

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

**Final Report  
Georgia**

MAY 2019

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

**NOMURA RESEARCH INSTITUTE, LTD.**

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<b>19-008</b>

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## Abbreviations

ADB	Asia Development Bank
ADF	Asian Development Fund
CDP	Corporate Development Programme
CPT	Cable Propelled Transit
DCFTA	Deep and Comprehensive Free Trade Area
EIB	European Investment Bank
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
EWI	East–West Highway
FS	Feasibility Study
FTA	Free Trade Agreement
GCAP	Green City Action Plan
GEL	Georgian Lari
GOGC	Georgia Oil and Gas Corporation
GrCF	Green Cities Framework
GSE	Georgia State Electrosystem
GUWSC	Georgian United Water Supply Company
HIV	Human Immunodeficiency Virus
HPP	Hydro Power plant
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFC	International Financial Corporation
IFI	International Financial Institutions

IPO	Initial Public Offering
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau ("Reconstruction Credit Institute")
LCC	Low Cost Carrier
LEPL	Legal Entity of Public Law
MOU	Memorandum of Understanding
MRDI	Ministry of Regional Development and Infrastructure of Georgia
MW	Megawatt
NACCS	Nippon Automated Cargo and Port Consolidated System
NEEAP	National Energy Efficiency Action Plan
NEXCO	Nippon Expressway Company Limited
NEXI	Nippon Export and Investment Insurance
PCB	polychlorinated biphenyl
PF	Partnership Fund
PPA	Power Purchase Agreement
PPP	Public Private Partnership
SDR	Special Drawing Rights
SWMCG	Solid Waste Management Company of Georgia
SWOT	Strength, Weakness, Opportunities and Threat
TOD	Transit Oriented Development
TSBK	Industrial Development Bank of Turkey
TWh	Terawatt hours
UWSCG	United Water Supply Company of Georgia
WB	World Bank

## 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"> <li>• Urban roads, transportation network improvement</li> </ul>
	Transportation	<ul style="list-style-type: none"> <li>• Port improvement</li> <li>• Airport improvement</li> <li>• Railway improvement</li> </ul>
	Traffic	<ul style="list-style-type: none"> <li>• Traffic congestion measures</li> </ul>
Energy	Power	<ul style="list-style-type: none"> <li>• Renewable energy</li> <li>• Combined cycle power generation</li> <li>• Power transmission and distribution network rehabilitation</li> </ul>
	Regional heat supply	<ul style="list-style-type: none"> <li>• Boiler replacement</li> <li>• Heat supply network rehabilitation</li> </ul>
	Other	<ul style="list-style-type: none"> <li>• Other</li> </ul>
Environment	Sewage	<ul style="list-style-type: none"> <li>• Treatment plants, sewer line rehabilitation</li> </ul>
	Waste treatment	<ul style="list-style-type: none"> <li>• Waste disposal site improvement and restoration</li> <li>• Recycling equipment introduction</li> </ul>
Health care	Medical care	<ul style="list-style-type: none"> <li>• Medical equipment renewal</li> <li>• Advanced medical equipment introduction</li> </ul>
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"> <li>• Public safety measures</li> </ul>

### 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. Desktop/Literature survey

The survey covered the websites of the Ministry of Economy and Sustainable Development of Georgia, the Ministry of Regional Development and Infrastructure of Georgia, Georgian Railway LLC, the Maritime Transport Agency of Georgia and the Anaklia Development Consortium, among other organizations, in regards to Georgia's policies on PPP, rail, air and maritime transport, as well as policy documents, regulations etc. Next, in regard to the energy sector, a review was implemented of the websites of Georgia's national electricity generation system and the Georgian National Energy and Water Supply Regulatory Commission, among other



organizations, as well as policy documents, regulations, etc. In regard to the environment, a review was implemented of the websites of the Georgian Ministry of Environmental Protection and Agriculture and Tbilisi City Hall, as well as policy documents, regulations, etc. Finally, in regard to healthcare and medicine, a review was implemented of the websites of Ministry of Labor, Health and Social Affairs of Georgia and the National Screening Center, as well as policy documents, regulations, etc.

#### 2.1.5. Interviews

As part of this study, interviews were carried out at the Ministry of Economy and Sustainable Development, Ministry of Regional Development and Infrastructure, Georgian Railway LLC, The Maritime Transport Agency of Georgia and the Anaklia Development Consortium, among other organizations, in regards to Georgia's policies on urban development and transportation, as well as at Georgia's national electricity generation system and the Georgian National Energy and Water Supply Regulatory Commission, among other organizations, in regard to the energy sector, at the Georgian Ministry of Environmental Protection and Agriculture and Tbilisi City Hall, among other organizations, in regard to the environmental sector, and at Ministry of Labor, Health and Social Affairs of Georgia ,the National Screening Center, Tbilisi State Medical University First University Clinic and Zhvania Children's Hospital in regard to healthcare and medicine.

#### 2.1.6. Data

In addition to mainly using data from the National Statistics Office of Georgia, statistics and figures were also obtained from relevant ministries and bureaus, as well as donor reports. Individual sources are noted within the tables and diagrams.

### 3. Analysis of Current State and Existing Issues with Development Policy, Laws and Ordinances, and Improvements to Infrastructure

#### 3.1. Priority Areas for Development

As of 2018, the policy document regulating the direction of socioeconomic development within Georgia is the Social-economic Development Strategy of Georgia “Georgia2020”. Immediately after independence Georgia was embroiled in wars in Abkhazia and Southern Ossetia, and embarked on a drastic change of direction towards capitalism in order to deal with the extreme impoverishment of the national economy, resulting in poverty and high unemployment. Drastic economic reforms have resulted in improved statistical figures, but the issues of poverty and high unemployment continue, and “Georgia2020” was put in place to deal with these conditions in 2014.

“Georgia2020” is based on the following three principles.

- The realization of swift and efficient economic growth within the real, manufacturing-based economy (ensuring fast and efficient economic growth driven by development of real (production) sector of the economy, which will resolve economic issues that exist in the country, create jobs and reduce poverty)
- Ensuring the inclusion of diaspora, migrants, ethnic minorities and others in the progress of economic growth (implementation of economic policies that facilitate inclusive economic growth of it envisages universal involvement of the population in the economic development process (including Diaspora, migrants, ethnic minorities and other groups) , prosperity for each member of society through economic growth, their social equality and improvement of the living standards of population)
- Rational use of natural resources, ensuring environmental safety and sustainability and avoiding natural disasters during the process of economic development (Rational use of natural resources, ensuring environmental safety and sustainability and avoiding natural disasters during the process of economic development)

In order to achieve economic growth based on these principles, “Georgia2020” identifies three issues faced by Georgia, and proposes responses to these three issues. Among these responses, those relating to infrastructure development are “understanding the development of infrastructure and potential for transit trade”, and “ensuring accessible, high-quality healthcare and medicine”, indicating the great need for infrastructure development in the logistics and health/medical sectors.

**Table 2 The three issues identified as necessary for the realization of economic growth in Georgia, and proposed responses, as identified in “Georgia2020”**

Three Issues	Proposed Responses
<b>Low level of competitiveness within private sector</b>	<ul style="list-style-type: none"> <li>● Improvements to investment and business environments</li> <li>● Innovation and technology introduction</li> <li>● Facilitation of increased exports</li> <li>● Understanding of infrastructure development and potential for transit trade</li> </ul>
<b>Lack of human capital</b>	<ul style="list-style-type: none"> <li>● Development of labor force to meet needs of labor market</li> <li>● Improvements to social security networks</li> <li>● Ensuring accessible, high-quality healthcare and medicine</li> </ul>
<b>Access to finance</b>	<ul style="list-style-type: none"> <li>● Ensuring liquidity of investment</li> <li>● Organization of financial intermediaries</li> </ul>

### 3.2. PPP-Related Systems

#### 3.2.1. PPP Policy

PPP has been introduced in Georgia in regard to infrastructure improvement projects, but until July 2018 the law on which it was based was the State Procurement Law<sup>1</sup>. As of July 1, 2018, it became regulated by the Law of Georgia on Public Private Partnership<sup>2</sup>, enacted in May 2018.

According to this law, PPP is required to satisfy the following five conditions (Article 4). “PPP” tends to cover a broad definition, but in Georgia projects that are related to public services or public infrastructure, with a duration of five years or longer, and a budget of 5 million lari (approximately 200 million yen) are defined as PPP.

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<sup>1</sup> [http://procurement.gov.ge/files/\\_data/eng/legalacts/Law\\_of\\_Georgia\\_on\\_State\\_Procurement.pdf](http://procurement.gov.ge/files/_data/eng/legalacts/Law_of_Georgia_on_State_Procurement.pdf)

<sup>2</sup> <https://matsne.gov.ge/en/document/download/4193442/0/en/pdf>

- ① The minimum length of the project is determined by ordinance decided by the Georgian government, but the project must be a minimum of five years.
- ② Projects dating prior to July 1, 2020 must have a minimum budget of 5 million Georgian lari. Projects dating from July 1, 2020 onwards will have a separately determined budget.
- ③ Projects delivering a public service, or the construction, maintenance and management, operation or repair of public infrastructure.
- ④ Risk and investments to be borne by both public and private sector investors.
- ⑤ Part or all of the investment in the project must be from the private sector.

There are some additional conditions imposed on projects, depending on the sector. For example, within the energy sector, a viability study by an independent company is required for any project over 100 MW, while the government's approval is required regardless of the scale, project formation is allowed to be done by private sector companies, the government is able to negotiate in secret directly with specific private sector companies, and the processes of public tendering and evaluation can be omitted.

The PPP Act regulates for the establishment of a PPP Agency, under the direct jurisdiction of the Prime Minister, which is responsible for developing proposals, evaluating proposals, supporting the creation of tender documents, supporting the selection process, coordinating between ministries and agencies, creating a project database, and creating standardized documentation, among other tasks (Article 9).

The same act specifies that projects are to be put together by the relevant government agency and the PPP Agency, but according to the regulations in Article 15, it also allows for the proposal of projects by private-sector bodies (Article 12). The PPP Act requires the implementation of a viability study as part of the project formation process (Article 13.6), but when the proposal is led by the private sector, it is necessary for this viability study to be carried out by the private-sector organization (Article 15.3). Furthermore, the selection of businesses to participate in PPP Projects is, based on Chapter IV of the Act, required to be done using public competitive tendering, other than in cases that are related to issues of national security (Article 17.4). In the energy sector, however, projects proposed by private-sector bodies may, as an alternative to public sector tendering, be determined by free contract (direct negotiation) (Article 15.5).

In the PPP Act, in addition to the regulation of government guarantees and support (Chapter VI), availability payment and results-based payment (Article 28.1.a), the guarantee of consumption, consumers and income (Article 28.1.b), the guarantee of a table of charges and the costs of public services (Article 28.1.c), the guarantee

of procurement of specified finance and services based on contract (Article 28.1.d), subsidies for specific costs (Article 28.1.e), the guarantee of transfer of land and licensing (Article 28.1.f), and the award of exclusive rights in relation to construction of PPP-related, designated facilities (Article 28.1.h) are all acknowledged, while a range of formats for the payment of concession fees from the private sector to the government are permitted, including the payment of the whole fee, payment in installments, profit-sharing and payment in form of accounts receivable from sales, among others (Article 28.2).

In this way, Georgia's most recent PPP Act can be said to offer sufficient incentive to draw in private-sector investment, particularly to the energy sector.

At the same time, the Georgian Government is also establishing a Partnership Fund in order to progress with the privatization of government-held corporations (private release of capital). This Partnership Fund is permitted to participate in PPP in place of the government, but it is subject to the following conditions in order to do so.

- The Partnership Fund is required to invest in industries other than the Georgian domestic service sector.
- The Partnership Fund is only available for investment in financially independent projects.

