

**Data Collection Survey
on Infrastructure Development
in Central Asia and the Caucasus**

**Final Report
Azerbaijan**

MAY 2019

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

NOMURA RESEARCH INSTITUTE, LTD.

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Abbreviations

ADB	Asian Development Bank
ADF	Asian Development Fund
ADY	Azərbaycan Dəmir Yolları (Azerbaijan Railway)
AIC	Azerbaijan Investment Company
ANFES	Azerbaijan National Fund for Entrepreneurship Support
ASAN	Azerbaijan Service and Assessment Network
AZPROMO	Azerbaijan Export and Investments Promotion Foundation
AZN	Azerbaijani Manat
BCT	Baku Cargo Terminal
BISTP	Baku International Sea Trade Port
BRT	Bus Rapid Transport
BSEC	Black Sea Economic Cooperation
BTA	Baku Transport Agency
CAPA	Center for Aviation Pacific and Asia
CAREC	Central Asia Regional Economic Cooperation Programme
CEP	City Electric Power
EBRD	European Bank for Reconstruction and Development
ECO	Economic Cooperation Organization
EIB	European Investment Bank
EPC	Engineering, Procurement and Construction
ERA	Energy Regulatory Agency

FDI	Foreign Direct Investment
F/S	Feasibility Study
FTZ	Free Trade Zone
GDP	Gross Development Products
GOST	GOsudarstvennyy STandart
GUAM	Georgia, Ukraine, Azerbaijan, Moldova, GUAM Organization for Democracy and Economic Development
HPP	Hydro Power plant
IBRD	International Bank for Development and Reconstruction
ICT	Information and Communication Technology
IFI	International Financial Institutions
IFC	International Finance Corporation
IFRS	International Financial Reporting Standard
INOATE	The Interstate Oil and Black Sea Economic Cooperation
IRENA	International Renewable Energy Agency
ISPS	International Ship and Port Facility Security
JICA	Japan International Cooperation Agency
JIT	Just In Time
KGTF	Korean Green Growth Trust Fund
KWF	Kreditanstalt für Wiederaufbau ("Reconstruction Credit Institute")
LCC	Low Cost Carrier
MES	Ministry of Emergency Situations
MOH	Ministry of Health

MTCHT	Ministry of Transport, Communication and High Technologies
MW	Megawatt
NAA	Narita Airport Authority
NEXCO	Nippon Expressway Company Limited
PFC	Passenger Facility Charge
PIU	Project Implementation Unit
PPP	Public Private Partnership
ROT	Rehabilitate-Operate-Transfer
SAARES	State Agency on Alternative and Renewable Energy Sources
SCM	Supply Chain Management
SME	Small and Medium Size Enterprises
SOCAR	State Oil Company of Azerbaijan Republic
SPC	Special Purpose Company
SWOT	Strength, Weakness, Opportunities and Threat
TOD	Transit Oriented Development
TWh	Terawatt hours
UNDP	United Nation Development Programme
WB	World Bank
WHO	World Health Organization

1. Introduction

1.1. Background

Various types of infrastructure constructed in Central Asia and the Caucasus region during the era of the former Soviet Union are continuing to deteriorate, and it is widely understood that there is a need for financial-cooperation-based support in order to renew and improve the infrastructure. At the same time, externally disclosed information regarding specific high-priority fields and highly feasible projects for infrastructure improvement is extremely limited, which is an issue for setting up projects.

In addition—due to concerns regarding regime changes and increasing public debt as well as expectations concerning increased foreign investment—rapid reforms are underway, including the formulation of new national development strategies as well as improvements to legal systems affecting government restructuring and public-private partnerships (PPPs), and the stances of the governments of each country regarding infrastructure development are changing as well.

For Japan, developmental cooperation to improve infrastructure is a focus field in terms of each country's official development assistance policy in the region. Based on the above trends, in order for Japan to consider its cooperative course of action as a country as well as specific new projects, it is necessary to collect and organize information on the infrastructure improvement situation of each country, the future approach policy, the activities of other donors, and new trends in recent years.

1.2. Purpose

The purpose of this research is to collect and analyze information on the national development strategy, sector-specific development priority and needs, support trends of other donors, and PPP-related systems, results, etc. of the covered countries (Uzbekistan, Azerbaijan, Armenia, Georgia), think about the possibility of utilizing Japanese technology / know-how and expanding business in countries targeted by Japanese companies, and consider the possibility of cooperation by Japan as well as promising new project candidates.

Based on the above mentioned background, we interviewed government agencies in the countries covered by this research, international financial institutions and other donors currently engaged in cooperation, and Japanese companies interested in overseas expansion, and we also conducted desktop research to consider infrastructure-improvement projects in each country and collect / organize useful information. Note that, although we kept loan assistance (yen loans, foreign loans and investments, etc.) in mind as we considered

new project candidates, we did not exclude the possibility of support through technical cooperation and financial aid.

In addition, due to policy shifts occurring in each country during the period of this research, this research was conducted during a time when the situation was changing with every passing moment. We conducted field research from May to October of 2018 and created this report based on information current as of December of 2018, but there were major situational changes after that as well. We did revise this report based primarily on major situational trends starting in January of 2019, but we would like our readers to double-check the latest information.

2. Methodology

2.1. Research framework

2.1.1. Target sectors

This research covers urban development, transportation / traffic, the environment (waste / sewage), health care (medical care / welfare), and energy fields.

Table 1. Main sectors and types of infrastructure that were considered

Fields		Assumed projects
Urban development, transportation / traffic	Urban development	<ul style="list-style-type: none"> Urban roads, transportation network improvement
	Transportation	<ul style="list-style-type: none"> Port improvement Airport improvement Railway improvement
	Traffic	<ul style="list-style-type: none"> Traffic congestion measures
Energy	Power	<ul style="list-style-type: none"> Renewable energy Combined cycle power generation Power transmission and distribution network rehabilitation
	Regional heat supply	<ul style="list-style-type: none"> Boiler replacement Heat supply network rehabilitation
	Other	<ul style="list-style-type: none"> Other
Environment	Sewage	<ul style="list-style-type: none"> Treatment plants, sewer line rehabilitation
	Waste treatment	<ul style="list-style-type: none"> Solid waste management site improvement and restoration Recycling equipment introduction
Health care	Medical care	<ul style="list-style-type: none"> Medical equipment renewal Advanced medical equipment introduction
Other		<p>Although this is not included in the above, we confirmed needs for the following as well:</p> <ul style="list-style-type: none"> Public safety measures

2.1.2. Research items

The major research items covered by this research are as follows:

- Infrastructure improvement plans, development issues, etc.
- Infrastructure development organizations, human resources, etc.
- PPP-related policy framework and infrastructure / examples
- The support situation of other donors
- Fundraising situation related to infrastructure development
- Project short list
- Project long list

2.1.3. Assumed support tools

We considered the possibility of support utilizing the following JICA schemes:

- ODA Loan
- Private Sector Investment Finance
- Grant Aid
- Technical Cooperation

2.1.4. Document Desktop Survey

The materials actually used are 6.1. The following is an overview by sector.

2.1.4.1. Development Policies

In light of the decline in crude oil prices, currency devaluations and other economic developments from 2014, the Strategic Road Maps for the National Economy and Main Economic Sectors were determined by the

President in 2016. These roadmaps are comprised of three separate sections – the Short-Term Strategy and Implementation Plan (2016-2020); the Long-Term Plan through 2015; and the Target Vision from 2025. This document survey is based on use of these strategy materials, economic reform progress confirmation reviews and other sources.

2.1.4.2. Urban Development and Transportation

Development plans, statistics and other matters pertaining to urban development and transportation are detailed in nation-specific reports from the World Bank or Asian Development Bank (ADB) covering the most recent two years. For the railway sector, the latest available information is recorded in detail on the website of the national railways (Azerbaijan Railways = ADY).

2.1.4.3. Energy

For the energy sector, our information contains detailed surveys of the Azerbaijan alternative energy sector as of January 2018. Regarding the alternative energy sector, introductions of policy papers, related legal systems and other data appears on the website of the Azerbaijan Ministry of Energy. Along with this, the World Bank, United Nations Economic Commission for Europe (UNECE), Asian Development Bank (ADB) and other international aid agencies have also published reports tracking the energy sector.

2.1.4.4. The Environment

Similar targets are websites and other public information from the European Bank for Reconstruction and Development (EBRD), Tamiz Shahar (the state-run waste processing public corporation) and other related government ministries, agencies and pertinent bodies. Utilized as references, furthermore, are past reports on relevant projects. These include the Clean City Project, as well as a project currently underway to study construction of waste collection stations in the Baku Metropolitan Area in moving toward optimum waste transport. The latter undertaking has encountered financial issues, with hopes that support will be forthcoming from Tamiz Shahar as the project promoter.

2.1.4.5. Healthcare Services

Due to the shortage of public information concerning Azerbaijan, direct interviews and hearings were

conducted with organizations, individuals and other direct targets, making generous use of information from actual coordinators more so than from document sources.

2.1.5. Interviews

For the urban planning and transportation sector, interviews were held at the Ministry of Transport, Communications and High Technologies, Road Development Agency, Baku Ministry of Transport, Civilian Aviation Agency, Azerbaijan Railways, Baku International Sea Trade Port, Silkway Grand Handling and other locations. Energy sector interviews were conducted with the State Agency on Alternative and Renewable Energy Sources (SAARES). For the environmental sector, interviews covered the Ministry of Economy, Ministry of Ecology and Natural Resources, Tamiz Shahar (overseeing the disposal of general waste in the Baku region) and others. Healthcare interviews were held with the Ministry of Health, Ministry of Labor and Social Protection of the Population, the Heydar Aliyev Foundation, Thalassaemia Center and rehabilitation centers for prosthetic lower limbs and other needs.

2.1.6. Statistical Data

Transport sector analysis utilized statistics from the Azerbaijan Statistical Committee, the Ministry of Transport, Communications and High Technologies, the World Bank and other sources. Statistical data used in energy sector analysis was obtained from the Azerbaijan Statistical Committee, the Ministry of Energy, Interstate Statistical Committee of the CIS and others. For environmental analysis, data procured from the State Statistics Committee of Azerbaijan Republic was used. Finally, for the purpose of analyzing the Azerbaijan healthcare sector, data was obtained from the Azerbaijan Statistical Committee and the World Health Organization (WHO).

3. Development Policies, Laws and Infrastructure development – Analysis of Current Status and Issues

3.1. Development Policies

As countermeasures to the economic stagnation accompanying the decline in crude oil prices in 2014, in December of 2016 the Azerbaijan government announced the “Strategic Road Map on the National Economy and Key Sectors of the Economy of Azerbaijan.” This Strategic Road Map seeks sustainable development of the Azerbaijani economy, together with enhancement and inclusion of social welfare. In view of projections that crude oil prices will not regain the levels realized around 2008, the goal is to utilize the nation’s strategic location as a crossroads of north, south, east and west bound trade (i.e., the Silk Road) to work through promotion of inward investment, securing of an environment of free and open competition, development of human resources and other progress to cultivate non-oil sectors. Of 11 separate economic sectors, the Road Map consists of 12 documents, with respective action targets prepared for the three periods of Short-Term (2016-2020), Medium-Term (through 2025) and Long-Term (from 2025 and beyond). Specifically, the following documents have been approved as individual Strategic Road Maps.

Table 1 The 12 Strategic Road Maps and Target Sectors

Strategic Road Map	Target Sector	Agency of Official Jurisdiction
Strategic Road Map for the prospects of the national economy of the Republic of Azerbaijan	General national economy	Ministry of Economy
Strategic Road Map for the development of the oil and gas industry (including chemical products) of the Republic of Azerbaijan	Oil, natural gas, petro chemistry	Ministry of Energy
Strategic Road Map for the manufacture and processing of agricultural products in the Republic of Azerbaijan	Manufacturing industry, and Agricultural production	Ministry of Agriculture
Strategic Road Map for the manufacture of small and medium entrepreneurship-level consumer goods in the Republic of Azerbaijan	Consumer goods manufactured by small and medium-sized enterprises	Agency of Development of Small and Medium-Sized Enterprises, Ministry of Economy

Strategic Road Map for the manufacture of heavy industry and machinery in the Republic of Azerbaijan	Heavy industry	Ministry of Economy
Strategic Road Map for the development of specialized tourism industry in the Republic of Azerbaijan	Tourism industry	Ministry of Economy
Strategic Road Map for the development of logistics and trade in the Republic of Azerbaijan	Logistics and trade	Ministry of Economy Ministry of Transport, Communication and High Technologies
Strategic Road Map for the development of housing provision at reasonable price in the Republic of Azerbaijan	Housing	State Housing Development Agency
Strategic Road Map for the development of vocational education and training in the Republic of Azerbaijan	Vocational training	Ministry of Education
Strategic Road Map for the development of financial services in the Republic of Azerbaijan	Finance services	Ministry of Finance, Ministry of Taxes
Strategic Road Map for the development of communication and information technologies in the Republic of Azerbaijan	Communications, information technology	Ministry of Transport, Communication and High Technologies
Strategic Road Map for the development of utilities (electricity and thermal energy, water and gas supply) in the Republic of Azerbaijan	Electricity Heat supply Gas	Ministry of Energy

	Water and sewage	
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Of the aforementioned sections, ⑦ and ⑫ are the Strategic Road Maps pertaining to this survey. To confirm the progress status of these Strategic Road Maps, monitoring was conducted by the Center for Analysis of Economic Reforms and Communication

(CAERC) ¹ Annual progress confirmation reviews are released and published by CAERC. Confirmation of these reviews facilitates corroboration of the latest progress status. Within the logistics sector, for example, a review was released in October 2017²

3.2. PPP Related Systems

3.2.1. PPP Related Policies

According to analysis by the European Bank for Reconstruction and Development (EBRD), no legal systems positioned to promote public-private partnerships (PPP) have been established in Azerbaijan at present. Similar indications are issued by Kerimov and Babayev (Kerimov and Babayev, 2019),³ with the types of PPP legislation already introduced in nations such as Russia, Belarus and Kyrgyzstan said to be absent in Azerbaijan. On the other hand, production sharing agreements have been present in the oil and gas sectors from 1994, in support of the understanding that Azerbaijan does in fact have one format of PPP. In that regard, such production sharing agreements are based on the following legal frameworks, with these legal systems profiled as the foundations of PPP ties in Azerbaijan.

¹ <https://ereforms.org/>

² https://ereforms.org/store//media/ekspert_yazilari/islahat/%20icmali/oktyabr/SYX_en.pdf

Materials for the electric power and water supply sectors have yet to be released.

³ Kerimov, A and Babayev, A. (2019) Public-Private Partnership: Opportunities and Prospects of Banking Financing, 37th International Scientific Conference on Economic and Social Development-“Socio Economic Problems of Sustainable Development”, Baku, https://www.researchgate.net/profile/Lukasz_Sulkowski/publication/331321002_Organizational_Identity_of_University_in_Merger_Process_w_37th_International_Scientific_Conference_on_Economic_and_Social_Development_-_Socio_Economic_Problems_of_Sustainable_Development_-_Baku_14-15_/links/5c7512bf458515831f702381/Organizational-Identity-of-University-in-Merger-Process-w-37th-International-Scientific-Conference-on-Economic-and-Social-Development-Socio-Economic-Problems-of-Sustainable-Development-Baku-14-1.pdf#page=1205

- Law on Investment Activity
- Law on Investment Fund
- Law on Protection of Foreign Investment
- Law on Budget System
- Law on Special Economic Zone
- Law on Subsoil
- Law on State Assistance to Small Business
- Civil Code

Moreover, indicated within the Strategic Road Maps for the National Economy and Main Economic Sectors (Presidential Decree of December 6, 2016, No. 1138) is the direction of increased private sector participation in public projects.

Established in 2018 as institutional structures for the sake of incorporating the private sector in public infrastructure projects were the Azerbaijan Export and Investments Promotion Foundation (AZPROMO) and the Azerbaijan Investment Company (AIC). Regardless, however, legal frameworks have yet to formulated. (Kerimov and Babayev, 2019)

3.2.2. PPP Examples

On the World Bank website, in addition to electric power Rehabilitate-Operate-Transfer (ROT) projects and water supply sector lease undertakings, projects in which AIC has been active are also recognized as PPP. Likewise pointed out as examples of PPP are the Azerbaijan National Fund for Entrepreneurship Support (ANFES) ⁴ and the Council of Entrepreneurs under the President of Azerbaijan (Kerimov and Babayev 2019). Notwithstanding, it should be correctly understood that so-called general PPP such as BOT, BOOT, concessions and so format have yet to be realized in Azerbaijan.

When all is said and done, it is difficult to conclude that PPP initiatives in specific fields are going well.

⁴ <http://edf.gov.az/en/>

In the energy sector, for example, while past efforts were made to transfer power distribution networks to private companies, the poor quality of service prompted the return of such networks to public ownership. At present, the government has failed to close the gap with international standards in terms of its setting and regulation of electricity rates, environmental action plans and other areas, with power fees paid by customers remaining at low levels. Such conditions have failed to attract investor interest.

Attempts are also underway to introduce means for nondiscriminatory announcements of procedures for fair and open power customs duty procedures, access to power transmission lines and other progress, along with systems (including power purchase guarantees) positioned for renewable energy. The need for electric rate schedules to be designed for each specific type of renewable energy is understood. There is also awareness of the necessity to provide economic incentives to investors for power plant construction, sparking anticipations for tax reductions and exceptions. The government has already taken action in cases of importing of products related to renewal energy projects, introduction a system granting exception from customs duties to companies gaining approval from the State Agency on Alternative and Renewable Energy Sources (SAARES) and being granted licenses. However, renewable energy projects often prove economically infeasible, with particularly keen difficulties existing for the formation of projects for which bank loans are possible. In response to these conditions, steps are being taken to coordinate issues to clear the way to promoting public sector participation for the purpose of accelerating renewable energy, including improvements in legal frameworks by the Ministry of Energy, SAARES and the Asian Development Bank.

Turning to the environmental sector, as of 2018, a concession project was underway for the design, construction and operation of an incineration facility and waste heat recovery plant for collection and disposal of general household waste in Baku City.

Table 2 Examples of PPP in Azerbaijan

PPP Name	Bidding Method	Format	Sector	Initial Year	Amount (\$million)	Sponsor	Lender	Government Support
Baku Electricity Network	NA	ROT	Electric power	2001	230.0	Barmek	NA	NA
Sumgayitelektriksebeke	NA	ROT	Electric power	2002	80.0	Barmek	NA	NA
Alibayramli electricshebeke & Ganja electricshebeke	Competitive bid	ROT	Electric power	2002	65.2	Baku Yuksak Garginlik Electric Avadanligi	NA	NA
Water supply system in the city of Imishli	NA	Lease contract	Water and wage	2001	0.0	Berlinwasser International AG	NA	NA
Baku Shipyard Company(Construction and operation of cutting-edge shipyard and repair dock)	NA	NA	Shipbuilding	NA	NA	AIC 25%, SOCAR 65%, KEPPEL Offshore and Marine 10%	NA	NA
Holcim OJSC Construction and operation of new cement plant)	NA	NA	Cement	NA	NA	AIC 10%, Holcim 69.4%, EBRD 10%, local private	NA	NA

	NA		NA		Logistics		NA		NA		investors 10,6%		NA		NA
Sangachal Terminal CSC (Construction and operation of new logistics base)	NA		NA		Logistics		NA		NA		investors 10,6%		NA		NA

Source: Prepared from <https://pppknowledgelab.org/countries/azerbaijan> and other information.

3.3. Financial Sector Fund Raising Feasibility

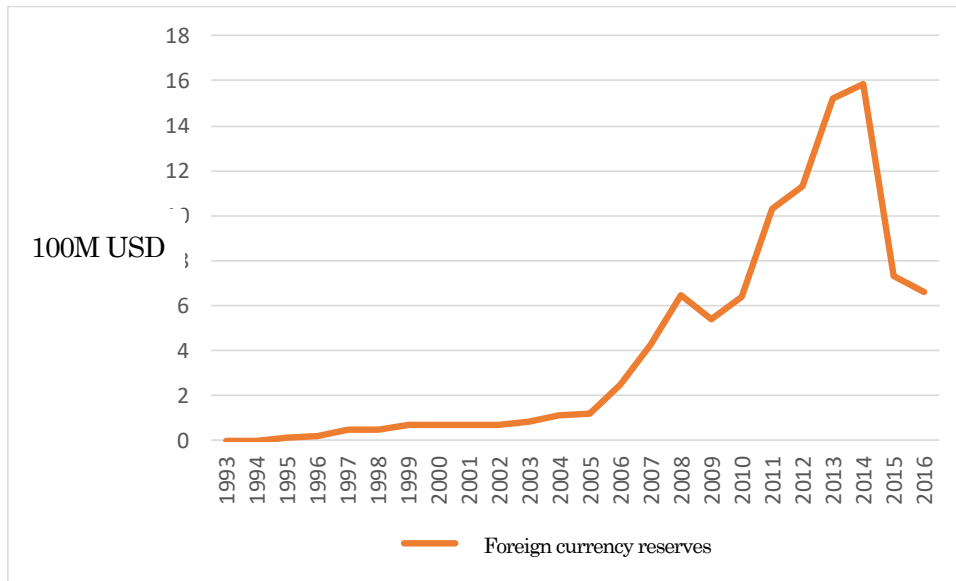
3.3.1. Private Sector Financing

Impacted by the decline in crude oil prices from around 2014, the Azerbaijan currency (“manat”) also sharply fell in value (see Figure 1). While the exchange rate for the manat was 0.78AZN against the U.S. dollar in 2014, at the USD’s peak value at the start of 2017 the local currency had fallen to 1.94AZN/1USD. This swelled the nation’s foreign debt repayment burden to over twice the previous level. That sudden drop in currency value prompted an equally drastic decline in the Azerbaijan’s foreign currency reserves, which were cut by half from 2014 through 2015 (see Table 2). The nation’s domestic financial sector found itself burdened under the weight of delinquent loans, with EBRD, the International Finance Cooperation (IFC) and other organizations providing financial assistance. As a result, as of June 2018 financial institutions in Azerbaijan found it necessary to reduce their dollar- and manat-denominated financing as well, posing difficulties in channeling borrowed capital into projects domestically in that nations.



Source: <https://www.xe.com/ja/currencycharts/?from=USD&to=AZN&view=10Y>

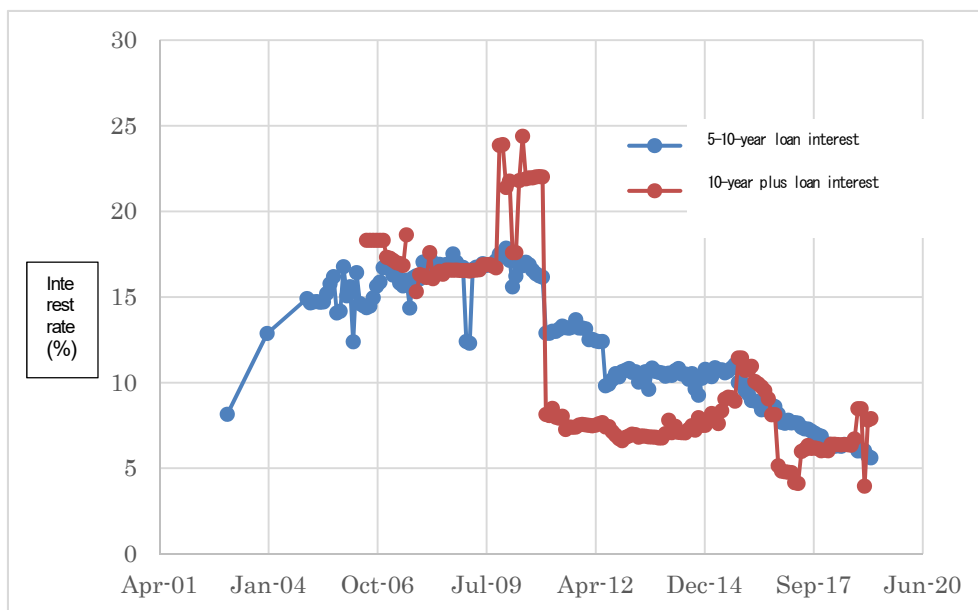
Figure 1 Exchanges Rate Trends for USD and Azerbaijan Currency (AZN)



Source: World Bank

Figure 2 Trends in Azerbaijan Foreign Currency Reserves

Next, we examine the lending interest rates of the Central Bank of the Republic of Azerbaijan. Of particular note, the general practice is for long-term loans to be used for infrastructure development financing, with confirmation made of the interest rates for loans of 5-10 years and 10 years or more. In Azerbaijan, interest rates on foreign currency dominated loans prior to the global financial crisis of 2008 were around 16-17% for both 5-10 year and 10-year plus lending. Directly after that crisis, the rates for 10-year plus loans reached 22-23%, although subsequently falling to the range of 7-8%. After that, in 2015 the rates for 10-year plus loans again surpassed 10%, later declining to under 5%, climbing to nearly 9%, then again going down in a pattern of unstable movements. For 5-10-year loans, lending rates gradually dropped in the wake of the 2008 financial crisis, while holding steady at around 10% from April 2012. They fell further from 2015, declining to around 6% as of December 2018.



Source: Central Bank of the Republic of Azerbaijan (<https://www.cbar.az/page-44/financial-market-indicators>)

Figure 3 Interest Rates for 5-10 Year and 10-Year Plus Foreign Currency Denominated Loans

3.3.2. Feasibility of Long-Term Fund Supply for Infrastructure Projects

While the possibility remains of the supply of long-term capital to the energy sector, including oil and gas, as noted above, Azerbaijan domestic financial institutions generally lack the capacity to lend out capital for long-term projects. Under these circumstances, they are placing the priority on their nonperforming loan countermeasures.

Along with this, the Azerbaijan private sector is characterized by the strength of financial conglomerate linked companies in which politicians and high-ranking bureaucrats hold controlling rights. Because the credibility and disclosure status of the financial accounting information of these companies fails to satisfy the levels of transparency, independence and other aspects set forth in the bylaws of international aid agencies, it is difficult to obtain direct assistance from such agencies. Pertaining to the transparency of these agreements, meanwhile, there are cases of refusal to seek financing from aid agencies that require open bidding practices. Baku Metro, for example, is demanding use of affiliated companies in the construction of its new line segment,

Regarding loans from international aid agencies to government-linked projects as well, in light of restrictions on new borrowing issued by the Azerbaijan government, the recent trend has been for the World Bank, ADB and other international aid agencies to avoid large-scale financing. According to the United Nations Development Programme (UNDP), as of 2018 the Azerbaijan government was adopting a cautious approach to borrowing in

excess of 1 billion Japanese yen (USD 10 million), with the Ministry of Finance failing to approve loans in that class.

In contrast, investment from overseas sources is welcomed. According to the ADB, the hurdles are expected to be lowered for acceptance of such investment for projects judged to contribute to economic diversification hand in hand with technology transfer. Furthermore, with the wife of the President in charge of aspects of the nation's environmental, healthcare and other sectors, there is also the opinion that procuring assistance in those sectors may be easier than in other areas.

