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TRANSPORT SYSTEM OF AZERBAIJAN: WHAT'S HAPPENING NOW AND WHAT'S NEXT?

Bugayko Dmytro, Mirzayev Fuad Murvat, Garibli Gulgun Mushviq, Eynullazadeh Kazim.
"Transport system of Azerbaijan: what's happening now and what's next?" The article presents a comprehensive analysis of the transformations that have occurred in Azerbaijan's transport sector over the past decade, offering insights into the current state of the transport system. It is widely acknowledged that the transport sector plays a pivotal role in enhancing a country's international recognition and strengthening its global position. It follows that the advancement of this sector of the economy represents a fundamental strategic objective for any state. The article reviews and analyses the current state of Azerbaijan's transport system and the measures taken to improve it, as well as the investments made in this field. Furthermore, in

consideration of Azerbaijan's current status as a transit nation, the article examined the transportation routes of international corridors traversing the country and their operational efficiency. Also, the article presents a comparative analysis of the cargo and passenger transportation potential of Azerbaijan's transport system over the past decade across various modes of transportation. In order to ascertain the efficacy of the transportation system, the final revenues and expenditures were subjected to analysis, resulting in the calculation of the profit (or loss) for the various modes of transport.

Keywords: Azerbaijan's transport system, transport corridors, freight, passenger transportation, transport infrastructure

Бугайко Дмитро, Мірзаєв Фуад Мурват, Гаріблі Гулгун Мушвік. Ейнулазаде Казім. «Транспортна система Азербайджану: що відбувається зараз і що далі?». Стаття представляє комплексний аналіз трансформацій, які відбулися в транспортному секторі Азербайджану за останнє десятиліття, пропонуючи розуміння поточного стану транспортної системи. Загально визнано, що транспортний сектор відіграє ключову роль у підвищенні міжнародного визнання країни та зміцненні її глобальної позиції. З цього випливає, що розвиток цього сектора економіки є фундаментальною стратегічною метою будь-якої держави. У статті розглядається та аналізується поточний стан транспортної системи Азербайджану та заходи, вжиті для її покращення, а також інвестиції, зроблені в цій галузі. Крім того, з огляду на поточний статус Азербайджану як транзитної держави, у статті досліджено транспортні маршрути міжнародних коридорів, що проходять через країну, та їх ефективність. Також у статті представлено порівняльний аналіз вантажо-пасажирського потенціалу транспортної системи Азербайджану за останнє десятиліття різними видами транспорту. Для того, щоб переконатися в ефективності транспортної системи, кінцеві доходи та витрати були піддані аналізу, в результаті якого розраховано прибуток (або збиток) для різних видів транспорту.

Ключові слова: транспортна система Азербайджану, транспортні коридори, вантажні, пасажирські перевезення, транспортна інфраструктура..

Introduction. The term "transport" is used to describe a service area that ensures the transportation of people and cargo from one place to another. The transport sector occupies a distinctive position in the rapid and comprehensive development of the country's economy. The primary objective of the transport sector is to facilitate the safe, expedient, and cost-effective movement of goods and people [1]. In order to achieve this objective, it is essential that each country's transport system is effectively established. The term "transport system" is used to describe the collective set of different types of transport and transport infrastructure, regardless of the form of ownership and subordination.

The current state of the transport system of the Republic of Azerbaijan was investigated in detail in the conducted research. Furthermore, the volumes of both cargo

transportation and passenger transportation, the obtained incomes and incurred expenses were comparatively analysed by means of economic-statistical methods for various types of transport. The principal objective of the research is to document the changes that have occurred in Azerbaijan's transport sector over the past decade and to identify potential future developments. In the course of the investigation, the official data provided by the State Statistics Committee of the Republic of Azerbaijan, Azerbaijan Railways CJSC, Baku Metro CJSC, AZAL CJSC, "Baku International Sea Trade Port" CJSC and other relevant institutions were used as the basis for analysis.

The role of the transport system in the economy of Azerbaijan. The advancement of the transport system is of significant consequence for the Republic of Azerbaijan. The experience of developed countries demonstrates that the modern transport

system, which plays a pivotal role in the expansion of economic relations between countries worldwide and the acceleration of integrative processes, has become a primary component of the national economy.

The transport system of Azerbaijan is a comprehensive network that encompasses all existing modes of transportation and facilitates interaction between them.

Railway transport constitutes an integral component of the transport system. Railway transport plays an integral role in the transport system of Azerbaijan. This mode of transportation is primarily utilized for the conveyance of substantial volumes of cargo, including that destined for transshipment [2]. The most transported cargo by railway includes oil products, grain, chemical and mineral fertilisers, building materials, ferrous metals, coal and other types of cargo. Additionally, a portion of the country's domestic passenger transportation is conducted via rail. Railway transport in Azerbaijan is wholly owned by the state.

The field of road transport is a significant aspect of the transportation sector in Azerbaijan. In Azerbaijan, road transport is primarily employed for the conveyance of both passengers and short-haul cargo. In the transport system of Azerbaijan, road transport plays the dominant role in both the movement of passengers and the transportation of goods. This is primarily due to the fact that the country's territory is relatively limited, thereby rendering road transport a more efficient mode of transportation than other forms of transport.

The primary function of **sea transport** is the conveyance of transit cargo. Given the

relatively slow pace of travel associated with this mode of transportation, it is not a prominent contributor to the field of passenger transportation. The majority of coal, oil and oil products, and vehicles are transported by sea. The state also exercises control over maritime transport in Azerbaijan.

The field of **air transport** is a distinct and specialized area of study. Air transport is distinguished from other modes of transportation by two key characteristics: high speed and safety. In other words, this mode of transportation allows for the expedient delivery of cargo and passengers to any location worldwide. In Azerbaijan, the state is responsible for the provision of passenger air transportation, while the operation of cargo flights is outsourced to a private airline. It is crucial to recognise that the civil aviation enterprises in Azerbaijan are fully compliant with the standards set forth by the International Civil Aviation Organization (ICAO) [3].

The transportation of goods and materials via **pipeline** is another key aspect of the country's logistics infrastructure. The advancement of pipeline transport in Azerbaijan is inextricably linked to the growth of the oil and gas industry. Pipeline transport is fully state-owned.

In 2023, Azerbaijan's gross domestic product (GDP) grew by 1.1 percent, reaching 123,0 billion manats. Transport and storage contributed 7637,0 million manats, or 6,2 percent of GDP, to this growth. This represents a 0,2 percent increase from the previous year (Graph 1) [4].

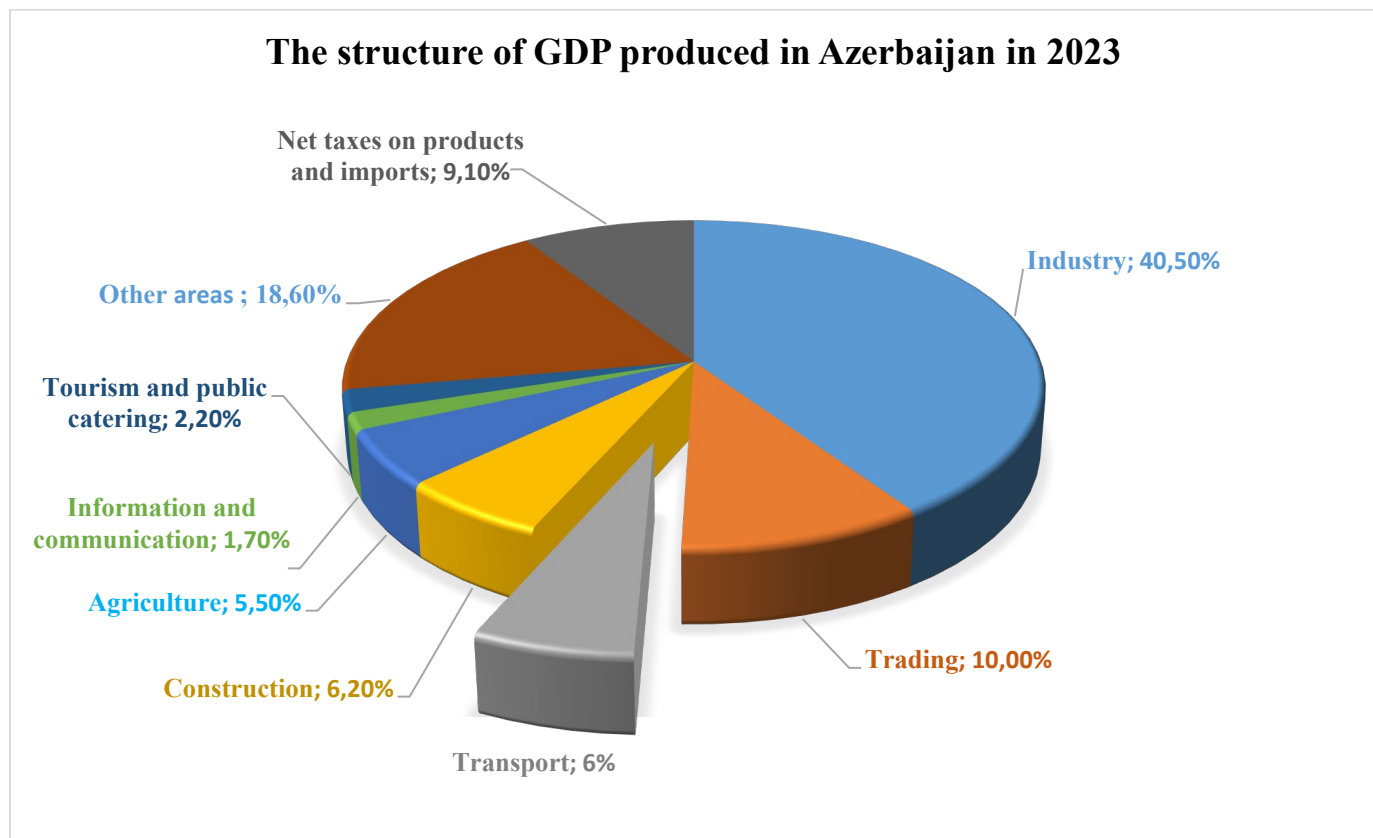


Figure 1 – The structure of GDP produced in Azerbaijan in 2023

Source: Compiled by the authors based on the data of the State Statistics Committee of the Republic of Azerbaijan

The 2023 state budget of the Republic of Azerbaijan allocated a total of 366 million manats to the transport sector. In 2022, the figure was 217 million manats. The 68% increase in funds allocated to the transport sector is indicative of the government's heightened attention to this area [5].