The Partnership Fund may be used for capital investment, or in the financing of senior loans or subordinated debt, regardless of whether they are convertible or not. There is a maximum capital investment, however, and it cannot invest more than the amount invested by private sector capital, or invest in both capital and liabilities. The role of the Partnership Fund is to be a minority medium- to long-term shareholder, and it is possible for the Partnership Fund to exit a project once it is considered to be stable.

Project selection criteria are listed below.

- The Partnership Fund must have sufficient capital capabilities to invest in a project.
- The project proposed for investment must be subject to a market survey or a viability study.
- The Partnership Fund may not invest more than 50% of the total sum required.
- The Partnership Fund is not permitted to exit a project between 3 and 7 years after investment.

As noted above, under the Georgian Government's Public Procurement Act to June 30, 2018, the Georgian Government could not issue a government guarantee in regard to PPP projects, and the Partnership Fund, which was an alternative to this, was restricted to minority capital support. As such, the Georgian PPP scheme was not an attractive one from the perspective of private investors engaged in project financing. On the other hand, the

PPP Act, which came into force on July 1, 2018, allows in Article 28 for availability payments and results-based payment, and also permits financial support and guarantees by the government, with the result that the investment environment has become more favorable for private sector investors than it was previously.

### 3.2.2. Examples of PPP

#### 3.2.2.1. Examples of PPP in Georgia

Typical examples of PPP projects in operation as of December 2018 in Georgia are shown in Table 2. These projects, however, were instigated prior to the enactment of the current PPP Act, and were therefore all developed based on the Public Procurement Act.

The Table clearly shows that many PPP projects are BOO type, in which ownership is not transferred to the government. In terms of sector, the largest proportion are in energy (5 projects), but other projects cover a wide range (water and sewage, communications, airports, ports etc.). At the same time, government support ranges from income supplementation (1 project) and payment guarantees (1 project) through to many projects without any government support.

Table 3 Examples of PPP in Georgia

PPP Project Name	Tender Method	Type	Sector	Start Year	Value (million USD)	Sponsor	Investor	Government Support
<u>Mestiachala 1 &amp; 2</u> <u>HEPPs</u>	NA	NA	Electricity	2017	65	Georgia Renewable Energy Co 65% RP Global Holdings 35%	NA	NA
<u>Gardabani</u> <u>Wastewater</u> <u>Treatment Plant &amp;</u> <u>Water Supply</u> <u>Infrastructure</u> <u>Rehabilitation</u>	NA	ROT (Repairs, Operation, Transfer)	Water and sewage	2017	25	Georgian Global Utilities Limited 100%	EIB 100% (25 million USD)	NA
<u>Shuakhevi 187MW</u> <u>Hydropower plant</u>	Competitive tender	BOO	Electricity	2015	417	Clean Energy Group 40% (66.8 M USD) Tata Enterprise 40% (66.8 M USD) International Financial Corporation 20% (33.4 M USD)	ADB (90M USD) EBRD (90M USD) IFC (70M USD)	Income supplement
<u>Georgia Urban</u> <u>Enerji Ltd.</u>	Direct negotiation	BOT	Electricity	2011	156.5	Anadolu Endustri Holding A.S. (AEH) (45 million USD)	EBRD (48M USD)	NA

PPP Project Name	Tender Method	Type	Sector	Start Year	Value (million USD)	Sponsor	Investor	Government Support
							IFC (40.5M USD) TKSB (23M USD)	
<u>Anadolu Paravani HPP</u>	License awarded	BOO	Electricity	2011	156.5	Anadolu Endustri Holding A.S. (AEH) 41 million USD	EBRD (52M USD) IFC 40.5M USD TSBK (23M USD)	Payment guarantee
<u>Batumi International Airport</u>	Direct negotiation	Lease contract	Airport	2007	28.5	TAV Airport Holding Co. (60%) Urban (30%)	NA	NA
<u>Batumi Seaport</u>	Competitive tender	Lease contract	Port	2006	92	Naftrans (100%)	NA	NA
<u>Tbilisi International Airport</u>	Competitive tender	BROT	Airport	2006	76.5	TAV Airport Holding Co. (30%) Urban (30%)	NA	NA
<u>Khador Hydro Electric Project</u>	NA	BOO	Electricity	2004	27	Sichuan Electric Power Co. (93%)	NA	NA



<b>PPP Project Name</b>	<b>Tender Method</b>	<b>Type</b>	<b>Sector</b>	<b>Start Year</b>	<b>Value (million USD)</b>	<b>Sponsor</b>	<b>Investor</b>	<b>Government Support</b>
<b><u>Telecom Georgia</u></b>	NA	BOO	Communications	1994	0	NA	NA	NA
<b><u>Egrisi</u></b>	NA	BOO	Communications	1993	11.6	Egrisi	NA	NA

Source: <https://pppknowledgegelab.org/countries/georgia>

### 3.2.2.2. Outline of the Partnership Fund

JSC Partnership Fund (PF) was established in 2011 as a government-owned investment fund. At present this fund is rated by Fitch as BB-, the same as Georgia's sovereign credit rating. The Partnership Fund is a holding organization established in order to retain public corporations in Georgia, and currently retains public companies within the transport and energy sectors. The main objective of the Partnership Fund is to promote joint investment in projects from their initial stages.

The Partnership Fund has two functions. The first is asset management, and the second is investment activity. Asset management activities currently take the form of management of the following public companies, which are retained by the Partnership Fund. These public companies had combined sales in 2012 of 750 million USD. Georgian Railway and Georgian Oil and Gas Corporation are the subject of most of the fund's asset management activities.

- Georgian Railway - 100% of shares
- Georgian Oil and Gas Corporation (GOGC) - 100% of shares
- Georgian State Electrosystem - 100% of shares
- Electricity System Commercial Operator - 100% of shares
- JSC Telasi - 24.5% of shares

At the same time, the Partnership Fund has invested a total of 2.5 billion dollars across a range of sectors. These investments are all in projects within Georgia.

The Partnership Fund's objective is to attract and support private investors, and it is active across the energy, agriculture, manufacturing, real estate, tourism, logistics and infrastructure sectors, all of which are areas in which development can be anticipated in the future in Georgia.

The Partnership Fund invests jointly with experienced partners in projects considered commercially viable. In these situations, the Partnership Fund provides long-term capital. Furthermore, while the Partnership Fund both invests in new projects and purchases existing ones, in both cases it does not participate in the business of collecting profit dividends, and rather acts as a sleeping partner. In addition to this, the involvement of the Partnership Fund facilitates the smooth borrowing of senior loans and procurement of funds from international donors.

Projects can be realized in either of the following two ways.

- Private investors may request the involvement of the Partnership Fund in projects deemed commercially viable.
- The Partnership Fund can start up a project based on a provisional viability study, and seek private investors to whom they either hand over the project entirely, or seek partial participation.

Other functions of the Partnership Fund include detailed surveys of projects in regard to their financing, market research, potential for growth, strategies, and management capabilities, among other things.

### 3.3. Potential for Capital Procurement by Financial Sector

#### 3.3.1. Potential for Private-Sector Capital Procurement

Almost all infrastructure projects are subject to capital support from either the national budget or international donors. Georgia has an underdeveloped direct financing market (stocks and corporate bonds), and the main source of capital procurement is indirect financing. Sources of indirect financing are mainly concentrated on the two commercial banks (TBC Bank and Bank of Georgia), which between them finance more than 60% of such projects.

Georgia's weekly repo interest rate<sup>3</sup> rose as high as 12% between 2008 and 2009, during the war with South Ossetia, but by 2014, during the crisis with Ukraine, it had fallen to 4%. Subsequently, since NATO forces implemented exercises in the Baltic states and Georgia in 2016, it has remained at around 7% (Fig. 1). Movements in the repo interest rate are dependent on Georgia's relationship with Russia, and it is considered that the international relationship between Russia and Georgia will continue to be a factor in movement of the financial markets.

At the same time, while the 10-year government bond interest rate rose to around 15% in 2015-2016, it has now fallen gently to around 10% (Fig. 2).

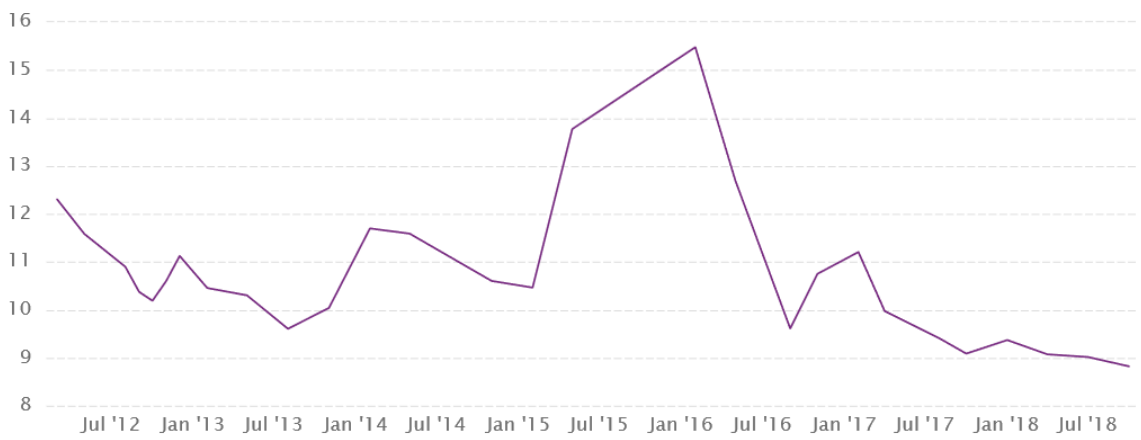
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<sup>3</sup> In repo trading, which involves cash-secured bond lending transactions, the interest differential between deposit interest and bond rental charges. This interest rate is often used to ascertain trends in short-term financial markets.



Source: National Bank of Georgia

**Figure 1 Trends in National Bank of Georgia Weekly Repo Interest**



Source: National Bank of Georgia

**Figure 2 Trends in 10-year government bond interest rate in Georgia**

### 3.3.2. Opportunities for Long-Term Capital Procurement

The long-term capital required for infrastructure projects is partly provided by private investment, but as of 2018 Georgia’s long-term foreign-currency denominated sovereign rating from both Fitch and S&P was BB-<sup>4</sup>, which is not considered competent for investment. Since infrastructure-related investment projects in Georgia with government guarantees do not usually exceed this rating, capital procurement via corporate bond issue is considered impossible from the perspective of interest and other conditions.

**Table 4 Trends in long-term debt rating by rating agencies**

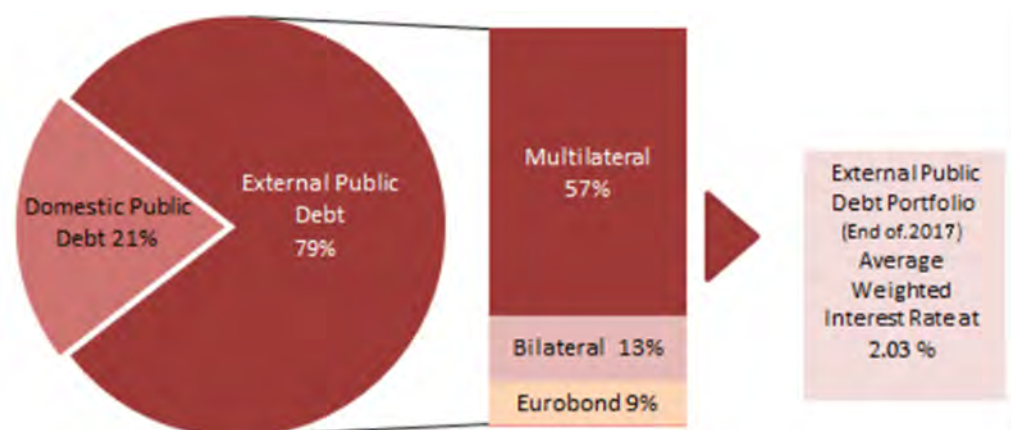
	2012	2013	2014	2015	2016	2017	Source
<b>S&amp;P</b>	BB-	BB-	BB-	BB-	BB-	BB-	<i>Standard &amp; Poor's Ratings Services</i>
<b>FITCH</b>	BB-	BB-	BB-	BB-	BB-	BB-	<i>Fitch Ratings</i>
<b>MOODY'S</b>	Ba3	Ba3	Ba3	Ba3	Ba4	Ba2	<i>Moody's Corporation</i>

Georgia’s sovereign credit risk evaluation by external rating agencies in regard to its national debt, however, has remained relatively stable. This is due to the fact that the country controls the issuing price of public bonds and foreign-currency loans based on consideration of future repayments, and that capital procured through public bonds is distributed based on Georgia’s economic growth and investment priorities. In particular, public bonds have been issued and borrowing implemented with the objective of expenditure on the government’s obligations in regard to concession projects aiming to relieve the bottleneck in infrastructure and other areas of economic development.