3.3.3. Restrictions on International Commercial Borrowing

No particular restrictions are placed on international commercial borrowing. In Azerbaijan, however, with the major companies in key sectors controlled by family companies with involvement by government-related businesses, politicians and high-ranking bureaucrats, the nation's purely private sector is extremely limited. Moreover, it cannot necessarily be said that the accounting practices at private companies there are in compliance with the International Accounting Standards, while the types of PPP systems described above have not been adequately developed. These factors render it extremely difficult for overseas companies to invest in projects in Azerbaijan, or for overseas financial institutions to furnish financing for projects there. Accordingly, despite the absence of any exceptional regulations, the existing situation makes it exceedingly difficult to actually engage in international commercial borrowing.

3.4. Donor Activity Status

The status of activities by major aid agencies in the infrastructure development sector is summarized below.

3.4.1. Asian Development Bank (ADB)

3.4.1.1. Core Sectors

The Asian Development Bank (ADB) has committed major efforts to the building of power transmission lines, improvements in power distribution networks and other phases, particularly for Mingechevir 1 and 2 power transmission line improvement projects. The Azerbaijan government has concluded a \$750 million financing agreement with the ADB, implementing projects with aggregate value of \$1 billion. These projects are comprised of three parts and scheduled to be completed in 2022. They involve energy savings, reduced power transmission losses and other improvements in power transmission networks for deteriorated 110 kV power transmission networks (15 locations), 35 kV electrical substations (52 locations), 6-10 kV electrical substations (4,004 locations), 110 kV power transmission networks (150 km), 35 kV power transmission networks (400 km) and 6-10 kV power transmission networks (2,600 km), seeking to improve the electrical power supply to 1.4 million people. Renovation is also underway on 400 V power distribution networks (10,154 km), with 300,000 smart meters scheduled to be installed.

3.4.1.2. Major Projects

In 2018, the ADB was advancing two programs to improve public sector efficiency and governance and develop the railway sector in Azerbaijan⁵, while another program is currently being readied⁶. In 2019, a second subprogram is scheduled to be implemented to improve public sector efficiency and governance⁷, with the second phase of the railway sector development program⁸ being prepared (Table 3). In particular, for the human waste treatment and solid waste processing plant in Nakhichevan State, confirmation has been made of needs for

⁵ Improving Governance and Public Sector Efficiency Program, subprogram 1(PBL) and Railway Sector Development Program 1(SDP)

⁶ Improving Governance and Public Sector Efficiency Program, subprogram 2(PBL)

⁷ Improving Governance and Public Sector Efficiency Program, subprogram 2(PBL)

⁸ Railway Sector Development Program 2 (SDP)

additional technical cooperation parts pertaining to waste treatment and disposal plant management.

Likewise, with regard to the Baku City integrated urban development project (excluding Baku Metro), the desire is to harness Japanese urban development experience to mobilize bus rapid transit, trams, commuter trains between Baku and Sungai and other means to improve public transportation networks. Regarding the move to more detailed contents on these undertakings, ADB is looking forward to cooperation from JICA.

The preliminary studies for these projects were completed three years ago. However, with cost estimates having reached \$300 million at that point in time, the government has been hesitant to move forward with the work. With three years having elapsed since the proposal to the Azerbaijan government from ADB, advancing the projects will require greater details in the contents and narrowing down of the cost estimates.

Table 3 Summary of Most Recent ADB Major Projects

Program	Year	Summary	Estimate (\$ million)
Improving Governance and Public Sector Efficiency Program, subprogram 1(PBL)	2018	Diversification of the Azerbaijan economic system to improve public sector governance and expand the financial sector.	250
Railway Sector Development Program 1(SDP)	2018	Convert the Azerbaijan Railway (ADY) into a high-profitability company, moving to improve railway service. (i) Railway sector and company reforms, and ADY financial restructuring. (ii) Notably, improve railway infrastructure along the North-South Railway Corridor.	1.3
Improving Governance and Public Sector Efficiency Program, subprogram 2(PBL)	2018	Diversification of the Azerbaijan economic system to improve public sector governance and expand the financial sector.	250
Railway Sector	2019	Improvements in the rails and structure of the	400

<p>Development Program 2 (SDP)</p>		<p>Sumagayit-Yalama line – the main route for CAREC and the north-south linkage line. Improvements in railway network service capacity (project loans), support for greater railway sector management independence and quality. Financial restructuring, reporting and oversight, management efficiency, corporate structure improvements (policy-based loans).</p>	
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Source: Prepared from ADB materials.

3.4.2. European Bank for Reconstruction and Development (EBRD)

3.4.2.1. Core Sectors

Among the sectors targeted in this survey, the EBRD is focusing its energies on the environmental sector.

3.4.2.2. Major Projects

The EBRD is advancing the Baku Metropolitan Area waste processing efficiency improvement project. Efforts are particularly focused on improvements in waste collection efficiency and reductions in waste quantity.

For this project, the goal is to construct waste collection stations in Garadagh and Khazar outside of Baku, collecting waste before it is taken to the disposal plant and processing facilities. Transferring waste from small-size collection vehicles to large-size vehicles will improve collection efficiency, shortening transit time for waste collection and disposal in the mission to allot greater time to waste collection. Moreover, the introduction of waste sorting equipment in these intermediate collection facilities is aimed at promoting greater waste recycling. On the strength of improved transport efficiency, meanwhile, the goal is to lower fuel consumption in the collection vehicles. At the current point in time, however, the Azerbaijan government has yet to grant approval for this project.

3.4.3. European Union (EU)

3.4.3.1. Core Sectors

Among the sectors targeted in this survey, the EU focuses its energies on the healthcare field.

3.4.3.2. Major Projects

The Ministry of Health is concerned that revenue sources are not being secured, appropriate medical fees have not been established and other potential delays are occurring in the creation of a social insurance system, prompting the launch of deliberations with the EU. Envisioning operational startup in 2019, Estonia (which made the transition from the former Soviet Union system to its own national social insurance system), France (administering a social insurance system for many years) and other examples, moves are afoot to formulate an Azerbaijan model. Although the social insurance study itself is being performed by a privatized institution, the EC support currently being advanced is scheduled to conclude at the end of fiscal 2019, with no support schemes determined from there on.

3.4.4. International Finance Cooperation (IFC)

3.4.4.1. Core Sectors

As of 2018, the IFC was primarily engaged in support for revitalization of the financial sector. In addition, there is also interest in targeting the private sector for development investment and financing.

3.4.4.2. Major Projects

Azerbaijan private companies have issues regarding financial transparency, with the past 10 years producing no specific support within the infrastructure field.

3.4.5. United Nations Development Programme (UNDP)

3.4.5.1. Core Sectors

Initiatives are underway for damage prevention measures, energy conservation, small hydropower and alternative fuels, supported by cooperation with the Ministry of Energy. As a particular case in point, energy saving efforts have recently commenced at a building owned by the State Oil Company of the Azerbaijan Republic (SOCAR).

3.4.5.2. Major Projects

Under the Paris Agreement of the United Nations Framework Convention on Climate Change, Azerbaijan is also required to issue annual reports on carbon dioxide emissions,⁹ while utilizing the Green Fund bankrolled by South Korea. With regard to climate change mitigation and adaptation, meanwhile, Azerbaijan is implementing eco-friendly driving to reduce fuel consumption in vehicles utilized commercially by SOCAR, capturing of gas leakage from oil and gas fields and other initiatives. The UNDP is particularly seeking to promote collaboration with SOCAR eco-friendly driving.

⁹ <https://www4.unfccc.int/sites/NDCStaging/Pages/Party.aspx?party=AZE>

3.4.6. The World Bank (WB)

3.4.6.1. Core Sectors

Regarding the sectors targeted in this survey, the World Bank is devoting keen attention to railways, waste, soil pollution countermeasures, healthcare and other areas.

3.4.6.2. Major Projects

In 2008, the World Bank launched the Rail Trade and Transport Facilitation Project aimed at making improvements in the Azerbaijan railway sector. With this, initiatives commenced to raise the competitive strength, sustainability, operation, cost efficiency and personnel capacity of railway transportation. Particularly keen stress was placed on improving the capacity of railway transport between Georgia and Azerbaijan.

Azerbaijan Railways favors continuation of cooperation with both international aid agencies and individual nation aid agencies. For improvements in the railway sector, preparations are underway on the following projects, with a financing agreement for \$450 million signed with the International Bank for Reconstruction and Development (IBRD).

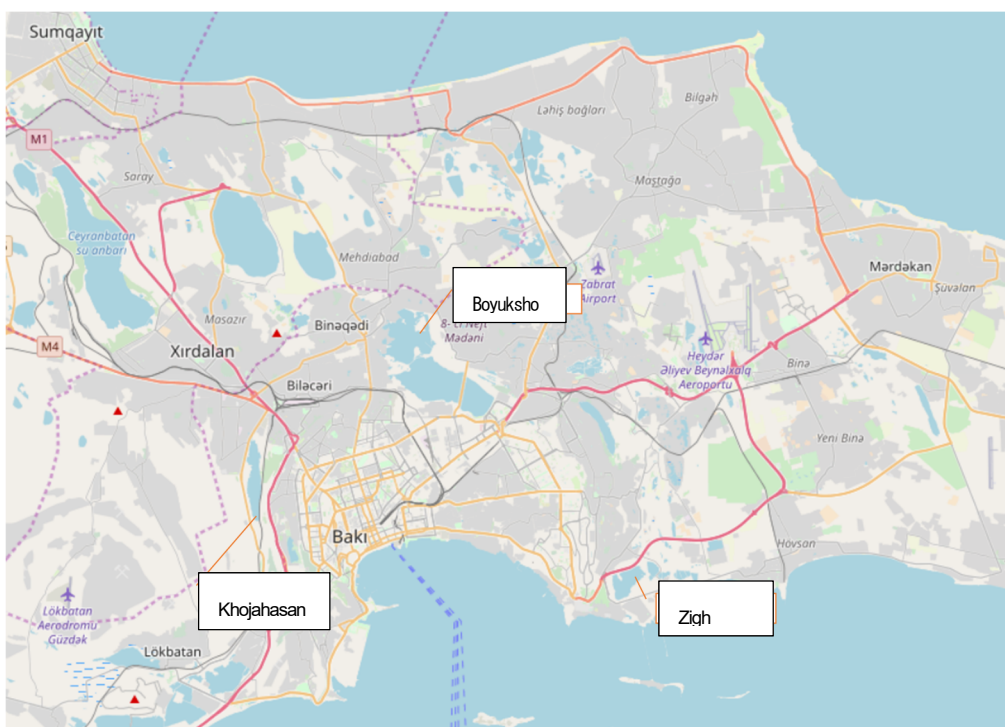
The schedule calls for use of this financing in renewal of locomotives, renewal of tracks (including 250 km already completed, current work underway on the 317 km linking Baku, Boyuk and Kasik, new construction of the No. 2 Bridge over the Kura River, renewal of the overcrossing section of the bridge serving as the junction between Saloglu and Polylyu and other routes), enhancement of power supply facilities, improved signal and communications equipment, new locomotive procurements, compliance with international financial standards and so forth. Improvements in these routes will enhance the integrated transportation network from China to London. Transport capacity at the initial stage will be one million passengers and 6.5 million tons of cargo, with the goal being to secure final transport capacity of 17 million cargo tons.

The World Bank is also providing support to raise the effectiveness and sustainability of the Baku Metropolitan Area waste collection and processing system. More specifically, this assistance consists of (1) data collection and strategy planning, (2) improvements in the operation, management and communication capacity of overseeing organizations, (3) commencement of collection service operation and (4) environmental improvements in existing waste processing plants. While most of these initiatives have already been completed, improvements in related legal frameworks and environmental social impact assessments have yet to be concluded.

The World Bank is also cooperating in a project being advanced by the Azerbaijan government to clean up oil

pollution damage in nine lakes in the vicinity of Baku City. This project lies under the jurisdiction of the Ministry of Economy, with Tamiz Shahar acting as the implementing organization. Tamiz Shahar is already engaged in dredging, relocation, cleanup, restoration and other phases on Bokshor Lake, with the World Bank working to clean up Khojasan Lake.

The World Bank is currently preparing to utilize the Green Trust Growth Fund supplied by South Korea (KGGTF: www.kgreengrowthpartnership.org/#Current-Events) to supply the overseeing Ministry of Economy with gratis capital cooperation for two years, aiming to conduct a survey of these pollution measures. Approval for this is forecast to be received from the Azerbaijan side very soon, after which consultants are scheduled to be secured from the World Bank as international procurements.



Source: Prepared from Openstreet map.

Figure 4 Three Lakes Where Pollution Cleanup Studies are Underway

In the healthcare sector, the World Bank spearheaded the Health Sector Reform Project (2006-2013) as an effort aimed at restructuring that sector. The project was comprised of five elements, the details of which are presented below.

Table 4 Five Elements of the World Bank Health Sector Reform Project

Project	Approved Value	Content
Capacity building for Ministry of Health stewardship	Approved value of \$8.13 million, with the actual breakdown sourcing \$5.17 million from the International Development Association and \$1.78 million from the Azerbaijan government.	This project seeks Ministry of Health personnel capacity building with regard to policy formation, planning and regulation, together with improvements in the technological and physical infrastructure. Notable aspects are restructuring of Ministry of Health functions and administrative structure, including that ministry's framework and establishment of a policy planning bureau; proposals of drug-related policies; development of approval and licensing systems for public and private healthcare facilities; strengthening of healthcare information systems; and improved technical competency targeting effective methods of dealing with new diseases.
Improved healthcare services supply	Approved value of \$73.55 million, with \$40.69 million in International Development Association (IDA) funding. Actual sourcing was \$63.35 million from the government and the IDA.	This project supported improved healthcare services judged appropriate for Azerbaijan that are high in quality, technologically sound and offer streamlined distribution efficiency, being implemented in the Apsheron, Agdash, Ismaili, Sheki and Gakh districts. More specifically, primary health care facilities were renewed, renovated and constructed at the subdistrict level, with three hospitals newly built at the district level. Adjustments were also made to strengthen the hierarchical relations between healthcare services at the primary and secondary levels. Finally, to accurately assess the impact of this investment, financial baselines were established, with analysis also conducted to probe the medium- to long-term financial impact.
Realize sustainable finances and resource distribution in the healthcare sector	Approved value of \$1.43 million, all funding from the IDA. Actual sourcing was \$680,000 from the government and the IDA.	This project utilized universal risk countermeasures to deal with unbudgeted expenditures, with introduction of the insurance principle to enhance healthcare sector financial affairs. The activity objectives are effective planning, implementation and monitoring system formulation for healthcare sector budgeting

Project	Approved Value	Content
		policies, establishment of a healthcare fund as singular financing for the healthcare sector and realizing a single buyer for healthcare services.
Human resource development	Approved value of \$1.32 million, \$780,000 financed by the IDA. Actual sourcing was \$1.89 million from the government and the IDA.	This project includes labor coordination policies including provisions for retirement and compensation policies, along with health education improvement initiatives. It was also used for development of clinical guidelines and protocols and healthcare professional awareness programs.
Project management, monitoring and evaluation	Approved value of \$1.93 million, all funding from the IDA. The final sourcing is \$3.84 million from the government and the IDA.	This project is positioned to support the Ministry of Health Project Implementation Unit (PIU) in targeting more efficient project management and implementation.

Source: World Bank materials.

3.4.7. Summary

Under the impact of the decline in the value of the Azerbaijan manat, Azerbaijan's outstanding foreign debt ratio stood at 21.5% of its GDP in October 2018¹⁰. In reaction to this development, the Azerbaijan government is devoting major energies to lowering that foreign debt ratio.

On the other hand, the authority of the nation's President is virtually unlimited, with Presidential decisions to borrow effectively overriding the borrowing limits in force. In hearings with donors, the opinion has been expressed that the potential for borrowing exists in cases when projects are not simple loans, but offer the potential to obtain new technology that can be used for the purpose of alleviating weaknesses in agriculture, small and medium-sized enterprises and other economic fields in Azerbaijan. More specifically, ADB coordinators have indicated that the Azerbaijan government is also believed to embrace interest in the types of projects anticipated to transfer in knowledge from integrated transportation, disaster prevention and other fields in which Japan enjoys superiority. This reportedly suggests the potential for acceptance of projects promising to contribute to the diversification, sophistication and tenacity of the Azerbaijan economy.

Prioritization by sector and other areas are clarified in Strategic Road Map 2016-2020. In addition to infrastructure, mention is also made of agriculture, information and communications technology (ICT), small and medium-sized enterprises (SME) and tourism. Azerbaijan is particularly keen on startups in the ICT sector. In the agricultural sector, meanwhile, there are anticipations for markets other than Russia, with the desire existing to bolster exports of tobacco, rice (both long-grain and short-grain), citrus fruits and tea. For tourism, a Azerbaijan Tourism Board has been opened, addressing the need for human resource development, hotel management and other areas. Azerbaijan has also introduced a specialized organization for its SME. For logistics, there is the desire to build up a North-South and East-West Corridor logistics hub with Baku as the node. With Baku International Sea Trade Port holding the key to this vision, hopes are running high for private sector investment.

According to a UNDP coordinator, a Presidential Decree appears to have set the limit for financing at \$10 million. It may be easier to win acceptance for amounts below that line.

¹⁰ <http://www.maliyye.gov.az/scripts/pdfjs/web/viewer.html?file=/uploads/static-pages/files/5c8a474c24b49.pdf>

4. Target Sector Status and Forthcoming Planning and Sector Issues

4.1. Urban Development and Transportation

4.1.1. Infrastructure development Status

4.1.1.1. Transportation Sector (Particularly Railway) Development Policies

On July 6, 2010, President Ilham Aliyev of the Republic of Azerbaijan approved the State Program for the Development of the Railway Transport System in the Republic of Azerbaijan in 2010-2014. This program was designed to advance sweeping improvements in the nation's railway sector. The sphere of the program encompasses renewal of passenger coaches, freight cars and locomotives, overhauling of railway lines, expansion of electrical supply capacity, the shift from provisional to permanent signal and communication system equipment and renewal of other equipment and facilities. In addition, prioritized infrastructure development planning is also part of the following two social development programs.

- State Programme on Poverty Reduction and Economic Development (SPPRED) 2006-2015
- State Programme on Socioeconomic Development of Regions

These transportation sector infrastructure development plans take into consideration the geographical characteristics of Azerbaijan as the effective crossroads of east-west and north-south transport networks. This has prompted the Azerbaijan government to view railway infrastructure as a particularly essential target for improvement, with a comprehensive development program drawn up.

In addition to infrastructure development programs, also targeted are the following service improvements.

- Securing of appropriate service, infrastructure, locomotive pulling capacity and other steps in formulating a profitable freight transport market, advancing the quest to sustain and further grow the railway business.
- Achieve financial self-sufficiency for Azerbaijan Railways, enabling freight transport costs to be covered by revenues while simultaneously cutting costs necessary to move in that direction.
- Introduce International Financial Reporting Standards (IFRS) in Azerbaijan Railways, adopting independent accounting for passenger, freight and other individual business earnings sectors and otherwise underscore the company's independent management status, advancing the quest for greater management transparency.

The Baku-Tbilisi-Kars Railway Corridor connects Azerbaijan and Turkey, with the linkage between the Caspian Sea and Black Sea to serve as a transportation route conjoining Central Asia, the Caucasus region and Europe.

Concurrently, improvements will also be made in the north-south transportation network of Yalama (on the Azerbaijan-Russia border) and Astara (the Azerbaijan-Iran border). At present, the conditions at the border with Iran require new building to the extent of 8.8 km within Azerbaijan and 150 km domestically in Iran.

To succeed in these reforms, the Azerbaijan government is demanding management streamlining by Azerbaijan Railways, with expectations that this will generate financial reforms, internal administrative improvements and introduction of an effective asset management system. Moreover, in gearing up for the introduction of a rapid transit railway in the future, the need likewise exists for restructuring of the communications system.

4.1.1.2. Logistics and Trade Sector Strategic Road Map

For logistics, with Azerbaijan located at the crossroads of the North-South and East-West Transportation Corridor, the nation is conveniently situated to address transit trade, imports and exports and other needs. To take advantage of these trade strengths, initiatives are underway to build new ports, enhance railways linking from north to south and east to west and forge other progress.

Within Azerbaijan, railways are most frequently utilized for international trade. For railway cargo, the share of transit trade is small at present, with almost all import/export cargo movements either originating or concluding in Azerbaijan. Of cargo transported by railway, the share of the overall volume comprising transit trade had halted at 23% in 2015¹¹. In addition, the lion's share of Azerbaijan cargo consists of coal, crude oil, agricultural produce and other types of bulk cargo, with few containers in use. In light of such conditions, the objectives outlined in the strategic road map call for infrastructure investment to support emergence as a regional logistics hub and greater sophistication in management models (aimed at cutting-edge digitalized management), targeting achievement by 2025. As a particular focus, energies will be channeled into enhancing the logistics functions of the Baku International Sea Port and Baku Heydar Aliyev International Airport.

According to the results of interviews, investment of AZN3.1 billion (205.4 billion Japanese yen) ¹²will be needed to reach these goals, with hopes that actual investment will take place following implementation of feasibility studies through public-private partnership financing arrangements.

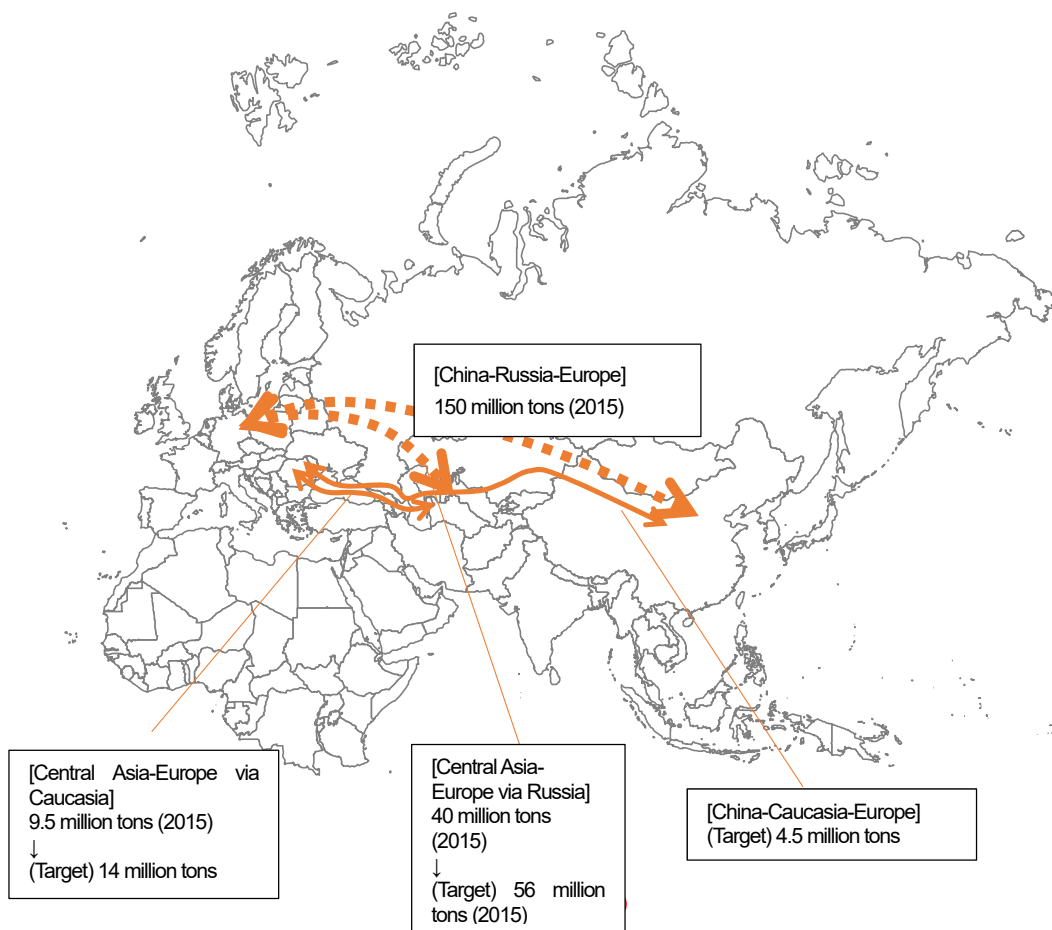
Turning to investment in the logistics and trade sector through 2025, the Azerbaijan government anticipates

¹¹ During the same period, of cargo transported by the railways of Georgia, the share of transit trade in which initiation and destination points were not Georgia was tracked at 71%.

¹² 1AZN = 66.2795JPY (as of November 17, 2018)

private sector outlays, with energies being channeled into the role of the public sector, support to facilitate smooth activities by private companies and other areas. More specifically, hopes are high for packaging, storage, processing and other industries as logistics related services, with the government moving to energize the activities of private companies through tax breaks, customs duty exemptions and other measures. Along with this, plans for private companies to undertake construction and operation of border region logistics centers are envisioned to raise the quality of the logistics services offered by state-operated firms.

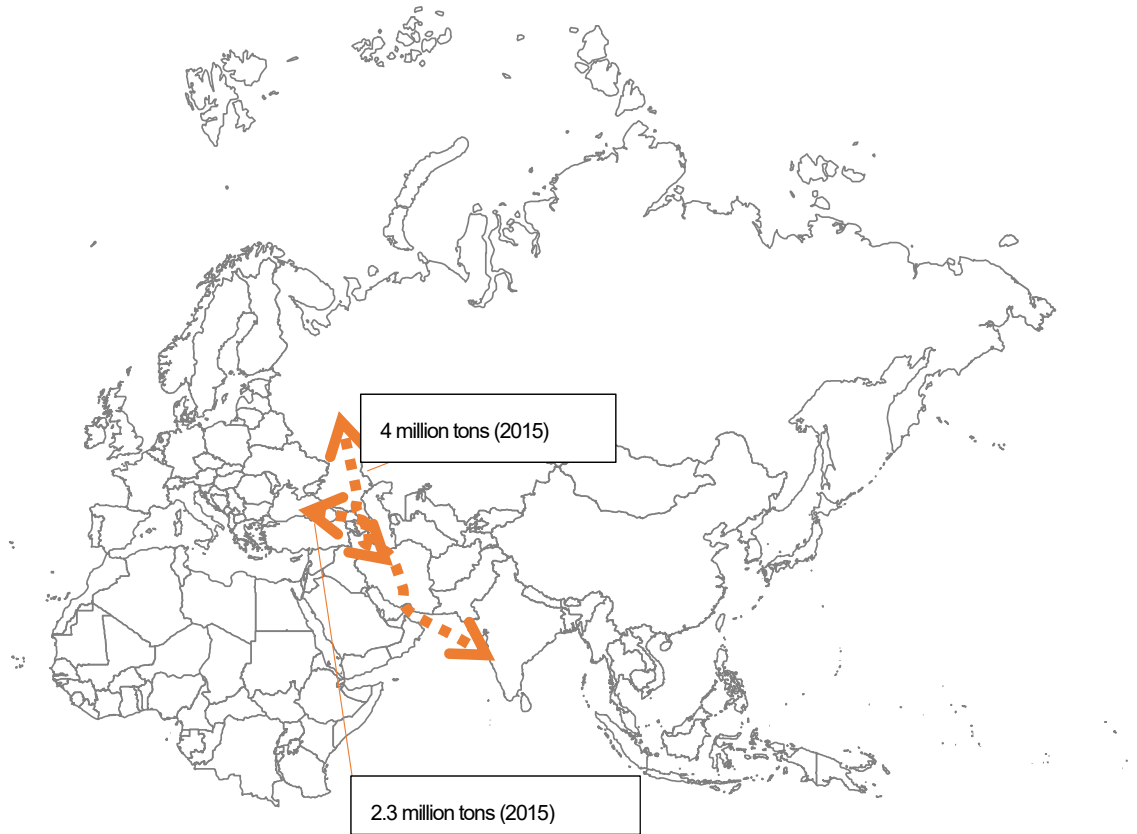
Based on the aforementioned results, pertaining to east-west trade, the present aim is to route 3% or more of the 150 million tons of cargo volume between East-Asia and Europe (equivalent to 4.5 million tons/year) through Azerbaijan, while likewise routing 25% of the cargo volume between Central Asia and Europe through Azerbaijan (25% amounting to 14 million tons/year in 2020).