In the 2019 Global Competitiveness Index published by the Davos Economic Forum, Azerbaijan was ranked 11th among 141 countries in terms of the efficiency of railway services, 12th in terms of the efficiency of air transport services, 25th in terms of the efficiency of seaport services, and 27th in terms of the quality of road infrastructure [6].

In recent years, a considerable number of infrastructure projects and social programmes have been initiated in Azerbaijan. These include initiatives pertaining to the reconstruction of road infrastructure, which is regarded as a crucial component of social infrastructure. The

construction of new infrastructure and the substantial refurbishment of existing infrastructure have been successfully pursued. Additionally, a road and transport infrastructure that meets contemporary standards is being constructed in territories liberated from occupation as part of a comprehensive construction project.

So, only in these areas during the last 4 years:

- A new road, the Fuzuli-Shusha highway (also known as the Zafar Road), measuring 101 km in length, has been constructed and is now in use;
- The Zangilan-Horadiz highway, which is 24 km in length and comprises four to six lanes, is currently under construction;
- The construction of the Hadrut-Jabayil-Shukurbeyli highway, with a length of 39,7 km, is nearing completion;

- The 44,5 km long Barda-Aghdam highway was constructed and subsequently brought into use;
- The restoration of the Tartar-Chayli-Suguvushan-Talish highway, which spans a distance of 29 kilometres, was completed;
- The construction of the Horadiz-Aghband railway line, which spans 100 kilometers, has reached a point where 45% of the planned works have been completed;
- The Barda-Aghdam railway project has reached a significant milestone, with 90% of the works already completed;
- The construction of new airports in Fuzuli and Zangilan has resulted in their

subsequent inauguration and operationalization;

- The construction of a new terminal at Lachin airport is currently in progress [7].

The implementation of these projects necessitates a substantial capital investment. In Azerbaijan, the majority of funding for transport infrastructure projects is sourced from internal investments. Consequently, 97,5% (equivalent to 4.500,3 million manats) of the capital invested in 2022 can be attributed to domestic sources, while the remaining 2,5% (113,1 million manats) can be classified as foreign investment.

Table 1 – Investments directed to the transport sector in Azerbaijan

Investments directed to the transport sector in Azerbaijan, million manats					
	2018	2019	2020	2021	2022
Total	1.922,8	2.189,2	2.091,6	2.857,3	4.613,4
Railway transport	7,1	1,2	1,2	0,4	0,1
Road transport	129,8	235,8	266,8	109,2	108,6
Pipeline	168,3	140,5	121,8	57,3	99,8
Water transport	115,4	98,4	53,3	40,3	31,5
Air transport	39,4	33,7	109,7	147,1	89,3
Warehouse economy and auxiliary transport activities	1.462,8	1.679,6	1.538,8	2.503,0	4.284,1

Source: Compiled by the authors based on the data of the State Statistics Committee of the Republic of Azerbaijan

Table 1 presents a quantitative analysis of the investment volume in the transport sector over the period 2018-2022. As can be seen from the table, the majority of funds directed to this sector in recent times have been invested in warehousing and auxiliary transport activities. In 2018 and 2019, 76% of funds were invested in this area, while in 2020 this figure was 73,5%. In both 2021 and 2022, the proportion of funds invested in this sector reached 87,6% and 92,9% respectively. This illustrates the prioritisation of infrastructure development within the country.

Azerbaijan as part of the international transport system.

Azerbaijan's status as a transit country is reinforced by its favourable geographical position and the efficacy of the policies

implemented to facilitate transit. Consequently, as a consequence of the sustained and strategic decisions taken many years ago to enhance the transport infrastructure in Azerbaijan, the country is now equipped to undertake any form of transportation, to receive, store and dispatch all types of cargo. Consequently, Azerbaijan, situated at the confluence of international transport routes, has emerged as a dominant player within the region.

The data provided by the State Statistics Committee of the Republic of Azerbaijan indicates that during the initial three-month period of 2024, 3.607,4 thousand tons, representing 45,2 percent of the total cargo transported through the designated transport corridors, was transported via

railway. Road transport accounted for 2.527,5 thousand tons, or 31,7 percent, while sea transport accounted for 1.845,7 thousand tons, or 23,1 percent. A total of 60,2 percent, or 4.808,0 thousand tons, of these cargoes were classified as transit cargo.

North-South Transport Corridor. The North-South International Transport Corridor was established on 12 September 2000, following the signing of an agreement between the governments of Russia, Iran and India [8]. The Republic of Azerbaijan subsequently ratified this agreement in accordance with the provisions set out in the Law of the Republic of Azerbaijan on joining the "North-South" International Transport Corridor Agreement, which was enacted on 20 September 2005 [9].

The North-South transport corridor is designed primarily for the delivery of goods from India and the Iranian Gulf region to Russia, Western Europe, the Baltic and Scandinavian countries. Map 1 illustrates that this corridor offers a significant advantage over other routes in terms of transit distance and transit time, which are reduced by two to three times. The North-South Transport Corridor allows for a reduction in transit time from 45 to 60 days to 20 to 25 days, when compared to other routes that involve the Persian Gulf, the Indian Ocean, the Suez Canal, the Mediterranean Sea and the Baltic Sea [10].

Route: Europe-Russia-Azerbaijan-Iran-Persian Gulf-India

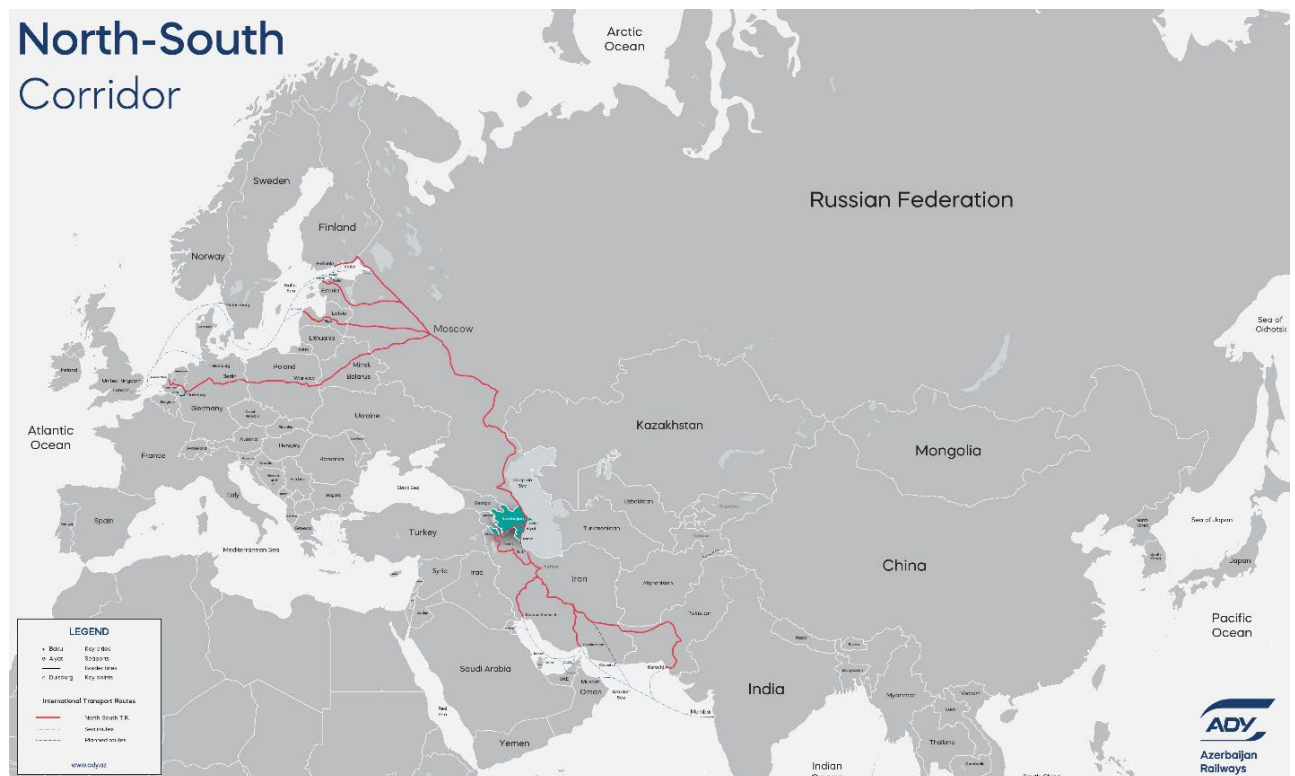


Figure 2 – North-South Transport Corridor

Source: <https://freight.ady.az/beynelxalq-dehlizler/simal-cenub-neqliyyat-dehlizi>

The North-South transport corridor has 3 main routes:

Western Route. The route designated as the "West" route, which traverses Russia and Azerbaijan along the western coast of the Caspian Sea, spans approximately 5,100 km and offers the most optimal connectivity with

the railways and highways of the South Caucasus.

Trans-caspian route. The distance traversed by the Trans-Caspian route across the Caspian Sea is approximately 4,900 km.

Eastern Route. The eastern coast of the Caspian Sea is traversed by the "East" route,

which passes through Kazakhstan and Turkmenistan. This route is approximately 6,100 km in length [11].