As shown in Table 3, capital support by international donors has been proactively utilized in PPP since 2012. The aforementioned capital borrowing from overseas has mostly been obtained from international donors, individual country donors and Euro loans. The weighted average interest of this borrowing is 2.01% annually. As a result, many of the projects requiring long-term capital are supported by international donors.

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<sup>4</sup> <https://countryeconomy.com/ratings/georgia>



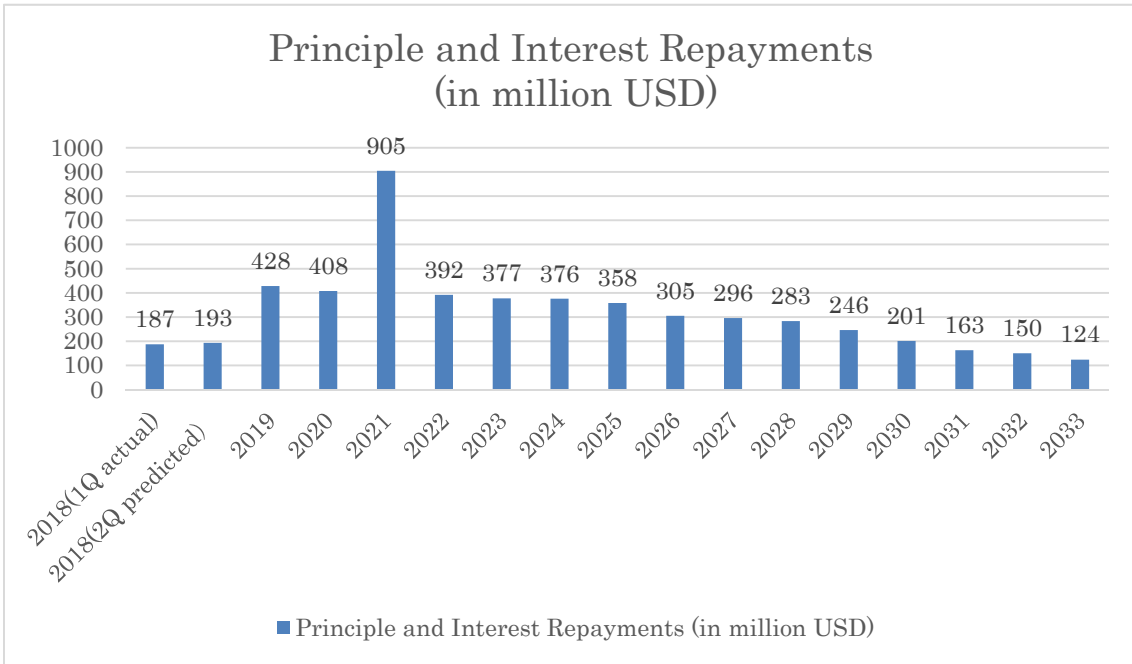
Source: Georgia Ministry of Finance

**Figure 3 State of Georgian Government's Public Bond Issues and Low Average Interest**

### 3.3.3. Restrictions on International Commercial Borrowing

Figure 4 shows a prediction of the trend in principle and interest repayment values for public external debt. Georgia's foreign currency reserves stand at just under 3 billion USD, but the country needs to spend around 400 million USD each year during 2019 and 2020 on principle and interest repayments, and in 2021 this repayment value will rise to 900 million USD. From the perspective of repaying public external debt, it is clear that Georgia is not in a position to begin any new borrowing that requires a repayment schedule beginning prior to 2021.

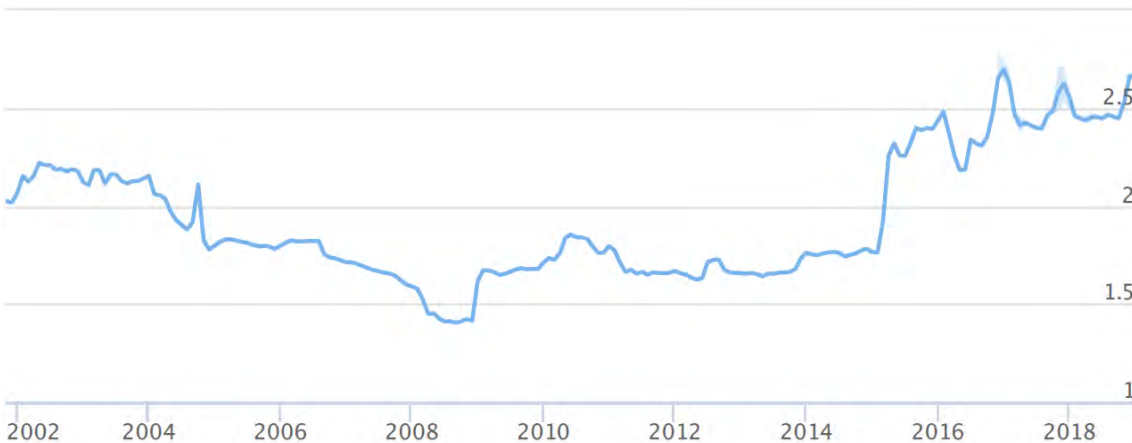
The government has expressed an intention not to engage in projects that require additional external debts, but rather to increase the number of private-sector projects. Yen loan projects are at the discretion not of various government agencies but rather the Ministry of Finance, and the formation of any such project requires a consensus with the Ministry of Finance.



Source: Georgia Ministry of Finance

**Figure 4 Projected Trends in Public External Debt Capital and Interest Repayments (as of June 30, 2018)**

Georgia’s 2015 increase in foreign currency-denominated external debt led to a crash in the value of the lari (Figure 5).



Source: <https://www.exchangerates.org.uk/data/currencies/live-usd-gel-exchange-rate>

**Figure 5 Trend in USD/GEL Exchange Rate**

In 2015, Georgia's public external debt and private external debt were both equivalent to more than 100% of GDP, indicating excessively heavy borrowing. Georgia is aiming for EU membership, and therefore needs to strategically work towards levels of financial security required by the EU. Specifically, these involve (1) financial deficit equivalent to 3% or less of GDP, and (2) a maximum public debt to GDP ratio of 60%. As of 2017, (1) was -3.2%, exceeding the criteria, while in regard to (2), the public bond to GDP ratio was 34.9%, which meets the criteria specified. The Georgian Government is taking a serious stance in regard to capital borrowing from overseas in order to meet the financial discipline imposed by the EU, and conducts careful inspection of all borrowing from international donor organizations.

**Table 5 Macroeconomic Indicators**

	2012	2013	2014	2015	2016	2017	Source
<b>Population (thousands)</b>	3,718	3,717	3,722	3,729	3,726	3,730	<i>Geostat</i>
<b>Unemployment rate</b>	17.20 %	16.90%	14.60%	14.10%	14.00%	13.9%	<i>Geostat</i>
<b>Inflation rate</b>	- 1.40%	2.40%	2.00%	4.90%	1.80%	6.70%	<i>Geostat</i>
<b>GDP (billion lari)</b>	26.2	26.8	29.2	31.8	34	38	<i>Geostat</i>
<b>GDP (billion USD)</b>	15.8	16.1	16.5	14	14.4	15.2	<i>Geostat</i>
<b>GDP actual rate of growth</b>	6.40%	3.30%	4.60%	2.90%	2.80%	5.00%	<i>Geostat</i>
<b>GDP per capita (lari)</b>	3,523	3,600	3,676	3,767	3,865	4,078	<i>Geostat</i>
<b>GDP per capita (USD)</b>	8,002	8,526	9,211	9,602	10,043	10,644	<i>IMF</i>
<b>Savings as % of GNI</b>	16.00 %	17.70%	18.60%	18.30%	19.30%	22.50%	<i>National Bank of Georgia</i>
<b>Imports/exports as % of GDP</b>	95.70 %	101.80%	103.30%	106.00%	102.40%	112.00%	<i>National Bank of Georgia</i>
<b>FDI/GDP</b>	6.50%	6.30%	11.00%	11.80%	11.10%	12.30%	<i>National Bank of Georgia</i>



	2012	2013	2014	2015	2016	2017	Source
<b>Foreign currency reserves (billion USD)</b>	2.9	2.8	2.7	2.5	2.8	3	<i>National Bank of Georgia</i>
<b>External debt as % of GDP</b>	84.60%	83.20%	84.60%	108.70%	110.20%	113.40%	<i>National Bank of Georgia</i>
<b>Public bonds as % of GDP</b>	26.80%	26.00%	25.80%	31.40%	32.50%	34.90%	<i>National Bank of Georgia</i>
<b>Annual variation in actual effective exchange rate</b>	1.90%	-3.90%	1.90%	-4.60%	3.40%	-2.20%	<i>National Bank of Georgia</i>
<b>Financial deficit as % of GDP</b>	-1.70%	-1.90%	-2.70%	-2.50%	-2.80%	-3.20%	<i>National Bank of Georgia</i>
<b>Bank loans (billion lari)</b>	8.7	10.5	13	16	18.9	21.7	<i>National Bank of Georgia</i>
<b>Rate of growth in bank loans</b>	12.90%	20.20%	23.80%	23.50%	18.10%	15.00%	<i>National Bank of Georgia</i>
<b>Commercial bank deposits (billion lari)</b>	7.6	9.7	11.6	14.3	17	19.8	<i>National Bank of Georgia</i>
<b>Rate of growth in commercial bank deposits</b>	13.40%	26.30%	20.20%	23.50%	18.40%	16.40%	<i>National Bank of Georgia</i>
<b>Commercial bank deposits as % of GDP</b>	54.90%	64.30%	70.70%	79.20%	88.60%	90.90%	<i>National Bank of Georgia</i>
<b>% of dollar assets in banking sector</b>	64.10%	59.90%	60.20%	69.50%	71.40%	65.60%	<i>National Bank of Georgia</i>
<b>% of dollars in balance of loans</b>	67.60%	62.50%	60.80%	64.60%	65.40%	58.10%	<i>National Bank of Georgia</i>
<b>Monetary policy rate</b>	5.25%	3.75%	4.00%	8.00%	6.50%	7.25%	<i>National Bank of Georgia</i>

	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<i>Source</i>
<b>Loan interest (lari)</b>	21.70 %	18.90%	17.50%	19.40%	18.20%	16.80%	<i>National Bank of Georgia</i>
<b>Loan interest (foreign currency)</b>	14.60 %	11.70%	10.50%	10.30%	8.70%	7.90%	<i>National Bank of Georgia</i>

Source: National Bank of Georgia

### 3.4. State of Donor Activities

The following is a summary of the activities of the main aid organizations in infrastructure development.

#### 3.4.1. European Bank of Reconstruction and Development: EBRD

##### 3.4.1.1. Priority Areas

The EBRD is mainly involved in cooperation to strengthen the economic/financial sectors. It operates by setting criteria and obligations for innovation, improved added value and Deep and Comprehensive Free Trade Areas (DCFTA), supporting improved competitiveness within the private sector. It also supports the development of financial intermediaries, local currency and capital markets, in order to facilitate the procurement of capital by the private sector from domestic financial markets.