Source: CAREC (2017) Strategic Roadmap for development of logistics and trade in the Republic of Azerbaijan, https://ereforms.org/store//media/ekspert_yazilari/islahat%20icmali/oktyabr/SYX_en.pdf

Figure 5 Trade Volume Between East Asia, Central Asia and Europe, Transit Volume of Azerbaijan

With regard to north-south trade as well, in much the same way, of the annual cargo volume of 4 million tons on the South Asia-Russia route (2015), the target is to raise the transit volume through Azerbaijan to 40% by 2020; while for the cargo volume of 2.3 million tons on the Iran-Black Sea route (2015), the idea to raise transit volume passing through Azerbaijan to 25% by the same year.

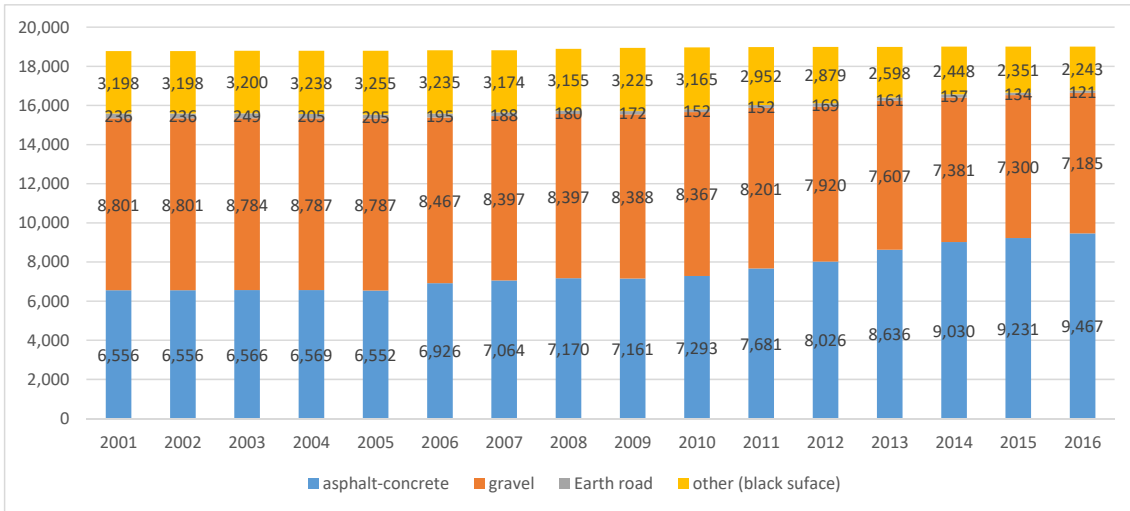


Source: CAREC (2017) Strategic Roadmap for development of logistics and trade in the Republic of Azerbaijan, https://ereforms.org/store//media/ekspert_yazilari/islahat/20icmali/oktyabr/SYX_en.pdf

Figure 6 Trade Volume Between South Asia and Russia Bound for the Black Sea, Azerbaijan Transit Volume

4.1.1.3. Roads

While road networks account for approximately 19,000 km, the total length has recorded only limited increases since 2000. The length of asphalt-paved roads, in contrast, has produced growth of some 3,000 km compared to 2000 to reach 9,467 km, with this resulting in decreases in gravel roads and other paved surfaces. Paving of the primary road environments has generally been completed, and it can be said that the current situation consists largely of initiatives to address quality issues.



Source: The State Statistical Committee of the Republic of Azerbaijan

Figure 7 Total Road Length (Kilometers: By Pavement Type)

4.1.1.4. Railways

While railway service length is approximately 2,100 km, there have been slight decreases in that figure since 2000. This reflects the impact of the increase in sections not in service due to modernization, route changes and other developments. Electrification length is about 1,200 km, holding constant at just under 60% of the total service length (in other words, the electrification rate is not rising).

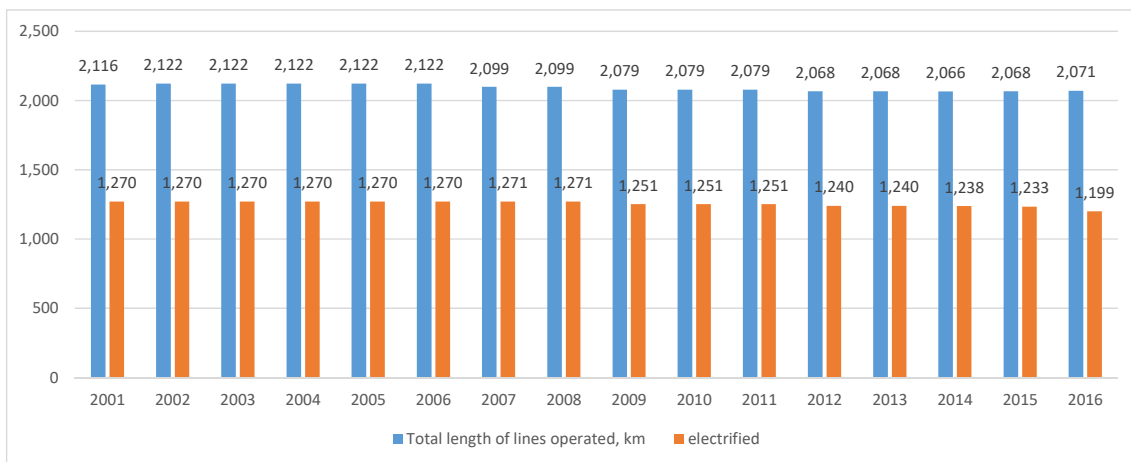
ADY double-track sections are electrified with 3 kV direct current. The railway company presently maintains 204 electric locomotives, with 96 of those units in active service. Of that, meanwhile, 46 locomotives are new models in service for under 15 years. The remainder are VL-8 type locomotives in service for 35 years or more in states of deterioration, with one or more breakdowns occurring monthly. There is a need to take prompt action in either repairing or renewing these electric locomotives. Use of 3 kV direct current is rare globally as well, and other than Azerbaijan the only examples of its use in certain parts of Georgia, Armenia and Russia. In view of this, ADY hopes to change from 3 kV direct current electrification to the 25 kV direct current in general use around Europe. Recovery cost, however runs extremely high, and for that reason studies are also underway on possible introduction of diesel locomotives in place of electrification.

Examining the chronological age of ADY passenger train cars, 11-15 years have elapsed since introduction for 20%, 15-20 years for 65% and over 20 years for the remaining 15%. Of the total 729 cars owned by ADY, 490 units are operable, while the remainder either await repairs or have exceeded their service life. With 40% of the total used as international trains, large-scale repairs will be become necessary over the next six years. Another

31%, meanwhile, will require minor repairs. Of these cars, ADY is only capable of performing minor repairs, and cannot handle large-scale renovations. The railroad has been moving to cut back on excessive assets over the past 15 years, with the delays in capital improvements serving to raise its financial capabilities. Behind this lies the fact that Azerbaijan owns no railway repair facilities of its own, while historically shipping off locomotives to neighboring countries to have repairs performed. To this day, ADY continues to use the standard technologies and safety standards of the Russian Ministry of Transport.

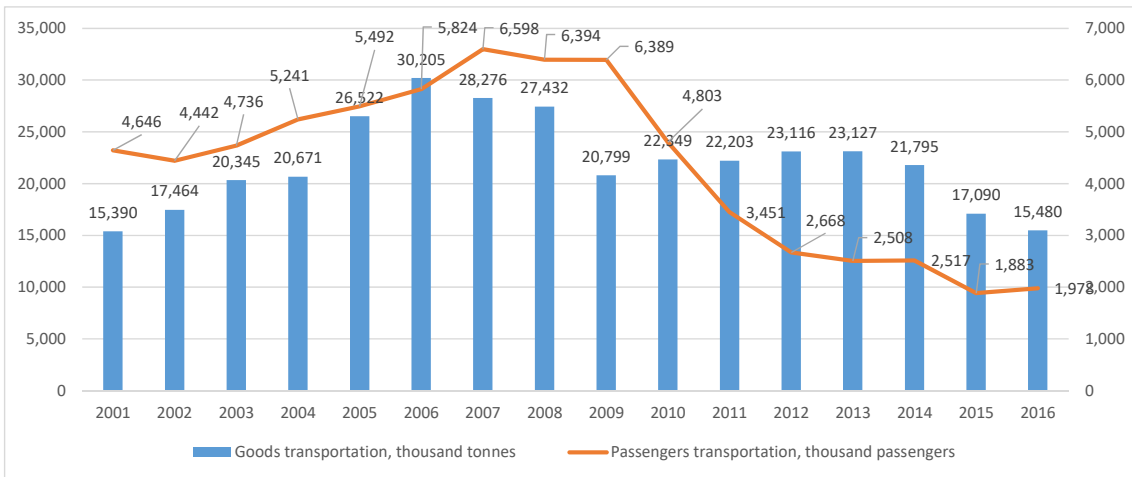
Regarding the safety of Azerbaijan railway systems, maintenance standards have not been thoroughly enforced over the past 30 years, contributing to the presence of dangerous situations. As a result, with the nation’s railways exceeding the service life for their tracks, numerous points have emerged where speed limits of 20 km/h have been put into force.

Railway transport volume, meanwhile, has declined since peaking in 2008. Cargo volume peaked at about 30 million tons in 2006, and by 2016 had fallen to roughly half that at 15 million tons. Railways also peaked at some 6.6 million passengers in 2007, declining to around one-third of that level at 2 million passengers in 2016. Underlying factors include the impact of the decline in resource exports, as well as the shift to truck and car transport supported by improvements in the nation’s road network (Chart 11).



Source: The State Statistical Committee of the Republic of Azerbaijan

Figure 8 Total Railway Service Length and Electrified Service Length (Kilometers)

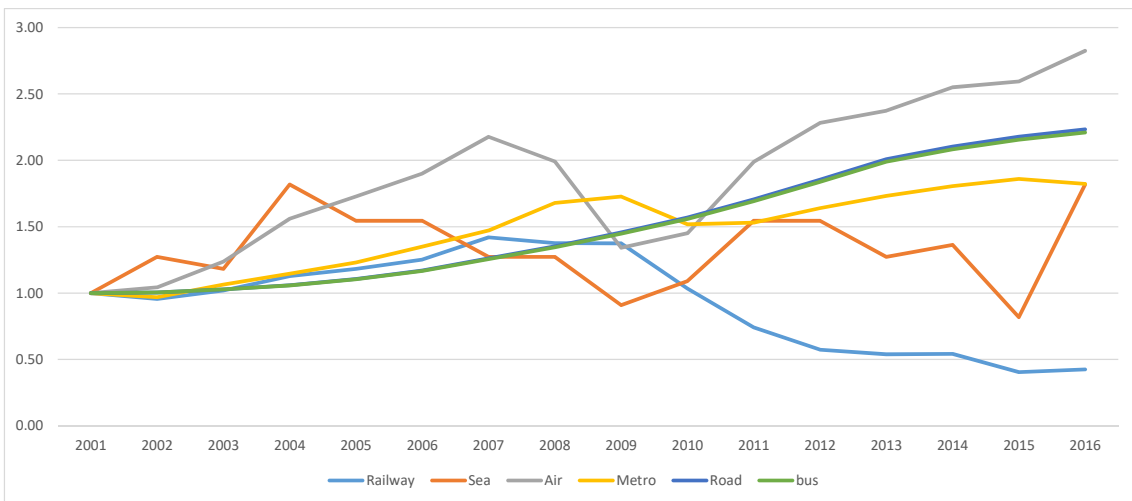


Source: The State Statistical Committee of the Republic of Azerbaijan

Figure 9 Railway Cargo Transport Volume (1,000 tons: Blue line, left axis) and Passenger Transport Volume (1,000 persons: Broken line, right axis)

4.1.1.5. Mode-Specific Transport Volume

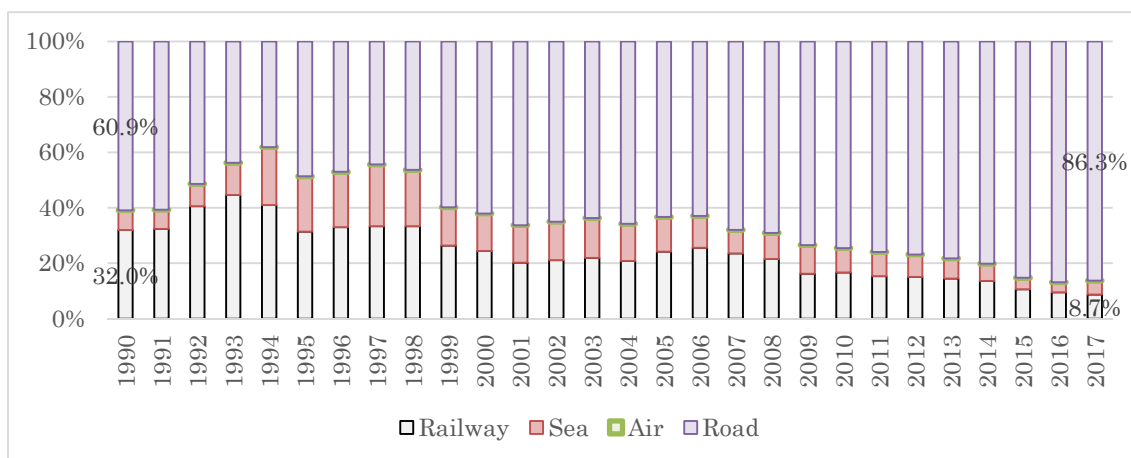
Treating 2001 as 100, comparisons were made of passengers carried by each specific mode. While road users have increased, railway users have clearly declined. Versus 2001, while road and bus modes have both expanded by more than double, railways have suffered a decline in passengers carried to one half or less. This indicates, in other words, that the impact of expanded demand for road transport has detracted from railroad transport.



The State Statistical Committee of the Republic of Azerbaijan

Figure 10 Mode-Specific Transport Volume (2001 = 100)

For shares of cargo transport by specific means, Chart 11 breaks down the totals by the four transport means of overland railway transport, marine transport, air transport and road transport. There have been steady declines in the railway and marine transport shares, while the share for roads has been on the rise.

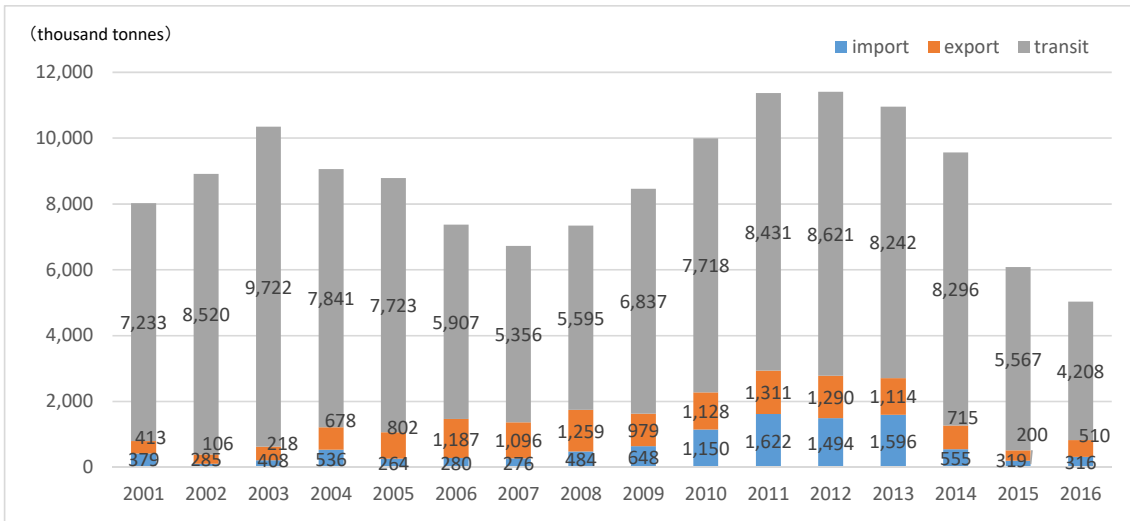


Source: Transport in Azerbaijan, <https://www.stat.gov.az/source/transport/?lang=en>

Figure 11 Cargo Transport Shares by Mode

4.1.1.6. Port Cargo

The overwhelming majority of the volume of port cargo handled is transit category cargo. While since 2001 this volume has fluctuated widely from year to year, the level has generally been in the range of 8 to 12 million tons/year. Of these totals, import and export cargo has been between 500,000 and 3 million tons, with 60-90% of that consisting of transit cargo. From long before, transit cargo has been the main focus of port functions in Azerbaijan. The swift decline in port cargo handling volume since 2014 is believed to reflect the impact of contracted service at the former Port of Baku accompanying construction of the New Port Alat.

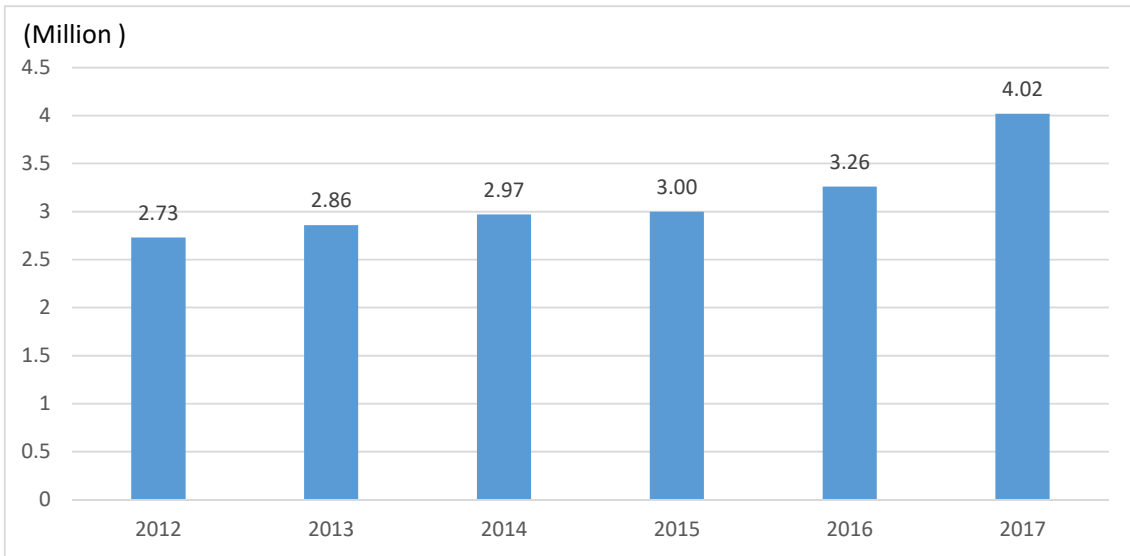


The State Statistical Committee of the Republic of Azerbaijan

Figure 12 Port Cargo Handling Volume (1,000 tons)

4.1.1.7. Air Travelers

Though Baku Heydar Aliyev International Airport does not release statistical data on numbers of passengers, examination of published figures indicates that this volume reached 4 million persons in 2017, posting broad growth for that year. Forecasts are for that total to climb to 5 million persons this year, effectively doubling the number of users over the past five years. In 2020, the number of passengers is projected grow further to the 7 to 10-million-person level. With the airport's passenger terminal designed to handle 7 million persons, there is the potential that the facility's capacity will be exceeded. Reacting to this was Azerbaijan Airlines, owner of the current airport terminal, initiating studies on expanding the passenger terminal. The facilities at Baku Heydar Aliyev International Airport are owned by Azerbaijan Airlines, which is thus responsible for conducting all needed capital investment on its own. In view of this, it is believed that the airlines will directly raise the funds necessary for expansion, while turning to the government for any outside borrowing or other needs in the event of shortages. Estimates are that cargo volume will range from 100,000 to 200,000 tons, with a capacity base of 500,000 to 1 million tons.



Source: Prepared from annual data disclosed as news reports on Russian Aviation Insider and other websites.

Figure 13 Baku Heydar Aliyev International Airport Passenger Traffic (Million Persons)

4.1.1.8. Azerbaijan Logistics and Trade Sector SWOT Analysis Results

As noted in the “Development Policies” section, Azerbaijan has formulated a strategic road map for the logistics and trade sector, and is currently promoting measures aimed at emerging as a regional logistics hub by around 2025. Essentially, the idea is to compete against the Trans-Siberia route and Trans-Siberia-Kazakhstan overland and sea routes, mobilizing the nation’s location as a crossroads in moving across the Iran-Russia north-south route and from Iran-Turkmenistan to Azerbaijan-Georgia to arrive in Europe. In this way, the decline in crude oil prices and bolstering of competing routes promises to function as a formidable structural presence.

Table 5 Azerbaijan Logistics and Trade Sector SWOT Analysis Results

	Positive Factors	Negative Factors
Internal Elements	<ul style="list-style-type: none"> ● New port construction, links with neighboring country railway networks, other infrastructure improvements ● Legislation for various preferential systems 	<ul style="list-style-type: none"> ● Lack of seamless logistics to link One Belt-One Road nations, need for multi-modal logistics ● Shortage of qualified people and other human resources with logistics sector business experience ● Low labor productivity ● Insufficient funds ● Poor plant and equipment status ● Low level marketing and shipping services ● Lack of modernized business models at private companies ● Inadequate of Caspian Sea ship transport capacity ● Frequency of strong winds, shallow waters around the Caspian Sea
External Elements	<ul style="list-style-type: none"> ● Building of value-added processing facilities targeting transit cargo based on creation of free economic zones at Baku International Sea Trade Port and Heydar Aliyev International Airport ● Government support in building a logistics hub ● Acceptance of overseas company investment in planned projects ● Advantageous location ● Growing cargo volume and higher competitive strength ● Increased north-south logistics (India, Pakistan-Russia) after lifting of economic sanctions on Iran 	<ul style="list-style-type: none"> ● Shrinking financial markets ● Stagnant investment activity due to decline in crude oil prices ● Foreign exchange stability ● Infrastructure project progress delays ● Improved competitiveness of Trans-Siberia and Trans-Siberia-Kazakhstan routes

Source: Prepared by NRI from CAREC (2017) Strategic Roadmap for Development of Logistics and Trade in the Republic of Azerbaijan, other materials.

https://ereforms.org/store//media/ekspert_yazilari/islahat%20icmali/oktyabr/SYX_en.pdf

4.1.2. Infrastructure Development Agencies and Personnel Structures

- Ministry of Transport, Communications and High Technologies (MTCHT)

MTCHT is a massive government agency involved not only in the transport sector, but also in charge of communications sector regulation and information technology development. The ministry's primary functions lie in the formulation and implementation of unified national policies in the transport, communications and information technologies fields. More specifically, this spans regulation of activities in the transport, communications and information technologies fields; promotion of new format socioeconomic activities through large-scale use of information technology and creation of information markets; utilization of radio frequencies and maintenance control over ground-based satellite communications equipment; implementation of measures necessary to satisfy the demands of local governments for physical and legal support for the sake of communications and information technology services, and other areas.

Through the fusion of communications and high technologies, there are also growing numbers of policy issues in which demands are made for utilization of IT, transition to total automation and other more advanced technologies.

- Azerbaijan Railways Closed Joint Stock Company (ADY)

ADY is a state-owned company established in 2009 through the reorganization of Azerbaijan Railway based upon a Presidential Decree, and exists as the only railway management company in the Republic of Azerbaijan. National agencies overseeing the assets of ADY (including MTCHT, the State Property Issues Committee, State Committee on Standardization, Standing Committee on the Law Patents and others) are part of the office of the President, with that office serving as the platform for proposing issues concerning ADY assets.

According to government statistics, the number of persons involved in railway related operations nationwide was approximately 11,700 persons (as of 2016).

- Baku International Sea Trade Port (BISTP)

BISTP was established as a closed joint stock company on March 18, 2015 by President Ilham Aliyev of the Republic of Azerbaijan. Originally operated as the ports and harbors agency, it now plays an important role in the day to day management and operation of the Port of Baku and its terminal. Following the bureau's move to corporate status, development of the Port of Baku has been targeted as a key marine portal to Azerbaijan, as well

as an important base for multimodal transport and logistics aligned with the ancient Silk Road. In this way, development policies have been advanced in support of strategic maritime activities and a functional port area for the nation of Azerbaijan.

According to government statistics, the number of persons involved in port-related operations nationwide in Azerbaijan was approximately 6,700 (in 2016). There has been a decrease in the number of such workers in recent years, with the total in 2014 tracked at some 9,500 persons.

- Azerbaijan's State Motor Road Agency

This agency is a state-owned enterprise overseeing the design, construction and maintenance of all roads and tunnels along the 19,000 km of roadways nationwide in Azerbaijan. Of this total, 4,500 km are national highways, with the remainder consisting of local roadways. Since 2008 the agency has administrated all roads in Baku, and from 2018 is also integrating functions related to road construction and repairs. It operates 104 offices around the nation, and this year newly established seven organizations involved in road administration.

- Baku Transport Agency (BTA)

BTA was established as an agency in December 2015 by an Azerbaijan Presidential Decree, with official operations commencing in 2016. The agency oversees all means of transport in Baku City other than the Metro subway, effectively integrating buses, taxis, trains, roads, road traffic signs, parking lots and other components in implementing measures aimed at promoting use of public transportation. BTA objectives include making improvements in the city's transport control systems, aligning the quality of passenger transit service with international standards, and advancing overall improvements in passenger conveyance regulations and transport controls. The key issues faced by Baku include reorganization of the city's parking lots and bus network. Also operated under the jurisdiction of BTA as subordinate organizations are the Intelligent Traffic Center and the Driver Training Center.

4.1.3. Cross-border Issues

- “Baku-Tbilisi-Kars Railway” – Playing a Key Role in the Silk Road



Source: Daily Sabah Asia Pacific (<https://www.dailysabah.com/asia/2014/05/06/bakutbilisikars-rail-project-to-be-completed-in-2015>)

Figure 14 Baku-Tbilisi-Kars Railway Route

A new railway link connecting the three nations of Azerbaijan, Georgia and Turkey was opened for service in October 2017. Stretching from the Azerbaijan capital of Baku to Kars in the northeast region of Turkey by route of Tbilisi, the total length of this route is 826 km (513 miles). Looking to the future, the route is anticipated to serve as one phase of the line circumventing Russia to transport cargo and passengers from Central Asia to Europe. While the project was launched in 2007 and construction commenced in 2008, the work has been delayed by repeated interruptions linked to political upheaval in Georgia and other factors.¹³ Operating costs exceed 1 billion euros, with the main source of capital procurement being the State Oil Fund of the Republic of Azerbaijan. In terms of capacity, annual transport volume began at 1 million passengers and 6.5 million tons of cargo, with forecasts that these figures will rise to 3 million passengers and 17 million tons of cargo by 2034.