In the period between January and March 2024, the volume of cargo transported through this corridor was 2.432,1 thousand tons [4].

East-West Transport Corridor

The East-West (Middle Corridor) or Trans-Caspian International Transport Route (TCITR) is a key conduit for the movement of goods from China to Turkey and, subsequently, to European Union countries, and vice versa (Map 2). The corridor was established in 2014 with the participation of the railway, shipping and port administrations of Azerbaijan, Georgia, Kazakhstan, Ukraine and Turkey. The average transit time for a train travelling along this corridor from China to Europe is 10-12 days. This constitutes one of the principal advantages of the transport corridor [10].

Cargo is transported to Europe via the Middle Corridor in two distinct directions:

1. The route traverses the ports of Poti and Batumi in Georgia;

2. The route is traversed by the Baku-Tbilisi-Kars railway.

The Baku-Tbilisi-Kars project, which was initiated by Azerbaijan, has the objective of increasing the volume of transit operations by reducing the costs of cargo transportation through the Middle Corridor. The "Karabakh Declaration" was signed by the member states of the 2024 Organization of Turkic States with the objective of reinforcing regional integration through the Trans-Caspian International Transport Route, optimising transport operations and customs procedures, and guaranteeing the rapid digitisation of processes. The document addresses a number of key issues, including the modernisation of the Baku-Tbilisi-Kars railway line, the restoration of the extensive energy potential in the Turkic states, the project of mutual coordination of Azerbaijan-Kazakhstan-Uzbekistan energy systems, and numerous other matters. Collectively, these elements illustrate the potential and advantages of Azerbaijan as a transport and logistics network [12].

Route: China-Kazakhstan-Caspian Sea-Azerbaijan-Georgia-Turkey/Black Sea-Europe



Figure 3 – East-West Transport Corridor

Source: <https://freight.ady.az/beynelxalq-dehlizler/serq-qerb-neqliyyat-dehlizi>

As of 2020, the regular shipping of containers from Turkey to China across the Middle Corridor is conducted on a biweekly basis. In 2023, the volume of cargo transported through this corridor reached 2,75 million tons, representing an 86% increase compared to the previous year. In the initial three-month period of 2024, the volume of cargo transported via the East-West transport corridor was recorded at 3.763,3 thousand tons.

TRACECA (Europe-Caucasus-Asia Transport Corridor)

The Trans-European Transport Consortium (TRACECA) is an East-West corridor created by member countries under the leadership of the European Union (EU)

with the objective of connecting the countries of the Commonwealth of Independent States to Europe through the Caucasus or the Black Sea. The decision to implement the TRACECA project was made at a conference held in Brussels in May 1993 [13]. The TRACECA initiative is viewed as a means of restoring the historic Silk Road, one of the world's oldest trade routes.

In 2022, the volume of cargo transported in the Azerbaijani section of the Europe-Caucasus-Asia transport corridor reached 51.420,6 thousand tons, while the cargo turnover reached 12.648,9 million tons-km. These figures represent a 29,8 percent and 31,9 percent increase, respectively, compared to the same period of the previous year [4].

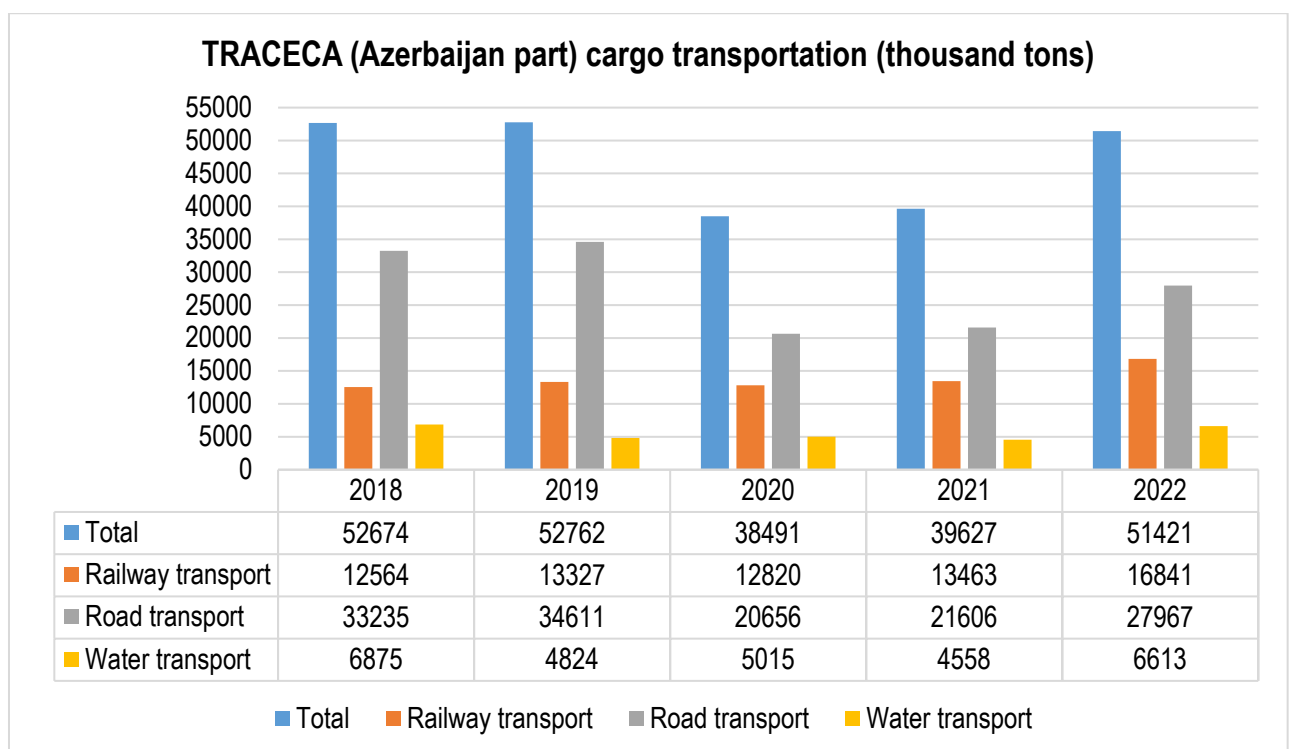


Figure 4 – TRACECA (Azerbaijan part) cargo transportation (thousand tons)

Source: Compiled by the authors based on the data of the State Statistics Committee of the Republic of Azerbaijan

As illustrated in Chart 2, the greatest quantity of cargo was transported through this corridor between 2018 and 2022, with the highest volume occurring in 2019. It is important to acknowledge that the volume of transportation, particularly in the context of

road transport, has experienced a notable decline during the course of the ongoing pandemic. This can be attributed to the closure of the land borders between the countries during that period. In 2022, 54,4% of

the total cargo was transported by road, 32,7% by rail, and 12.9% by sea.

The mean proportion of cargo transported through the corridor that is transit cargo is 21%. Consequently, 26,5

percent, or 13.634,6 thousand tons, of the transported goods in 2022 were transit cargoes.

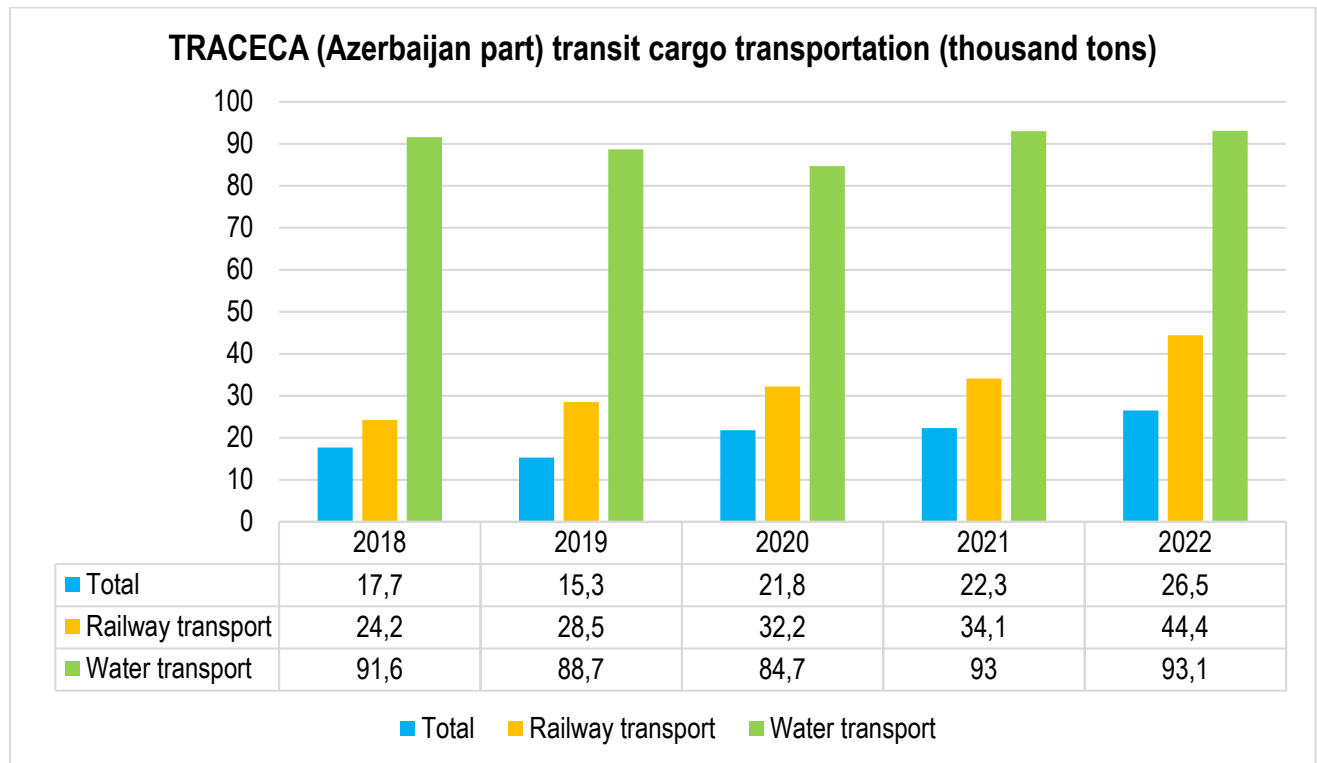


Figure 5 – TRACECA (Azerbaijan part) transit cargo transportation (thousand tons)
 Source: Compiled by the authors based on the data of the State Statistics Committee of the Republic of Azerbaijan

As illustrated in Chart 3, the predominant modes of transit cargo transportation through TRACECA are rail and sea transport. The proportion of transit cargo among all cargo transported along the corridor increased by 8,8% between 2018 and 2022. The most substantial growth was observed in railway transportation. Consequently, over the course of five years, the proportion of transit cargo among all railway cargo transported increased by 20,2%. The majority of cargo transported by sea is transit cargo.