The EBRD also focuses on capital support via PPP, and is active in assisting Georgia in using its geographical advantage of being between the South Caucasus, Central Asia and Europe. In regard to this point, it is supporting Georgia's potential for economic growth as a hub nation, by working towards infrastructure modernization and links with neighboring areas (improvement of logistics) leading to market growth.

Thirdly, the EBRD is supporting the promotion of reusable energy within Georgia. In addition to the development of hydroelectricity and wind- and solar-powered generation, it is supporting the construction of distribution lines that can carry generated electric power to regional markets. It is also supporting the Georgian government in its execution of a National Energy Efficiency Action Plan (NEEAP) in order to respond to the country's excessive consumption of energy.

##### 3.4.1.2. Main Projects

The EBRD's main projects in Georgia are listed below.

**Table 6 Outline of Recent Major EBRD Projects**

<b>Sector</b>	<b>Program</b>	<b>Year</b>	<b>Outline</b>	<b>Budget (million USD)</b>
<b>Energy</b>	RSF - TBC Bank - Svaneti	2018	Jointly procured funding with TBC Bank of 1.4 million dollars in senior loans towards the construction and	20

<b>Sector</b>	<b>Program</b>	<b>Year</b>	<b>Outline</b>	<b>Budget (million USD)</b>
	Hydroelectric Generation Project		operation of the 13.7 MW Nakra, Khelra and Ipari hydroelectric generation plants in the Svaneti region, using a risk sharing facility.	
	Kheledula Hydroelectric Generation Project	2018	Funding of Kheledula Energy LLC in order to construct the Kheledula River Inflow-Type Hydroelectric Generation Plant in Racha-Lechkhumi and Kvemo Svaneti regions (51 MW)	88.7
	Nenskra Hydroelectric Generation Project	2018	Funding of JSC Nenskra Hydro in northwest Georgia, to construct a total of 280 MW hydroelectricity generation in the Nenskra and Nakra river area of Svaneti region.	214
<b>Transportation</b>	GrCF – Improvements to the Batumi bus project	2018	A technical cooperation program aimed at the Batumi Travel Bureau, with the purposes of improving the company’s management and financial results through implementing a Corporate Development Program and a Green Cities Action Plan, and improving user awareness.	5.5

Source: EBRD

### 3.4.2. World Bank (WB)

#### 3.4.2.1. Priority Areas

The World Bank Group has been a major development partner with Georgia since 1992, being involved in investment and improvement agendas in almost all sectors. In 2014, Georgia completed the International Development Association (IDA) program, and became eligible only for support from the International Bank for Reconstruction and Development (IBRD). Since 1992, the country has received funding totaling 28 billion USD for a total of 77 projects.

At present, financing totaling 699 million USD is committed to 11 programs. Of this, however, 344 million USD has not been realized. Around 60% of the commitment is aimed at the construction of an east-west expressway and connecting roads, while 18% is for urban development. The remaining 20% is directed to energy, land use management, irrigation, ecosystem innovation and other projects. In addition, 17.9 million USD is committed to five active trust funds, but only 41% of this financing has been realized.

#### 3.4.2.2. Main Projects

The World Bank’s main projects in Georgia are listed below.

**Table 7 Outline of Recent Major WB Projects**

<b>Sector</b>	<b>Program</b>	<b>Year</b>	<b>Outline</b>	<b>Budget (million USD)</b>
<b>Logistics and transportation</b>	Additional funding for east-west expressway corridor improvement project	2017	The east-west expressway corridor improvement project is intended to (1) reduce the travel costs of users on the roads traversing the improvement area, and (2) improve the maintainability of roads, as well as environmental management and the management of road networks by the Ministry of Economy and Sustainable Development, with the aim of improving logistics services.	20

<b>Sector</b>	<b>Program</b>	<b>Year</b>	<b>Outline</b>	<b>Budget (million USD)</b>
	Secondary roads assessment project	2017	The purpose of the Secondary Roads Assessment Project is to improve social services and market access for road users, and improve management of the secondary roads network.	40
<b>Private Sector</b>	Improvement of Private Sector Competitiveness (DPO2)	2017	Improve second-generation business environment, create criteria for deepening and diversification of the financial sector, and improve the capacity of private corporations in innovation and promotion of exports.	50
<b>Regional Development</b>	Additional funding for secondary regional development projects	2017	Supporting the development of the tourism industry to support the regional economy of the Imereti region through infrastructure improvements and development of capacity within agencies. In particular, completion of activities already underway, and further improvements to tourism infrastructure in Imereti with a view to developing cultural heritage tourism.	9

Source: World Bank

### 3.4.3. International Finance Corporation (IFC)

#### 3.4.3.1. Priority Areas

Georgia joined the IFC in 1995, and as of December 31, 2016 was engaged in 1.64 billion dollars of long-term financing. Of this, 774 million USD was in use as finance for 59 projects. Target areas include financial services, agriculture, manufacturing and infrastructure. Furthermore, the IFC is supporting capital through a trade financing program worth in excess of 331 million USD.

#### 3.4.3.2. Main Projects

The IFC is part of the World Bank Group, and is supporting improved access to financing for small and medium enterprises, as well as increased trade and competitiveness to achieve sustainable growth led by the private sector, as part of the World Bank Group's Country Partnership Strategy with Georgia. Furthermore, it contributes to the promotion of the utilization of reusable energy, improvements in productivity of both agriculture and the processing of agricultural produce, improvements to food security and the promotion of PPP.

**Table 8 Outline of Recent Major IFC Projects**

<b>Sector</b>	<b>Program</b>	<b>Year</b>	<b>Outline</b>	<b>Budget (million USD)</b>
<b>Agriculture</b>	Agricultural business standardization advisory program in Eastern Europe and Central Asia	2013	Support for local companies with the aim of ensuring the penetration of food security standards throughout the entire agricultural value chain. In addition, support for local agricultural businesses in understanding the quality required for regional markets and export, in order to help Georgia's agricultural businesses reach their maximum potential. This program is supported by the Australian Government.	n/a
<b>Use of resources</b>	Program for efficient use of resources in Europe and Central Asia	2010	Rollout of technology to improve efficiency in use of resources and best practice in regard to such technology, improvements in actual practice in agriculture, changes in awareness among policy decision-makers and financial organizations, etc. This program is supported by the Australian Government.	n/a

Source: IFC

### 3.4.4. Asian Development Bank (ADB)

#### 3.4.4.1. Priority Areas

The ADB's priorities in Georgia are inclusive and sustainable economic growth, accelerated poverty reduction, and improvements to regional connectedness. Priority sectors include transportation and logistics, water and sewerage, energy, reforms to public works, and financing.

#### 3.4.4.2. Main Projects

The ADB's main projects in Georgia are listed below.

**Table 9 Outline of Recent Major ADB Projects**

<b>Sector</b>	<b>Program</b>	<b>Year</b>	<b>Outline</b>	<b>Budget (million USD)</b>
<b>Water and sewerage</b>	Water and sewerage service improvement project	2018	The project aims to minimize operating inefficiencies and maximize asset efficiency in the United Water Supply Company of Georgia (UWSCG). It involves the introduction of IT systems, the restructuring of organizations, and improvements to organizational operation and capacity.	0.75
<b>Transportation and logistics</b>	East-west expressway corridor (Khevi-Ubisa) improvement project	2018	Improvements and maintenance of the Khevi-Ubisa section, and improvements to traffic safety. In addition, work in response to climate change to improve the sustainability of the Georgian road network (improved disaster prevention).	300
	North-south road corridor (Kvesheti-Kobi) preparation project	2018	Improvements to the Kvesheti-Kobi road, which is part of the north-south corridor, and improvements to the capacity of highways departments and technical universities in regard to large-scale bridges and tunnels.	0.75
<b>Energy</b>	Improvements to operation of national electric systems companies and reforms to electricity markets	2018	Improvements to corporate governance and financial management capacity in Georgia State Electrosystem (GSE), with the aim of improved financial transparency and debt sustainability, as well as improvements to the electricity market through supporting independent market participants through a policy criteria loan.	0.7

Source: ADB



### 3.4.5. European Union (EU)

#### 3.4.5.1. Priority Areas

The EU has continued to support Georgia with 100 million euros per year. Its focus areas are governance, education, water and sewerage, energy, human rights, and security.

The EU prioritizes sectors including justice, freedom, security, human rights, democratization, civilian society, conflict resolution, economics/trade and public finance management, infrastructure, the environment and regional development, education, healthcare and medicine, and social development.

#### 3.4.5.2. Main Projects

The EU's main projects in Georgia are listed below.

**Table 10 Outline of Recent Major EU-supported Projects**

<b>Sector</b>	<b>Program</b>	<b>Year</b>	<b>Outline</b>	<b>Budget (million euros)</b>
<b>Transportation and logistics</b>	East-west expressway corridor (Samtredia-Grigoleti-Kobuleti) section <sup>5</sup>	2016	Support for the restoration of a section of road approximately 68 km long, starting in Zestapori (Autonomous Republic of Adjara), the westernmost section of the east-west expressway corridor.	20
<b>Water and sewerage</b>	Modernization support and technical cooperation project for water and sewerage facilities	2010	Support for investment projects in Georgia's water and sewerage area. Aims to solve issues related to improved access to safe water and environmental protection.	4

Source: Delegation of the European Union to Georgia

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<sup>5</sup> [https://ceas.europa.eu/delegations/japan/6948/ge-04-georgia-east-west-highway-samtredia-grigoleti-kobuleti-section\\_ja](https://ceas.europa.eu/delegations/japan/6948/ge-04-georgia-east-west-highway-samtredia-grigoleti-kobuleti-section_ja)

## 4. Current State of Target Sectors and Future Plans/Sector Issues

### 4.1. Urban Development/Transportation/Logistics

#### 4.1.1. Current state of Infrastructure Improvements

##### 4.1.1.1. Policies Related to Transportation

Policies related to transportation are not detailed on ministry websites, and there is no indication that the Georgian Government has published its policies in an integrated way. Georgia's transportation policies have been published only by international donors such as ADB and WB to date, indicating a tendency to rely on foreign agencies for policy aspects. One of these, the Transport Corridor Europe-Caucasus-Asia (TRACECA), a transportation network between Europe and Asia, is led by an international inter-governmental committee, which has published a Country Report on Infrastructure and Finance Georgia<sup>6</sup>. This document gives the following points as the Georgian Government's priority policies in the area of transportation.

- Development of the country's transportation infrastructure in order to further meet the needs of citizens and industry.
- Reduction in the number and severity of traffic accidents, in order to ensure transportation safety.
- Minimization of the negative impact of transportation on the environment.
- Rules to promote fair competition and improvement in the conditions in which transportation services are supplied.
- Strengthening of competitiveness in logistics business across international corridors crossing Georgia, in order to promote the export of logistics services.
- Improved accessibility, in order to provide a swifter and cheaper transportation connectivity service.

Many of these issues are the same as those listed by other countries, but the improvement of international corridors and the logistics industry that uses them is a particular feature. It appears that Georgia has adopted China's "Belt and Road" initiative in its policies, and is now clarifying its policies aiming to strengthen the industries that operate on this logistics corridor.

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<sup>6</sup> [http://www.traceca-org.org/fileadmin/fm-dam/Investment\\_Forum/101208\\_GEO%20country%20report.pdf](http://www.traceca-org.org/fileadmin/fm-dam/Investment_Forum/101208_GEO%20country%20report.pdf)

#### 4.1.1.2. Roads

The road network comprises 1,474 km of main or international expressways, and approximately 18,821 km of secondary or regional roads. Approximately 19,123 km of road is surfaced. The length of road maintained in good condition increased from 34% in 2004 to 84% in 2011. It is anticipated that road maintenance could be further improved by the operation of a road asset management system. At present, approximately 1,100 km of international expressway and secondary roads are earmarked for improvements<sup>7</sup>.