¹³ The regime change following the victory of the “Georgia Dream” coalition in the parliamentary elections of October 2012, other developments.

4.1.4. Issues in Advancing Infrastructure development

While up to now Azerbaijan has achieved economic growth following its move to independence on the strength of natural resource exports, the nation currently has its sights set on emerging from this industrial structure of dependence on crude oil. One effort in that direction concerns tourism, while another lies in logistics.

The majority of transport-related projects are geared toward infrastructure investment aimed at cultivating the logistics industry going forward. This has included construction of the New Port Alat, work on the free trade zone (FTZ) behind that port, strengthened aviation logistics and construction of cargo railways and expressways linking up with Georgia. With these projects aligned with the One Belt-One Road Initiative championed by China, the guiding concept is to cultivate the logistics industry in means that utilize the geographical advantages of becoming a node linking maritime and land routes. The Azerbaijan government, after serving as the host country of the groundbreaking Silk Road Conference convened in 1998, has consistently voiced endorsement for the One Belt-One Road Initiative. A major factor behind this support lies in Azerbaijan's geographical environment, enabling it to effectively emerge as a logistical hub linking Europe and Asia. As the fruits of investment to date, the needed infrastructure continues to be largely put into place, with demand for further infrastructure outlays to be limited. Moving forward, rather, full-fledged issues lie in attracting logistics businesses, shippers and other entities capable of making use of the infrastructure, with the failure to cultivate personnel capable of supporting such industrial nurturing believed to pose a major roadblock.



Source: Port of Baku

Figure 15 Positioning of New Port Alat as One Phase of “One Belt-One Road”

Another major policy initiative is digitalization. The Azerbaijan Service and Assessment Network (ASAN), a one-stop service for administrative affairs, is a facility engineered to integrate both national and regional services targeting the general public, and is unique insofar as it bridges the barriers between separate administration organizations. Other plans include integrated control of traffic information systems with the purpose of minimizing congestion, modernization of buses, introduction of electronic money and other measures. To further accelerate these moves, New Port Alat has proposed the concept of “Port Operations Automation,” with proposals for technical assistance presented to JICA. Rooted in the belief that Japan possesses cutting edge digital and IT expertise, numerous technical cooperation projects have been proposed by implementing agencies. Japan has fallen behind in this area, however, with South Korean companies already supplying transportation information systems, other prompt moves mounted by China and South Korea, positive proposals from Europe and other competing moves afoot. Taking this into consideration, it is hoped that success can be obtained in winning early adoption of projects effectively tailored to the needs of the Azerbaijan side.

The following table presents the degree of government interest, along with specific issues and their magnitude on a sector-specific basis.

Table 6 Traffic, Transportation and Urban Development Sector Issues (Compiled from Agencies Consulted)

Sector	Degree of Interest	Specific Issues/Themes	Magnitude of Issues
Ports	High	<ul style="list-style-type: none"> - Studies underway on introducing “Digital Platform” to automate 90% of port management operations. - Phase 1 construction on New Port Alat just completed, entering operations startup, Phase 2 construction and solicitation to FTZ stage. With this, the following two points have been proposed as specific demands: 1) Building of a training center (program to learn port operation basics); and 2) creation of intermodal containers. - Proposals from government offices for customs system information systemization, pointing to potential for joint implementation with the government of Georgia. 	<p>High</p> <ul style="list-style-type: none"> - Major government project to develop the logistics industry. <p>It is clear that the goal is attracting transit cargo with the introduction of cutting-edge technology.</p> <ul style="list-style-type: none"> - However, with hardly any personnel aware of the basics related to SCM or trade, spontaneous industry cultivation difficult under the current conditions.
Airports	High	<ul style="list-style-type: none"> - In Azerbaijan, Azerbaijan Airlines owns, develops and operates airport infrastructure. Rapid growth in passenger demand has prompted studies into expanding the old terminal, creating opportunities to sustain ties from the study period. - While the idea is to establish an FTZ within the airport cargo site and expand warehouse facilities, FTZ feasibility remains unclear. - The Ministry of Transport and the Civilian Aviation Agency lack the financial resources to directly build airport infrastructure, with that work consigned to operator investment. 	<p>High</p> <ul style="list-style-type: none"> - With growth in both tourist and business customers, there is a pressing need for airport infrastructure expansion. As a nation keen to build up its logistics industry, the issues expand beyond merely expanding ports to realizing greater air cargo as well.
Railways	High	<ul style="list-style-type: none"> - Azerbaijan Railway is studying projects from the perspective of advancing and modernizing the logistics and tourism industries. Presented as 	<p>Normal</p> <ul style="list-style-type: none"> - The awareness is strong that ADY has yet to undertake

Sector	Degree of Interest	Specific Issues/Themes	Magnitude of Issues
		concrete proposals are: 1) Train car maintenance automation and operation integration monitoring systems; 2) station and depot asset management, depot scrapping and optimization; 3) introduction of electrification and signal systems (10 billion yen); 4) investment in tourist railways linking up the Iranian border; and 5) a commuter line linking the airport to the urban center	modern infrastructure development, with the schedule calling for robust investing to continue.
Urban Transports	High	<p>- Baku Transport Agency (BTA) manages all Baku transportation modes other than the subways, and was established in 2015 with the goal of raising service quality. Concrete mention has been made of the numerous issues listed below.</p> <p>- 1) Bus company and depot integration; 2) bus route consolidation and shortened distances between bus stops; 3) bus card introduction; 4) transport mode mix hub (transport bases) redevelopment; 5) streetlight operation system improvements targeting all municipal districts; 6) taxi driver license system introduction and training; and 7) road safety measures around schools.</p>	<p>High</p> <p>- Marked increases in Baku City car users accompanying economic growth, creating the need to promote use of buses, railways and other means of public transportation.</p> <p>- With the organization established 3 years ago, current demands are for concrete results.</p>
Roads	Normal	<p>- The Azerbaijan Automotive Road Agency oversees all aspects of roads from construction through maintenance. With the goal of lowering government debt, new road construction through ODA loans is being reduced, while between nations the main focus is on toll roads. Although construction of overpasses and tunnels is underway within Baku City, the primary revenue sources are interest-free special programs, gasoline taxes and</p>	<p>Low</p> <p>- The 230 million manat budget of this agency, spanning several revenue resources, is large in its own right. While expectations are high for maintenance equipment, it may be possible to cover those needs with</p>

Sector	Degree of Interest	Specific Issues/Themes	Magnitude of Issues
		<p>government budgeting.</p> <p>- Maintenance equipment obtained through JICA 10 years ago was well received, leading to demands to JICA for supply of a second round of snowplows and other maintenance vehicles, along with construction of maintenance centers on the four major roads. The World Bank has clarified the necessary equipment and materials.</p>	<p>existing revenue sources.</p>
Logistics	High	<p>- Numerous different projects are being advanced under the national strategy targeting logistics industry development, with the specific initiatives indicated in the data on ports and airports.</p>	<p>High</p> <p>- With the logistics industry yet to be cultivated, it is a domain demanding measures from the human resource development stage.</p>
Urban Developments	Normal	<p>- As noted above, while indications were made of redevelopment of the FTZ behind New Port Alat, the multimode transportation hubs and other areas, no other related urban development projects have been discussed.</p> <p>- The newly integrated Ministry of Transport, Communications and High Technologies appears to be planning Smart City developments in several locations around the nation.</p>	<p>Low</p> <p>- With development generally completed within Baku City, expectations are now turning to suburban development projects.</p>

4.1.5. Infrastructure Development Projects

In light of the fact that the mainstay infrastructure is already at the stage of being put into place, a large number of technical cooperation projects have been mentioned pertaining to integration of operations through information systems, introduction of management systems, maintenance know-how and training, human resource development directed at industrial promotion and other themes. Expectations are particularly high for Japanese cutting-edge technology and detailed operational know-how, also producing evidence of the need for a flow commencing with consulting in IT and other areas, followed by feasibility studies and preparation of master plans leading to project formulation.

Table 7 Infrastructure Development Projects (Compiled from Agencies Consulted)

Category	Project Name	Envisioned Scheme	Examining Organization	Governor's Interest	Magnitude of Issues	Potential for Japan Involvement	Overall Rating
Ports	(1) Formulation of "Digital Platform" to automate 90% of port management operations, medium-term strategies	Technical cooperation	Port of Baku	High	Large	Medium	◎
	(2) Port of Baku Maritime Regional Training Centre (PBMRTC)	Technical cooperation	Port of Baku	High	Large	High	◎
	(3) Creation of intermodal automated containers at New	Yen loan, Investment	Port of Baku	Normal	Large	Medium	○

Category	Project Name	Envisioned Scheme	Examining Organization	Government Interest	Magnitude of Issues	Potential for Japan Involvement	Overall Rating
	Port Alat						
	(4) “Digital Route” trade and customs information sharing system	Technical cooperation	Port of Baku	Normal	Large	High	○
	(5) Strengthened maritime safety in territorial waters	Cost free, yen loans	Port of Baku	Normal	Medium	Medium	○
	(6) Grain terminal construction	Investment, PPP	Port of Baku	High	Medium	Medium	○
Airports	(1) Expanded airport onsite FTZ, cargo warehouses	Yen loans, investment	Ministry of Transport Communications and High Technologies, Silkway group	Medium	Small	Possible	○
	(2) Passenger terminal expansion	Technical cooperation	Azerbaijan Airlines	High	Large	High	◎
Railways	(1) Train car maintenance automation and operation	Technical cooperation	Azerbaijan Railway (ADY)	High	Large	High	◎

Category	Project Name	Envisioned Scheme	Examining Organization	Government Interest	Magnitude of Issues	Potential for Japan Involvement	Overall Rating
	integration monitoring systems						
	(2) Station and depot asset management, depot scrapping and optimization	Technical cooperation	Azerbaijan Railway (ADY)	High	Normal	High	◎
	(3) Introduction of electrification and signal systems (10 billion yen)	Yen loans	Azerbaijan Railway (ADY)	Normal	Normal	Possible	△
	(4) Investment in tourist railways linking up the Iranian border	Yen loans	Azerbaijan Railway (ADY)	Normal	Normal	Possible	△
	(5) Commuter line linking the airport to the urban center	Technical cooperation	Azerbaijan Railway (ADY)	Normal	Normal	Possible	○
Urban Transportation	(1) Bus consolidation and IT introduction programs (bus company and depot integration,	Technical cooperation	Baku Transport Agency	High	Large	Medium	○

Category	Project Name	Envisioned Scheme	Examining Organization	Government Interest	Magnitude of Issues	Potential for Japan Involvement	Overall Rating
	bus route consolidation and shortened distances between bus stops, bus card introduction)						
	(2) Transport mode mix hub (transport bases) redevelopment	Technical cooperation	Baku Transport Agency	High	Large	Possible	○
	(3) Streetlight operation system improvements targeting all municipal districts	Yean loans	Baku Transport Agency	High	Large	Medium	△
Roads	(1) Establishment of maintenance centers, second round of maintenance vehicle supply	Grand aid-raising	Azeravtoyol	Normal	Small	Medium	○
Urban Development	(1) Smart City concept formulation	Technical cooperation	Ministry of Transport Communications and High	Normal	Small	Possible	○

Category	Project Name	Envisioned Scheme	Examining Organization	Government Interest	Magnitude of Issues	Potential for Japan Involvement	Overall Rating
			Technologies				

With the government channeling keen hopes into the cultivation of logistics and other non-energy industries unlikely to be impacted by resource prices, indications have been made of projects related to the port, airport, railway and urban transport sectors. The specific concepts are outlined in Table 13. Ports are an area of particularly major importance for Azerbaijan, with demands for participation through methods rendering it easiest for Japan to contribute. For airports, expectations are for support aligned with the movements of collaborating Japanese companies. Under railways, while a wide range of ranging projects have been proposed, it is desirable to place the priority on those positioned to mobilize the experience compiled by Japan overseas in maintenance centers, Transit Oriented Development (TOD) and other areas. With the plan for Baku City urban transport comprising a particularly unique and progressive concept, hopes are high for realizing innovative initiatives by focusing on projects with promise for bringing railway and bus companies onboard.

The aforementioned summary comprises project contents listed on the prospective project sheet. In the railway sector, furthermore, ADY has voiced its desire for support in the following areas as long-term themes.

- Training center construction
- Railway innovation
- Expressway introduction
- Electric power external sales

At the same time, the government is strongly opposed to raising the nation's foreign debt, with the priority on projects accompanying infrastructure development financed through grant aid or public-private partnerships (PPP).

Regarding the locations of airports and ports, railway lines and the positioning of major road projects, while the government has yet to release any materials to the general public, included in the table on the next page is such

information prepared by a third party.



Source: Traceca (<http://www.traceca-org/en/countries/azerbaijan/azerbaijan-in-traceca/>)

Figure 16 Infrastructure Project Map 1 (Locations of Ports and Airport)



Source) azerb.com

Figure 17 Infrastructure Project Map 2 (Major Road Networks)

4.1.6. Donor Activity Status

The World Bank is directing keen efforts into the railway sector. In 2008, targeting improvements in the competitive strength, fiscal sustainability, operation and cost efficiency and capacity of Azerbaijan Railways (ADY), and particularly further heightening of railway service, the bank supplied funds to a project designed to promote railway trade and transport, thereby advancing enhancement of the corridor with Georgia.

Furthermore, initiatives aimed at railway rebuilding have entered the new stage of cooperation with global banks. For example, in raising capital for a railway trade promotion projects aimed at railway infrastructure development, management and development, the nation's President procured an additional 4.5 million Australian dollars from the International Bank for Reconstruction and Development (IBRD) in support of railway operation improvements, ADY reorganization and other goals.

Through national programs, these funds will be used for the restructuring of locomotives, routes, power sources, signal equipment and communications facilities, acquisition of new locomotives and the introduction of the International Financial Reporting Standards. Repairs on the 317 km railway line to Kasik are underway, with some 250 km of that route already having been rebuilt.

On the collective strength of these improvements, a new railway transport network directly linking Europe and Asia will be put into place, supporting seamless cargo transport from London to China.

While the Asian Development Bank is supplying funds for improvements in urban transport, the targets of that spending have been narrowed to the energy sector, with no studies underway on support for the transport sector (by interview).

4.2. Energy

4.2.1. Infrastructure Development Status

Azerbaijan is a nation historically rich in oil and gas production. Recent years have brought output from newly discovered oil and gas fields, supporting forecasts for the continued presence of the oil and gas sector as a major industry. As a result, over 90% of Azerbaijan's electric power generation is sourced from natural gas thermal

power generation (in 14 locations), with oil-burning power plants accounting for less than one percent of the total. The remaining six percent is comprised of hydropower generation (10 locations).

The nation's energy sector is based on several national programs, resolutions and government ordinances. Basically speaking, these approaches are used to clearly advocate increased use of renewable energy. The major policies in force are listed below.

The State Strategy on Use of Alternative and Renewable Energy Sources (2012-2020), approved by the Decree of the President of the Republic of Azerbaijan No. 1958 dated 29 December 2011.

Azerbaijan 2020: Look into the Future Development Concept, approved by the Decree of the President of the Republic of Azerbaijan dated 29 December 2012.

State Program on socio-economic development of regions of the Republic of Azerbaijan for 2014-2018, approved by Decree of the President of the Republic of Azerbaijan № 118 dated 27 February 2014.

Strategic Road Map for the development of utility services (electricity, heat, water, gas) in Azerbaijan, included into the "Basic directions of the Strategic Roadmap of the National Economy and Main Economic Sectors" approved by the Decree of the President of the Republic of Azerbaijan on 6 December 2016.

The Order No. 745 About Additional Measures to Promote Investments issued by the President of the Republic of Azerbaijan on 18 January 2016.

As of 2016, Azerbaijan's renewal energy technological power generation potential was 25,350 MW, with potential for wind-powered generation at 15 GW. Compared to these figures, solar power was tracked at 8 GW, biomass at 900 MW, geothermal at 800 MW and small-scale hydropower at 650 MW. The Azerbaijan government is determined to introduce 420 MW of renewable energy power generation facilities by 2020, under a use breakdown of wind power 350 MW, solar power 50 MW and biomass energy 20 MW. Plans call for waiving of customs duties on the imports of renewable energy machinery toward this end, with project companies to be issued approved licenses by the State Agency on Alternative and Renewable Energy Sources. According to a CAREC review report, the progress rate for 12 utility fields as of 2017 was 68% of the goals. The major policies have reportedly been established by the Energy Regulatory Agency (ERA) under the Ministry of Energy. Through this arrangement, a framework for mutual coordination between publicly owned companies active in the electric power and gas fields has been installed. The ERA functions to regulate the electric power and gas supply markets.

In the energy sector, efforts are being advanced for diversification of power sources and introduction of environmental-friendly power sources (alternative energy), with the progress rate said to be 56% of the goals. For

the remainder, partial progress is being made toward 36% of the goals, with no progress whatsoever toward the final 18%. Forecasts for domestic and overseas power consumption are formulated hand in hand with these power source diversification and eco-friendly power source (alternative energy) introduction efforts. Along with this, evaluations of export potential from Azerbaijan, fuel expenses and other costs related to power generation, customs duties, power transmission costs and other market entry costs have also conducted by the state-run power company Azerenergy. In view of these factors, Azerbaijan's Power Industry Law was enacted with consideration for international experience, distinctive characteristics of the domestic economy and other aspects.

The issues faced by Azerbaijan in the move toward renewable energy infrastructure development are as follows.

- ① Wide distances between power plants and consumption areas, resulting in extended nationwide power transmission.
- ② Low payment abilities on the part of power customers, with investors failing to make outlays in renewable energy.
- ③ Wide legal framework gaps, impeding investment in the renewable energy sector. The following types of legal systems are currently in place.

Table 8 Azerbaijan Energy Sector Related Legislation

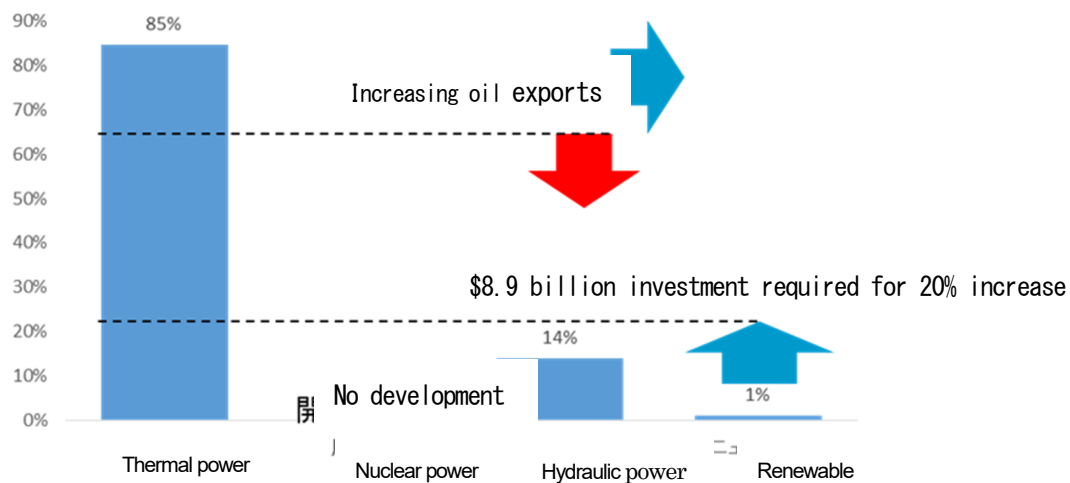
	Name of Law	Overview
1	(The Law of the Republic of Azerbaijan on utilization of renewable and alternative energy/5 sources)	Plotting of major directions for legal, economic and social infrastructure and implementation mechanisms of energy resource use sector national policies, with regulation of relations between the government, groups and companies in this field
2	(Guidelines on state cadaster implementation)	Administration of land registration, state forest registration, water use rights, town building registration, urban land registration and various other types of real estate rights registration
3	(Recommendations for the improvement and adjustment of the laws and regulations related to land use and taxation in Azerbaijan)	Government tax guarantees Pipeline allotment and distribution Special economic zones, special export zones
4	(Development of the regulatory database for renewable energy and	Promote use of energy-efficient materials in the Azerbaijan construction sector

	Name of Law	Overview
	energy efficiency in private and public construction projects)	
5	(Development of incentive mechanisms for promotion of renewable energy and energy efficiency (tax and duty exemption, grid connection, tariff incentives, etc.))	Government efforts to retain government control concerning authority over strategic power plants, while increasing independent power producers (IPP) Investment and subsidies for introduction of alternative energy through increased natural gas exports
6	(The Law of Azerbaijan Republic on Water Supply and Sewage)	Water supply and sewage operations Economic supply of drinking and household use water Industrial use water supply Sanitation protection zones Water supplies in shortages

Within Azerbaijan, several wind power plants are currently under construction. Among the leading projects in this category are an 80MW plant being built in Apsheron, a 50MW plant in Yeni, a 52.8MW plant in Shuabad and others. For its part, the government has changed the order of priority from an offshore oil-drilling platform to the 200MW Pirallahi Island project. The goal of this move is to supply energy from this wind power plant to oil-producing companies in the Caspian Sea, with development toward that end underway between two oil-production platforms in the vicinity of Pirallahi Island.

While power grids in Azerbaijan have expanded by 40% over the past 10 years, those improvements have been limited to export use and do not target domestic supply. Within the State Program for Development of the Fuel and Energy Sector in Azerbaijan (2005-2015), the Azerbaijan government is planning construction of a 330kV power transmission line between Yashma and Derbent. Power exports to Russia are conducted solely for the purpose of system stabilization¹⁴. Within this program, there are also plans for modernization of the transmission line between Imishli and Parsabad for the purpose of 700MW power exports on 220-330kV transmission lines.

¹⁴ <https://eadaaily.com/ru/news/2018/09/24/v-baku-nazvali-prioritetom-elektrokridor-azerbaydzhan-iran-gruziya>



Source: Agency for Alternative and Renewable Energy, NRI estimates.

Figure 18 Azerbaijan Government Energy Mix Plan

4.2.2. Infrastructure development Agencies and Personnel Structure

The Ministry of Energy oversees regulatory practices for energy production and energy mixes. These activities span the upstream, downstream, development, oil refinery operation, power generation, heat supply, power transmission and distribution and all other pertinent sectors. Among the companies engaged in this business as subsidiaries are the State Oil Company of Azerbaijan (SOCAR), Azerkimya State Company, Azerigas Company, Azerenerji JSC, Azneftkimyamash JSC and others. In the electric power sector, the two state-run companies of Azerenerji Joint-Stock Company (OJSC) and Azerishiq OJSC operate under the supervision of the Minister of Energy.

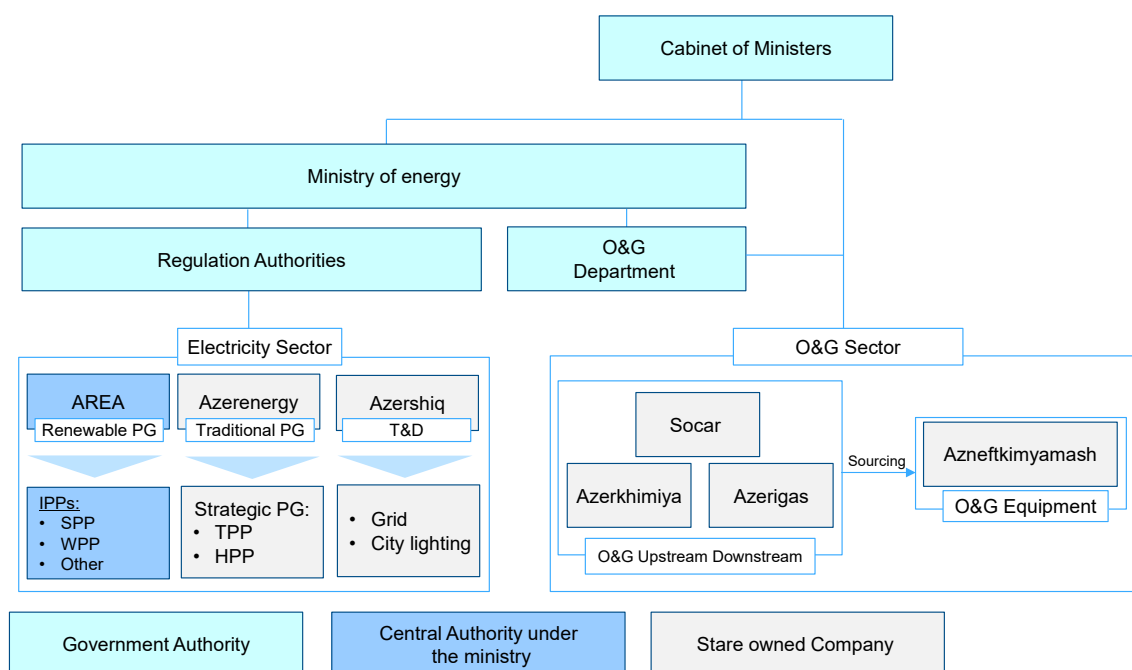


Figure 19 Key Player Structure in the Azerbaijan Energy Sector

The State Agency on Alternative and Renewable Energy Sources of Azerbaijan (SAARES) was established by the government in 2009. In December 2018, pursuant to a Presidential decree issued in 2016¹⁵, SAARES¹⁶ was effectively absorbed as one part of the government agencies operating under the control of the Ministry of Industry.

The objective of the Azerbaijan government is to reduce natural gas consumption in the electric power sector through development of renewable energy, thereby fostering the ability to export greater volumes of natural gas. However, with project feasibility studies into renewable energy-based power generation conducted by the Azerbaijan government side, the accrued technological background has proved inadequate. In view of this, the plan is to position SAARES as the pivotal organ in promotion of renewable energy the by Azerbaijan side. This includes establishing new IPPs and other entities to secure the \$9 billion of investment needed to convert 20% of the nation’s power source composition into alternative energy, and have SAARES oversee the operations of these new entities upon their launch.

¹⁵ Presidential Decree on No.1125 (November 24, 2016), on the Measured for the improvement of government management

¹⁶ The State Agency on Alternative and Renewable Energy Sources of Azerbaijan is currently headquartered in Baku City, staffed by the Director and two Deputy Directors. Operating under the Agency, meanwhile, are 11 divisions, 100 employees and the subsidiary Azalternativenerji LLC. This subsidiary is staffed by 200 employees.

4.2.3. Cross-border Issues

Within its electric power generation sector, Azerbaijan possesses export capacity of several billion kWh. From January to June 2018, the nation exported 1.156 million kWh of electricity for \$54.6 million. According to the Customs Division, the electric power share of the nation's total export value is 0.63%. Azerbaijan now envisions several projects in the quest to export its surplus power. For example, the Azerbaijan-Georgia-Turkey Power Bridge Project¹⁷. On the strength of this power grid, Azerbaijan would be able to export 700MW of power to Europe annually. In addition to that, exports of power to Mugan, Astra and other regions of Iran commenced from June 2018, sparking forecasts that annual exports will reach 80MW.

Following the collapse of the Soviet Union, Azerbaijan integrated its power transmission system with that of Iran. As a result, discussions are currently underway between Russia, Azerbaijan and Iran on possible integration of the power systems of these three nations.

