ensure the comprehensive restoration of liberated territories. One of the newly created economic regions, the **Eastern Zangezur economic region**, encompasses five key administrative districts: **Jabrayil, Zangilan, Gubadli, Kalbajar, and Lachin**. This reorganization serves as a foundation for coordinated and integrated development, ensuring that each region's potential is harnessed effectively.



Fig 1. Azerbaijan Republic, Eastern Zangezur Economic Region

Large-scale measures are currently being implemented to restore the liberated territories. These initiatives focus on rebuilding infrastructure, ensuring future development, and facilitating the return of displaced populations to their native lands. The strategic approach includes a unified development program aimed at maximizing the economic potential, utilizing natural resources effectively, and tapping into the extensive tourism opportunities in the region. Investments in **transportation**, **energy infrastructure**, and **agricultural projects** are being prioritized to ensure sustainable and balanced development.

Unfortunately, decades of occupation caused severe degradation of fertile lands across Jabrayil, Zangilan, Gubadli, Kalbajar, and Lachin. The destruction of irrigation systems, contamination of soils, and overexploitation of forests have left significant ecological scars. Addressing these environmental challenges requires substantial financial investments and the introduction of modern agro-technologies to restore the land's agricultural productivity. In addition, policies focusing on reforestation, soil rehabilitation, and sustainable water management are critical for long-term recovery.

This paper explores the agricultural significance of the Eastern Zangezur economic region, with a particular focus on **fruit-growing**, as a means of revitalizing the economy and ensuring sustainable development. Fruit-growing holds a strategic position in the agricultural sector due to its economic viability, export potential, and role in rural employment. The study highlights the region's pre-occupation agricultural productivity, post-liberation challenges, and future development strategies. By addressing these challenges and leveraging the region's natural potential, Eastern Zangezur can emerge as a key driver of Azerbaijan's agricultural sector.

Material and Method

The research methodology employed in this article is based on a combination of primary and secondary data sources. Primary data includes field observations and author-conducted research on agricultural practices in the liberated territories of Azerbaijan. Secondary data is derived from the works of Azerbaijani scientists and researchers specializing in agriculture, as well as official statistics provided by the State Statistical Committee of the Republic of Azerbaijan (SSCRA).

The study utilized a combination of methods, including statistical analysis, comparative assessments, and cartographic tools. Quantitative data such as historical production figures and land usage statistics were analyzed to identify trends and productivity gaps. Comparative analysis was applied to evaluate pre-occupation and post-liberation agricultural productivity, while the system-structural method examined key infrastructure, irrigation systems, and supply chains impacting fruit-growing. Additionally, cartographic tools, including Geographic Information Systems (GIS), were used to map agricultural resources, climate suitability, and land-use patterns. Finally, an extensive literature review of scientific publications, official reports, and agricultural restoration studies provided a solid foundation for this research.

The integrated approach ensured a detailed and multi-dimensional analysis of fruit-growing potential in the Eastern Zangezur economic region. The findings aim to inform policymakers, local farmers, and investors about sustainable development opportunities and strategies for the liberated territories.

Review and Discussion

The **Eastern Zangezur Economic Region** is one of the **14 economic regions** of Azerbaijan, encompassing the **Kalbajar, Lachin, Gubadli, Zangilan, and Jabrayil** districts. Covering an area of **7.47 thousand km²** with a population of **343.5 thousand people**, the region's economy primarily relies on **agriculture, tourism, and industry**.

The agrarian sector plays a pivotal role in the development of this newly created economic region. Ongoing and planned projects across liberated territories, including the Eastern Zangezur Economic Region, are expected to contribute significantly to Azerbaijan's economic growth. Notably, President **Ilham Aliyev** has laid the foundation for the "**Araz Valley Economic Zone**" **Industrial Park in Jabrayil**, which is projected to drive technological advancement and modernize agriculture in the region. The industrial park will cover **200 hectares** and will include:

- Agricultural processing, industrial, social, and technical zones.
- A logistics and trade center, warehouse complexes, wholesale and retail facilities.
- Infrastructure such as truck parking, customs, refueling stations, and repair services for vehicles and equipment.
- Facilities for packaging agricultural products, producing canned fruits and vegetables, wine, fodder, and fertilizers.
- Specialized areas for silk production, refrigeration chambers, and small-scale production units..