Figure 6 Road Infrastructure Project Map<sup>8</sup>

#### 4.1.1.3. Railways

293 km of the 1,612 km of rail network is dual-track, and 100% is electrified (Georgian Railway 2012). Almost all the network (1,575 km) is broad gauge, to the Russian standard of 1,520 mm, with only 37 km being standard gauge or narrow gauge (1,435 mm/900 mm). Approximately 7,000 units of rolling stock require modernization.

Most of the network carries passenger trains regulated at 100 km/h and freight trains regulated at 80 km/h, but on the east-west corridor trains are only able to travel at 33 km/h. This is due to the fact that approximately 80% of the rail network runs through the mountains, and has to cross narrow valleys. Furthermore, the majority of tunnels and bridges were constructed over 100 years ago, and require upgrading.

<sup>7</sup> <https://sites.google.com/site/countryofgeorgia/national-infrastructure>

<sup>8</sup> <https://sites.google.com/site/countryofgeorgia/national-infrastructure>

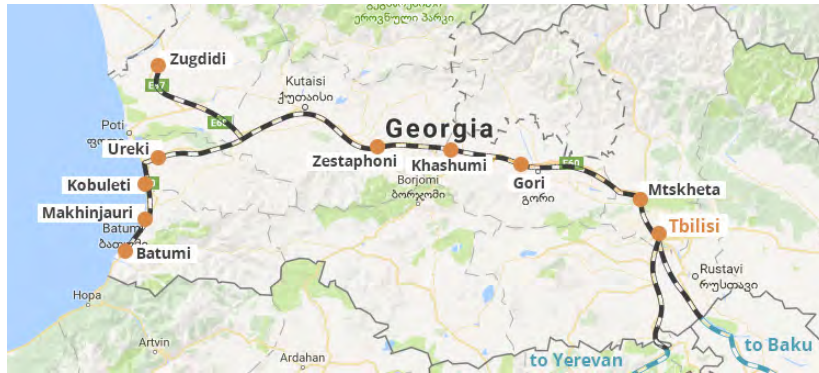


Figure 7 Railway Map of Georgia<sup>9</sup>

#### 4.1.1.4. Ports

Georgia currently has four ports, which in 2011 handled approximately 22 million tons (300,000 TEUs) of freight. 7.2 million tons was handled through Poti, 6.8 million through Batumi, 3.4 million through Kulevi and 4 million through Supsa. This can be calculated as approximately 340 ships arriving into the ports each month. A new port is currently being constructed at Anaklia, which has deep waters, and once this has been constructed the existing ones will be closed, or have their container handling function discontinued.



Figure 8 Port Map of Georgia<sup>10</sup>

<sup>9</sup> <https://www.advantour.com/georgia/georgia-railways.htm>

<sup>10</sup> <https://www.flickr.com/photos/zoienvironment/7793758310/in/photostream/>

#### 4.1.1.5. Airports

Georgia has 20 private-sector airports, of which Tbilisi, Batumi and Kutaisi are international airports.



Figure 9 Airport Map of Georgia<sup>11</sup>

The number of passengers using the airports rose from approximately 2.8 million in 2016 to over 4 million in 2017, with a steep annual increase of 43%. An increase in tourists to Georgia is the reason for this growth.



Figure 10 Trends in number of air passengers visiting Georgia<sup>12</sup>

<sup>11</sup> <http://www.aircraft-charter-world.com/airports/europe/georgia.htm>

<sup>12</sup> <http://www.gcaa.ge/eng/>

The number of people entering Georgia exceeded 7.5 million in 2017, with the largest number (1.71 million) being Armenian, the second largest being from Uzbekistan (1.69 million), the third largest being from Russia (1.39 million) and the fourth largest being from Turkey (1.25 million). This indicates a strong demand for tourism from visitors in neighboring countries. The Georgian Government's tourism policy appears to be effective, while the culture, with its proximity to Europe, and the accessible business environment, also sustain demand for air travel from around the world.

#### 4.1.2. Infrastructure Improvement Agencies and Staff Organizations

Two ministries are engaged in transportation policy. The Ministry of Regional Development and Infrastructure is responsible for roads, while the Ministry of Economy and Sustainable Development is responsible for railways, ports and airports (see Table 11). Regulation is implemented in each sector by the relevant bureaus under the direction of the Ministries, although the railways are under the joint jurisdiction of the operator Georgian Railway LLC and the Ministry of Economy and Sustainable Development. PPP in the private sector is progressing in the areas of infrastructure improvement and maintenance, with the main Poti Port and two international airports attracting investment by foreign corporations. The other ports and airports, however, and most of the roads are maintained and operated by the government.



**Table 12 Ministries and Agencies Responsible for Transportation Infrastructure, and the Roles of Operators**

	Roads	Services		Maritime Transport	Aviation
		Road	Rail		
<b>Policy</b>	Not assigned				
<b>Strategic planning</b>	Ministry of Regional Development and Infrastructure	Ministry of Economy and Sustainable Development			
<b>Regulator<sup>a</sup></b>	Roads Department	Commercial: Land Transport Agency  Motor traffic: Ministry of Internal Affairs <sup>b</sup>	Georgian Railway	Maritime Transport Agency	Georgian Civil Aviation Agency
<b>Infrastructure supply and management</b>	Construction and maintenance by private sector	Bus terminals: Municipalities and the private sector  Freight logistics centers: Private sector	Construction and maintenance by private sector	Ports: Poti—Maersk Georgia  Batumi—Batumi Industrial Holdings  Supsa—British Petroleum  Kulevi—State Oil Company of Azerbaijan Republic	Airports: Kutaisi International and regional airports—United Airports of Georgia  Tbilisi International and Batumi International—TAV Airport Holdings
<b>Services</b>	Not applicable	Freight: Private sector  Intercity and international passenger: Private sector	Georgian Railway	Shipping: Private sector  Freight forwarding: Private sector	Airlines: Private sector

Source: ADB “Georgia Transport Sector Assessment Strategy and Road Map”2014

- Ministry of Regional Development and Infrastructure

Within the Ministry of Regional Development and Infrastructure, the First Deputy Minister is responsible for environment and water resource development, while policies that straddle multiple agencies, such as economic development and human resources training, are under the jurisdiction of other deputy ministers. Separate to these, the Ministry also manages a department relating to roads (see Figure 11).



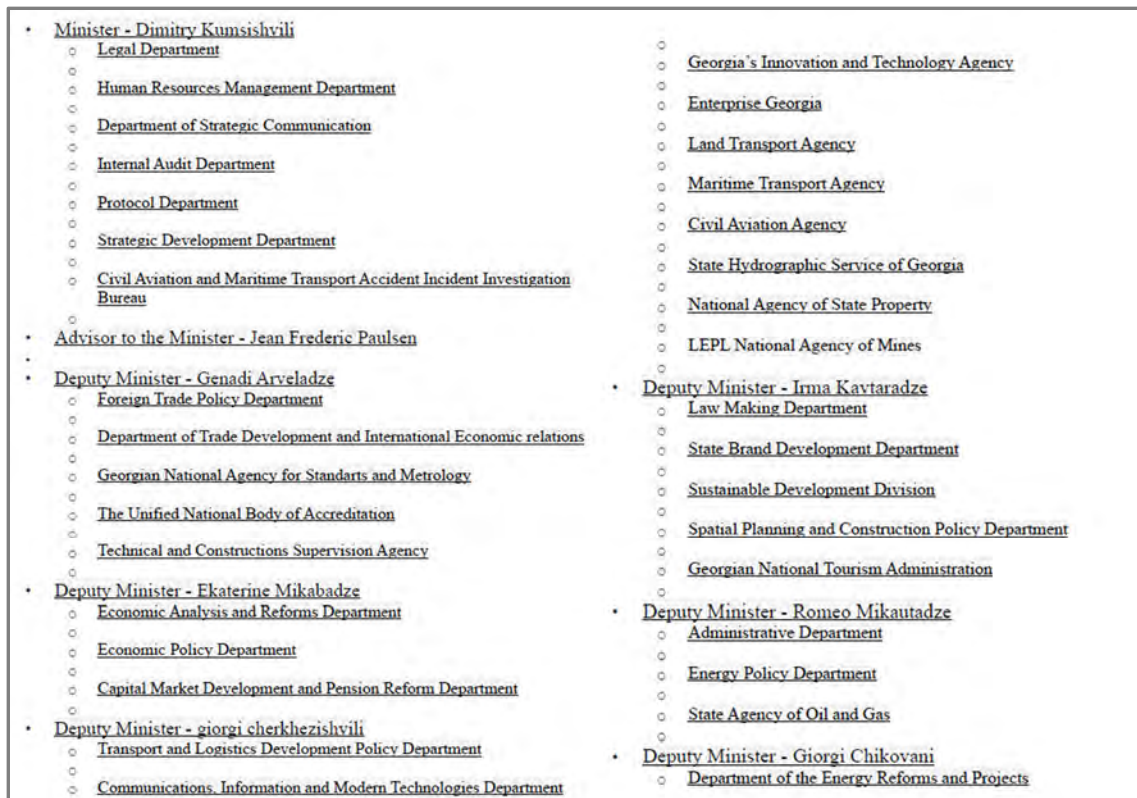
Source: <http://www.mrdi.gov.ge/en/structure>

**Figure 11 Structure of the Ministry of Regional Development and Infrastructure**



- Ministry of Economy and Sustainable Development

The Ministry of Economy and Sustainable Development is a huge organization formed from the integration of multiple ministries and agencies, and has deputy ministers responsible for trade, environmental policy, energy, law and other things, as well as a deputy minister for transport, communication and innovation. Multiple organizations exist under the jurisdiction of this minister, responsible for policy proposals and supervision of railways, air transport and ports (see Figure 12)

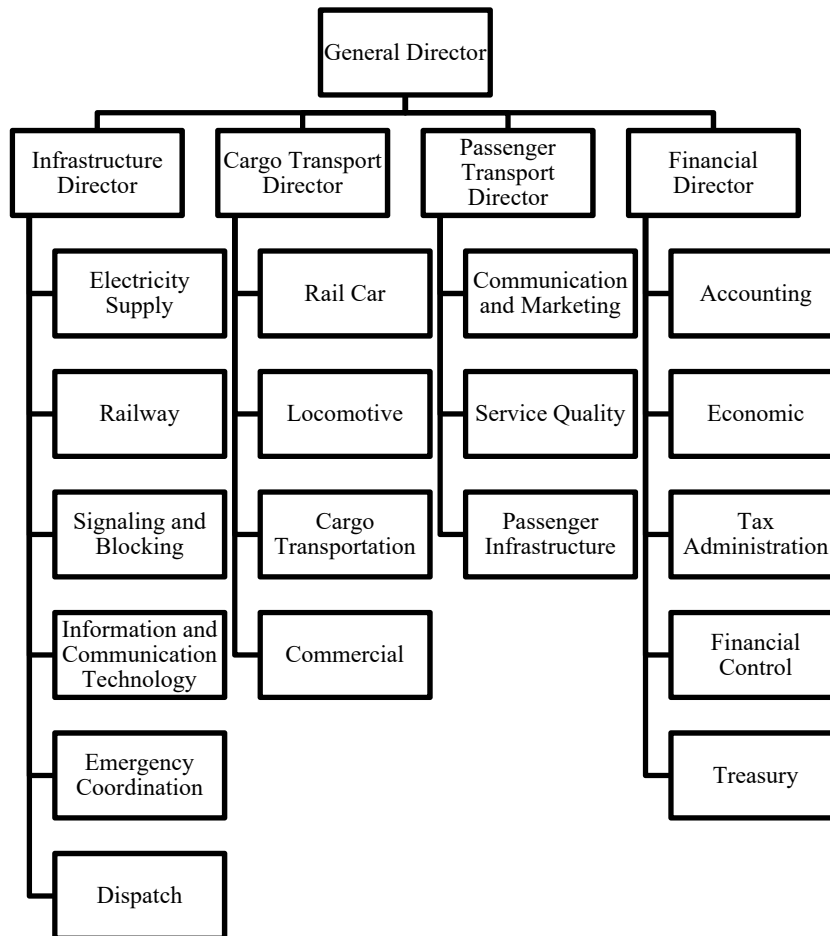


Source: <http://www.economy.ge/?page=structure>

**Figure 12 Structure of the Ministry of Economy and Sustainable Development**

- Georgian Railway LLC

Georgian Railway LLC is a public corporation that implements the operation and maintenance of domestic railway lines. A selloff of 25% of its shares was planned for 2012, but was unsuccessful, and the company remains in state ownership. The organization, as shown in Fig. 13, is divided into four departments, responsible for Infrastructure, Cargo Transport, Passenger Transport and Finance (administration)