4.2.4. Issues in Advancing Infrastructure development

Projections are that Azerbaijan's electric power market will under deregulation by 2022. The government is moving to convert from combined cycle to electric power only facilities, while diversifying the nation's regional heat supply. For electricity rates as well, discussions are moving in the direction of raising charges viewed as being low. It is believed that the introduction of smart meters will raise fee collection efficiency and improve the profitability of regional energy companies.

The Ministry of Energy is interested in the electrification of farming communities in regional mountainous areas not supplied with gas. In one to three such villages, power demand comes to around 1MW. In the event of success in a pilot project, potential exists for realizing cross-development assistance. Statements have also been made suggesting interest in production of biomass pellets utilizing the waste matter from raw cotton plants.

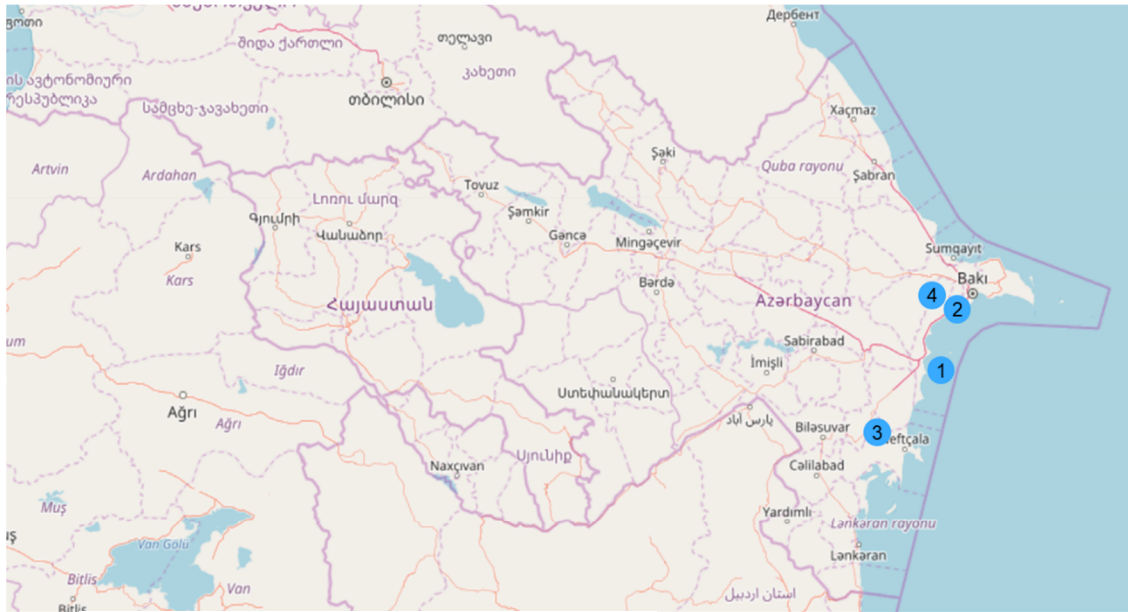
¹⁷ USAID(2013) Azerbaijan-Georgia-Turkey (AGT) Power Bridge Project: BUSINESS PROCESS MANUAL FOR MONTHLY NETWORK MODELLING AND NTC CALCULATION (https://www.usea.org/sites/default/files/AGT_BPM_Complete_Istanbul%20Jun13_eng_AFTERMEETING%20FINAL%20for%20Upload.pdf)

4.2.5. Infrastructure development Projects

The following map (Figure 20) plots the positioning of projects proposed by Azerbaijan government agencies.

Table 9 Azerbaijan Energy Sector Potential Project Domains

Category	Project Name	Envisioned Scheme	Examining Organization	Estimated Project Value (US \$)	Government Interest	Magnitude of Issues	Potential for Japan Involvement	Overall Rating
Renewable energy	(1) Lokbatan Wind Power Generation Station (feasibility study phase)	Technical cooperation project	SAARES (Ministry of Energy)	\$35MM	High	Normal	Possible	○
Renewable energy	(2) Azguntex Plant manufacture of solar power generation equipment equipped LED streetlights	Technical cooperation project	SAARES (Ministry of Energy)	\$10MM	High	Normal	Possible	○
Renewable energy	(3) Pellet production plant construction	Technical cooperation project	SAARES (Ministry of Energy)		Normal	Normal	Possible	
petroleum gas.	(4) Japanese garden construction at former oil drilling site (under park development program)	Grant aid cooperation	SOCAR Ecopark	n/a	Normal	Normal	Possible	△



- 1 Lokbatan Wind Power Plant
- 2 Solar panel equipped LED lighting production JV
- 3 Pellet production plant
- 4 Sumgayit City environmental improvement project through scientific plant improvements

Figure 20 Azerbaijan Energy Sector Candidate Project Map

4.2.6. Donor Activity Status

The Azerbaijan government has nurtured cooperative relations with a considerable number of donors. In 2009, for example, it joined the International Renewable Energy Agency (IRENA), where it has been active as a regular member since 2014. The government Agency for Alternative and Renewable Energy Sources maintains working partnerships with the United Nations Economic Commission for Europe, the United Nations Development Programme (UNDP), the European Commission, the World Bank, ADB, KfW, AFD, USAID, the Economic Cooperation Organization (ECO), the Black Sea Economic Cooperation (BSEC), JICA, KOICA, the Interstate Oil and Gas Transport to Europe (INOGATE), GUAM and other aid agencies. The State Agency on Alternative and Renewable Energy Sources of Azerbaijan (SAARES), meanwhile, signed memorandums of understanding (MOU) with the Ministry Energy of Iran in 2014 and the National Energy Administration of China in 2015.

4.2.6.1. European Bank for Reconstruction and Development (EBRD)

The EBRD supports the Trans-Anatolian Natural Gas Pipeline (TANAP) – a gas transport pipeline under construction from the Turkey-Georgia border to the Turkey-Greece border and routed through Turkey to supply natural gas to Europe. This project is jointly financed with EBRD and the World Bank (\$800 million) and the Asia

Infrastructure Investment Bank (AIIB) (\$600 million), reaching a total value of \$8.6 billion. The European Investment Bank is also studying possible support for the TANAP project.

4.2.6.2. Asian Development Bank (ADB)

In the energy sector, the ADB is advancing a power distribution network renewal project, while in the electric power sector the bank is active in a financial reform planning support project.

The power distribution network project has been underway since 2016, with 1.4 million people destined to benefit from the highly reliable supply of electric power. This scheme is engineered to overcome power supply bottlenecks in supplying power to regional areas, small- and medium-size regional cities and other destinations within 24 hours. Project cost is \$1 billion, with \$750 million of that comprised of ADB financing.

The electric power sector financial reform planning support project was also launched in 2016. This spans efforts to grasp the actual cost of electric power supply (generation, transmission and distribution); redesigning of rate systems taking into consideration customer characteristics concerning power generation, transmission and distribution; reforms in internal support systems between existing customers by aligning power rates with different energy sources (solar, wind, water and gas); formulation of a roadmap for the purpose of steadily increasing fee income to implement financial structure reform and realize full cost recovery by 2022; user awareness promotion measures regarding tariff reform using the best practices of other countries as references; and other phases.

4.3. Environment

4.3.1. Infrastructure development Status

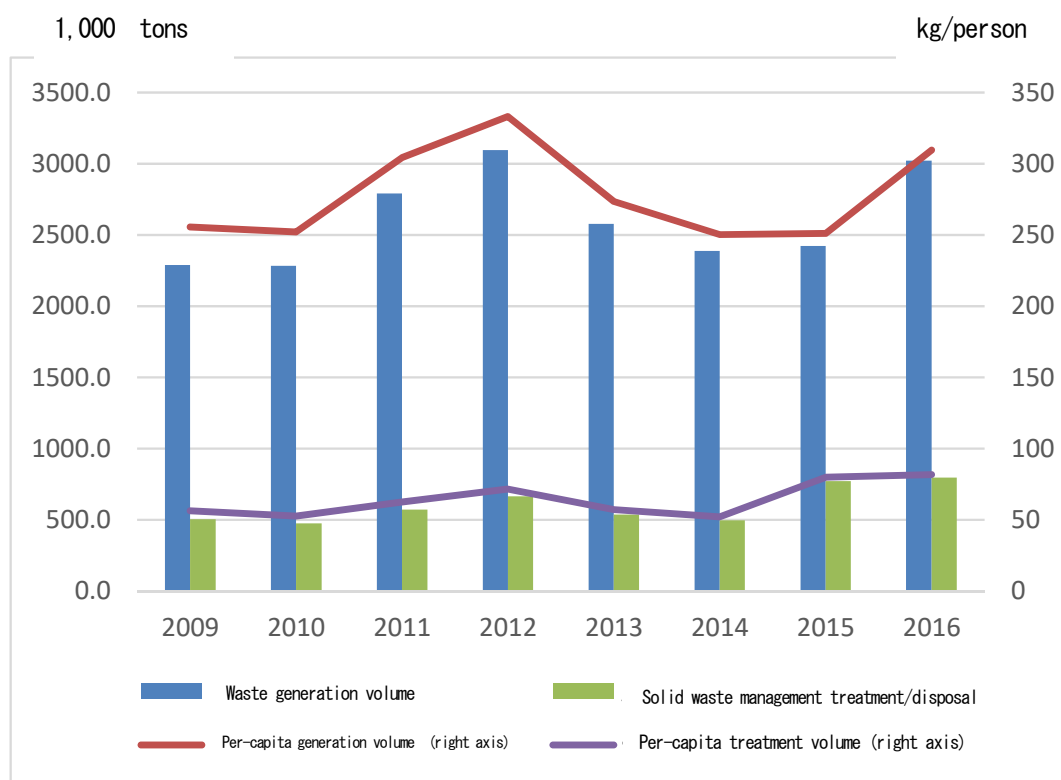
For the Azerbaijan government, the environmental protection field is a high priority policy sector. Toward that end, the following related legislation has been enacted – the Law on Protection of the Atmosphere, the Law on Protection of the Environment, the Law on Protection of Greenery and the Law on Industrial and Municipal Waste.

In 2006, a Presidential Decree under the title of Complex Plan of Measures for Improvement of the Ecological Situation in the Republic of Azerbaijan was announced, with the goal of advancing improvements in the environment (particularly regarding the treatment and disposal of waste). Targeted under the provisions of this decree are the activities of 65 nations, along with 30 government affiliated agencies. A complementary Presidential Decree was issued in 2011 aimed at promoting nationwide waste recycling. This stance also extends

to government commitments and promotion of rehabilitation of waste incineration plant waste heat generation and sorting facilities, industrial parks and major final disposal sites. Though central government agencies have granted authority for waste treatment and other efforts are getting off the ground, local governments remain inadequate in terms of their authority assignment and execution capacity.

4.3.1.1. Waste Matter

The amount of municipal waste occurring nationwide peaked in 2012 at 3.1 million tons/year (333kg/person/year), shifting to a downward trend in subsequent years. The amount began to expand again from 2015,¹⁸ and in 2016 was tracked at 3.02 million tons/year (309kg/person/year). Municipal waste treatment and disposal decreased after reaching 670,000 tons/year (72kg/person/year) in 2012, but began to rise again from 2015. In 2016, the total was 800,000 tons/year (82kg/person/year).



Source: Prepared by NRI from “Environment in Azerbaijan (2017).”

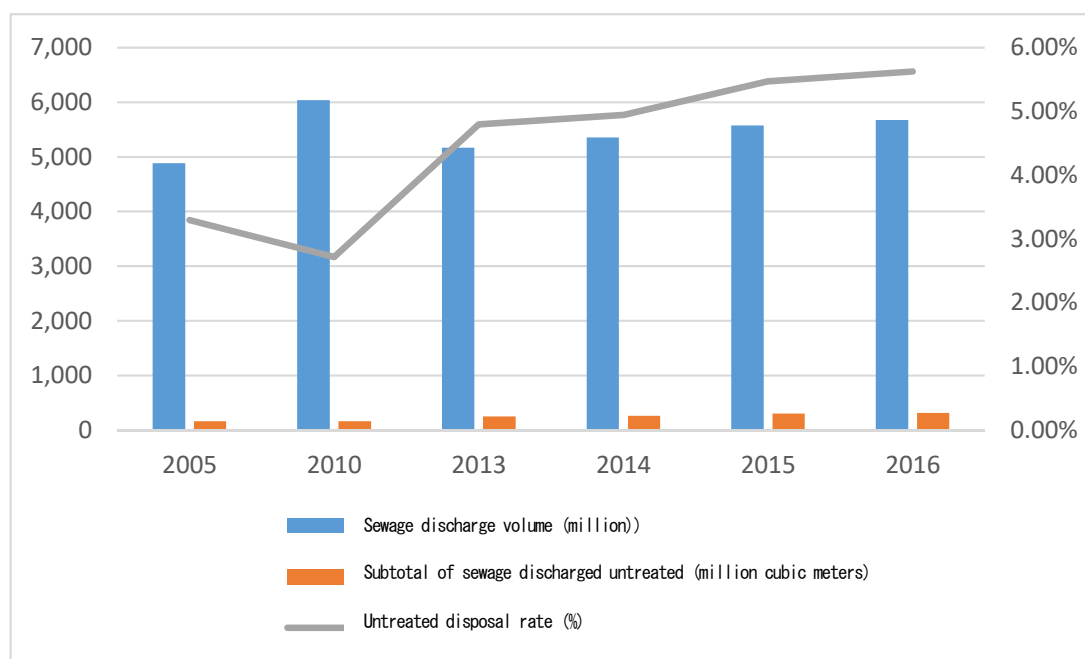
Figure 21 Chronological Changes in Azerbaijan Waste Generation, Treatment and Disposal Volumes

¹⁸ Regarding the slight decreases through 2015 and the increase in 2016, although comparisons were made with household expenditures, GDP and other factors, no clear-cut ties have been identified.

According to the Ministry of Ecology and Natural Resources of Azerbaijan, final disposal sites are operated in eight locations and waste collection facilities at 38 sites nationwide. In five cities ranking as seats of prefectural governments or otherwise large in size (Sumgait, Ganja, Mingechevir, Shirvan and Nakhchivan Autonomous Republic), municipal waste is collected and waste collection stations are installed at locations that can be reached on foot. However, outside of Baku City, in the suburbs of large cities and regional areas, the caliber of waste collection services is low, with waste simply piled up at the collection sites. Such practices pose serious risks to both health and the environment.

4.3.1.2. Water Supply and Sewerage

Sewage discharge volume in Azerbaijan has increased at an annual average of 1.5% in recent years, from 4.9 billion m³ in 2005 to 5.7 billion m³ in 2016. Compared to that, the volume of sewage discharged untreated has grown at an annual average of 7.1% from 160 million m³ in 2005 to 320 million m³ in 2016. As this shows, recent years have witnessed growth in the volume of untreated sewage being discharged in Azerbaijan.



Source: Prepared by NRI from “Environment in Azerbaijan (2017).”

Figure 22 Trends in Sewage Discharge Volume and Portions Discharged Untreated in Azerbaijan

The sewage collection network in Azerbaijan has not been sufficiently developed, with the main reason for this lying in the inadequate status of maintenance. In small-scale cities, for example, sewerage systems have not been installed, leading to direct discharge of sewage into nearby lakes and ponds. As a result, it is easy for sewage and

sludge to leak into surrounding areas. Furthermore, because rainwater drainage networks have also not been built, even small-scale rainfall can submerge roads, cause traffic congestion and other issues. Although sewage treatment plants utilize machine processing and bio treatment, most of these facilities were constructed 30 to 40 years ago. As a result, the design concepts for energy consumption concerning sludge drying and other areas have grown outmoded.

4.3.2. Infrastructure development Agencies and Personnel Structure

4.3.2.1. Agencies Active in Waste Treatment

Ministry of Economy

The Azerbaijan Ministry of Economy acts as the central government agency in charge of drafting waste treatment business budgets and implementing those operations. The ministry contains Tamiz Shahar and other state-run companies under its umbrella to conduct waste treatment operations and introduce environmental measures.

Ministry of Ecology and Natural Resources

This ministry holds jurisdiction over Azerbaijan environmental policy, overseeing conservation of the nation's environment and maintenance of its natural resources. At the same time, however, it is not involved in implementation of the waste management business, water pollution countermeasures or other work. The main thrust of its duties, rather, lies in the formulation and monitoring of the nation's environmental planning. Based on this, the ministry supervises the environmental impact upon construction of waste treatment facilities, transport of waste materials and other occasions. High priorities are attached to endeavors to increase green space, conserve fishing and water resources, and make improvements in monitoring systems and other areas.

Ministry of Health

The Ministry of Health manages the nation's health and sanitation standards, working to maintain satisfactory public hygiene. It also performs inspections to check sanitation conditions, as well as overseeing the management of public and private hospital, disposal of medical waste and other sectors.

Tamiz Shahar

Tamiz Shahar is a wholly state-owned corporation operated under the authority of the Ministry of Economy, effectively functions as an organization engaged in waste treatment and environmental measures within Baku City. Specific operations include waste collection, transport and disposal (landfill and incineration = 2 lines × 250,000 tons/year) and recycling (spent motor oil, plastic bottles, recycled paper, cardboard paper, discarded plastics, sponges, etc.). The company also advances environmental restoration projects for the eight lakes and marshes within Baku City, along with development of a recycling industry technology park. Going forward, Tamiz Shahar will be organizing projects to remove, neutralize and otherwise deal with the oil content of sludge concentrated in lakes and marshes. With World Bank cooperation, efforts are underway to effectively maintain and enhance a managed waste landfill disposal site. Steps will be taken to prevent sewage permeation, while collecting methane gas to generate electric power for use by the company itself.

Local Governments and Municipalities

Local government administrations in Azerbaijan conduct their own municipal solid waste management. A public agency known as the Executive Powers (REP/CEP) of prefectures (known as “Rayon”) and “Cities” conducts cleanups, garbage collection and treatment and other work in public spaces. This organization also handles the distribution of land necessary for solid waste management. Under the REP/CEP, the Department of Housing and Communal Services is particularly active in pursuing the duties of garbage collection.

Port of Baku

Within the Port of Baku, the “Green Port” project is being developed to introduce renewable energy, process waste and collect and treat seawater contamination. More precisely, the Green Port initiative strives to supply the operational areas of the Port of Baku with renewable energy (introduction of solar and wind generated power), advance solid waste management, make improvements in Caspian Sea water pollution (recovery of waste oil discharged from vessels, etc.) and promote other efforts that enhance the environment for port users (reduce levels of water and atmospheric contamination from greenhouse gases and other origins).

4.3.2.2. Agencies Related to Water Supply and Sewerage

In Azerbaijan, four primary agencies are placed in charge of the preservation, administration and operation of the nation's water resources. Namely, the aforementioned Ministry of Ecology and Natural Resources, the Ministry of Health (MOH), the Ministry of Emergency Situations (MES) and two water management public companies (AZERSU for the capital region and SAWMA for regional areas).

Table 10 Azerbaijan Water Resource Management Agencies and Roles

Agency	Major Roles
Ministry of Ecology and Natural Resources	Not active in implementation of waste management business, water pollution countermeasures, etc. Main duties are formulation and monitoring of environmental planning.
Ministry of Health	Jurisdiction over the full scope of national public sanitation. Main duties are to improve sanitation, set epidemiological regulations and sanitation standards. Establishment of water quality standards also falls under this ministry's authority.
Ministry of Emergency Situations	Setting of safety control related regulations and standards. Particularly key duties include controls over leakage from water and sewerage systems, safe drainage from sewage treatment plants, safe operation and control of sewage treatment plants and water purification plants.
Azersu Open Joint Stock Company (AZERSU) and State Amelioration and Water Management Agency (SAWMA)	Capital and regional area water and sewerage facility control, water distribution and sewage collection. Water purification and sewage treatment operation and management. Construction of facilities for safe water distribution and improved sanitation in the respective regions of jurisdiction.

Source: Fiscal 2011 Report on Water Supply Overseas Business Public-Private Partnership Discovery and Formation Project (Asian Nations); compiled by Shinei Living Industry Co., Ltd.

4.3.3. Cross-border Issues

Azerbaijan supplies 70% of its water demands from the Kura River (an international river). Water contamination

issues in the upper reaches of the Kura River in Georgia are particularly severe, underscoring the need for measures to secure safe water resources.

4.3.4. Issues in Advancing Infrastructure development

4.3.4.1. General Status

Under the impact of the decline in the value of the Azerbaijan manat, Azerbaijan's outstanding public foreign debt ratio was tracked at 21.5% of its GDP in October 2018¹⁹. This has prompted the government to prioritize reduction of those external liabilities, with the present situation making this a difficult period for formulating new loan projects. Regarding private sector financial support, with the monetary tightening policy of the central bank, the lack of financial transparency on the part of private companies and the high degree of market control exercised by financial conglomerates owned by persons with government ties, further development of such projects would appear to be an uphill battle. In light of this backdrop, the need is for appeals for independent experience, know-how and technology, leading to the formulation of the types of loan projects capable of contributing to greater diversification, sophistication and tenacity for the Azerbaijan economy.

4.3.4.2. Solid waste management

For areas facing out onto the Caspian Sea and several inland lakes and marshes contaminated by oil production, the cross-border removal and cleanup of fuel oil sludge has emerged as a pressing issue. At present, environmental restoration works are underway at eight lakes and marshes in Azerbaijan. The largest of these is the restoration project of Lake Boyukshor (Big Salty Water) in the northern part of Baku City. One major cause of the pollution in Lake Boyukshor is waste oil water dating from the oil exploration and production boom of the 1930s. The first oil storage tank was constructed near the lake in 1866. This is an area in which the influx of sewage into the location of accumulated oil and sludge overlapped to cause conspicuous environmental contamination. At the present point in time, the influx of oil and sewage into Lake Boyukshor has been halted, with pumps purchased to collect the sediment in the lake. Tree lined roads have been built along the lakeshore, with irrigation channels also constructed to ensure the flow of clean water. At the current point in time, however, the work is at the stage of halting the advance of pollution for the lake as a whole and collection of sediment within the lake, with the efforts yet to expand to actual water cleanup and purification. Even with treatment of waste oil, the amount of oil that can actually be resold is less than 10% of the total. Such conditions also pose issues for other lake cleanup works.

¹⁹ <http://www.maliyye.gov.az/scripts/pdfs/web/viewer.html?file=/uploads/static-pages/files/5c8a474c24b49.pdf>

Tamiz Shahar owns waste incineration plants in Baku City (2 lines × 250,000 tons/year), although the current conditions do not make it essential to introduce new incinerators. Regarding waste collection transit and processing facilities, meanwhile, with cooperative ties already existing with the European Bank for Reconstruction and Development (EBRD), the World Bank and other donors, no special requests have been directed to Japan. At present, rather than the processing of domestic waste, removal and cleanup of fuel oil sludge in the areas along the Caspian Sea and several inland lakes and marshes contaminated from oil production is viewed as a more pressing issue.

4.3.4.3. Water Supply and Sewerage

Ranking as one major cross-border issue for Azerbaijan is the fact that 70% of the nation’s water demand is satisfied by procurements from outside its borders. Contamination issues with water from Armenia and Georgia are particularly grave, with keen considerations devoted to securing safe water resources.

Within the regional cities of Azerbaijan, construction of water supply and sewerage infrastructure is inadequate. Targeting this situation, the building of water supply facilities is being advanced in such cities (the Zagatala Region, Kurdmashi Village in the Ismaili Region, Chaygaragoyunlu Village in the Sheki Region and others) through the Grant Aid for Grassroots Human Security cooperation scheme from Japan.

As noted above, water supply and sewage infrastructure development in Azerbaijan’s regional cities has not adequately expanded, with construction of water supply facilities being implemented in such communities (the Zagatala Region, Kurdmashi Village in the Ismaili Region, Chaygaragoyunlu Village in the Sheki Region and others) through the aforementioned Grant Aid for Grassroots Human Security. For sewage treatment, as mentioned in the “Infrastructure development Status” section, the increase trend seen in recent years for the discharge of untreated sewage underscores the urgent need for effective countermeasures.

Table 11 Issues and Lessons in Promoting Infrastructure development

Sector	Degree of Interest	Specific Issues/Themes	Magnitude of Issues
General	High	With the decline in the Azerbaijan manat, outstanding external debt has reached 20% of the GDP	(High) Limits to the ability to adequately explain the need and significance of formulating new loans.
Waste	Low	Introduction of new waste incineration plants	(Low)
	High	Removal and cleanup of fuel oil	(High)

		<p>sludge discharged due to oil production</p>	<p>Though removal and cleanup are underway targeting fuel oil sludge contaminated areas along the Caspian Sea and several inland lakes and marshes, the current stage consists largely of halting the advance of contamination and recovering such fuel oil sludge. Even when waste oil is treated, the amount of oil that can actually be resold is less than 10% of the total. The removal and cleanup of such fuel oil sludge poses major issues both technologically and economically (project profitability).</p>
<p>Water supply and sewerage</p>	<p>High</p>	<p>Inadequate water and sewage infrastructure. In particular, such infrastructure has not been adequately provided for regional cities.</p>	<p>(High) Of water and sewage, the increase trend in discharge of untreated sewage demands swift action.</p>

4.3.5. Infrastructure development Projects

4.3.5.1. Solid waste management

The single most pressing issue in the solid waste management sector is the removal and cleanup of fuel oil sludge accumulated at ports and inland lakes and marshes, an area in which prompt measures are demanded. At present, while new influxes of such heavy oil sludge are being prevented, no proposals have been devised for removing, neutralizing and otherwise cleaning up the oil content in the concentrated sludge. Of the nine lakes in the suburbs of Baku currently targeted in this work, while cleanups are being advanced for Lake Boyukshor, Lake Zigh and Lake Khojahasan, no measures have been conceived for the remaining six lakes.

For sorted collection of waste, meanwhile, the Ministry of Ecology and Natural Resources has requested submission of a so-called “Tokyo Model (Household Use Waste Sorting Disposal Model)” being organized by the Clean Authority of TOKYO.

4.3.5.2. Water Supply and Sewerage

Demands have been received from the Ministry of Ecology and Natural Resources for technical cooperation pertaining to environmental planning, monitoring and other areas, human resource development programs, water source development technology, coastal preservation technology, environmental monitoring information systems and other assistance.

Table 12 Anticipated Projects for the Azerbaijan Environmental Sector (Compiled from Agencies Consulted)

Category	Project Name	Envisioned Scheme	Examining Organization	Government Interest	Magnitude of Issues	Potential for Japan Involvement	Overall Rating
Solid waste management	(1) Removal and cleanup of fuel oil sludge accumulated in ports and inland lakes and marshes	Yen loans	Tamiz Shahr	High	Large	Medium	○
	(2) Sorted waste collection	Technical cooperation	Ministry of Ecology and Natural Resources	Normal	Medium	Large	○

Category	Project Name	Envisioned Scheme	Examining Organization	Government Interest	Magnitude of Issues	Potential for Japan Involvement	Overall Rating
Water and sewage	(1) Measures to secure safe water resources (technical cooperation for environmental planning, monitoring and related areas, human resource development programs, water source development technology, coastal preservation technology, environmental monitoring information systems)	Technical cooperation	Ministry of Ecology and Natural Resources	High	Large	Medium	○

4.3.6. Donor Activity Status

The European Bank for Reconstruction and Development (EBRD), the World Bank and other international aid agencies are already developing projects to build a number of solid waste management facilities in Baku City and other locations around Azerbaijan.