The **Kalbajar** district, located within the Eastern Zangezur Economic Region, features a predominantly **mountainous terrain** and a **favorable climate**, making it highly suitable for **fruit-growing**. Historically, agriculture in Kalbajar was dominated by **tobacco-growing**, which employed a significant portion of the population. In **1980**, the structure of sown areas was as follows:

- **Tobacco**: 71.7% of the total cultivated area.
- **Potatoes, vegetables, and melons**: 27.3%.
- Orchards and berry fields: Approximately **10 hectares**.

Although orchard cultivation was minimal, the district's terrain and climate provide excellent opportunities for expanding **intensive orchards**. According to the **action plan** for the development of liberated lands:

- **500 hectares** of intensive pomegranate, apple, and palm orchards are planned for cultivation.
- Modern techniques and technologies will enhance productivity in **vegetable and melon-growing**.

The development of **processing facilities** for fruit production is a promising new trend in Kalbajar. Combined with **beekeeping** activities, the district is poised for concentrated, **cluster-based agro-industrial growth**, which will likely generate **greater economic returns** compared to previous periods.

The strategic focus on Kalbajar’s agricultural resources, combined with investments in infrastructure, agro-technology, and processing industries, will unlock its full potential, supporting both **local economic development** and Azerbaijan’s **national agricultural goals**.

The forecast indicators for the production of the crop products in Kalbajar region for 2025 and its contribution (in percent) to the country’s production indicators are described more clearly below:

Table 1. Forecast of Crop Production in Kalbajar Region for 2025

Crop Products	Sown Area (hectare)	Productivity (cents/hectare)	Production (tons)	Contribution to National Production (%)
Grain	1,000	28.5	2,850	0.1%
Tobacco	223	30.0	668	9.0%
Potatoes	481	138.7	6,676	0.5%
Vegetables	100	76.0	760	0.04%
Melon Plants	150	192.0	2,872	0.5%
Fruits and Berries	500	80.0	4,000	0.3%
Fodder Crops	220	120.0	26,400	7.1%
Total	2,673	-	44,226	0.5%

As outlined in Table 1, the projected potential fruit production in the Kalbajar administrative region for 2025 is estimated at 4,000 tons. This figure is anticipated to grow further in alignment with the approved state programs and planned development initiatives.

Lachin, an administrative district within the Eastern Zangezur Economic Region, shares similar geographical and climatic conditions with Kalbajar, characterized by predominantly mountainous terrain.

The region has several investment-intensive sectors, including agriculture, cattle-breeding, textiles, construction, and tourism. Before the occupation, approximately 82% of the able-bodied population resided in rural areas, reflecting the district’s significant reliance on agriculture. These factors create favorable opportunities for revitalizing agricultural activities in the post-liberation period.

In 1988, the structure of sown areas in Lachin showed that 96.3% of the land was dedicated to general crops, while tobacco fields comprised 2.1%. Orchards and berry plantations, though covering around 175 hectares, were underutilized despite the region’s favorable conditions. Historical data indicates a gradual decline in orchard areas:

- 210 hectares in 1980
- 241 hectares in 1985
- 175 hectares in 1988

During this period, production from these orchards peaked at 74 tons.

With the adoption of modern agricultural reforms and innovative technologies, Lachin’s agricultural sector is projected to experience significant growth. By 2025, potato production is expected to reach 300 tons. Additionally, the development of intensive orchards suited to the mountainous terrain holds considerable potential for enhancing fruit and berry production.

The implementation of advanced agricultural practices and improved infrastructure will enable Lachin to unlock its full agricultural potential, contributing to regional economic growth and sustainability.

The forecast indicators for the crop production in Lachin region for 2025 and the contribution (in percent) to the country's production indicators are described more clearly below:

Table 2. Forecast of crop production in Lachin Region for 2025

Crop Products	Sown Area (ha)	Productivity (c/ha)	Production (tons)	Contribution to National Production (%)
Grain	5,000	10.5	5,250	0.1%
Tobacco	100	20.0	200	1.4%
Potatoes	800	66.0	5,280	0.4%
Vegetables	170	120.0	2,040	0.1%
Melon Plants	30	106.6	320	0.1%
Fruits and Berries	500	6.0	300	0.02%
Fodder Crops	1,000	250.0	25,000	6.7%
Total	7,600	-	38,390	0.4%

From Table 2, the projected potential fruit production in the Lachin administrative region for 2025 is estimated at 300 tons, which remains modest compared to Kalbajar. However, state programs aim to increase this output in the future.

The Zangilan administrative region stands out for its significant natural and economic potential. The region features a mix of mountainous and plain terrains, with a temperate warm climate and dry

winters. Average temperatures range from 1°C in January to 25.3°C in July, with annual precipitation between 400–500 mm.