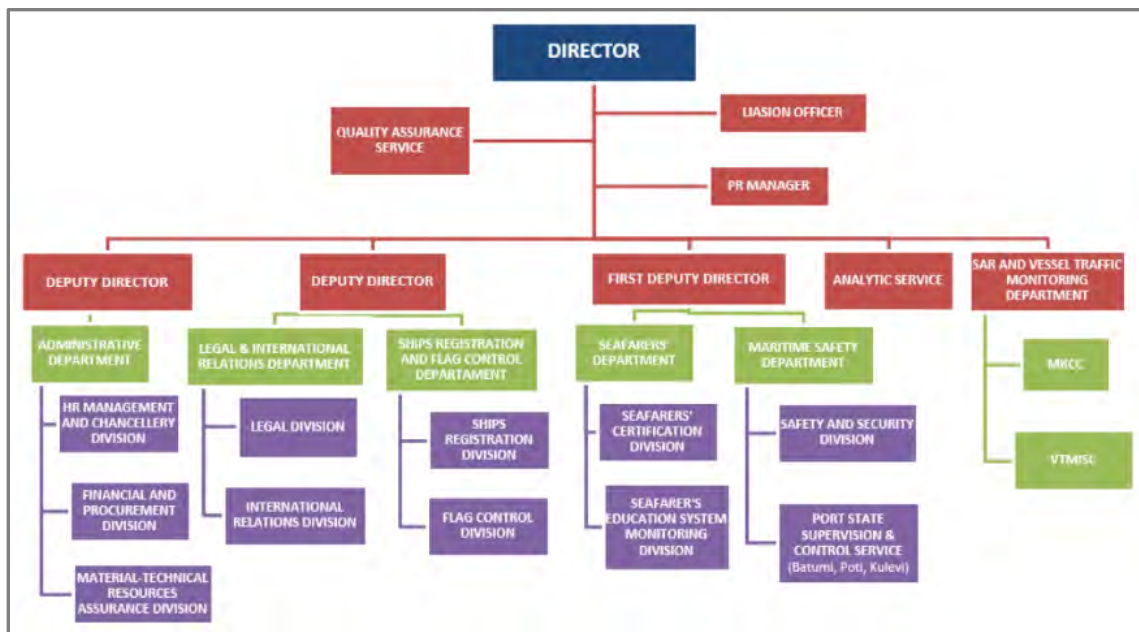


**Figure 13 Structure of Georgian Railway LLC**

- Maritime Transport Agency

There are four existing ports at Poti, Batumi, Kulevi and Supsa, the operation of which is handed over to individual private-sector companies, but use of the ports by shipping companies and supervision of marine transportation remains the responsibility of the Maritime Transport Agency.

The Agency organization is divided into departments responsible for collection of port fees, maritime and port safety management, ship transportation management, import/export administration, and legal services, among other things.



Source: [http://mta.gov.ge/index.php?m=75&parent\\_id=74](http://mta.gov.ge/index.php?m=75&parent_id=74)

Figure 14 Structure of the Maritime Transport Agency

- Civil Aviation Agency

Policy in the air transportation sector is defined by a strategy integrated with the transportation divisions of the Ministry of Economy and Sustainable Development, but regulation is implemented by the Civil Aviation Agency. The ownership and operation of all airport facilities in Georgia has been in the hands of United Airports of Georgia, which is 100% nationally owned, since April 2011. The two main international airports (Tbilisi and Batumi) are outsourced, with Turkey's TAV Airports Holdings having concessions in both since October 2005. The initial agreement was for the construction of new terminals and improvements to runways, with the holder to procure capital, implement construction, and provide ground handling, shops and catering services for 11.5 years. The concession has been extended twice, and currently is contracted until November 2037.

#### 4.1.3. Cross-Regional Issues

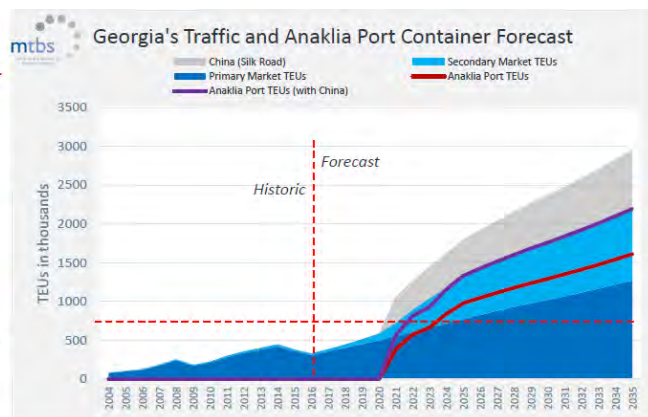
Georgia is historically at a key point in the Silk Road, and nowadays is in a key position linking logistics between Europe and Asia. Its geographical conditions make it significant in the globalization of the world economy, and it is understood that appropriate and effective functioning of its transportation sector is key to Georgia's economic development. In order to achieve this, one of the Georgian Government's priorities is integration with the trans-European transportation network, through the improved function of transportation, the modernization of transportation infrastructure based on international criteria, and coordination of domestic and international laws. The Georgian Government states that it is prioritizing infrastructure projects that promote logistics into Georgia, and increase the effectiveness of the transportation system<sup>13</sup>.

At present, the quantity of logistics passing through Georgia is small, but with the opening of the new port at Anaklia, the expressway connecting to Azerbaijan, and the completion of the new rail network, it is anticipated that the potential for such logistics will increase significantly. At present, for example, the throughput to Georgia's ports is 330,000 TEU (as of 2016), much of which is received at Poti, on the Black Sea coast. Once the new port opens at Anaklia, the Georgian Economic Ministry has predicted that anticipated intermediate trade resulting from the "One Belt One Road" policy will increase by 4.5% until 2030, reaching 550,000 TEU in 2021, 770,000 TEU in 2025 and 1 million TEU in 2030 (Figure 15).

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<sup>13</sup> From the "Vision" outlined on the website of the Ministry of Economy and Sustainable Development <http://www.economy.ge/?page=ecopolitic&s=20&lang=en>

- 2016 Georgian Ports TEU throughput: 329,000 TEU
- 2017 9m Georgian Ports TEU throughput: 283,319 TEU, **+ 17.4% p-o-p.**
- Short term container growth rate between **10% and 14%** until 2020
- Georgian container ports will reach full capacity already in 2022
- Long term container growth rate stable at **4.5%** per annum (after 2030)
- Anaklia to hold **100% of direct calls** and 40% of feeder calls
- By 2035 potential throughput by Georgian ports to reach **2.17m TEUs**
- Anaklia throughput to reach **1.61m TEUs** in 2035
- With cargo from China, Anaklia throughput to reach **2.2m TEUs** in 2035



TEU Volumes in Thousands TEU	2014	2015	2016	2017P	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	CAGR 2015 - 2020	CAGR 2020 - 2025	CAGR 2025 - 2030	CAGR 2030 - 2035
Primary Market TEU Forecast	422	359	311	358	402	450	498	551	606	662	718	773	1,021	1,272	6.75%	9.21%	5.71%	4.50%
Secondary Market TEU Forecast	25	21	18	26	44	64	88	168	285	375	457	547	722	900	33.41%	43.99%	5.72%	4.50%
China (Silk Road)								340	374	408	443	477	629	784		8.83%*	7.16%	5.66%
Total Georgia Base Case TEU Potential	447	380	329	385	446	514	586	719	891	1,037	1,175	1,320	1,743	2,172	9.06%	17.63%	5.71%	4.50%
Total Georgia Base Case TEU Potential (With China)								1,059	1,265	1,445	1,618	1,797	2,372	2,956		14.13%*	23.42%	22.42%
Anaklia Port TEU Forecast								384	573	667	840	979	1,292	1,611		26.37%*	5.71%	4.50%
Anaklia Port TEU Forecast (with China)								566	814	930	1,157	1,333	1,760	2,193		23.88%*	23.42%	22.42%

\* 2021-2025

Source: Ministry of Economy and Sustainable Development of Georgia, MTBS

**Figure 15 Forecast of Demand for New Port at Anaklia**

#### 4.1.4. Issues in Progressing Infrastructure Improvement

Georgia has accumulated as much as 115% of GDP in external debt (including private-sector) on average over the past four years<sup>14</sup>, and has a policy of reducing the number of projects that increase external debt and increasing private-sector investment (as stated in hearings with multiple ministries and agencies). Furthermore, Article 3 of the Law of Georgia on Public Debt states that the country will limit its external public debt<sup>15</sup>. For this reason, it is proactively seeking projects to which a private sector-led PPP model can be applied in the transportation sector. Among other examples, Nippon Export and Investment Insurance (NEXI) has entered into an MOU with the Georgian Government, and the private investment framework is gradually coming together.

The Georgia-Azerbaijan-Kazakhstan route is subject to delays in the completion of the port in Kazakhstan, but once these are overcome, it will facilitate the opening of the Trans-Caspian Network, linking Europe and China from Qorghas in Kazakhstan across the Caspian Sea and across central Asia and the Caucasus, connecting to Anaklia Port in Georgia. In two years' time, once Anaklia Port in Georgia and the work on the Kazakh side are completed, this will become much more realistic.

<sup>14</sup> <http://georgiatoday.ge/news/11014/Georgia%27s-External-Debt-Amounts-%2417.5-Billion>

<sup>15</sup> <https://matsne.gov.ge/ru/document/download/32452/11/en/pdf>

The new port at Anaklia is being financed by four donors, including the ADB and WB, each of which have contributed 100 million. Furthermore, China is showing willingness to contribute additional financing to the consortium. In addition, Korea has created a joint venture with the Georgian Government fund and is beginning to invest in electric generation projects. Japan has shown some interest in first and second phase financing of the new port at Anaklia (according to interviews held with ministries and agencies).