North-West Transport Corridor

The establishment of the North-West transport corridor was made feasible by the inauguration of the Baku-Tbilisi-Kars railway in 2017. The North-West transport corridor has been designed for the implementation of increased cargo transportation, primarily between Turkey and Russia, through the Baku-Tbilisi-Kars railway. (Map 3) Furthermore, the North-West transport corridor facilitates the transportation of Russian-made coal and grain cargo to Turkey by the Baku-Tbilisi-Kars railway [10].

Route: Russia-Azerbaijan-Georgia-Turkey-Europe



Figure 6 – North-West Transport Corridor

Source: <https://freight.ady.az/beynelxalq-dehlizler/simal-qerb-neqliyyat-dehlizi>

As indicated by the data provided by the State Statistics Committee of the Republic of Azerbaijan, the volume of cargo transported through the North-West transport corridor during the period between January and March 2024 was 1.698,9 thousand tons.

South-West Transport Corridor

The decision to create the South-West transport corridor was taken at the beginning of 2016. The South-West transport corridor is designed to facilitate the movement of goods from India, primarily from the ports of Mumbai and Navi Mumbai, to Europe, with destinations including Rotterdam, the Baltic Sea, Northern Europe, and Russia. The route also allows for the return journey, passing through the territories of Iran, Azerbaijan, Georgia, and Ukraine (Map 4). The establishment of the South-West Corridor will

facilitate the development of new opportunities for the transportation of goods, ensuring the implementation of a secure, expedient and consistent pricing structure.

The principal advantage of the South-West Corridor in comparison to alternative routes, particularly the maritime route via the Suez Canal, is the relatively short transit distance and the potential for significant time savings, up to approximately three times the original duration. Therefore, the estimated transit time for sea transportation from the Persian Gulf and India to Europe is approximately 35-37 days. It is anticipated that this period will be reduced to 10-12 days in the future via the South-West Corridor [10].

Route: India-Persian Gulf-Iran-Azerbaijan-Georgia-Turkey/Black Sea-Europe

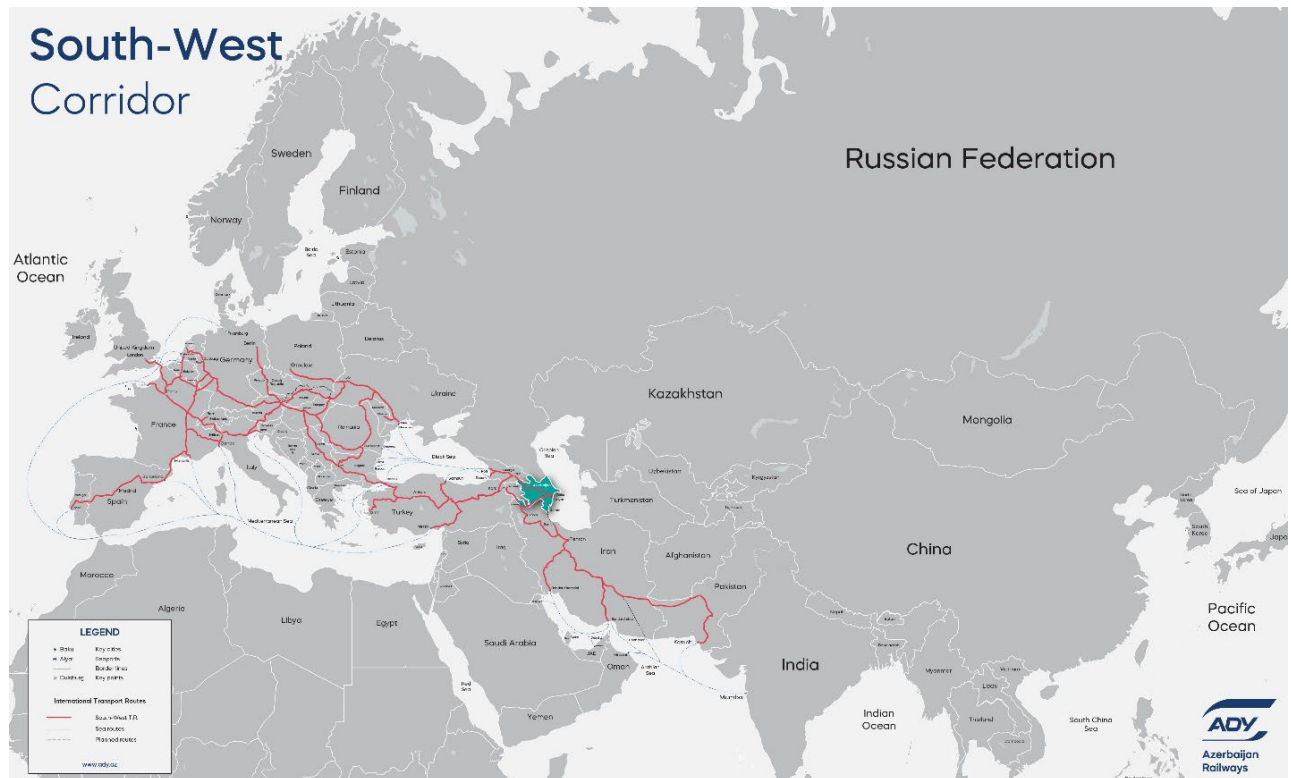


Figure 7 – South-West Transport Corridor

Source: <https://freight.ady.az/beynelxalq-dehlizler/cenub-qerb-neqliyyat-dehlizi>

It is worthy of note that during the initial three-month period of 2024, the volume of cargo transported via the South-West transport corridor reached 86,3 thousand tons. The completion of the North-South corridor, as well as the full utilisation of the potential of the South-West corridor, is contingent upon the construction of the Rasht-Astara and Qazvin-Rasht railway lines. The expeditious construction of these lines is of great consequence with respect to the attraction of Indian transported goods to the South-West Corridor, which will traverse Azerbaijan under more favourable conditions.

Cargo and passenger transportation potential of Azerbaijan transport system

In light of the prevailing political and economic circumstances on the global stage, the enhancement of Azerbaijan's regional standing has become increasingly evident. The progression of international transportation initiatives through the

country's territory has consequently garnered heightened attention to the nation's transport system. In light of the aforementioned considerations, it is of paramount importance to undertake a comprehensive study and evaluation of the current cargo and passenger transportation potential of Azerbaijan.

Freight. In the year 2023, the volume of cargo transported in Azerbaijan exhibited a 5,3 percent increase relative to the preceding year. In the same year, economic entities operating in the transport sector were responsible for the transportation of 230,2 million tons of cargo. Cargo transportation by sea accounted for 3,9% of the total, while railways handled 7,9%. Air transportation was negligible at 0,1%, while road transport and pipelines accounted for 58,4% and 29,7% of the total, respectively (Fig 8).

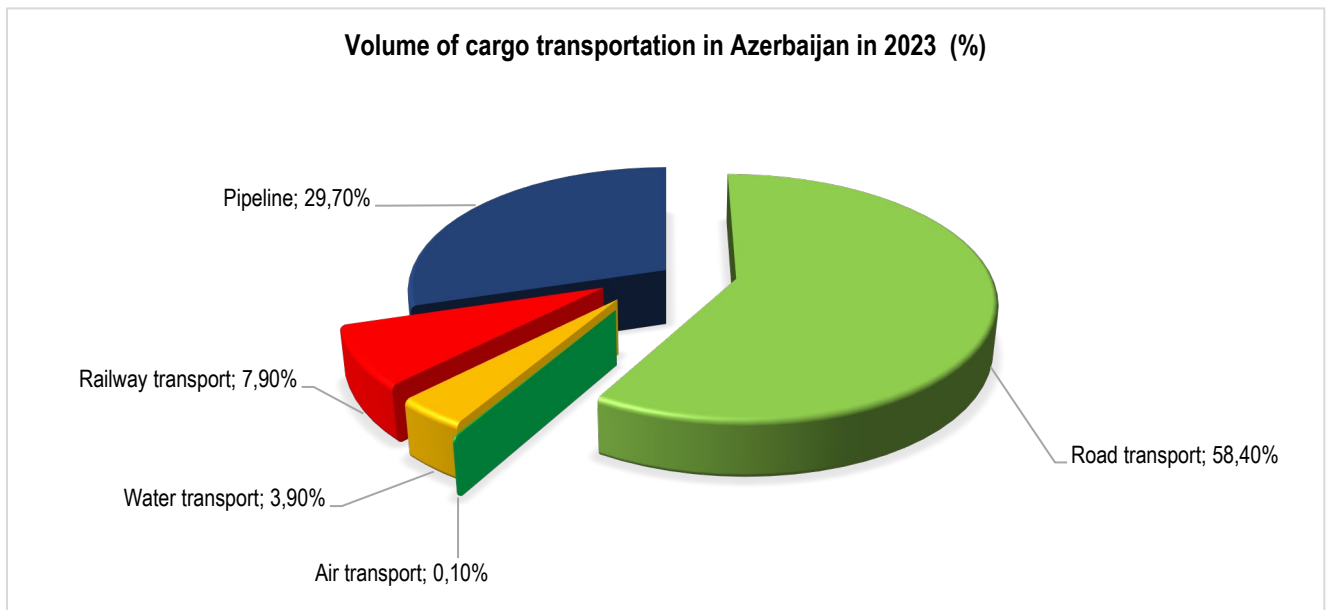


Figure 8 – Volume of cargo transportation by means of transport in 2023 (in %)
 Source: Compiled by the authors based on the data of the State Statistics Committee of the Republic of Azerbaijan

In the year 2023, the volume of cargo transported by vehicles belonging to the non-state sector increased by 5,4 percent.