The favorable climate and topography facilitate diversified fruit-growing activities. Rivers such as the Araz, Oxchuchay, Hakari, and Basitchay flow through Zangilan, providing abundant water resources for domestic and agricultural use. Before the occupation, agriculture was the primary economic activity, with residents cultivating various fruits, vegetables, tobacco, and grapes. In 1988, the total sown area was 6,726 hectares, producing 26,375 tons of agricultural products. With modern agricultural practices, including improved crop varieties and advanced technologies, current production potential significantly exceeds pre-occupation levels.

A notable project in Zangilan is the establishment of the "*Brotherhood Garden*" in the village of Aghali. Organized by the Ministry of Agriculture of Azerbaijan and Turkey's Ministry of Agriculture and Forestry, the 5-hectare garden includes 2,620 saplings of apricot, apple, pear, cherry, and other fruit trees. This project serves as the foundation for expanding orchard cultivation in the region, leveraging Zangilan's fertile soils and favorable climate.

Gubadli, another administrative region, features a predominantly mountainous landscape, including parts of the Karabakh Range and the Bargushad Range, along with the Yazi plain. The climate is temperate, with average temperatures of 1°C in January and up to 26°C in July, and annual precipitation ranging from 400–600 mm. These conditions, combined with fertile land and ample water resources, create favorable conditions for cultivating grains, tobacco, grapes, fruits, and vegetables. In 1988, vineyards accounted for 1.1% of the sown area.

Gubadli's potential for fruit and vegetable production remains high. The action plan includes pilot projects for the development of pomegranate and palm orchards, alongside plans to produce approximately 3,000 tons of melons by 2025. The region's total crop production capacity is estimated at 48,000–50,000 tons from 17,000 hectares of sown areas and gardens, contributing approximately 27.6 million manat (0.6% of the national forecast).

Innovative approaches, including intensive orchards and greenhouse vegetable production, position Gubadli to play a key role in ensuring food security and increasing exports. Additionally, establishing processing enterprises in the fruit sector offers new opportunities for cluster-based agro-industrial development, potentially surpassing the economic contributions of the Soviet era. By 2025, Gubadli's agricultural infrastructure is projected to contribute 65.1 million manat (0.7% of the national forecast), with further potential when agro-industrial value chains are fully developed.

Jabrayil, located in the southeastern part of the Lesser Caucasus Mountains, includes the Geyan plain and the Karabakh range. The region spans 1,050 square kilometers, featuring mountain chestnut, brown mountain-forest soils, and abundant water resources provided by the Araz, Injachay, and Chaylagchay rivers. The construction of the Khodaafarin reservoir has created irrigation potential for 7,500 hectares of agricultural land.

Prior to the occupation, agriculture was the primary activity in Jabrayil, with the population cultivating both annual and perennial crops. In 1988, the region produced 77,639 tons of agricultural

products from a total sown area of 24,877 hectares. Given modern advancements in agriculture, including improved livestock breeds and higher-yielding seeds, Jabrayil's production capacity can significantly exceed pre-occupation levels.

In conclusion, the agricultural development of Zangilan, Gubadli, and Jabrayil relies on advanced technologies, infrastructure restoration, and innovative reforms. Leveraging favorable natural conditions and historical agricultural traditions will facilitate sustainable growth, ensuring significant contributions to the country's economy and food security.

Conclusion

This study provides a detailed analysis of the territorial organization and development potential of fruit growing in the newly created **Eastern Zangezur economic region**. The findings reveal both the historical context and future opportunities for this vital sector, highlighting the region's natural strengths and untapped economic potential.

Before the occupation, fruit growing was mainly concentrated in the **Kalbajar** and **Lachin** administrative regions, with approximately **185 hectares** of orchards. In contrast, **Gubadli** demonstrated significantly higher agricultural productivity, covering around **17,000 hectares** of sown and orchard areas, where substantial crops were harvested. Despite having favorable climatic and soil conditions, **Jabrayil** and **Zangilan** fell behind in fruit production compared to the other districts, reflecting a lack of infrastructure and investment during the pre-occupation period.

The post-occupation analysis reveals promising perspectives for the revival and development of fruit growing in the Eastern Zangezur economic region. The region's **climatic indicators**—including its fertile soils, temperate weather, and abundant water resources—are major natural factors that create optimal conditions for fruit cultivation. With proper strategic planning, it is possible to harness these geographical advantages to **maximize production**, ensure **sustainable growth**, and elevate the region's contribution to both domestic and international markets.