The following table is a summary of the level of government priorities, specific issues and their significance

**Table 13 Issues within the Transportation, Logistics and Urban Development Sectors (identified through visits to agencies)**

Sector	Level of priority	Specific issues, themes	Significance of issue
<b>Ports</b>	High	<ul style="list-style-type: none"> <li>• The new port at Anaklia is the Georgian Government’s highest priority project. The first phase is underway, and Phase 2 (the terminal) is the next topic for consideration.</li> <li>• The Maritime Transport Agency, which is responsible for the management and operation of the new port (as well as other ports) hopes to upgrade the online IT system developed for port users, and build a system that can track all freight using the port. The project name is “Port Single Window Concept”.</li> </ul>	<p>Great</p> <ul style="list-style-type: none"> <li>• The new port at Anaklia is a flagship project designed to grow the logistics industry within Georgia. It is on the route that will become part of the backbone of the “One Belt One Road” policy.</li> <li>• The Single Window is the IT infrastructure that will ensure the smooth running of logistics, and its introduction is necessary.</li> </ul>
<b>Airports</b>	High	<ul style="list-style-type: none"> <li>• Tbilisi and Batumi Airports are run under concession by Turkey’s TAV, but other airports are operated from the state budget.</li> <li>• Kutaisi Airport is expanding its passenger numbers mostly from LCC flights, but needs to construct a freight terminal next. Situated in the center of the country, on the crossroads between North/South/East/West, there is strong demand for freight logistics services.</li> <li>• Furthermore, Batumi Airport and the domestic airports in mountainous areas urgently need to expand their terminals in order to cater for international passengers .</li> </ul>	<p>Great</p> <ul style="list-style-type: none"> <li>• Tourism is becoming a core industry for Georgia, and the country wants to expand this to other regions. There is currently a boom among international visitors visiting regional ski resorts, and improvements to airports are required.</li> </ul>

Sector	Level of priority	Specific issues, themes	Significance of issue
<b>Railways</b>	Low	<ul style="list-style-type: none"> <li>• 1) Upgrades to Baku-Tbilisi rail freight transportation route and 2) Georgian Railway LLC modernization project are already underway, and both expected to be completed in 2019.</li> <li>• The next project is under consideration but nothing has yet been specified.</li> </ul>	<p>Normal</p> <ul style="list-style-type: none"> <li>• The extent to which the current project shortens traveling time between major cities will be key in promoting the country as a tourist destination.</li> </ul>
<b>Urban transportation</b>	Low	<ul style="list-style-type: none"> <li>• Issues of congestion caused by cars parking on the roads in Tbilisi have not been solved. The Mayor has pledged to solve the issue, but suspicions of bribery in regard to the Israeli company that received the contract to do so have surfaced, and no solution has yet been put forward.</li> </ul>	<p>Great</p> <ul style="list-style-type: none"> <li>• The issue has been put on hold, but the number of cars is increasing and the situation is worsening. A PPP parking proposal featuring Japanese parking meters may be worth considering.</li> </ul>
<b>Roads</b>	Medium	<ul style="list-style-type: none"> <li>• The east-west expressway, in which JICA is involved, is due for completion in 2020. After that, the focus will switch to the completion of the north-south trunk road.</li> <li>• There have also been requests for financing (8 billion yen) of a bypass for the former capital Kutaisi.</li> </ul>	<p>Normal</p> <ul style="list-style-type: none"> <li>• The north-south road has significant altitude differences, increasing the possibility that Japanese companies could become involved.</li> </ul>
	High	<ul style="list-style-type: none"> <li>• There is a lack of technical skill in regard to dealing with slope collapse, landslides on sharp slopes and debris flow, and support is required for design and construction management. The following three proposals have been made specifically: (1) the construction of a road collapse prediction system, (2) equipment to inspect tunnels and bridges, and (3) a training program for road engineers.</li> </ul>	<p>Great</p> <ul style="list-style-type: none"> <li>• Debris flow occurred outside Tbilisi a few years ago, involving the loss of life and destruction of homes.</li> </ul>
<b>Logistics</b>	Medium	<ul style="list-style-type: none"> <li>• The WB has allocated funds and begun feasibility studies relating to the construction of a logistics center. Poti Port and Kutaisi are under consideration. In addition, a smaller logistics facility on the border is also considered desirable.</li> <li>• The importance of a logistics center is, however, not fully appreciated by the government.</li> </ul>	<p>Small</p> <ul style="list-style-type: none"> <li>• This is not a short-term issue, since the demand for logistics is only realistically anticipated to occur once the new port and road network are completed.</li> </ul>

Sector	Level of priority	Specific issues, themes	Significance of issue
<b>Urban development</b>	Low	<ul style="list-style-type: none"> <li>• Suburban housing areas are extending outside of Tbilisi, which is surrounded by mountains, and the development of new towns is also progressing.</li> <li>• Despite this, the government has little awareness in regard to TOD (Transit Oriented Development) involving extending underground train services and attracting new urban development. Instead, it is allowing increasing levels of commuting by car. Furthermore, since urban development is being led by real estate companies, planning control is impossible.</li> </ul>	<p>Great</p> <ul style="list-style-type: none"> <li>• Little awareness of the need for planned urban development. There is a need for a master plan for the expansion of Tbilisi.</li> </ul>

#### 4.1.5. Infrastructure Improvement Projects

In terms of transport infrastructure, the greatest need is in the areas of ports and roads that connect Georgia to the surrounding countries. Georgia’s Government is prioritizing the development of the new port at Anaklia. The first phase is underway, and additional funding is required, as well as finance for the second phase (details follow). Additionally, the Maritime Transport Agency has proposed the creation of an integrated Single Window System, which digitizes the procedures for logistics and the arrival into the country of passengers by sea. The east-west expressway is due for completion in 2020, after which the next issue will become the north-south expressway. Many other road projects are under consideration, including, for example, the ring route around Kutaisi.

In terms of air transportation, a freight terminal at Kutaisi Airport and a commuter line linking to the station have been proposed, but these are relatively small projects, with neither of them costing more than between several hundred million and just over a billion yen. Other than this, there are demands for the restructuring and expansion of Ambrolauri airport, from the additional perspectives of providing emergency medical treatment to rural areas and expanding tourism, and the introduction of CCTV and security systems to all airports to bring them in line with international standards.

Electrification of the railways has been completed and consideration is underway for the modernization of rolling stock, but no specific projects have yet been identified. Issues such as the construction of a freight route to Baku and the need for the redevelopment of Tbilisi station have been identified, but Georgian Railway LLC is not in the position of making independent investment decisions on these matters.



A potential solution to the transportation issues within Tbilisi may be the construction of multi-level car parks, but suspicions have already been raised in regard to the Mayor receiving bribes in regard to this issue. One further potential means of reducing the traffic congestion in Tbilisi may be the construction of a ropeway between the new city, which spreads out beyond the hills in the area, and the old town. The ADB has already proposed a master plan including multiple lines.

**Table 14 Infrastructure Improvement Projects (identified through visits to agencies)**

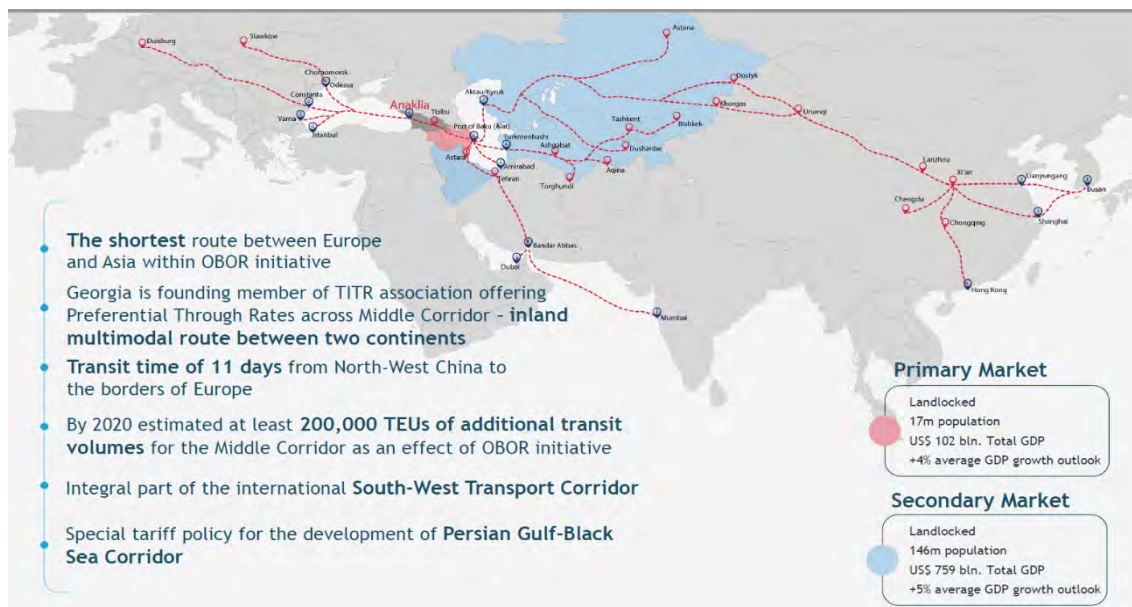
Sector	Name of Project	Assumed scheme	Agency considering implementation	Level of priority in government	Significance of issue	Possibility of Japanese involvement	Overall evaluation
<b>Ports</b>	(1) New port at Anaklia (additional funding for Phase 1, joint venture creation for Phase 2)	Foreign investment	ADC (Anaklia Development Corporation)	High	Great	Medium	◎
	(2) Single Window System for ports	Technical cooperation	Maritime Transport Agency	Medium	Great	Great	◎
<b>Airports</b>	(1) Freight terminal at Kutaisi Airport	Yen loan	United Airports of Georgia	Medium	Medium	Some	○
	(2) Commuter line between Kutaisi Airport and station	Yen loan	United Airports of Georgia	Medium	Medium	Medium	○
	(3) Expansion of Ambrolauri airport	Yen loan	United Airports of Georgia	Medium	Medium	Medium	○
	(4) Installation of CCTV and security measures in all airports	Yen loan	United Airports of Georgia	Low	Great	Medium	○
<b>Railways</b>	(1) Construction of freight railway between Baku - Tbilisi	Yen loan	Ministry of Sustainable Development and Economy,	Low	Great	Small	○

Sector	Name of Project	Assumed scheme	Agency considering implementation	Level of priority in government	Significance of issue	Possibility of Japanese involvement	Overall evaluation
			Georgian Railway LLC				
	(2) Redevelopment of Tbilisi Station	Yen loan	Ministry of Sustainable Development and Economy, Georgian Railway LLC	Low	Great	Small	○
<b>Urban transportation</b>	(1) Construction of multi-level car parks in Tbilisi	Foreign investment	Tbilisi City	High	Great	Medium	◎
<b>Roads</b>	(1) Construction of north-south expressway	Yen loan	Ministry of Regional Development and Infrastructure	High	Great	Medium	◎
	(2) Kutaisi City Bypass (8 billion yen)	Yen loan	Ministry of Regional Development and Infrastructure	High	Medium	Small	○
<b>Urban development</b>	(1) Construction of new ropeway routes	Yen loan	Tbilisi City	Normal	Great	Medium	○

- The New Port at Anaklia (Phase 2)

Georgia provides a transit route between Asia, China and Europe, and if its ports and roads are fully developed it will provide the shortest route between Europe and Asia (11 days, Fig. 16). Georgia already has FTAs (Free Trade Agreements) with the countries surrounding it, and has the capacity to become a window onto a market of approximately 2 billion people. The current port of Poti is less than 8 m deep and as a result, the type and size of vessel that can enter Poti is restricted. Georgia's Government decided on the construction of a new, deeper port in 2014, and began the construction of a port that can be entered by larger vessels. This will shorten the time taken

to transport freight from Istanbul by feeder ship (currently 2 weeks) to one week, and it is planned to establish Georgia as a hub for freight traveling the route between Central Asia and Europe (Figure 16).



**Figure 16 The Significance of the New Port at Anaklia in Realizing a Corner of the “One Belt, One Road” Concept (obtained during visits to agencies)**

The development of the Anaklia Port is to be realized through PPP, and the ADC (Anaklia Development Corporation), which is to operate the port, was founded jointly with the Georgian Government in 2016, with a 52-year investment contract. The Anaklia Port Development Project includes in its background the development of a special economic zone. The railway and roads linking Anaklia and Baku Ports are being undertaken by both governments. Finance equivalent to 65% of the construction costs has been obtained from donors ADB, AIIB, OPIC<sup>16</sup> and EBRD, each of which has contributed 100 million dollars (Figure 17). At the time of this study in October 2018, however, the first phase still required additional financing of 50 million dollars (5.5 billion yen), and other donors and investor capital was being sought. Multiple Chinese companies have made proposals to the ADC, and have participated in the procurement already in place. For this reason, the possibility of the sale of stock to Chinese corporations should also be considered.

<sup>16</sup> The Overseas Private Investment Corporation (<https://www.opic.gov/>). An overseas investment association established by the US government.