Furthermore, the specific weight of this sector in the total volume of transported goods was 78,2 percent.

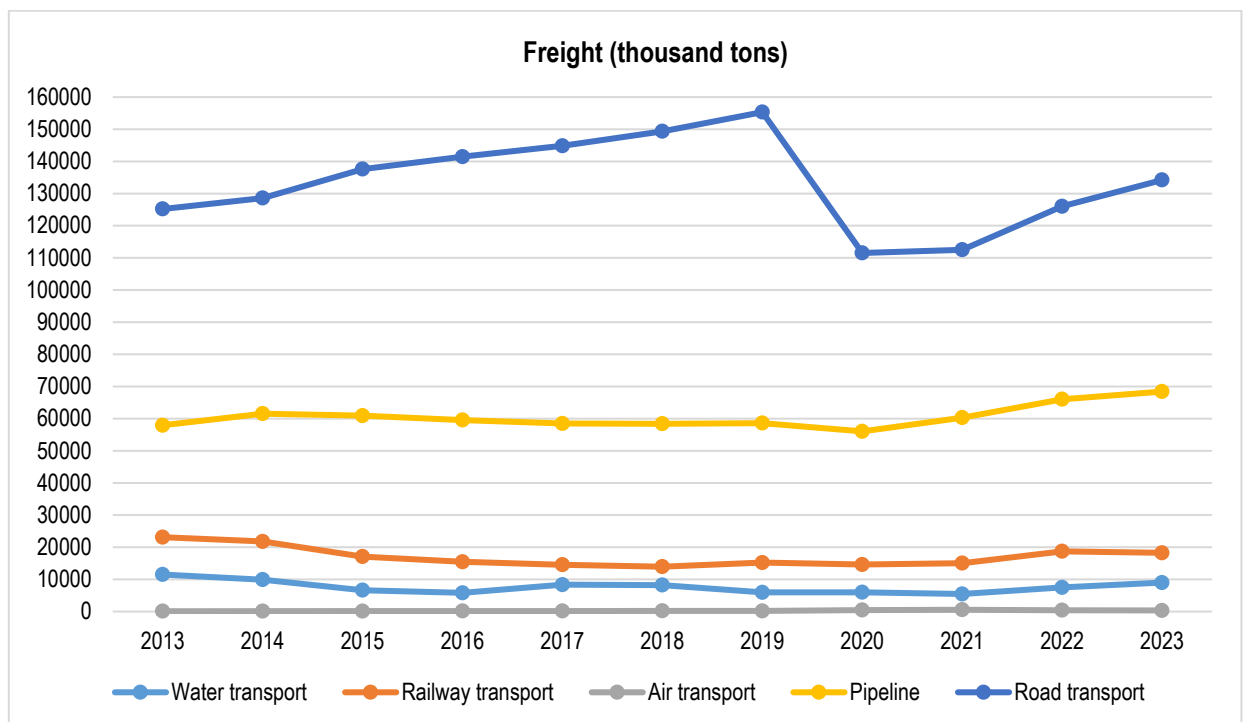


Figure 9 – The volume of cargo transported in the transport sector
 Source: Compiled by the authors based on the data of the State Statistics Committee of the Republic of Azerbaijan

Figure 9 illustrates the volume of cargo transported by various modes of transportation in Azerbaijan between 2013 and 2023. As can be observed from the graph, there has been a notable increase in pipeline transportation in recent times. This may be particularly associated with the observed increase in gas exports. Consequently, 90,9% of exported goods in 2022 and 89,7% in 2023 were transported by pipeline. In 2023, 134,2 million tons of cargo were transported by road, representing the largest specific weight in the volume of transportation in the transport sector. This figure represents a 6,5% increase compared to the previous year. The greatest volume of transportation of this type was recorded in 2019. The volume of road freight declined by 28% in 2020 as a consequence of the restrictions imposed during the global pandemic. In the period following the pandemic, there has been a further increase. Despite the relatively minor role played by air transport in the context of global cargo transportation, with a market share of approximately 1%, there has been a notable increase in the volume of cargo transported by this mode of transportation over the past decade, with a growth rate exceeding twofold. A reduction in the volume of railway transportation is evident. Consequently, in 2023, 18,3 million tons of cargo were transported, representing a 2,6% decline compared to the preceding year. During this period, the greatest volume of cargo was transported by sea in 2013. Despite

the intermittent decline in maritime freight volumes, a recent upward trend has been discernible. In 2023, the volume of cargo transported by sea reached 9.010,8 thousand tons, representing a 19,8% increase compared to the previous year. The principal factor contributing to this is the growth in the volume of cargo transported via the Middle Corridor. It is noteworthy that 54,4% of the cargo transported by this mode of transportation was oil and oil products.

Passenger transport. In the year 2023, there was an 18,7% increase in the number of passengers transported in comparison to the preceding year. In the same year, the total number of passengers transported by the various transport enterprises was 1.923,6 million. The majority of passengers (88,1%) were transported by road, while 11,4% were conveyed by metropolitan (subway), with the remainder utilising alternative modes of transport. Furthermore, the statistical data indicates that the majority of passenger transportation in Azerbaijan is conducted via road and metropolitan transportation.

The construction of a metropolitan railway system is typically undertaken in urban areas with a population of over one million. In the country of Azerbaijan, the metropolitan is currently only operational in the capital city of Baku. It is the inaugural metropolitan system in Turkey and the Islamic countries of the Middle East [14].

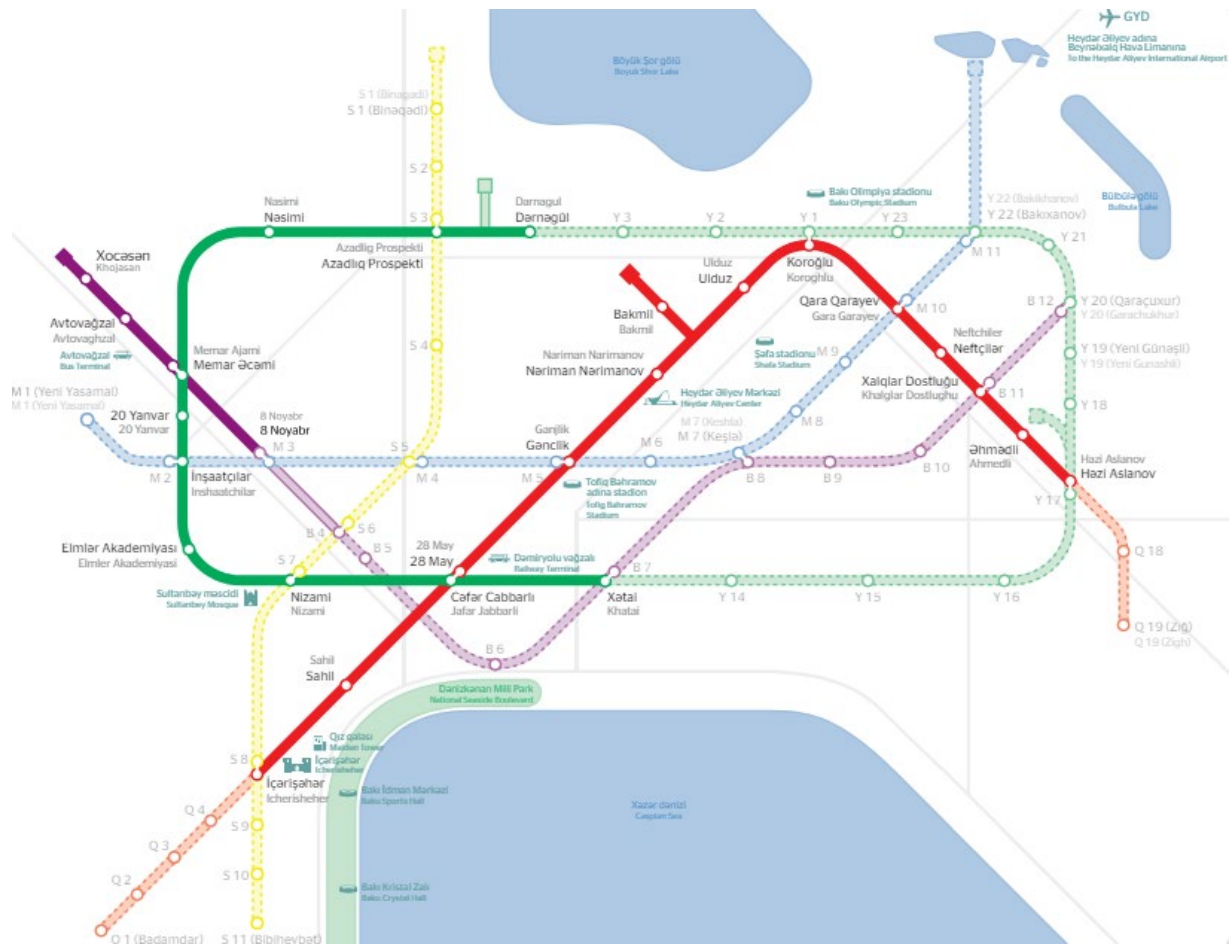


Figure 10 – Conceptual development scheme of Baku metropolitan (subway) lines
 Source: <https://metro.gov.az/az/page/xetlerimiz/konseptual-sxem>