4.3.6.1. World Bank

The World Bank is preparing a feasibility study on a cleanup program for lakes and marches to deal with the influx of fuel oil from oil drilling sites, utilizing the Korean Green Growth Trust Fund. The scope of this feasibility study spans the following two areas.

- Building national institutional capacity on green remediation of contaminated SAARESs (both land and water bodies)
- Feasibility study for the clean-up and remediation of the Lake Khojasan SAARES

This feasibility study is forecast to require approximately two years from commencement, clearing the way for formulation of a project based on capital cooperation at the ensuing cleanup phase.

4.3.6.2. International Finance Corporation (IFC; World Bank Group)

The Central Bank of Azerbaijan has advanced a monetary tightening policy in the wake of the fall in the value of the Azerbaijan manat prompted by declining oil prices, with the IFC furnishing support for reconstruction of banking sector. With issues of accounting transparency existing for private companies in Azerbaijan, however, the formulation of such projects has not proceeded as envisioned. Under IFC internal rules, financing cannot be extended to companies in which government-related parties maintain ownership or involvement. With almost all of Azerbaijan's private sector is controlled by financial conglomerates in which persons with government ties are active, bringing such projects into existence is rendered difficult. Remaining as an alternative is investment from overseas, with capital assistance involving foreign direct investment linked to the development of the Port of Baku and other development projects advanced by the government viewed as conceivable. In reality, however, the volume of funding in capital assistance to companies to become tenants in the industrial park being developed by the government (Sumgayit Technopark) is small. While IFC coordinators cite the potential for cooperation with JICA in the event of actual projects, no such appropriate schemes have emerged at the present time.

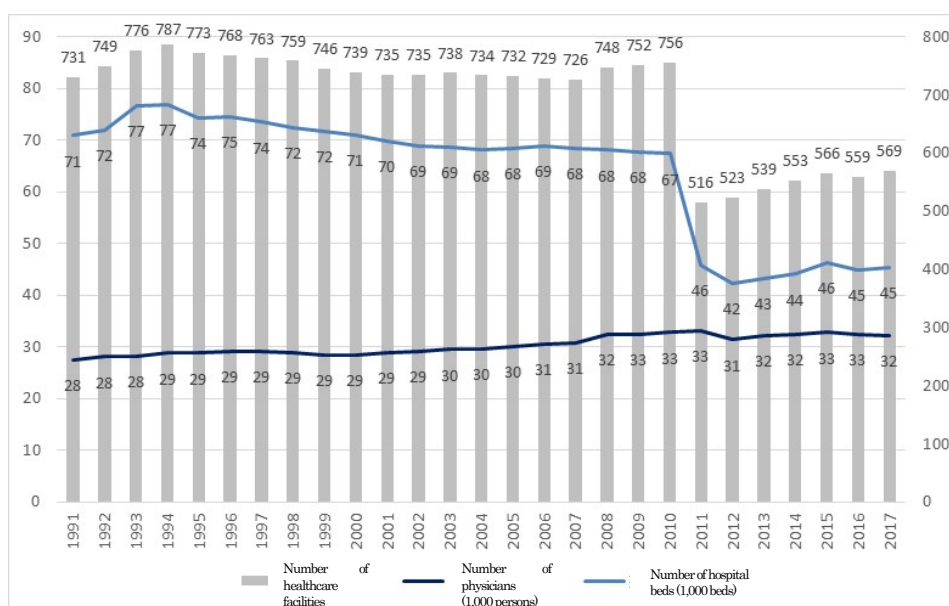
4.3.6.3. Asian Development Bank (ADB)

For its part, the ADB favors active cooperation with JICA. With regard to loan projects currently being formulated by the ADB, this particularly pertains to collaboration with JICA in projects on hold due to the cautious approach of the Azerbaijan government with regard to sovereign loan borrowing. Within the environmental sector, needs for such collaboration are high in water supply, sewerage and waste. More specifically, mention has been made of a urine treatment and solid solid waste management plant project in Nakhichevan State.

4.4. Healthcare

4.4.1. Infrastructure Development Status

In Azerbaijan, some 50% of the population is concentrated in the national capital of Baku. Available nationwide is a total of 2,327 healthcare service institutions, containing 45,296 beds and staffed by 32,189 physicians. According to the Ministry of Health, reforms have been advanced over the past 10 years, with establishment of 700 new healthcare related facilities (including hospitals and other medical institutions outside of Baku), repairs of rundown facilities and other efforts, accompanied simultaneously by a reduction in the actual number of hospitals (see Figure 23). While this has produced a sharp drop in the number of hospital beds (see Figure 24), the view of the Ministry of Health is that the number of healthcare facilities in Baku is adequate under these conditions²⁰. The ministry also notes that the numbers of medical institutions and physicians are generally on a par with the levels during the former Soviet era, although the number of hospital beds is in a declining trend. Because of this, the number of beds for the nation’s population of approximately 10 million persons is inadequate.

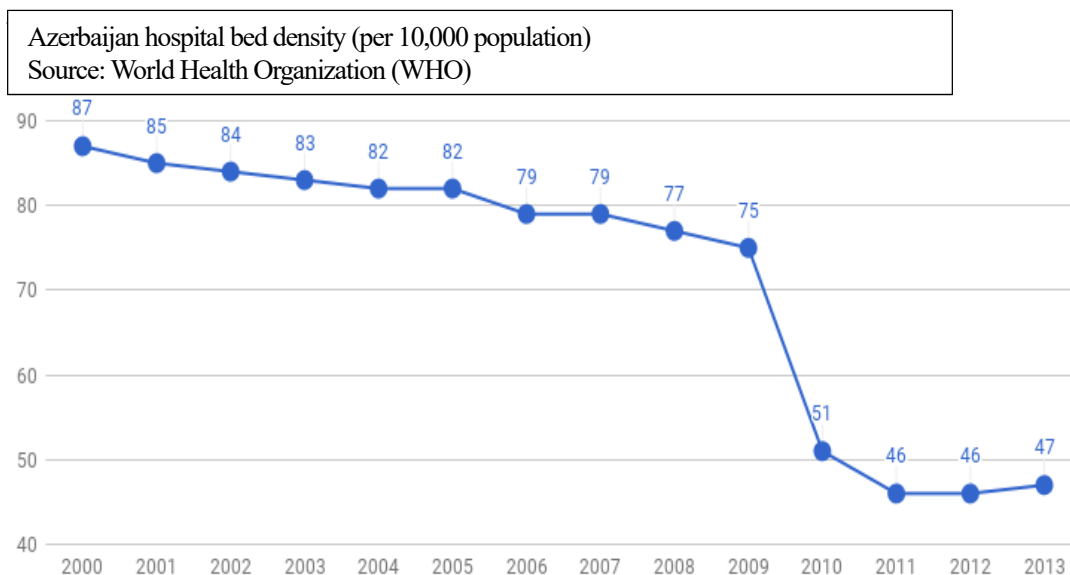


- 1) Decreasing of medical institutions and hospital beds is related with reforms and conducting of centralization in this(2011)
- 2) Decreasing of hospital beds and medical staff is related with reforms(2012)

²⁰ Regarding the perceptions of the Ministry of Health, no specific supporting evidence was expressed in interviews or other formats.

Source: Azerbaijan Statistical Service

Figure 23 Numbers of Healthcare Facilities, Physicians and Hospital Beds



Source: World Health Organization (WHO)

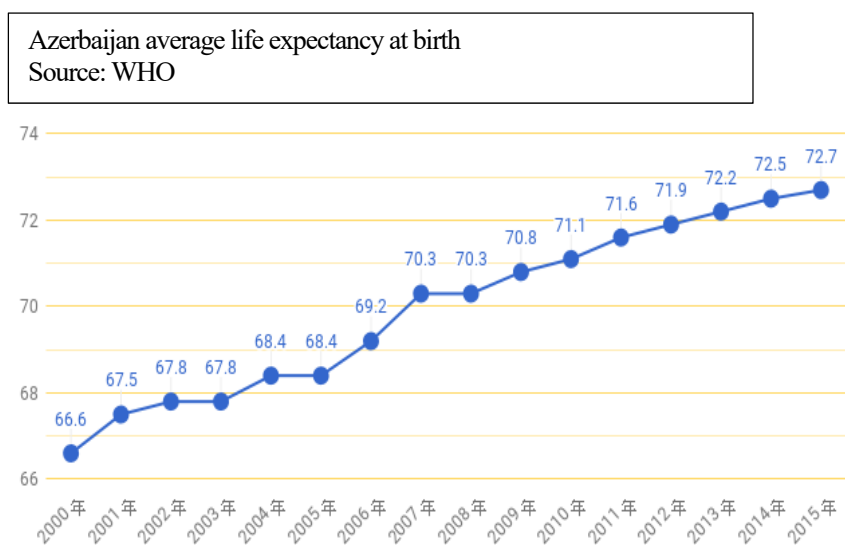
Figure 24 Trends in Number of Hospital Beds Per 10,000 Person Population)

In Azerbaijan, both public and private sector hospitals are available. At public hospitals, examinations and treatment are provided at no cost as a general rule, while private hospitals charge for such services. Among private hospitals, there are also institutions operated with affluent classes as investors, offering medical equipment and physicians with overseas experience surpassing the caliber at public hospitals. As a result, these hospitals are also patronized by foreigners who travel from neighboring nations to seek and receive treatment. In the case of such foreign patients, examination fees are set higher than those for Azerbaijan citizens. Furthermore, while private hospitals encounter no issues with procuring funds and also offer relatively cutting-edge medical equipment, in the case of public hospitals, although buildings are in place there are needs for diagnostic equipment and other medical hardware. In addition, keen needs also exist for technical cooperation in support of training in the latest medical equipment and other areas, with physicians also facing demands for multilingual abilities. In the absence of sustained programs to invite overseas physicians and hold event-format training, improved medical technology through overseas training for Azerbaijan physicians is also essential.

For Azerbaijan public hospitals, with the low income of physicians employed there also a contributing factor, although examinations and treatment are provided at no cost, there is also a custom of paying bribes. In reality, therefore, certain types of compensation occur for the services rendered at such facilities. This situation points to

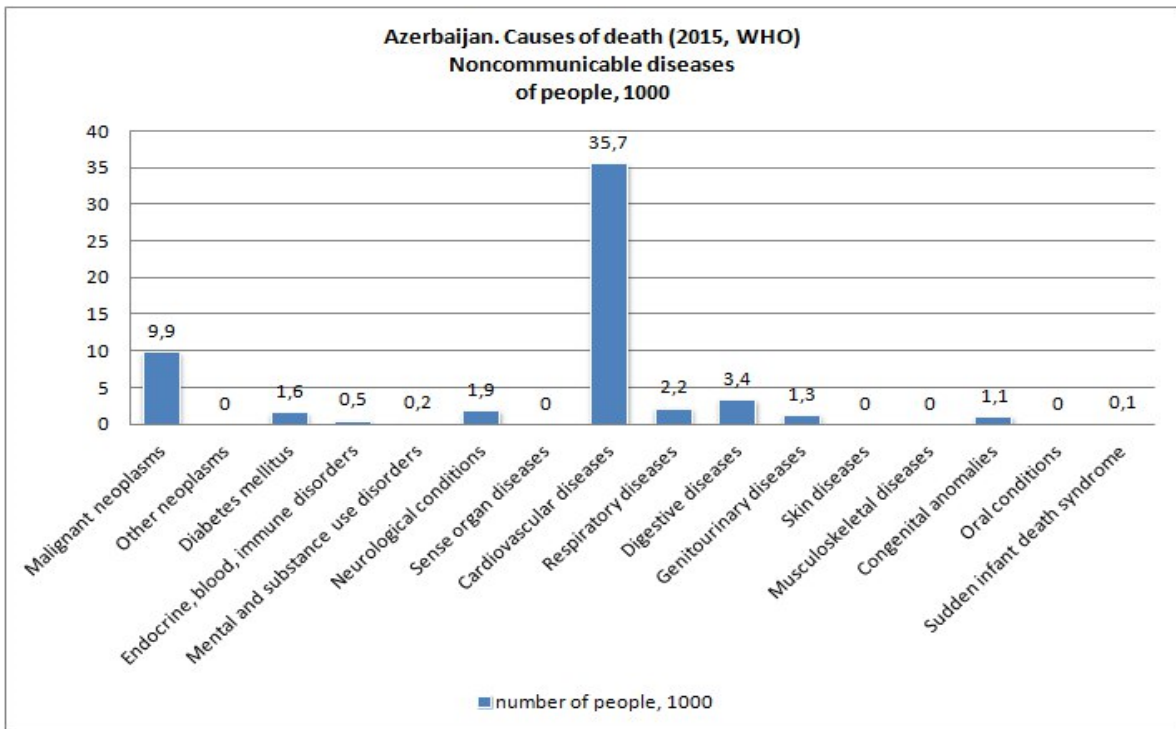
the need to both exercise stricter controls on bribery and establish an appropriate medical services fee system.

As regional trends in diseases and on other fronts, while the nation's average longevity has increased in the years after the collapse of the Soviet Union, viewed from diet and other perspectives, an overwhelming number of deaths result from circulatory diseases. It is also said that, due to restrictions on movements in districts of residence, repeated marriages within the confines of limited communities and other factors, the potential exists that a considerable number of persons possess latent blood diseases. Recent years have brought strengthened government initiatives in such areas.



Source: WHO

Figure 25 Trends in Average Life Expectancy at Birth

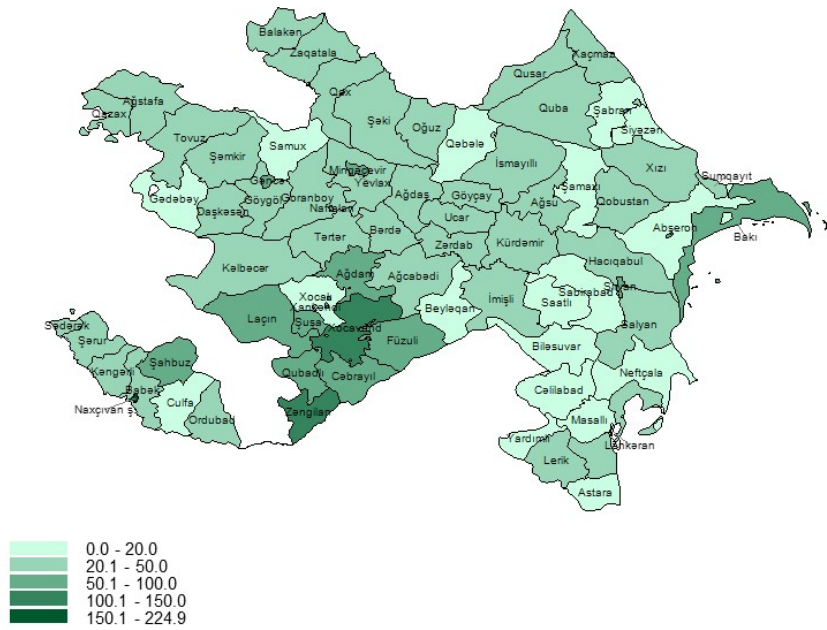


Source: WHO

Figure 26 Causes of Death from Non-communicable Diseases per 1,000 Person Population

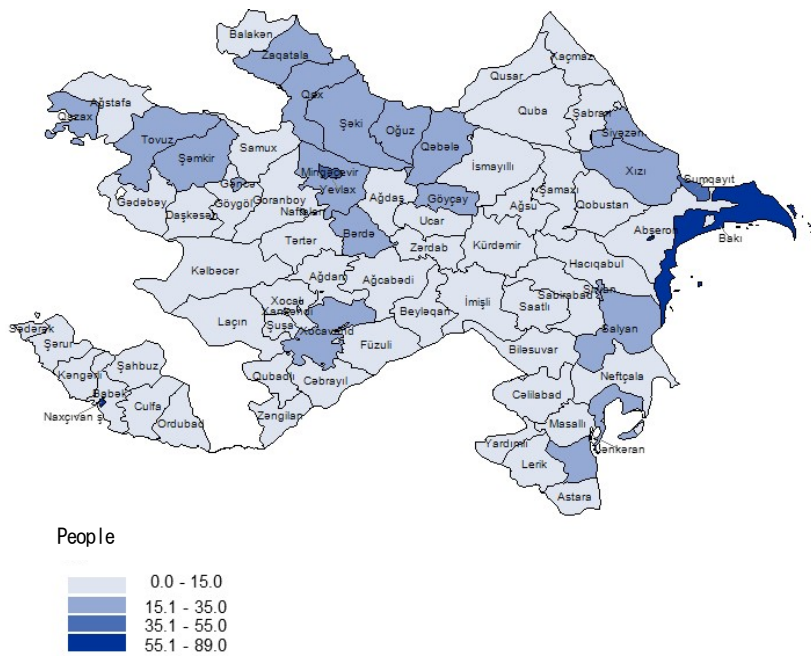
With approximately half of Azerbaijan’s population concentrated in Baku, progress has been made in developing healthcare facilities in that city. The status of such facilities in regional areas, however, is lagging behind that of the capital.

In regional areas, the basic approach is for only examinations to be performed, with patients traveling to Baku in the event of needs for treatment, surgery and other follow-up procedures. With regard to transplants, specialized treatment and other cases, there are needs for patients in regional areas to await being contacted from Baku concerning the availability of donors, the status of their appointments and other information. Studies are being advanced on the creation of a network for that purpose.



Source: Azerbaijan Statistical Service

Figure 27 Number of Hospitals by Region Per 10,000 Person Population (2017)

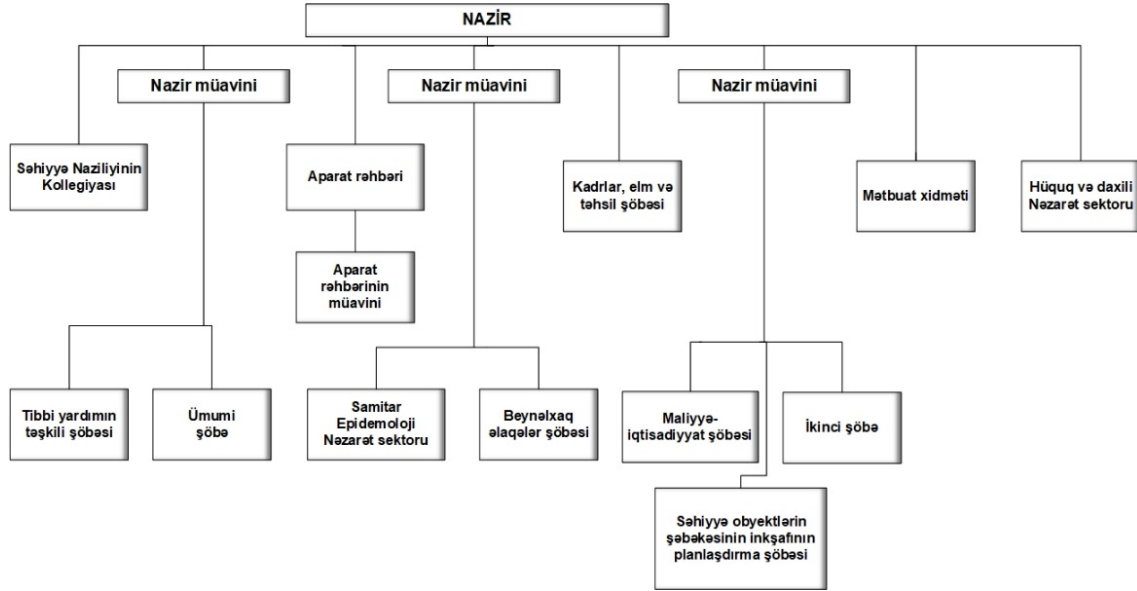


Source: Azerbaijan Statistical Service

Figure 28 Number of Physicians by Region Per 10,000 Person Population (2017)

4.4.2. Infrastructure Development Agencies

The Ministry of Health holds jurisdiction over the healthcare sector.



Source: <http://health.gov.az/files/stuktur.jpg>

Figure 29 Ministry of Health Organizational Chart

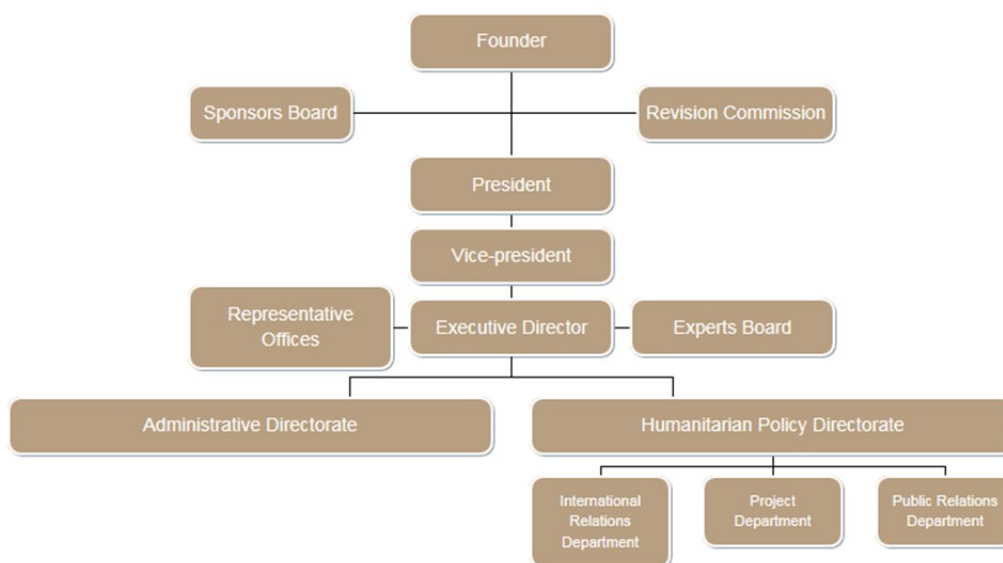
The Azerbaijan Ministry of Health was established in 1918, and continued to be operated through the Soviet era as well. Following Azerbaijan's independence from the Soviet Union, the ministry was relaunched under the approval of then President Haydar Aliyev. The nation's economy was distressed by the confusion following the collapse of the Soviet Union, with the quality of healthcare declining as well. The Haydar Aliyev Foundation, launched in 2004 to deal with that issue, also implemented support for medical services, with that Foundation continuing to play a major role in Azerbaijan's healthcare sector today.

The Haydar Aliyev Foundation, meanwhile, furnishes donations for infrastructure, to healthcare facilities and other targets, serving as a conduit for strengthening healthcare sector support. Though the Foundation's website clearly states that it is a nongovernment foundation, with the current President serving as its President, and the President's wife (who is also the nation's Vice President) similarly closely involved, a large number of projects are formulated at the President's discretion.

The Haydar Aliyev Foundation was founded in 2004 as a nonprofit foundation expressing esteem for former President Haydar Aliyev, bearing his name so as to remain in the hearts and minds of the Azerbaijan people.

The Foundation also commenced operations in 2004, and strives through various different projects in education, health, culture, sports, science and technology, ecology, society and various other sectors in boldly moving forward and spearheading initiatives to build a new society and contribute to the nation’s socioeconomic development.

As the roles of the various positions noted on the organizational chart of the Haydar Aliyev Foundation, the Foundation President serves as the official legal representative. The President is effectively the executive organ of the Foundation, and assumes responsibilities for project approval and implementation, prioritization of funding, specifying the structure and personnel as well as other issues determined in the Foundation’s charter. The Executive Director, meanwhile, is the agent in charge of direct administration of fund operations and activities, and approval of funding within the sphere of that authority. The Experts Board is an advisory body comprised of experts with various different qualifications that works to ensure the validity of decisions, while preparing related opinions, reports and written reports directed to the President.



Source: Haydar Aliyev Foundation

Figure 30 Haydar Aliyev Foundation Organizational Chart

4.4.3. Cross-border Issues

Owing to the fact that the systems for medical care, insurance and other purposes differ from country to country,

there are no examples of cross-sectional collaboration between Azerbaijan and surrounding nations.

As is the case in neighboring countries, the affluent classes in Azerbaijan enjoy ample access to medical care and treatment services. Impoverished classes, however, due to the need to pay bribes, the fact that the majority reside in regional areas with few healthcare facilities and other reasons, suffer disadvantages in terms of their access to such services. Poor access to healthcare on the part of impoverished classes is an issue shared by Russia, former Soviet Union nations and other states.

4.4.4. Issues in Advancing Infrastructure development

Within the various domestic sectors in Azerbaijan, with high priorities attached to IT, transport infrastructure and other highly economically efficient sectors, the importance of the healthcare sector is placed low. As a result, the share of the national budget allotted to healthcare is limited, and even within the healthcare reforms of 2011, budget cuts were accompanied by reductions in healthcare facilities, hospital beds and on other fronts. According to available statistics, the healthcare related budget was approximately 700 million manats in both fiscal 2015 and fiscal 2016 – a mere four percent of the total national budget of 17,800 million manats.

With regard to both yen loans and grant aid cooperation, the authority for determining projects lies with the President and Cabinet Office, not with the Ministry of Health, with each proposal studied by the Cabinet Office. There are high hopes for grant aid cooperation, creating the need, as is the case in project finance, for the devising of schemes for the purpose of achieving support linked to specific undertakings. To actually connect grant aid cooperation to specific projects, however, requires interest on the part of the President. Furthermore, with cost-free examinations and treatment comprising the focus at public hospitals, and the hospitals themselves lacking the ability to repay loans, in cases of payable loan assistance the government is the target of any agreements.

Table 13 summarizes the degree of government interest, specific issues and their magnitude on a sector-specific basis.

Table 13 Healthcare Sector Issues

Category	Government Interest	Specific Issues/Themes	Magnitude of Issues
Thalassaemia Center	High	- Heightened national level responses to Thalassaemia, one distinctive regional	High - Though the national level

Category	Government Interest	Specific Issues/Themes	Magnitude of Issues
Strengthening		<p>blood disease.</p> <ul style="list-style-type: none"> - Due to the increase in patients, acceptance of patients in regional areas and other factors, the trend is for continued increases in patients. - Quality control and stable supply through in-house production of blood products, needs are for the blood business, bone marrow bank business and other areas to increase bone marrow transplants as an effective treatment method. 	<p>response to Thalassaemia has been strengthened, the large number of patients, needs for prevention and other factors support demands for further enhancement and sustained responses.</p> <ul style="list-style-type: none"> - Though the financial scale of necessary medical equipment is not large, the cost-free status of Thalassaemia treatment fuels needs for grant aid cooperation.
Medical Treatment Introduction + Technical Cooperation	High	<p>With no grant aid based technical cooperation from donors in other countries (a sector in which needs are high for technical cooperation in medical equipment training and other areas), training is viewed as necessary to promote technical cooperation for physicians, knowledge and use methods of the latest medical equipment and other progress.</p>	<p>High</p> <ul style="list-style-type: none"> - For public hospitals, there are high needs to strengthen medical equipment for screening (mammography, X-rays, etc.), radiation therapy for cancer treatment, heavy-charged particle therapy and other treatment means. - Needs for technical cooperation in training are even higher than they are for medical equipment.
Regional Public Hospital Renovation and	Normal	<ul style="list-style-type: none"> - Needs exist for regional public hospital renovation, medical equipment 	<p>Normal</p> <ul style="list-style-type: none"> - With about half the nation's

Category	Government Interest	Specific Issues/Themes	Magnitude of Issues
Reinforcement		reinforcement and other improvements.	<p>population concentrated in Baku, the importance placed on building healthcare facilities in Baku has caused regional areas to receive a lower priority.</p> <p>- Though improvements are lagging behind from the perspective of patient scale, the low degree of government interest has delayed responses.</p>
Oncology Center Strengthening	Normal	<p>- The former Soviet era cost-free treatment system has impeded the custom of screening, lowering public awareness of preventative medicine and health.</p> <p>- There is a need to bolster screening and other primary fields, with stronger screening especially demanded for cancer in view of the steadily rising incidence rate of that disease among Azerbaijanians in their 40s and above.</p> <p>- With diagnostic equipment inadequate and responses lagging behind, needs for such equipment are high.</p>	<p>- For cancer, medical equipment is necessary for both screening and treatment.</p> <p>- Though Oncology Center facilities have been built, progress has not been made in the diagnostic field. This has produced shortages in mammography, ultrasonic diagnosis equipment and other areas.</p>
Healthcare System and Social	Low	- While government awareness exists, healthcare sector reform has a lower	Normal

Category	Government Interest	Specific Issues/Themes	Magnitude of Issues
Insurance System Reforms		<p>priority than other sectors. Government failure to adopt an open mind in this area has also resulted in few donors offering to commit.</p> <p>- Although there are donors capable of providing assistance at the system introduction stage, there appear to be none willing to remain engaged through the final stage.</p>	<p>- Government priority on reform is low.</p>

4.4.5. Infrastructure development Projects

No projects envisioning yen loans or development investment and financing have recently either been implemented or scheduled. For healthcare projects, the basic pattern is to anticipate grant aid cooperation. A leading example of such an undertaking is construction on the Thalassaemia Center established in Baku. The number of Thalassaemia patients is in an increase trend, with young children suffering from this blood disorder definitely on the rise.