The application of **modern agro-technologies** is a critical component in achieving these goals. By introducing advanced farming methods, improving orchard management, and utilizing high-yield and climate-resilient fruit varieties, productivity can be significantly enhanced. These innovations will not only increase the overall output but also improve the quality of fruit, making it competitive in **global markets**. Additionally, fostering **value-added production**—such as fruit processing, packaging, and export logistics—will further amplify the region's economic potential.

For this development to be successful, it is crucial to ensure the extensive use of **scientific and technological advancements**. Providing farmers and entrepreneurs with access to **innovative tools**, **financial support**, and **training programs** will accelerate the transition to modern agricultural practices. Agricultural subsidies, investment incentives, and infrastructure development—such as the establishment of **processing enterprises** and **logistics centers**—are essential for building a sustainable and profitable fruit-growing sector.

Moreover, expanding the **total area of orchards** and promoting intensive farming practices will help meet the growing **domestic demand** for fresh fruits and enhance **export potential**. A focus on

creating a competitive market environment will also encourage innovation and attract private sector investment, ultimately benefiting the local population and economy.

In conclusion, the economic potential of fruit growing in the **Eastern Zangezur economic region** can be fully realized through a combination of **strategic investments, modern agricultural technologies, and effective resource management**. By increasing productivity, expanding production areas, and integrating processing facilities, this sector will play a pivotal role in revitalizing the region's economy. Not only will this address domestic food security, but it will also position Eastern Zangezur as a significant contributor to **Azerbaijan's agricultural exports**, supporting the country's broader economic development objectives.

References

- [1] **Official website of President of Azerbaijan Republic.** (2021). *Decree on the new division of economic regions in the Republic of Azerbaijan*. Retrieved from: <https://president.az/>
- [2] **Ministry of Economy of the Republic of Azerbaijan.** (2021). *Information on the Eastern Zangezur Economic Region*. Retrieved from: <https://www.economy.gov.az/article/sherqi-zengezur-iqtisadi-rayonu/31896>
- [3] **State Tax Service under the Ministry of Economy of the Republic of Azerbaijan.** (2021). Retrieved from: <https://www.taxes.gov.az/az/post/1573>
- [4] **State Statistics Committee.** (2021). *Statistical data on agriculture and economic development*. Baku: State Statistical Committee of Azerbaijan.
- [5] **Ministry of Agriculture of Azerbaijan.** (2021). *Establishment of the Azerbaijan-Turkey Brotherhood Garden in Aghali village, Zangilan region*. Retrieved from: <https://agro.gov.az/az/news/zengilan-rayonunun-agali-kendinde-azerbaycan-tuerkiye-qardasliq-bagi-salinib>
- [6] Kamal, R. (2021). *Azerbaijan*. 18 February, 1, 5.
- [7] Guliyev, A., & Asgarov, F. (2020). *Economic assessment of the agricultural sector in Karabakh region*. *Journal of Regional Development Studies*, 5(2), 45-56.
- [8] Jabiyev, E. Z. (2022). *Restoration of agricultural production and its challenges in liberated territories of Azerbaijan*. *Proceedings of the Institute of Geography*, 47(1), 34-48.
- [9] Ahmadov, S., & Bayramova, N. (2021). *The role of climate and natural resources in the development of fruit-growing in mountainous regions*. *Azerbaijan Journal of Agricultural Sciences*, 12(3), 67-78.
- [10] Mehdiyev, V. (2021). *Opportunities for sustainable agriculture in Karabakh: A focus on fruit production*. *Journal of Sustainable Agricultural Development*, 14(4), 89-102.
- [11] **Food and Agriculture Organization (FAO).** (2021). *Agricultural rehabilitation in post-conflict areas: Case study of Azerbaijan*. *FAO Reports*. Retrieved from: <https://www.fao.org>
- [12] Huseynov, A., & Gurbanov, T. (2020). *Modern approaches to fruit-growing and cluster development in Azerbaijan*. *International Journal of Agricultural Innovation*, 11(2), 29-41.
- [13] Hasanov, M. (2021). *The impact of irrigation systems on agricultural productivity in liberated regions*. *Proceedings of Agricultural Innovations Forum*, 56-63.
- [14] Gasimov, R. (2022). *The importance of agricultural clusters in regional economic development: A case study of Eastern Zangezur*. Baku: Institute of Economic Research.
- [15] **International Water Management Institute (IWMI).** (2021). *Water resource management for agricultural productivity in Karabakh*. *IWMI Working Papers*, 44(7).
- [16] Əliyev, İ. (2021). *Qarabağın dirçəlişi: İqtisadi inkişaf və aqrar sektor*. Bakı: Elm və Təhsil Nəşriyyatı.