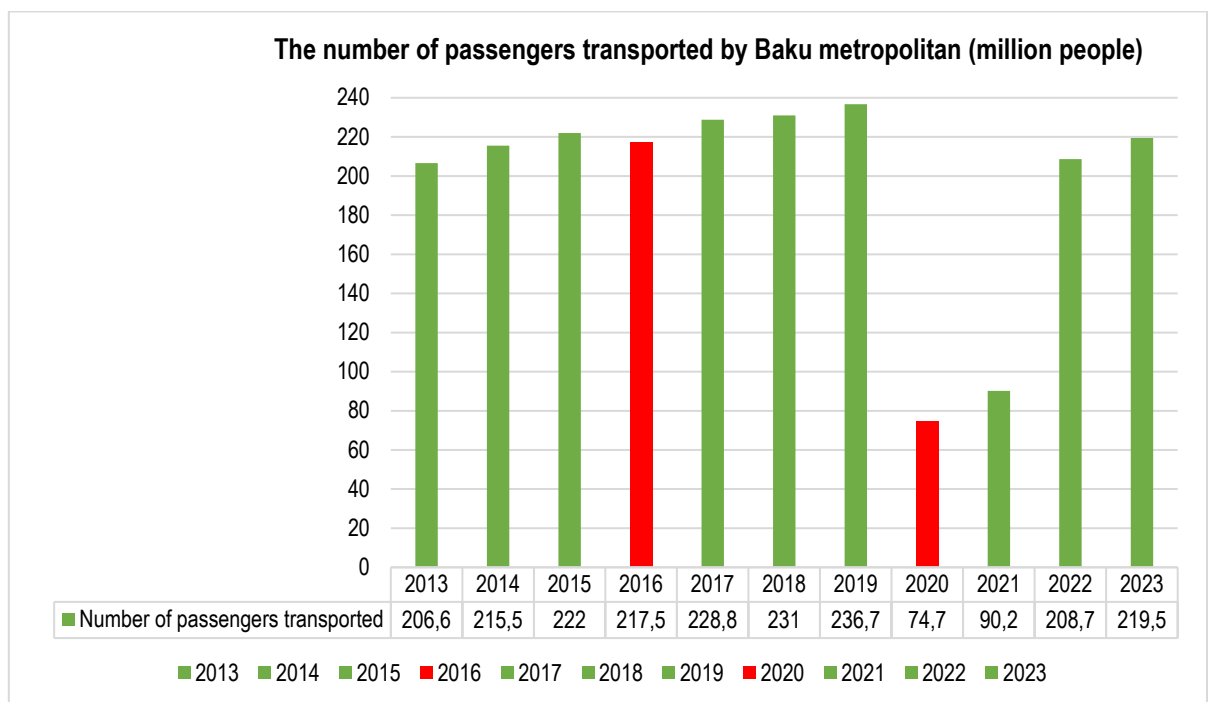


Figure 11 – Number of passengers transported by Baku metropolitan (million people)
 Source: Compiled by the authors based on the data of the State Statistics Committee of the Republic of Azerbaijan

Figure 11 illustrates the total number of passengers transported by the Baku metropolitan system over the period 2013-2023. Over the course of the observed period, the total number of passengers transported by metropolitan has increased by 6,2%. The data presented in the graph clearly indicates that the highest number of passengers were

transported in 2019 (236,7 million), while the lowest number of passengers were transported in 2020 (74,4 million).

The majority of passenger transportation by road is by bus and taxi. In 2023, 94,4% of passengers utilized the services of buses, while 5,6% utilized the services of passenger taxis.

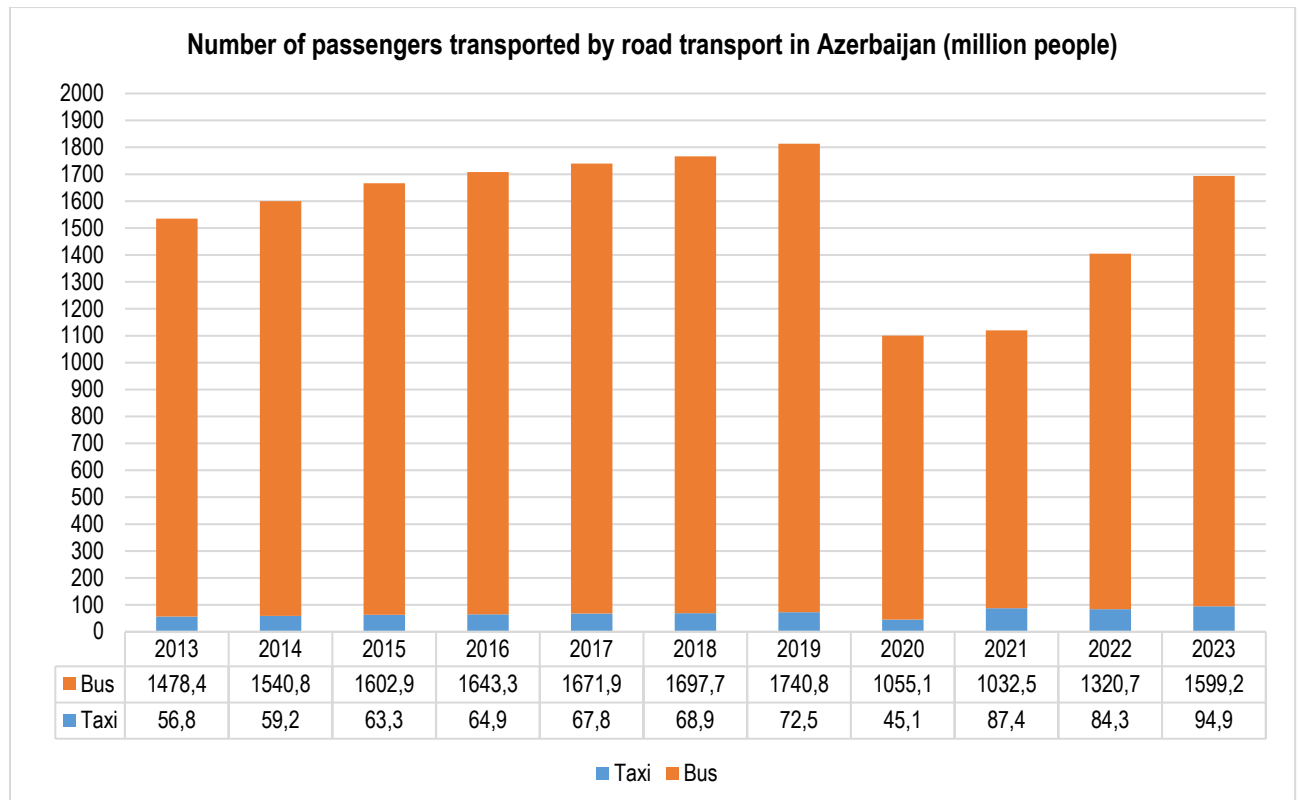


Figure 12 – The number of passengers transported by road transport in Azerbaijan (million people)

Source: Compiled by the authors based on the data of the State Statistics Committee of the Republic of Azerbaijan

Figure 12 illustrates the total number of passengers transported by road in Azerbaijan from 2013 to 2023. From 2013 to 2023, the number of passengers transported by bus exhibited an 8,2% increase. The number of passengers transported by taxi increased by 67,1%. The greatest number of passengers were transported by road in 2019 (1.813,3 million in total), while the lowest number were transported in 2020 (1.100,2 million in total). In 2019, the greatest number of passengers were transported by bus (1.740,8 million), while in 2023, the greatest number were transported by taxi (94,9 million). From

the seventh point on the graph, it is evident that the bus is the most utilised form of public transportation for both intra-city and inter-city travel in Azerbaijan. There has been a notable surge in interest in taxis since 2020, which coincides with the period of the pandemic.

As illustrated in Graphs 6 and 7, the volume of passenger transportation in Azerbaijan has yet to reach the level recorded in 2019 during the post-pandemic period. One of the factors contributing to the decline in public transportation usage is the preference of a portion of the population for

private vehicles. This situation is a consequence of the limitations imposed on public transportation, particularly during the pandemic. According to data from the State Statistics Committee of the Republic of Azerbaijan, the number of private passenger cars imported into the country in 2021 increased by 72,4%, reaching 76.348 units. In total, 264.087 private passenger cars were

imported into Azerbaijan from abroad between 2020 and 2023.

Additionally, railway, air and sea transport are utilised for the transportation of passengers over relatively long distances. Although the contribution of these modes of transport to passenger transportation is relatively minor, their role is nevertheless significant.

Table 2 – Passenger transportation in the transport sector of Azerbaijan (thousand people)

Passenger transportation in the transport sector of Azerbaijan (thousand people)											
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Railway transport	2508	2517	1883	1978	2490	2841	3850	2124	2826	5137	7108
Water transport	14	15	9	20	17	16	22	20	18	21	24
Air transport	1664	1788	1818	1980	2359	2399	2704	578	1133	2254	2912

Source: Compiled by the authors based on the data of the State Statistics Committee of the Republic of Azerbaijan

Table 2 presents the data on the number of passengers transported by sea, air, and rail. As per the schedule, the number of passengers transported by railway has been observed in recent times. Consequently, in 2023, there was an increase of 38,4% in the number of passengers transported. As reported by Azerbaijan Railways CJSC, international passenger transportation via this mode of transport has been suspended since the second quarter of 2020. Nevertheless, there was an increase of approximately 26,5% in the number of passengers transported to suburban and domestic destinations. Despite the lower demand for sea transport compared to other modes of transportation, the volume of passenger transportation via this mode increased by 10,7% in 2023. For passengers undertaking long-distance travel, air transport is the preferred mode of transportation. In the period following the

pandemic, the volume of passenger transportation by this mode of transport also increased. Consequently, in 2023, 2.911,8 thousand passengers, representing a 29,2% increase over the previous year, were transported by air. The overwhelming majority of this transportation, 99,9%, was carried out by state-owned aircraft, while the remaining 0,1% was facilitated by private enterprise.