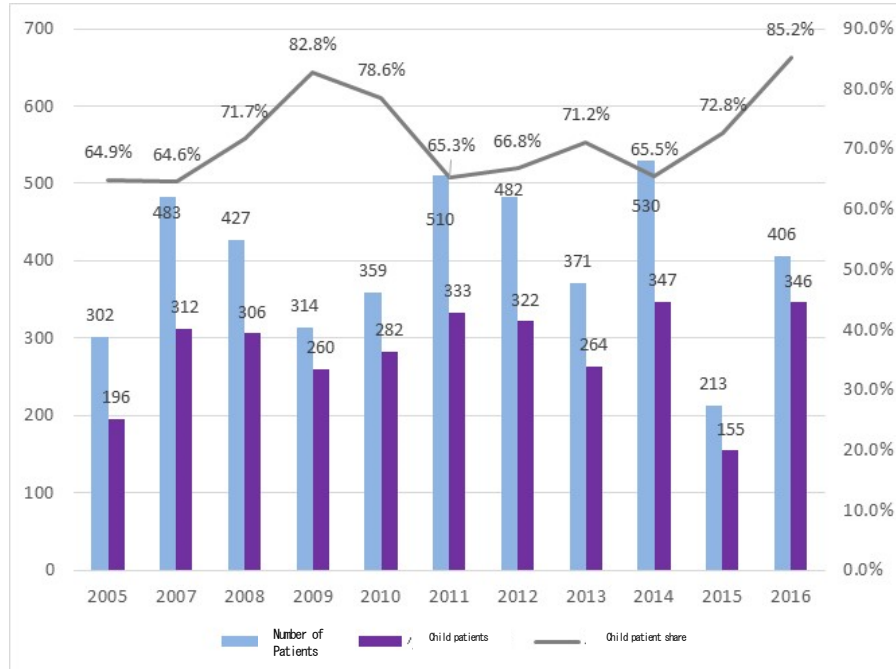
As of 2016, approximately 85% of all Thalassaemia patients were young children. Thalassaemia is a disease characterized by the genetic inability to create hemoglobin, with symptoms including anemia and other complications. The normal treatment method is blood transfusion, with bone marrow transplants used to deal with more serious cases. In Azerbaijan, and particularly the nation's northern district, there are cases of repeated marriages within the confines of restricted communities, with this cited as one factor contributing to conditions rendering it potentially easier to develop the hereditary disease of Thalassaemia. If treated as young children, the majority of Thalassaemia patients improve, prompting efforts at Thalassaemia Centers to bolster blood transfusions and bone marrow transplants for younger children suffering from the disease. Toward this end, there are needs to fortify blood banks, bone marrow banks and other approaches.

Table 14 Healthcare Sector Projects Envisioned in Azerbaijan (Compiled from Agencies Consulted)

Category	Project Name	Envisioned Scheme	Examining Organization	Government Interest	Magnitude of Issues	Potential for Japan Involvement	Overall Rating
Medical equipment procurement	Enhanced medical equipment for in-house production of blood products at the Baku Thalassaemia Center (MIRASOL)	Grant aid cooperation Private sector technology dissemination and promotion Grant Aid for Grassroots Human Security	Haydar Aliyev Foundation, Thalassaemia Center	High	Large	Low	△
Medical equipment procurement	Medical equipment procurement to establish bone marrow banks at Thalassaemia Centers (medical equipment for bone marrow cultures)	Grant aid cooperation (Both private sector promotion and Grant Aid for Grassroots Human Security program difficult in terms of financial scale)	Haydar Aliyev Foundation, Thalassaemia Center	Normal	Medium	Low	△
Medical equipment procurement, system	Bolster Thalassaemia Centers in remote	Grant aid cooperation Yen loans	Haydar Aliyev Foundation, Thalassaemia	Normal	Medium	Low	△

Category	Project Name	Envisioned Scheme	Examining Organization	Government Interest	Magnitude of Issues	Potential for Japan Involvement	Overall Rating
building	(regional) districts (7-8 locations), enhance systems for donor contacts, examination appointments and contacts		Center				

Source: Prepared from hearings at Thalassemia Centers and the Haydar Aliyev Foundation.



1) Children aged 0-14 years old before 2007, after 2007 0-17 years old.

2) Excluding genetic carrier 2015

Source: Azerbaijan Statistical Service

Figure 31 Trends in Number of Thalassaemia Patients, Share of Child Patients

4.4.6. Donor Activity Status

The focus of donor activities relevant to the healthcare sector basically consists of grant aid cooperation projects, with the lion’s share comprised of small-value projects. The main thrust of such grant aid cooperation is directed to the Haydar Aliyev Foundation, with support also received from the Turkish Cooperation and Coordination Agency (TiKA) and other nations in the vicinity.

Construction of Thalassaemia Centers has also been implemented as grant aid projects utilizing the Haydar Aliyev Foundation. With regard to upcoming efforts to enhance and expand Thalassaemia Centers, studies are being advanced for in-house production of blood products, the bone marrow bank business and other sectors, with hopes high for advances targeting medical equipment needs for that business and expansion of Thalassaemia Centers to the regional areas. The Foundation is searching for capital donors to implement such projects.

Table 15 Haydar Aliyev Foundation Grant Aid Cooperation Projects (Domestic Azerbaijan Healthcare Projects Since 2010)

Date	Project Name	Overview
November 2, 2018	Eyesight tests for domestic refugees in the Garadagh region	The Dunyagoz Hospital in Turkey received assistance from the state refugee committee and domestic refugees to perform cost-free eyesight tests for about 300 domestic refugees.
August 3, 2015	Surgery for 3 children suffering from heart failure	Examinations and treatment advanced for children suffering from congenital heart disease, with surgery performed in Israel. Joint project with “Save the Child’s Heart” of Israel.
October 6, 2015	Establishment of central hospital in the Ujjal district	The Ujjal District Central Hospital was constructed under leadership from the Haydar Aliyev Foundation, opening for service on October 6, 2015. Of the 4.4 hectares of land allotted for the hospital, a two-story complex comprised of four buildings was erected on 1.2 hectares of that space. This composite structure contains divisions for surgery,

Date	Project Name	Overview
		treatment, pediatrics, resuscitation, gynecology, resuscitation methods, diagnosis, physical therapy, admission procedures, comprehensive clinic facilities, a perinatal center, research labs, an emergency treatment station and an administrative wing, featuring 118-bed capacity. All divisions were supplied with state-of-the-art medical equipment.
April 16, 2015	Thalassaemia Center blood donation drives	Blood donation drives were held at Sumgayit Chemical Industrial Park LLC and Azerbaijan Investment Company.
September 25, 2013	Turkan housing area polyclinic	The polyclinic located at the Turkan Settlement in Khazar region opened on September 25, 2013, outfitted with cutting-edge medical equipment.
Reconstruction work completed in 2011	Rebuilding of a pediatrics rehabilitation hospital in the Merdekan Settlement	The pediatrics rehabilitation hospital in the Merdekan Settlement in Hazar region was established in 1973. Repairs were made in 2009, with all reconstruction work completed in 2011. This hospital occupies a total site of 16,700m ² , offering 40 treatment rooms, training, psychologists, electrocardiograms, EEG, spa therapy, Halvanic bath, underwater massage baths, physical therapy rooms and a dining room, outfitted with new and state-of-the-art facilities.
Operation from 2011	Reconstruction of a center to house the Central Neftchilar Hospital surgery and organ transplant operations	The center for surgery and organ transplant procedures at the Central Oil Worker's Hospital was refurbished, with operations commencing in 2011. This center, featuring the latest available healthcare equipment, was installed with ultrasound and aspirator functions to facilitate smoother surgical procedures during organ transplants, prevent tissue damage and offer other advantages. Upon completion in 2011, it ranked as a pioneering presence in The Caucasus region in Central Asia.

Source: Haydar Aliyev Foundation <https://Haydar-aliyev-foundation.org/>

5. Japanese Company Activity Status in the Region

5.1. Urban Development, Transportation and Traffic

5.1.1. Japanese Company Activity Status

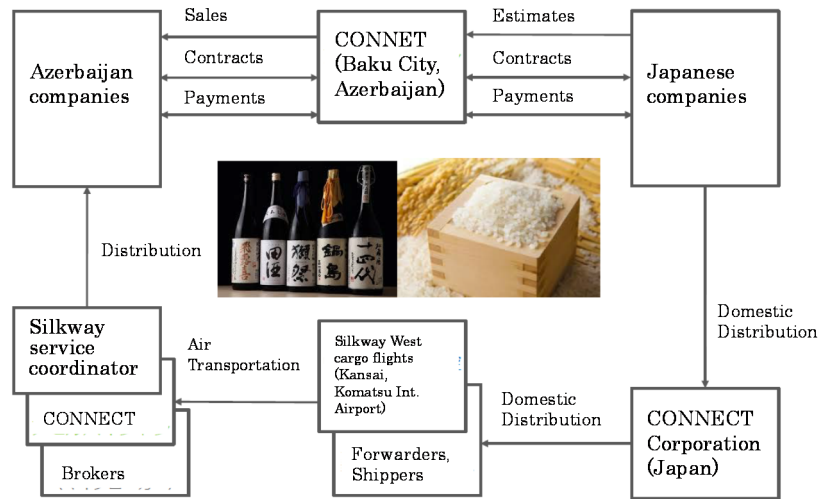
A characteristic shared throughout the overall Caucasus region is the lack of any particular advances into the traffic, transportation and urban development sector. For the Baku Metro subway, meanwhile, PwC and ITOCHU Corporation are advancing a commissioned survey requested by the Japanese Ministry of Economy, Trade and Industry.²¹ While Alstom of France and TMH of Russia are already engaged in the joint supply of rolling stock to the Baku Metro, it is also conceivable that the train cars of other companies could be delivered upon the opening of new lines on that system.

Outside of the transport sector, ITOCHU and INPEX Corporation are participating in projects for Azeri-Chirag-Guneshli (ACG) oil fields in the Caspian Sea, as well as a crude oil pipeline from Baku to Turkey (the BTC Pipeline). Other than these efforts, however, no participation in other infrastructure projects is evident.

At the same time, the CONNET Group, a Japanese logistics company, is expanding its trade and logistics business between Azerbaijan and Japan through the Silkway Company (an Azerbaijan air forwarder), and accepts test marketing of a broad range of merchandise with the purpose of exporting to both nations. As one phase of this stance, EXPO events gathering Japanese companies were staged in 2017 and 2018, aimed at increasing trade with both countries. For its part, CONNET is also studying efforts that include investment in a data center, tobacco cultivation and other projects, as well as opening a full-fledged Japanese restaurant. With the potential for expansion by Japanese companies to Azerbaijan being advanced with the CONNET Group as the axis, the demand is for commitments in projects capable of growing that company's trade and distribution activities.

²¹ https://www.meti.go.jp/medi_lib/report/H29FY/000915.pdf

Trade Business (JPN → AZN)
Azerbaijan Market Development



Source: CONNECT Corporation (Materials Published on the Web)

Figure 32 Trade and Logistics Businesses Using CONNECT Airfreight

It likewise deserves mention that the aviation related business is an environment that effectively facilitates participation by Japanese companies. One such example is the announcement by JAL (Japan Airlines) of a tie-up in air logistics with the Azerbaijan air forwarder Silkway.

Meanwhile, the Overseas Coastal Area Development Institute of Japan (OCDI) has developed a strong interest in port projects focused on technical cooperation. There is the potential that the OCDI will be able to mobilize its strengths built up from a fine track record in training and other areas, thereby opening up the possibility of addressing the Port of Baku training center vision through technical cooperation. Regarding port automation, there is also the potential for formulating technical cooperation utilizing Japanese information communication technology.

5.1.2. Japanese Company Service SWOT Analysis and Superior Subsectors

5.1.2.1. Threats and Weaknesses

Basically speaking, Overseas Development Assistance (ODA) projects necessitate involve competitive bidding. With Japanese companies having compiled little such experience in Azerbaijan, they lack ample knowledge of the status of local partners or suppliers. It is also difficult to define elements to favorably distinguish themselves

from companies in Turkey, China and other nations eager to advance to Azerbaijan. Japanese companies are in general agreement, meanwhile, on the difficulties involved in uncovering opportunities to triumph in PPP projects in which it is relatively easy to compete, projects by international agencies and other formats.

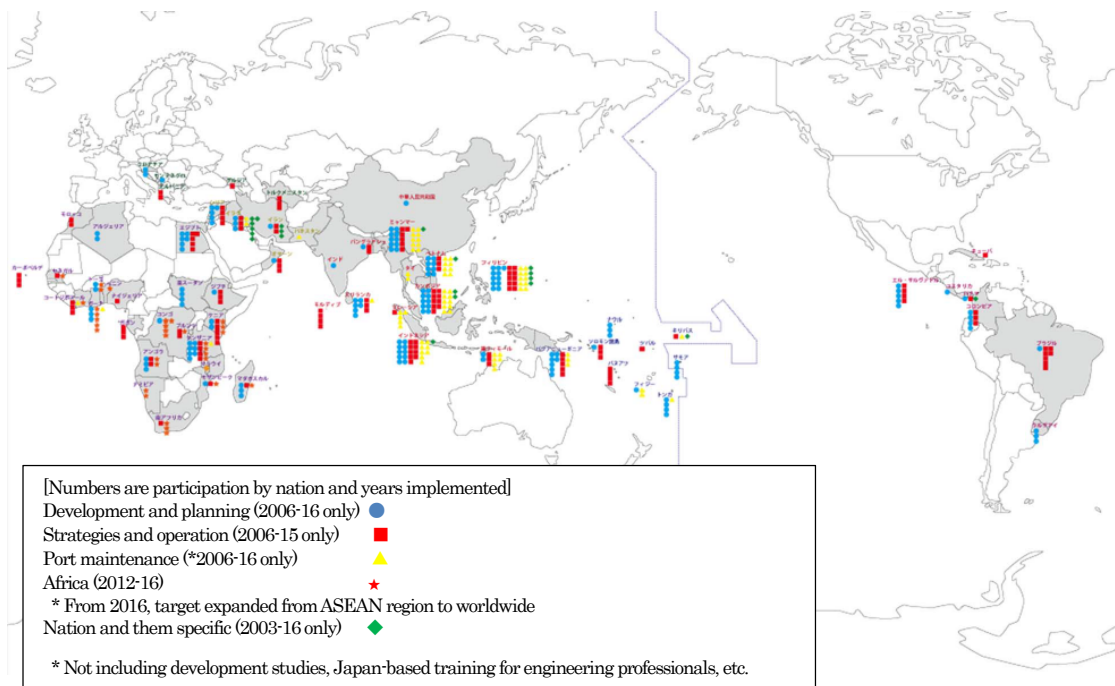
5.1.2.2. Opportunities and Strengths

On the other hand, with regard to the types of projects characterized by the formulation of investment following technical cooperation or preparation of master plans, it is easier to nurture positive relations with the implementing agencies. In Azerbaijan in particular, Japanese technology, know-how and other assets have earned high esteem, with the view that fine quality will be supplied clearly distinguishing itself from the impressions held of other nations. In the expansion of passenger terminals, training center projects and other potential undertakings for which studies are underway, it would be relatively easy for Japanese strengths to satisfy the required specs at the planning stage.

The thinking here is that rather than railways, roads or other large-scale projects for which raising the needed capital from one single donor is impossible, it is easier to manifest superiority through small-scale projects in which participation occurs from the conceptual planning stage or via technical cooperation.

Including the aforementioned examples, the types of projects in which Japanese companies should be able to demonstrate their strengths may be summarized in the following categories.

The first such genre consists of technical cooperation for ports. For training centers in particular, it would be possible to take advantage of training and other activities implemented by JICA for port administrators. The Digital Platform is also a project offering potential for joint implementation with several different nations from Kazakhstan to Georgia. This endeavor offers inroads to mobilize Japan's experience in building a customs information system targeting the needs in a number of Southeast Asian nations.



Source: OCIDI supplied materials.

Figure 33 JICA Port Training Track Record by Nation and Theme

Collection and consolidation of latest domestic and overseas data for the following

- ICT technology applicable to port loading/unloading
- ICT technology applicable to inland transport of marine container

Column running demonstration tests (Japan)

Traffic management (Hamburg)

AGV exclusive road (artificial foundations) installation

Proposals to install nighttime receiving friendly inland depot (unmanned operation) (Port of Nagoya)

Gantry crane automation/remote operation (Rotterdam)

Automated straddle carriers (Brisbane)

Source: OCIDI supplied materials

Figure 34 Accumulated Examples of Advanced Port Logistics Utilizing ICT

The second category concerns airport freight terminals. CONNECT is in the process of steadily expanding air freight logistics with Azerbaijan, bringing several Japanese manufacturers, logistics companies and other concerns onboard in this push. Silkway, meanwhile, is going one step further in utilizing Azerbaijan as the hub in building up a network positioned to link up several airports in East Asia and Europe. Emerging as one bottleneck in this quest, however, is the status of the cold chain facilities in the current freight terminal of Baku Airport – namely, it has become rundown, cramped and otherwise declined into an unusable state. If freight terminals can be modernized and expanded, it will become possible to load, unload, provide temporary storage and engage in logistical processing under a cold chain environment focused on fresh foods, paving the way to imports and exports of high-added-value goods. This would help manifest the strengths of Japanese companies able to supply high-caliber air cargo services.

The third project area is passenger terminal expansion. With growing demand for low-cost carriers (LCC) in recent years, Japanese airport operators have worked through improvements and more streamlined operation of passenger terminals to dramatically increase the number of travelers visiting from nearby Asian nations. Facility design know-how, mobilizing expertise in the efficient operation and maintenance of terminals, is a key forte of Japanese companies. The Caucasus region offers excellent access for tourism from Europe, Russia and the Middle East, with progress in introducing LCC service holding a potential key to rapid growth in aviation demand.

The fourth category is railway depot and rolling stock maintenance. For the national railways of India, the Japanese government has the experience of commencing with technical cooperation in rolling stock maintenance and operation control, leading to the use of capital cooperation for maintenance center construction. Japan's meticulous caliber maintenance and operation control technology ranks at top world levels, with effective promotion of technical cooperation promising to foster business environments favorable for Japanese companies.

The neighboring nation of Georgia is also burdened with issues and projects resembling those described above. If technical cooperation projects addressing these same types of themes can be conceived to target several different countries, it will be possible to advance efficient support programs. Proposals for such projects have also been submitted by Japanese companies.

Table 16 Potential for Japanese Company Entries in the Traffic, Transportation and Urban Development Sector

Sector	General Trends	Activities in Azerbaijan	Azerbaijan Issues and Japanese Company Compatibility
Ports	<ul style="list-style-type: none"> - Interest by marine constructors and steelmakers in port construction projects; trading companies, etc. in port operation projects. - Interest expressed by NACCS Center in customs information systems. 	<ul style="list-style-type: none"> - No movements at present 	<p>○: 1) Training centers can be implemented by adding the knowledge of logistics companies, etc. to port administrator training being advanced by JICA.</p> <p>2) Possibilities exist that manufacturers and trading companies are interested in automated cranes. Potential interest in customs information systems by Japan's Ministry of Land, Infrastructure, Transport and Tourism.</p>
Airports	<ul style="list-style-type: none"> - Interest by trading, real estate and airport operation companies in airport operation projects, based on experience with airport privatization in Japan. 	<ul style="list-style-type: none"> - Numerous trading companies anticipated to show interest in passenger terminal expansion. - CONNECT Corp. expected to be interested in FTZ inside airports. 	<p>◎: Predictions for construction or concession schemes using JICA investment and financing capital.</p> <p>○: For aviation logistics, interruption of cold chains at airports poses a bottleneck for fresh produce trade, with extremely high hopes for Japanese companies and air forwarders.</p>
Railways	<ul style="list-style-type: none"> - Interest shown in technical cooperation by manufacturers of rolling stock and signal and trading companies (railway construction projects), subway companies (railway operation advisory services), other examples. 	<ul style="list-style-type: none"> - No movements among Japanese companies following studies of rolling stock deliveries to Baku METRO. 	<p>○: Potential high for all proposals submitted at this time. 1) Rolling stock maintenance and monitoring systems: manufacturers (JICA also has experience in India); 2) station and depot asset management: real estate companies, Tokyo Metro, etc.; 3) electrification and signal system introduction: signal manufacturers; 5) commuter lines: private railways.</p>

Sector	General Trends	Activities in Azerbaijan	Azerbaijan Issues and Japanese Company Compatibility
Urban Transport	<ul style="list-style-type: none"> - IT vendors and signal manufacturers showing interest in signal control, ITS, etc. - Parking lot builder interest in parking lot construction. 	- No particular movements.	△: For buses, need to urge bus companies to engage in overseas projects. 4) For redevelopment of traffic hubs as well, need to promote participation by railway companies with real estate holdings.
Roads	<ul style="list-style-type: none"> - Bridge and steel frame builders and general contractors interested in suspension bridges, roads and tunnels in mountainous areas. - NEXCO interest in road operation projects. 	- No movements at present	△: Potential interest by vehicle manufacturers supplying equipment and materials. Ministry of Land, Infrastructure, Transport and Tourism has launched a road maintenance study group.
Logistics	- Trading company interest in constructing logistics facilities with Japanese companies.	- No movements at present	△: Potential for heightened interest by logistics companies if ports and airports are brought onboard.
Urban Development	<ul style="list-style-type: none"> - Trading companies and developers interested in urban development projects positioned to attract Japanese companies. - IT vendors interested in smart cities and other projects. • Interest shown in TOD development by Japan's 	- No movements at present	△: Potential for participation by companies with interest in real estate investment if bringing onboard transport node bases, railway station and other redevelopment projects. Initial step is to reach agreement with the local government on the TOD development concept.

Sector	General Trends	Activities in Azerbaijan	Azerbaijan Issues and Japanese Company Compatibility
	Ministry of Land, Infrastructure, Transport and Tourism, Urban Renaissance Agency, other organizations.		

5.2. Energy

5.2.1. Japanese Company Activity Status

Other than construction by a Japanese company currently being advanced on a power plant (Shimal No. 2 Generator), and the oil and gas field project by ITOCHU Corporation and INPEX in the Caspian Sea territorial waters ACG mining zone, no movements are underway.

Table 17 Japanese Company Activity Status in Azerbaijan

Project/Holdings	Japanese Company	Activity Overview
ACG Mining Area	ITOCHU Oil Exploration (Azerbaijan) Inc.	An ITOCHU subsidiary acquired 3.9205% holdings in this project in 1996, with additional interest obtained in 2010 raising that level to 4.2986%. Under an agreement dated January 2018 running through 2049, however, the subsidiary's interest was adjusted to 3.6489%. The ACG Project is comprised of three oil fields (Azeri, Chirga and Gunashli), with current daily production volume of approx. 590,000 barrels. INPEX equity in this project is 9.31%.
BTC Pipeline	ITOCHU Oil Exploration (BTC)Inc.	Crude oil pipeline with total length of 1,768km, routed from Baku through Tbilisi in Georgia to Ceyhan in the Republic of Turkey (on the Mediterranean Sea). Daily piping capacity of 1.2 million barrels. ITOCHU holds 3.4% equity in primary contractor of construction and operation, BTC Co.
Shimal Thermal Power Plant 2nd Unit	MHPS, TEPSCO and Toyo Engineering	Introduction of "M701F" gas turbine built by MHPS from 2005 to 2013.
Yashma Thermal Power Plant	TEPSCO	Feasibility study conducted

Source: Respective company websites (<https://www.itochu.co.jp/ja/>, <https://www.jica.go.jp/>, <https://www.itochu.co.jp/ja/business/chemical/project/01.html>)



BTC Pipeline Route

Source: ITOCHU Corporation materials

Figure 35 BTC Pipeline Route

5.2.2. Japanese Company Service SWOT Analysis and Superior Subsectors

5.2.2.1. Threats and Weaknesses

Regarding power generation, transmission and distribution, as well as development of renewable energy, oil resources and other efforts, compliance continues to be in line with the GOSudarstvennyya STandard (GOST) standards in force during the former Soviet era, along with the safety standards adopted by the Russian Federation government. With Japanese products thus failing to conform with the existing standards, additional costs will inevitably be generated for aligning with those standards, confirmation of safety levels and other procedures. Furthermore, with no after-sales service network in place, in the event of encountering issues with equipment, engineers would need to be dispatched from Japan, equipment shipped back to Japan for repairs and so forth. In consideration of such needs, decisions are frequently reached to not advance to the market largely due to the aforementioned absence of any after-sales service network.

In contrast to this, General Electric, Siemens and Alstom manufacture products in compliance with GOST domestically in Russia, enabling markets to be developed for those products in Azerbaijan as well. Moreover, with exchanges between Azerbaijan and Turkey intimate to the degree that these countries are referred to as so-called sibling nations, Turkish companies are organizing energetic activities on the Azerbaijan market.

What's more, with the current decline in oil prices prompting depreciation of the Azerbaijan currency (manat), the payment abilities of the Azerbaijan side have also weakened. These conditions are rendering it difficult to implement viable studies into new infrastructure development projects.

5.2.2.2. Opportunities and Strengths

Being advanced in Azerbaijan is diversification of power generation and introduction of environmental-friendly generation competency. The government also has high hopes for electric power exports from the nation. This contributes to the thinking that introduction of renewable energy (notably the wind power generation now being promoted by the Azerbaijan government), bolstering export-oriented high-voltage transmission lines and the building of new gas combined power generation facilities promise business opportunities.

It is also true, however, that the aforementioned projects involve the presence of numerous competitors (as described in the previous section), inevitably limiting the types of projects in which it appears possible for Japanese companies to participate. With the premise of interest on the part of trading companies and other firms with ties to the region, there would appear to be potential for Japanese companies to also take part in wind power development and other renewable power generation projects. In this regard, JICA has already completed a feasibility study on the Yashma Gas Combined Power Plant facilities, with moves afoot toward bringing such a project to fruition that project is not included in the following overview of Japanese company participation potential.

Table 18 Potential for Japanese Company Entries in the Energy Sector

Sector	General Trends	Activities in Azerbaijan	Azerbaijan Issues and Japanese Company Compatibility
Power Generation	Generation of wind power and other renewable energy	Several wind power generation projects underway.	△: Potential for heightened interest sparked by introduction of smart meters and other fee collection mechanisms.
Energy Savings	Interest expressed in city streetlight improvements	No movements at present.	△: City government priorities favor use costs and quality over initial cost, with potential for adding such factors to procurement conditions.

5.3. Environment

5.3.1. Japanese Company Activity Status

5.3.1.1. Solid waste management

There is a certain Japanese company studying business opportunities surrounding the third waste incinerator being advanced by Tamiz Shahar. More specifically, with this same company offering a solid track record with a garbage incineration power plant in Europe, it is interested in the event of expansion work on a third line. According to Tamiz Shahar, however, there are no plans for introduction of a third waste incinerator any time soon. The Ministry of Economy, meanwhile, states that no plans exist for building any incinerator facilities in regional areas. The reason cited for that stance is that waste sufficient for operation of incineration facilities cannot be gathered.

Meanwhile, among Japanese companies possessing the technology for fuel oil sludge removal and cleanup, some have supplied upbeat replies to the effect that they would like to undertake studies if so requested.

5.3.1.2. Water Supply and Sewerage

There are presently no Japanese companies expressing specific intentions of advancing activities into water supply and sewage improvements. The building of water supply facilities is being promoted in regional cities (the Zagatala Region, Kurdmashi Village in the Isamaili Region, Chaygaragoyunlu Village in the Sheki Region and other areas) through the Grant Aid for Grassroots Human Security cooperation scheme.

5.3.2. Japanese Company Service SWOT Analysis and Superior Subsectors

5.3.2.1. Solid waste management

(Threats and Weaknesses)

The European Bank for Reconstruction and Development (EBRD), the World Bank and other international aid agencies are already in the process of developing projects to build a number of incineration facilities (landfill processing) in Baku City and other locations around Azerbaijan. According to the Ministry of Economy, it has been announced that no plans exist for developing incinerator plants (with CNIN of France as the EPC contractor) in regional areas, underscoring the view that the potential is low for new incinerator introduction projects.

(Opportunities and Strengths)

The potential is believed to exist for subsidized project and human resource development schemes with DOWA ECO-SYSTEM Co., Ltd. and other Japanese companies possessing fuel oil sludge removal and cleanup technology.

It is conceivable that the “Tokyo Model,” awareness expanding software for sorted collection and the 3Rs (Reduce, Reuse, Recycle) being organized by the Clean Authority of TOKYO, could be introduced through a JICA “technical cooperation” scheme.

5.3.2.2. Water Supply and Sewerage

(Threats and Weaknesses)

It is conceivable that the government’s sovereign loan reduction policy will render it difficult to introduce large-scale water supply and sewerage projects.

(Opportunities and Strengths)

Rather, business opportunities are expected to emerge for companies able to address technical cooperation for environmental planning and monitoring, continuation of human resource cultivation programs, water source development technology, coastal preservation technology and environmental monitoring information systems.

In light of the above, projects in which Japanese companies should be able to manifest their strengths are summarized below.

Table 19 Potential for Japanese Company Entries in the Environmental Sector

Sector	General Trends	Activities in Azerbaijan	Azerbaijan Issues and Japanese Company Compatibility
Solid waste management	- There is a pressing need for cross-border removal and cleanup of fuel oil sludge in areas on the Caspian Sea and several inland lakes and marshes	- The ITOCHU Baku Representative Office is interested in the event of expansion work on the No. 3 Line	- According to the Ministry of Economy, it has been announced that no plans exist for developing incinerator plants (with CNIN of France as the EPC contractor) in regional areas, underscoring the view that potential is low for

Sector	General Trends	Activities in Azerbaijan	Azerbaijan Issues and Japanese Company Compatibility
	<p>polluted from oil production.</p> <p>- Among Japanese companies offering fuel oil sludge removal and cleanup technology, there are some likely to provide constructive responses of their willingness to undertake studies upon request.</p>	<p>of the waste incineration power plant being advanced by Tamiz Shahar.</p> <p>- No specific movements are underway with regard to fuel oil sludge removal and cleanup.</p>	<p>new incinerator introduction projects.</p> <p>- It is conceivable that subsidized projects and human resource development schemes could be developed in collaboration with Japanese companies offering fuel oil sludge removal and cleanup technology.</p>
Water and Sewage	<p>- Needs exist for technical cooperation for environmental planning and monitoring, continuation of human resource cultivation programs, water source development technology, coastal preservation technology and environmental monitoring information systems.</p>	<p>- No specific movements are underway.</p>	<p>- It is believed that the government's sovereign loan reduction policy renders it difficult to introduce large-scale water supply and sewerage projects.</p> <p>- There are potential business opportunities within technical assistance for environmental planning and monitoring, continuation of human resource cultivation programs, water source development technology, coastal preservation technology and environmental monitoring information systems.</p>

5.4. Healthcare

5.4.1. Japanese Company Activity Status

While existing as a common characteristic common throughout the general Caucasus region, the interest level of Japanese companies in Azerbaijan is low, with no noticeable advances into the healthcare sector there. All companies share a shortage of pertinent information, with hearings conducted at domestic companies revealing that studies are impossible under the current conditions. For Azerbaijan in particular, the national population of 9.86 million (figures for 2017) makes this a small market compared to Western countries, rendering it difficult for major medical equipment manufacturers and other potential participants to discover appeal as a commercial market. Azerbaijan also has few connections with Japan, standing in sharp contrast to the conspicuous approaches mounted from Turkey.

Azerbaijan relies on imports for over 95% of its pharmaceuticals, while due to its small size is a market considered to offer little appeal for entries by overseas companies. On the other hand, Azerbaijan provides preferential tax treatment for drug imports, and holds the potential to serve an excellent launching ground for efforts to reach large neighboring markets such as Iran and Iraq. Then again, with Azerbaijan not a member of the Eurasian Economic Union (EEU22), there are no merits in undertaking transactions through third-party nations (Russia, Turkey, etc.). It would be unfeasible, for example, to target the particularly large market of Russia from there.

5.4.2. Japanese Company Service SWOT Analysis and Superior Subsectors

The first area in which Japanese companies offer high potential for the local healthcare field in Azerbaijan is the strengthening of Thalassaemia Centers. Achieving in-house production of blood products at such centers would require “MIRASOL,” a type of medical equipment instilled with disinfection functions. There are also needs for bone marrow culture systems, and if prospects are firmed up in terms of market scale and commercial feasibility, this is a sector in which Japan should be able to manifest its superiority.

The second potential area of involvement lies in combinations of medical equipment and technical cooperation realized through financial assistance. This qualifies as a sector where Japan can utilize the experience compiled in other regions, enabling it to manifest its inherent advantages. In this regard, the need for technical guidance in the use of medical equipment runs high in Azerbaijan – mainly in X-ray equipment and other hardware adopted in cancer screening.

The third such area of strength can be described as renovation of hospitals in regional areas. In addition to

infrastructure enhancement, studies could also be advanced for the supply of image diagnosis, remote medical care and other services positioned for linkage between regional hospitals and distant areas. In the Russian Far East, for example, a Russo-Japanese healthcare collaboration project is underway to advance remote medical care for image diagnosis, rehabilitation centers and other phases. Action by the Azerbaijan side in mobilizing strengthened IT to advance network building in regional regions could lay the foundation for studies into technical cooperation and other plans. In the Far East, from the standpoint of streamlining access to healthcare, initiatives are being promoted to issue recommendations for adoption of remote medical care; forwarding of X-rays and other images to seek judgments on specific maladies and other aspects from physicians with highly specialized knowledge located in major cities; initiatives by patients to engage in consultations with physicians using smartphones and other progress.

The following table consolidates the aforementioned information.

Table 20 Potential for Japanese Company Entries in the Healthcare Sector

Sector	Existing Status	SWOT Analysis	Projects of Strength for Japanese Companies
Thalassaemia Center Strengthening	<ul style="list-style-type: none"> - In the blood field, needs exist for MIRASOL – a system used in the generation of blood products. This is hardware handled by Japanese healthcare manufacturers. - Bone marrow culture equipment is also an area in which Japanese system manufacturers are active. - In this field, the vital needs for medical equipment training, expendable supplies, etc., as well as the acute needs in developing nations have produced trends for support through the Partnership program and other approaches. 	<ul style="list-style-type: none"> - Medical equipment sales are channeled through distributors in Europe, Moscow and other locations, with no plans reported for advances of such operations to Azerbaijan. 	<p>©: “MIRASOL” is a leading system supplied by Japanese medical equipment manufacturers. JICA assistance in this area includes the track record of introducing MIRASOL in Ghana, Mexico and other nations. With bone marrow culture equipment also handled, studies would appear to be feasible in consideration of the latent number of patients. At the current point in time, however, no interest has been expressed in advancing to this region.</p>

Sector	Existing Status	SWOT Analysis	Projects of Strength for Japanese Companies
Medical Equipment Introduction + Technical Cooperation	- Encompassing moves to strengthen the primary field, also including examination equipment as targets would expand the number of target companies.	- No movements at present	◎ : Development of medical equipment + technical guidance as a set is desirable.
Regional Public Hospital Renovation and Reinforcement	- Under introduction of medical equipment, the only approach adopted in Azerbaijan is procurement from companies operating medical equipment distributors in Moscow, with no companies expressing any particular interest.	- No movements at present	○: For renovation of regional area hospitals, while dependent upon scale, potential exists for participation by Japanese general contractors. If introduction of medical equipment and other steps are implemented through collaboration, the sphere of projects would expand, supporting potential for formation of yen loan scale projects (with yen loans, the government is the only contracting partner).
Oncology Center Strengthening	- For introduction of medical equipment, it is hoped that projects can be based on utilizing the experience compiled by Japanese companies in medical equipment procurement projects in Uzbekistan by JICA.	- No movements at present	◎ : Development of medical equipment + technical guidance as a set is desirable. Furthermore, in view of high needs for MRI, CT, mammography, ultrasound diagnosis equipment and other expertise, the potential for participation by Japanese medical equipment manufacturers is high.

6. Appendices

6.1. Objectives of literature and desktop studies

Following literatures and URLs are used for the study.

Table 21 List of literatures for the study

Area	Literatures and URL
Development policy	<ul style="list-style-type: none"> <li data-bbox="432 607 1430 689">• President of the republic of Azerbaijan (2016) In the Republic of Azerbaijan, the national economy, the prospects of the strategic plan road map <li data-bbox="432 741 1430 875">• Centre for Analysis of Economic Reforms and Communication (2017) Strategic Roadmap for development of logistics and trade in the Republic of Azerbaijan, https://ereforms.org/store//media/ekspert_yazilari/islahat%20icmali/oktyabr/SYX_en.pdf <li data-bbox="432 927 1430 1111">• Centre for Analysis of Economic Reforms and Communication (2018) Azerbaijan Economic Reforms Review, Fiscal Reforms Special Edition, https://ereforms.org/store//media/ekspert_yazilari/islahat%20icmali/2018/iyul/islahat_iyul_ENG_opt.pdf
PPP	<ul style="list-style-type: none"> <li data-bbox="432 1167 1430 1671">• Kerimov, A and Babayev, A. (2019) Public-Private Partnership: Opportunities and Prospects of Banking Financing, 37th International Scientific Conference on Economic and Social Development- “Socio Economic Problems of Sustainable Development”, Baku, https://www.researchgate.net/profile/Lukasz_Sulkowski/publication/331321002_Organizational_Identity_of_University_in_Merger_Process_w_37th_International_Scientific_Conference_on_Economic_and_Social_Development_-_Socio_Economic_Problems_of_Sustainable_Development_-_Baku_14-15_/links/5c7512bf458515831f702381/Organizational-Identity-of-University-in-Merger-Process-w-37th-International-Scientific-Conference-on-Economic-and-Social-Development-Socio-Economic-Problems-of-Sustainable-Development-Baku-14-1.pdf#page=1205
Transport	<ul style="list-style-type: none"> <li data-bbox="432 1727 1430 1854">• METI “Feasibility Study for Export of High-quality Energy Infrastructure (Survey of Entry into the Urban Transportation Market for Azerbaijan Republic) Survey Report on 2017 : disclosure version” dated on 28th Feb. 2018 (http://www.meti.go.jp/meti_lib/report/H29FY/000915.pdf) <li data-bbox="432 1906 1430 1928">• Port of Baku “Statistics Overview

Area	Literatures and URL
	<p>2015”http://portofbaku.com/uploads/fayllar/2016%20Statistics%20Overview.pdf</p> <ul style="list-style-type: none"> • State Statistical Committee of the Republic of Azerbaijan “TRANSPORT IN AZERBAIJAN” • ADB “Technical Assistance Consultant’s Report - Overview of the Azerbaijan Transport System & Transport Sector Development Strategy” • www.ady.az • http://e-qanun.az/framework/18123 • http://e-qanun.az/framework/19253 • https://www.adb.org/documents/azerbaijan-country-operations-business-plan-2018-2020 • http://www.worldbank.org/en/news/press-release/2015/07/21/new-country-partnership-framework-to-support-azerbajians-sustainable-inclusive-and-resilient-growth
Energy	<ul style="list-style-type: none"> • Order of the President of the Republic of Azerbaijan, March 16, 2016 No. 1897. [cited 2018 January 5]; Available from: http://www.president.az/articles/21953; http://iqtisadiislahat.org/store/media/documents/38542.pdf. • Ministry of Energy of the Republic of Azerbaijan. 2016. Strategic Road Map for the development of utility services (electricity, heat, water, gas) in Azerbaijan. Approved the Presidential Order on December 6, 2016. Available from: http://minenergy.gov.az/upload/files/Dovlet_proqramlari/strateji_yol_xeriteleri/Kommunal_xidm%C9%99tl%C9%99rin_inki%C5%9Faf%C4%B1na_dair_SYX.pdf. • REN21 UNECE RENEWABLE ENERGY STATUS REPORT 2017. [cited 2018 January 5]; Available from: http://www.unece.org/fileadmin/DAM/energy/sc/pp/renew/Renewable_energy_report_2017_web.pdf. • Vorotnikov, V. April 21, 2015. Azerbaijan Focuses on Alternative Energy Development to Increase Fossil Fuel Exports. [cited 2018 January 7]; Available from: http://www.renewableenergyworld.com/articles/2015/04/azerbaijan-focuses-on-alternative-

Area	Literatures and URL
	<p>energy-development-to-increase-fossil-fuel-exports.html.</p> <ul style="list-style-type: none"> <li data-bbox="432 412 1433 546">• Resolution of the Tariff Council of the Republic of Azerbaijan. No. 17 On regulation of the tariffs of electricity in Azerbaijan. November 28, 2016 [cited 2017 December 24]; Available from: http://www.tariffcouncil.gov.az/documents/N17-EE.pdf. <li data-bbox="432 600 1433 786">• The Cabinet of Ministers. The Law of the Republic of Azerbaijan on customs tariffs. Order no. 91 About application of customs duties on import-export operations. Clause 4.22. [cited 2018 January 14]; Available from: http://customs.gov.az/modules/pdf/pdfolder/42/FILE_AC6E82-1DF8DB-B583E7-81B414-F6007D-A175E9.pdf. <li data-bbox="432 840 1433 974">• Asian Bank of Development. 2016. Power Distribution Enhancement Investment Program (RRP AZE 42401-014). Available from: https://http://www.adb.org/sites/default/files/linked-documents/42401-014-ssa.pdf. <li data-bbox="432 1028 1433 1368">• World Bank. 2012. Project ID. P083341. IMPLEMENTATION COMPLETION AND RESULTS REPORT (IBRD-72940) ON A LOAN IN THE AMOUNT OF US\$48 MILLION TO AZERENERJI OJSC WITH THE GUARANTEE OF THE REPUBLIC OF AZERBAIJAN FOR A POWER TRANSMISSION PROJECT. Report No: ICR1140. [cited 2017 December 27]; Available from: http://documents.worldbank.org/curated/en/965571468219011886/pdf/ICR11400P083340C0disclosed020180150.pdf <li data-bbox="432 1422 1433 1715">• Malikov, J. State Agency on Alternative and Renewable Energy Sources of the Republic of Azerbaijan. Opportunities and challenges for the development of the renewable energy in Azerbaijan. Presentation at the 7th International Forum on Energy for Sustainable Development, Baku, Azerbaijan, 20 October 2016. [cited 2018 January 6]; Available from: https://http://www.unece.org/fileadmin/DAM/energy/se/pp/gere/gere.3_Baku.Oct.2016/20_IRE_NA_CIS/J.Malikov.pdf. <li data-bbox="432 1769 1433 1904">• The Draft Law on Environmental Impact Assessment and Environmental Expertise. [cited 2018 January 15]; Available from: http://www.icazeler.gov.az/az/draft-laws/etraf-muhite-tesirin-qiyametlendirilmesi-haqqinda-azerbaycan-respublikasinin-qanunu/ <li data-bbox="432 1957 1433 1980">• UNECE. Environmental Policy. Azerbaijan. 2017 [cited 2018 January 14]; Available from:

Area	Literatures and URL
	<p>https://http://www.unece.org/environmental-policy/conventions/environmental-assessment/about-us/protocol-on-sea/enveiaaboutep-green/azerbaijan.html</p> <ul style="list-style-type: none"> • Ministry of Energy http://minenergy.gov.az/upload/files/Dovlet_proqramlari/strateji_yol_xeriteleri/Kommunal_xidm_%C9%99tl%C9%99rin_ink%C5%9Faf%C4%B1na_dair_SYX.pdf • UNCE http://www.unece.org/fileadmin/DAM/energy/se/pp/renew/Renewable_energy_report_2017_web.pdf • Renewable energy world http://www.renewableenergyworld.com/articles/2015/04/azerbaijan-focuses-on-alternative-energy-development-to-increase-fossil-fuel-exports.html. • Tarrif (price) council of Azerbaijan republic http://www.tariffcouncil.gov.az/documents/N17-EE.pdf • State customs comittes of the Republic of Azerbaijan http://customs.gov.az/modules/pdf/pdffolder/42/FILE_AC6E82-1DF8DB-B583E7-81B414-F6007D-A175E9.pdf • ADB http://www.adb.org/sites/default/files/linked-documents/42401-014-ssa.pdf • World Bank http://documents.worldbank.org/curated/en/965571468219011886/pdf/ICR11400P083340C0dis-closed020180150.pdf • UNECE http://www.unece.org/fileadmin/DAM/energy/se/pp/gere/gere.3_Baku.Oct.2016/20_IRENA_CIS/J.Malikov.pdf • Electronic information portal on permissions http://www.icazeler.gov.az/az/draft-laws/etraf-muhite-tesirin-qiymetlendirilmesi-haqqinda-azerbaycan-respublikasinin-qanunu/

Area	Literatures and URL
	<ul style="list-style-type: none"> • UNECE http://www.unece.org/environmental-policy/conventions/environmental-assessment/about-us/protocol-on-sea/enveiaaboutcap-green/azerbaijan.html
Environment	<ul style="list-style-type: none"> • Report on overseas water business public-private partnership project excavation project (Asian countries) in the field of water supply (FY2011). https://www.mhlw.go.jp/topics/bukyoku/kenkou/suido/jouhou/other/dl/o4_121113f.pdf • Preliminary survey report on environmental management plan survey in Baku city, Azerbaijan. http://open_jicareport.jica.go.jp/pdf/11550266_01.PDF • Survey of environmental management plans in Baku city, Azerbaijan. http://open_jicareport.jica.go.jp/pdf/11635836_01.pdf • 「Waste Management in Baku city, capital of Azerbaijan」 (Tamiz Shahr) http://www.icc-cr.cz/files/tamiz_shahr_baku_waste_management_pptx.pdf • Azerbaijan Ministry of Economy website. (http://economy.gov.az/uploads/fm/files/struktur-translation.jpg) • The Ministry of Ecology and Natural Resources of Azerbaijan website. (http://eco.gov.az/en) • Tamiz Shahr website. (http://tamizshahr.az/en/organization-structure/) • 「The Tokyo Model」 (Clean Authority of TOKYO) http://www.union.tokyo23-seisou.lg.jp/seiso/documents/tokyo-model_japanese.pdf • http://tamizshahr.az • http://www.ebrd.com/work-with-us/projects/psd/clean-city-project.html • http://www.ebrd.com/cs/Satellite?c=Content&cid=1395249617583&d=Mobile&pagename=EBRD%2FContent%2FContentLayout • http://documents.worldbank.org/curated/en/537741510647993017/pdf/IL-RESDATA-EXT-P110679-11-14-2017-1510647979389.pdf • http://www.bsp.az

Area	Literatures and URL
	<ul style="list-style-type: none"> ▪ http://www.e-qanun.az/framework/23701 ▪ http://www.e-qanun.az/framework/15230
Healthcare	<ul style="list-style-type: none"> ▪ The Presidential Decree № 1680 dated November 13, 2017 “on Establishment of the Thalassaemia Center under the Ministry of Health” ▪ “The State program on Thalassaemia control for 2015-2020” adopted by Presidential Decree № 1044 on February 10, 2015 ▪ World Bank IEG ICR review http://documents.worldbank.org/curated/en/135141474940671441/pdf/000180307-20141203061623.pdf ▪ Heydar Aliyev Foundation (The life without Thalassaemia) https://heydar-aliyev-foundation.org/az/content/index/134/Talassemiyas%C4%B1z-h%C9%99yat-namin%C9%99 ▪ Azerbaijan mednet map data http://mednet.az/azmap/maps2.php?id=5-2 ▪ Country Assistance Policy for the Republic of Azerbaijan ▪ Japan’s Official Development Assistance to the Republic of Azerbaijan ▪ PUBLIC PRIVATE PARTNERSHIP Asian Perspectives Recommendations for Azerbaijan http://sam.az/uploads/PDF/SAM%20Review%20PPP.pdf <p>Azerbaijan data (Establishment of the Thalassaemia Center)</p> <p>http://e-qanun.az/</p> <ul style="list-style-type: none"> ▪ JapanRLINK "http://www.az.emb-japan.go.jp/upload/pdf/ODA_October_2015

6.2. List of interviewees

Following is the list of interviewees in the report.

Table 22 List of interviewees for the study in Transport sector

Organization	Interviewees
Azərbaycan Dəmir Yolları Qapalı Səhmdar Cəmiyyəti: ADY)	Javid Gurbanov, Director of ADY
	Hijran Valehov, Deputy Director of ADY
	Toghrul Guliyev, Deputy Head of Investment Department
	Rasul Mammadov, Head of the ADY's Property department
	Azad Huseynov, Director of Institutional Reforms Management
	Ramin Nurulla, Institutional Reforms Advisor
ASAN Service Center	Khosrov Ajdarov
Automobile Road Agency	Hidayat Rustamov Deputy Head of Road operation Department
AZAL	Teymur Gasanov, Director of the Heydar Aliyev International Airport
	Elnur Zulfugarov, Manager of Terminal 1
AZPROMO	Mahmud Aliyev, Marketing Manager
Baku Sea Port	Akbar Karimov, Deputy Director General
	Eugene Seah Ewe Jin, Head of Operations
	Rustam Azimov,
	Elchin A. Hagverdiyev
Baku Transport Agency	Tarlan Safarov, Head of Traffic Management Department
	Orkhan Kazimov, Head of Strategic Planning Department
	Mubariz Abbasov, Adviser to the General Director

Civil Aviation Agency	Hajiaga Hajiyeu,
	Farid Efendiyev,
	Samir Baghirov
Ministry of Transport, Communications and High Technologies	Shahin Ismayilov, Deputy Head of the International Cooperation Department
	Aysel Garibzade, Senior Advisor
	Azer Aliyev, Head of the Transport Policy Department and others
Silkway Ground Handling	Ilgar Alekperov, Executive director
	Teymur Mammadov, First Vice President
	Vugar Zeynalov

Table 23 List of interviewees for the study in Energy sector

Organization	Interviewees
State Agency on Alternative and Renewable Energy Sources	Nazir Ramazanov
	Ismayil Talibov
	Fagan Abdurahmanov
	Jamil Malikov

Table 24 List of interviewees for the study in Environment sector

Organization	Interviewees
EBRD Azerbaijan	Sanjar Osmanov, Senior Banker
Tamiz Shahar	Shakir Safarov, Project Coordinator
	Orkhan Huseynov, Head of Project Management Sector

	Orkhan Huseynov,
Ministry of Economy	Huseyn Guliyev, Head of Division on Cooperation with International Donors Turkan Vusat gizi, Leading Advisor
Ministry of Ecology	Adil Zeynalov, Head of Environmental Protection Department

Table 25 List of interviewees for the study in Healthcare sector

Organization	Interviewees
Thalassaemia Center	Shahin Taghizade Deputy in Economic Affairs Valeh Huseynov, Executive Director
Heydar Aliyev Foundation	Shahin Taghizade, Deputy in Economic Affairs Valeh Huseynov Executive Director Soltan Mammadov
Ministry of Health	Samir Abdullayev, Head of the International Relations Department of the Ministry
Ministry of Labour	Farid Garayev
Prosthetic Orthopedic Rehabilitation Center	Asif Majidov, Director of the Center

Table 26 List of interviewees for the study in international donors

Organization	Interviewees
Delegation of the European Union to the Republic of Azerbaijan	Mr.Rza ZULFUQARZADE, Project Manager
International Finance Corporation	Aliya Azimova, Country Representative for Azerbaijan

Asia Development Bank	Yagut I. Ertenliche, Project Officer, Azerbaijan Resident Mission,
United Nations Development Programme	Alessandro Fracassetti, Deputy Resident Representative
World bank	Gulana Hajjyeva, Senior Environmental Specialist
EBRD Azerbaijan	Sanjar Osmanov, Senior Banker

6.3. Statistics

Following statistics are used in the report.

Table 27 List of statistics and data sources in Transport sector

	Source of Information	Website
1	Azerbaijan Statistical Service	http://www.stat.gov.az
2	Ministry of Transport, Communications and High Technologies	http://www.mincom.gov.az/en/
3	Russian Aviation Insider	http://www.rusaviainsider.com/azerbaijan-cat/
4	The world bank Global research map	http://maps.worldbank.org/p2e/mcmap/map.html?org=ibrd&level=country&code=AZ&title=Azerbaijan

Table 28 List of statistics and data sources in Energy sector

	Source of Information	Website
1	Azerbaijan Statistical Service	http://www.stat.gov.az
2	Ministry of Energy	http://www.minenergy.gov.az/
3	CIS Statistical Committee	http://www.cisstat.com/
4	CIA World Fact book	https://www.cia.gov/library/publications/the-world-factbook/`

Table 29 List of statistics and data sources in Environment sector

	Source of Information	Website
1	Azerbaijan Statistical Service	http://www.stat.gov.az

Table 30 List of statistics and data sources in Healthcare sector

	Source of Information	Website
1	Azerbaijan Statistical Service	http://www.stat.gov.az
2	WHO	http://www.who.int/