Profitability of Azerbaijan transport system. In examining the transport system of the Republic of Azerbaijan, it is essential to assess the efficiency with which it operates. It is established that the revenue streams for the various modes of transport are derived from service fees paid by passengers or shippers. Chart 8 illustrates the revenue generated from transportation in the Azerbaijani transport sector between 2013 and 2022.

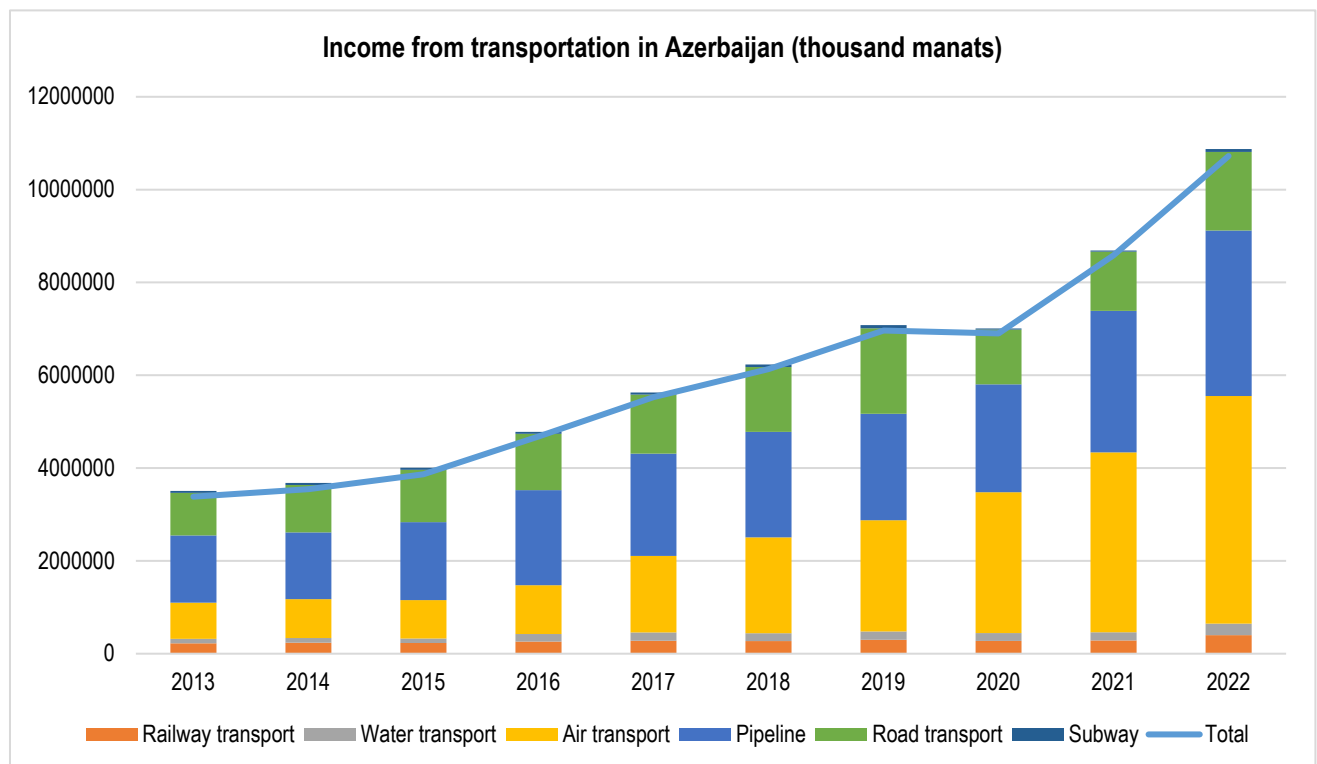


Figure 13 – Income from transportation in the transport sector of Azerbaijan
 Source: Compiled by the authors based on the data of the State Statistics Committee of the Republic of Azerbaijan

As illustrated in Chart 8, revenues from transportation have demonstrated growth over time, with the exception of 2020. The most substantial increase was observed in 2022. Consequently, the income generated in the current year increased by 25,1% in comparison to the preceding year, reaching a total of 10.873.130 thousand manats. During this period, a notable increase was observed, particularly in the areas of air and pipeline transport. The revenue generated from air transport, which is the most expensive form of transportation, has increased by a factor of six or more over the course of nine years. As indicated by the data provided by the State Statistics Committee, 74,3% of the revenues generated by this mode of transportation were derived from the transportation of cargo, while 25,7% were derived from the transportation of passengers. In light of the pivotal role of the oil and gas sector in the Azerbaijani economy, it is evident that the revenues generated by pipeline transport hold a considerable specific weight. Over the

past period, there has been a 40,6% increase in revenues derived from pipeline operations. By 2019, the income generated from the transportation of goods to Azerbaijan via oil pipelines was greater, but in recent times, the income from the transportation of goods via gas pipelines has exceeded that from oil pipelines. Consequently, 34,7% of the revenues generated from pipeline transportation in 2022 were derived from oil pipelines, while 65,3% were derived from gas pipelines. The highest revenue for road transport was recorded in 2019. In 2020, the decline in revenue resulting from the reduction in demand for transportation services during the pandemic also contributed to this overall decrease. However, the overall revenues for road transport exhibited a 45,9% increase during the analysed period. In 2022, the revenues for rail and maritime transport demonstrated a 40,1% and 39,3% growth, respectively, in comparison to the previous year. Among the revenues obtained from transportation, the

metropolitan has the least specific weight. Despite an increase in demand for the metropolitan in the post-pandemic period, the income generated for this mode of transport is insufficient to cover the costs incurred.

The primary expenditure categories within the transportation sector are energy

costs and labour expenses. At the present time, research is being conducted with the specific objective of reducing these costs. Graph 9 illustrates the financial outlay associated with the transportation of goods and people in Azerbaijan between 2013 and 2022.

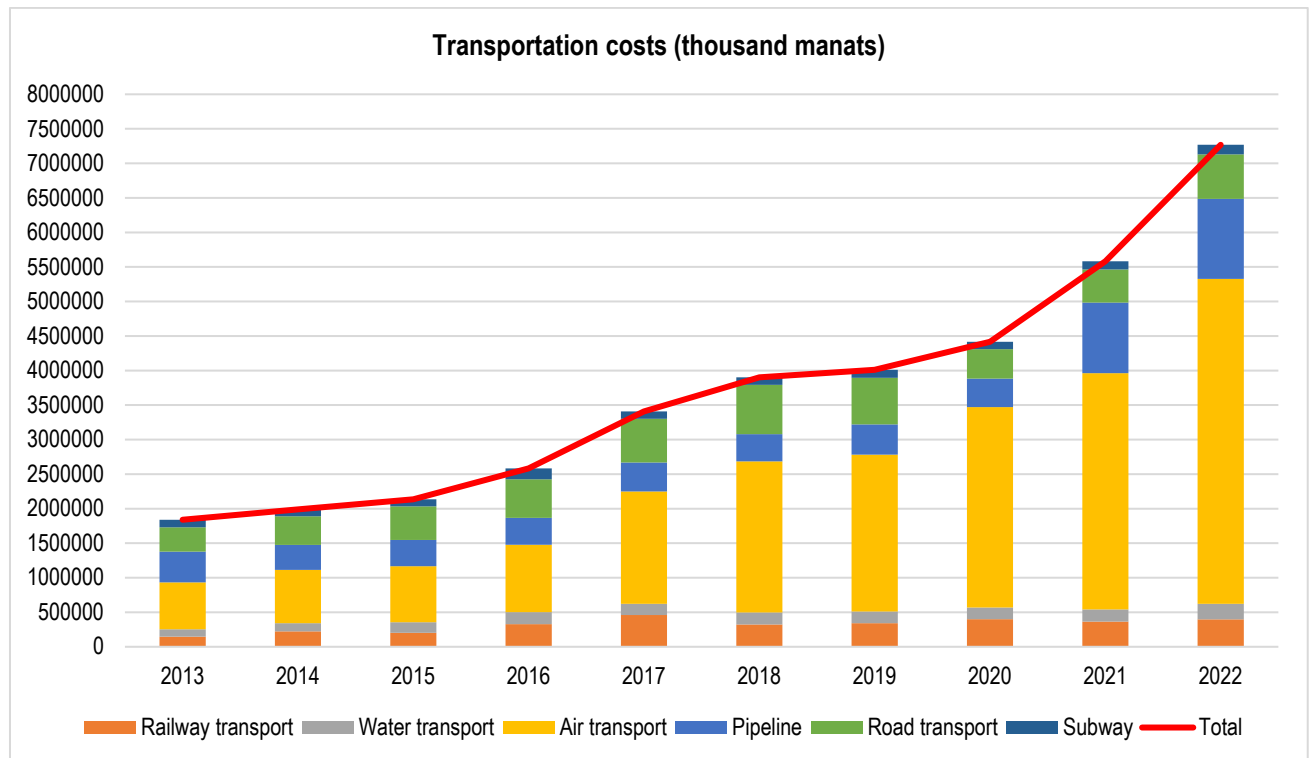


Figure 14 – Costs incurred for transportation in the transport sector in Azerbaijan
Source: Compiled by the authors based on the data of the State Statistics Committee of the Republic of Azerbaijan

As evidenced by Chart 9, the transportation sector has witnessed a gradual escalation in costs over the course of the 2013 to 2022 period. The most substantial increase was observed in 2022. Consequently, the financial outlay on transportation in 2022 was 30% greater than that of the preceding year. During the period under review, there was a notable rise in expenditure on air transport. Similarly, there has been a marked increase in costs, with a more than sixfold increase observed over the period in question. The majority of the costs, amounting to 70,6% of the total, were incurred in the context of cargo transportation, while the remaining 29,4% were attributed to passenger

transportation. It is evident that the financial outlay associated with pipeline transportation has risen in the period subsequent to 2020. Consequently, in 2021, the costs associated with this mode of transportation increased by a factor of two or more. In 2022, there was a 13,4% increase in comparison to the preceding year. The highest costs associated with road transport were incurred in 2018. In the subsequent year, costs exhibited a 5,5% decline. Given the observed increase in both revenue and transportation volume in 2019, it can be posited that road transport operated in an efficient manner during that period. During this period, the greatest expenditure was

incurred on railway transport in 2017. The financial outlay associated with the transportation of this particular commodity exhibited an increase of 9,3% in 2022. A recent increase has been observed in the costs associated with maritime and metropolitan transportation. Consequently, the costs of transportation by sea and metropolitan

transport increased by 26,4% and 19%, respectively, in 2022.

It is possible to ascertain the profitability of different modes of transport by calculating the income generated from transportation in Azerbaijan and comparing it to the costs incurred for these transportation services.

Table 3 – Profit (loss) indicators in transportation by means of transport in Azerbaijan

Profit (loss) indicators for transportation by means of transport in Azerbaijan (thousand manats)						
	Railway transport	Water transport	Air transport	Pipeline	Road transport	Subway
2013	76860	(9595)	101173	1003330	565095	(67697)
2014	12552	(16690)	67599	1076697	604352	(56733)
2015	30101	(60827)	17636	1300041	643051	(60840)
2016	(64966)	(13864)	78914	1656331	656992	(115766)
2017	(181148)	17331	20843	1784999	639385	(60678)
2018	(52586)	(4110)	(120914)	1879106	682729	(54814)
2019	(40924)	10851	124140	1855181	1169422	(46683)
2020	(124214)	191	132368	1911911	755525	(84845)
2021	(79320)	1653	453323	2028293	794595	(90916)
2022	1026	25084	200021	2408749	1048295	(78582)

Source: Compiled by the authors based on the data of the State Statistics Committee of the Republic of Azerbaijan

Table 3 illustrates the profitability of transportation by various modes of transport over the period 2013-2022. As evidenced by the data presented in the table, in 2022, profits were generated from the transportation of goods and passengers by other types of transport, with the exception of the metropolitan system. The Tariff Council's determination of metropolitan transport prices is the primary cause of the damage. Nevertheless, the Baku metro persists in its operations due to the inherent characteristics of a natural monopoly [15]. Despite the decline in profitability observed in the road transport sector during the 2020-2021 period, largely attributable to the pandemic, this mode of transportation continues to demonstrate overall viability. Furthermore, the fact that carriers are private enterprises engaged in this type of transport also has an impact on this issue. The profitability of

pipeline transportation has been a consistent feature throughout the period under review. During the period under investigation, aircraft carriers incurred losses in 2019. In accordance with the financial statements of AZAL CJSC, the national air carrier concluded the 2022 fiscal year with a net profit of 110.620 thousand manats. The reduction in the quantity of freight transported by rail, in comparison to previous periods, coupled with the cessation of passenger services to international destinations, has resulted in a decline in the profitability of this sector. In 2022, the profit on transportation increased by more than 15 times in the case of sea transport, which is distinguished by a low cost of transportation.

Conclusions. A review of the transport system in Azerbaijan reveals that the sector's contribution to the country's gross domestic product (GDP) has grown in recent years.

Concurrently, the level of financial resources allocated to the transport sector from the state budget has also increased. The allocated funds are being utilized for the implementation of extensive construction projects aimed at enhancing the country's transport infrastructure. The implementation of measures in territories liberated from occupation in recent years serves as evidence of this. A review of investment in the transport sector reveals that the majority of funds are allocated to infrastructure projects. It is important to note that in order to achieve comprehensive development of the transport system, the fleet of vehicles must also be renewed. As indicated by the data provided by the State Statistics Committee of the Republic of Azerbaijan in 2022, 62,9% of the bus fleet for road transport and 56,6% of trucks are comprised of vehicles that are 20 years of age or older. This situation has the dual effect of reducing the efficiency of transportation and causing further environmental damage. It is therefore evident that, in addition to infrastructure, attention should be paid to the renewal of existing fleets for transport types. In this regard, measures have already been implemented. It is anticipated that 160 electric buses imported from this country will be introduced to the fleet as part of the China-Azerbaijan cooperation initiative. Additionally, the construction of a manufacturing facility in the Sumgait Chemical Industrial Park is projected to yield 150-200 electric buses annually. The information indicates that the manufactured electric buses will not only satisfy the domestic demand but also enhance Azerbaijan's export potential. [16].

A review of the routes traversed by the international corridors linking Europe and Asia reveals the pivotal role played by Azerbaijan in the context of transit transportation. The transportation of goods through the territory of Azerbaijan has the dual benefit of reducing both the costs associated with the shipment of goods and the time spent on these shipments. Nevertheless, the unfulfilled potential of the

Rasht-Astara and Qazvin-Rasht railway projects precludes the possibility of utilizing the full capacity of the aforementioned corridors. Conversely, efforts are underway to inaugurate the Zangezur transport corridor, which will constitute a component of the East-West corridor uniting Asia and Europe. The inauguration of the Zangezur corridor, which holds strategic, political, and moral value, will foster new economic prospects for Azerbaijan and the broader region. It is anticipated that the Zangezur corridor will enhance the transportation capacity of the Middle Corridor, increasing it to 8-10 million tons per year.

In addition to the aforementioned improvements to the corridors, measures are being implemented with the objective of enhancing the infrastructure and increasing the appropriate transmission capacity, with the ultimate goal of increasing the volume of cargo transportation. The work carried out at the Baku International Sea Trade Port, which serves as the primary transport and logistics hub for the region in Eurasia and is situated in an area where the main railways and highways of Azerbaijan converge, is conducive to this objective. The initial phase of the Baku Port construction project was completed in 2018. The port's current cargo transportation capacity is 15 million tons of cargo and a container equivalent to 100.000 TEU. A second phase of construction is also being planned for the port, with the objective of increasing the annual cargo transportation capacity to 25 million tons and 500.000 TEU containers. A project has been devised for the construction of a TIR park in the port area, which will facilitate the future development of the port [17].

The findings of the conducted research indicate that urban transportation plays a more significant role in the transportation of passengers. In order to enhance the efficiency and sustainability of urban transportation, the Master Plan of Baku City and the conceptual development scheme of Baku Metro lines have been devised. The Baku City Master Plan delineates the projected developments to be

undertaken by the year 2040. The plan encompasses the development of the metropolitan transport network, the railway network, the enhancement of the street-road network, and the establishment of bicycle paths and transit hubs. The plan outlines the reconstruction, activation or construction of 20 passenger stations on the Absheron peninsula by the end of 2027. Furthermore, the construction of a new railway line to Heydar Aliyev International Airport is also planned. By 2040, the total length of the railway network on the Absheron Peninsula is projected to increase from 195,4 km to 338,6 km, while the number of stations is expected to grow from 26 to 54. New transport exchange centres are being constructed in various locations throughout the city with the objective of facilitating the convenient movement of passengers. In addition to enhancing the comfort and security of passengers and the operational efficiency of bus transportation, these interchanges are also instrumental in mitigating congestion and reducing traffic congestion [18].

In accordance with the General Plan, the metropolitan transport system will continue to occupy a dominant position within the public transport system of Baku city, providing the primary public transport connection between the most densely populated areas of the agglomeration and the central areas. At the present time, in accordance with the prospective development plan, the construction of tunnels, stations and depots for new lines is underway, as is the step-by-step reconstruction of existing stations and the equipping of these with modern equipment. In addition, the construction of second exits for deep-based single-exit stations is also being carried out. In accordance with the Baku Metro Lines Conceptual Development Scheme, the future network of the metropolitan will comprise five lines, 76 stations, six electric depots and 119,1 km of metropolitan lines, comprising three existing lines (Red, Green and Purple) and two additional new lines (Blue and Yellow). It is

intended that 51 new subway stations and an 84,3 km metro line (Scheme 1) will be constructed.

A review of the transport system in Azerbaijan reveals that the revenues generated from transportation have consistently exceeded the costs incurred for these shipments over an extended period. The majority of the total revenues obtained in this sector, amounting to approximately 79,4%, were derived from freight, while the remaining 20,6% were generated from passenger transportation. The majority of costs were incurred for the transportation of cargo (71,4%), while the remaining costs were incurred for the transportation of passengers (28,6%). The results of the conducted research indicate that, while the profitability indicator for individual types of transport differs significantly, the overall efficiency of the transport system, particularly in the context of cargo transportation, can be deemed satisfactory.

The research findings indicated a notable increase in the volume of cargo transported by non-state enterprises and the number of passengers. The principal reason for this is that the majority of road transport carriers are private enterprises. Furthermore, the rapidly developing air transport sector has recently seen the emergence of private airlines specializing in cargo transportation. Nevertheless, state-owned enterprises maintain a dominant position in the rail, sea and air passenger transportation sectors.

It is also noteworthy that all infrastructure facilities for all types of transport in Azerbaijan are fully owned by the state. Given the considerable costs associated with the construction and restoration of transport infrastructure, it is crucial to foster greater private sector involvement in this field. In order to achieve this, the use of public-private partnerships (PPP) represents an effective method, as evidenced by global experience. Furthermore, Azerbaijan is well-positioned to leverage this experience. Consequently, in 2022, the "Law of the Republic of Azerbaijan on public-private partnership" was enacted,

thereby establishing a legal framework for such arrangements. Subsequently, concerted efforts are being made to attract both local and foreign investors.

The article is a continuation of a series of publications by the authors on issues of increasing economic efficiency and strategic management of transport [19 – 21].

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