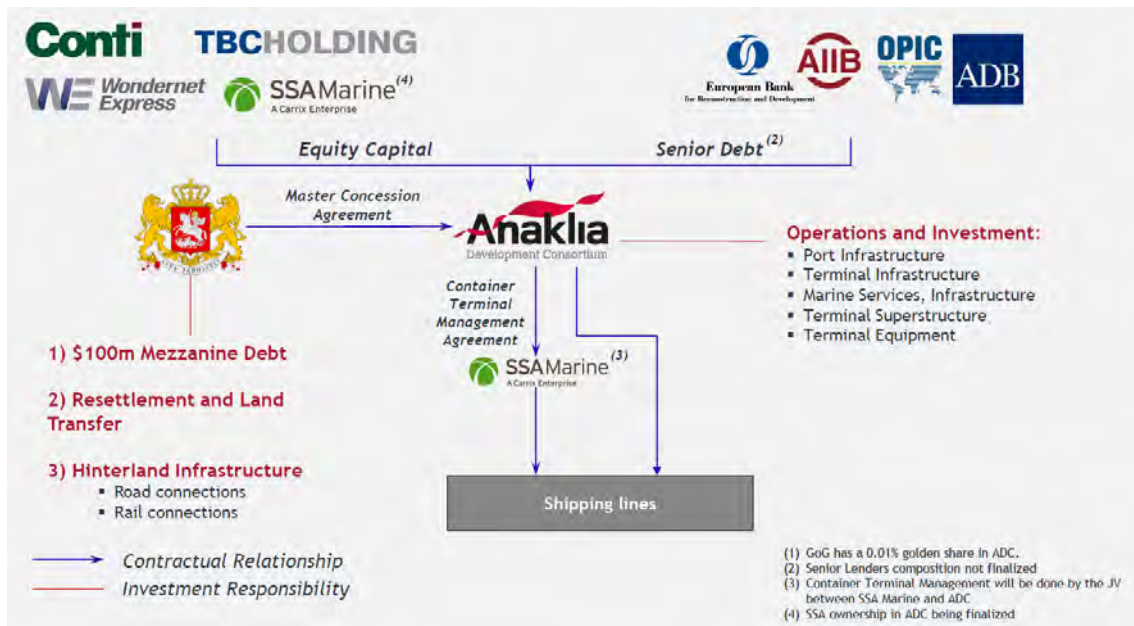


Figure 17 Capital Structure of Funding/Financing for the New Port at Anaklia<sup>17</sup>

ADC has procured a total of 550 million dollars (60 billion yen) of construction capital for the first phase of the development. Capacity for 900,000 TEUs of containers and 1.5 million tons of dry bulk cargo per year is being constructed (Figure 18). The Anaklia Port Development Project includes in its background the development of a special economic zone. The railway and roads linking Anaklia and Baku Ports are being undertaken by both governments.

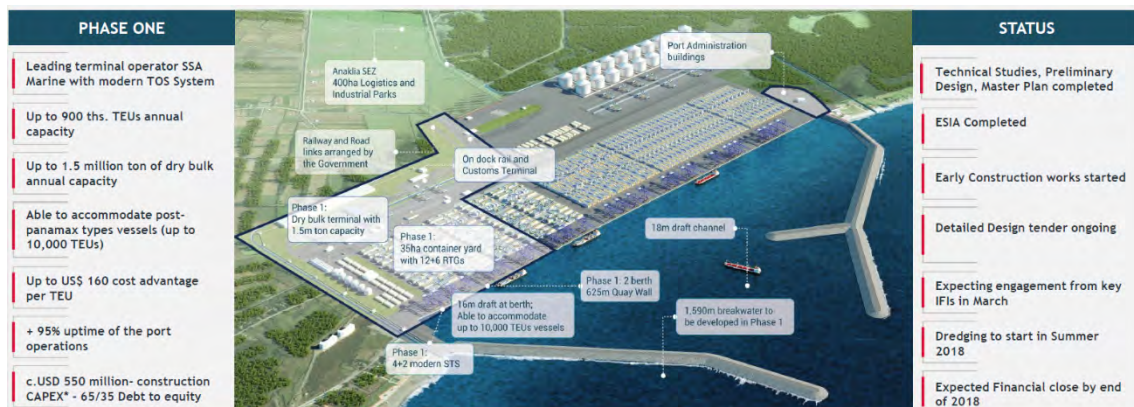
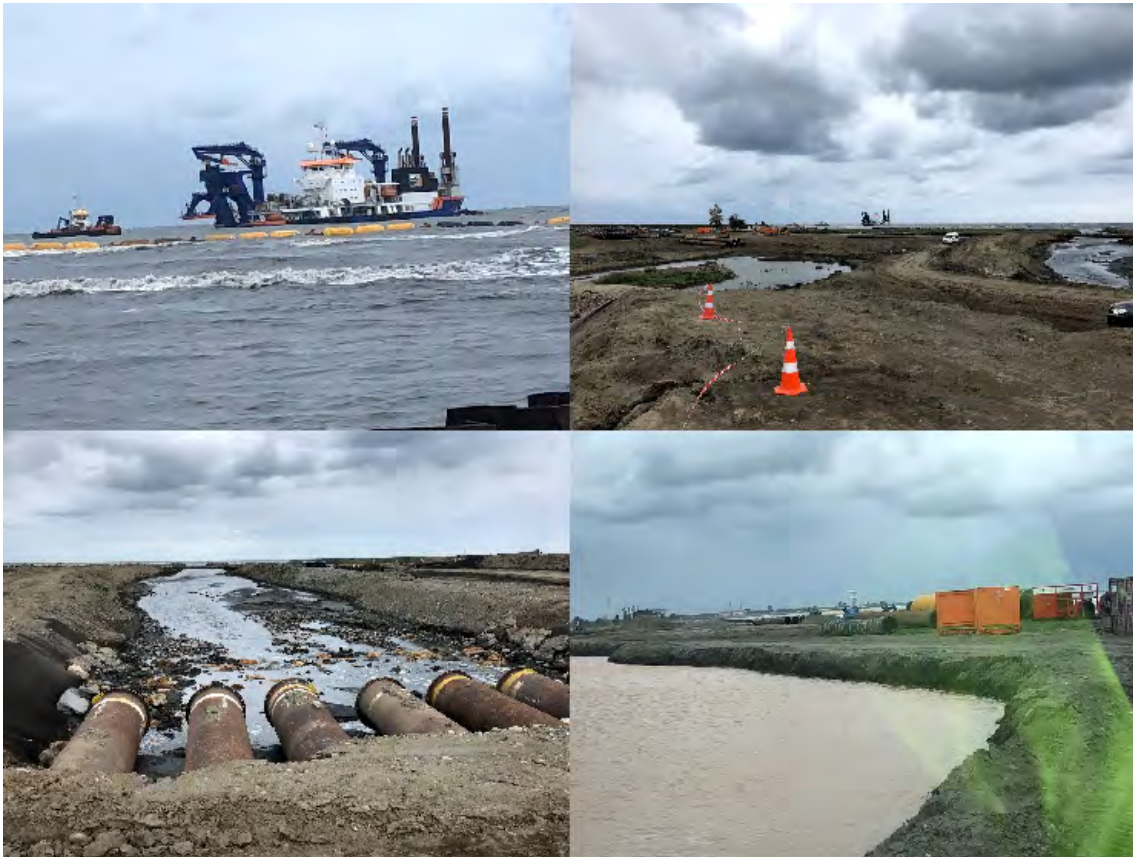


Figure 18 Outline of Construction Investment in the New Port at Anaklia<sup>18</sup>

<sup>17</sup> From materials provided by ADC

<sup>18</sup> From materials provided by ADC

The first phase of the new port at Anaklia is underway, with dredging beginning in summer 2018, and reclaiming in progress. Of the 10 billion yen in capital required for additional construction costs, 5 billion yen was being sought in October 2018 as outside the Corporation’s ability for self-procurement, and funding is anticipated.



**Figure 19 State of Construction Work on New Port at Anaklia (as of September 2018)**

**Table 15 Details of First Phase of Construction of New Port at Anaklia (as of September 2018)**

Sector	Item	Details
<b>Overall</b>	Area	10 ha
	Total budget	60 billion yen
	Funding procured	40 billion yen as donor loans (WB, EBRD etc. invested 10 billion yen each). Remaining 10 billion yen as mezzanine capital from Georgian Government, and 10 billion yen as capital (of which 5.6 billion yen is already funded by capitalists, and 4.4 billion is being recruited)



Sector	Item	Details
	Original land use	Land previously used for agriculture, including marshland. Originally home to 55 households who have been resettled by the government.
	Use of surrounding land	Coastline is used as a beach, with resort hotels in the area. Still popular as a sea swimming area in the summer.
<b>Construction under way</b>	Budget	30 billion yen
	Details of construction	Dredging, reclaiming Using a ship with the world's largest dredging capacity in order to create a 16 m deep harbor. Dredging rate is approximately 5 million m <sup>3</sup> /day (approximately 25 million m <sup>3</sup> /week). Approximately 8 million m <sup>3</sup> of soil is removed, and after digging down for around 1 m, the ground is solidified, with liquified earth removed and placed in a pile around 8 m high.
	Contracting company	One World (a Dutch company specializing in dredging)
	Architects	In-house (Royal Hausking provided the environmental impact study, AECOM provided the audit)
<b>Future construction</b>	Budget	30 billion yen
	Construction details	Post-reclamation infrastructure improvement, integrated EPC including construction.
	Current state	Recruiting EPC contractor and investors for remaining capital funds.
	Construction period	Completion expected in fiscal 2020 (opens for use in 2021)



**Figure 20 Outline of First Phase of Construction (as of September 2018)**

The scale of the second phase, which will begin in or after 2025, has not yet been determined, since the level of need is still unclear. Current plans, however, allow for 250 billion yen, and development over 340 ha. The background to this is the availability of 2,000 ha of land for development, of which 400 ha is expected to be earmarked as a Special Economic Zone (SEZ). Nothing has yet been decided in regard to the capital procurement scheme for the second phase, but it is anticipated that any scheme will be operated jointly with Japanese corporations.



**Figure 21 Image of Anticipated Future New Port at Anaklia**

#### 4.1.6. Activities by Donors

The activities of donors have largely been focused on road construction. The east-west expressway is under construction, by segment, as shown below, by the WB, ADB, EIB, JICA and other organizations. Many other roads are currently being finalized, mostly with the support of western European donors.

**Table 16 Outline of Financing by Various Donors of the East-West Expressway**

Project	Date agreed	Project completion fate	Value of loan agreed			Total value of fund (GEL)	
			Currency	Amount of credit	Grant	Amount of credit	Grant
Agara - Zemo Osiauri (WB)	06.06.2013	28.02.2019	SDR	24,500		138,436.1	
			USD	38,000			
Zemo Osiauri - Rikoti (WB, EIB)	10.02.2016	31.12.2020	USD	140,000		64,723.0	
			EUR	49,450			
Zestafoni - Kutaisi - Samtredia (JICA)	16.12.2009	24.06.2023	JPY	22,132,000		392,030.5	
Samtredia - Grigoleti - Kobuleti (EIB, EU)	11.05.2012	28.11.2019	EUR	200,000	20,000.0	275,005.9	27,629.0

In addition to the ADB and EBRD, developed countries' donors, such as AIIB and OPIC have also invested in the new port at Anaklia, with multi-finance being provided (as described above). ADB is currently additionally supporting diagnosis of the current state of public transport and the formation of an integrated master plan for urban development, as well as implementing integrated development in Tbilisi City.



## 4.2. Energy

### 4.2.1. Current State of Infrastructure Improvement

#### 4.2.1.1. Main Policies in Energy Sector

The Energy Policy of Georgia has as its objective the establishment of a stable domestic energy supply with no power cuts, by accessing electricity from a number of energy sources. In particular, the policy focuses on the quality, price and quantity of electricity that it is possible to demand. Proposals and implementation of energy policy are assumed to be for the purposes of economic growth and development of the energy sector, and as such energy policy in Georgia plays a role in determining responses to issues of development within the energy sector, and the strategic direction of prioritization<sup>19</sup>.

A long-term, comprehensive sector vision is incorporated into energy policy, and this vision is expressed in a basic document that lays out medium- to long-term plans for energy sector development and the formation of a legal basis for the sector.

The direction of energy policy includes the following aspects.

- Diversification of energy supply sources, and optimal utilization and conservation of regional energy sources

In order to improve the stability of the energy supply, Georgia is pressing ahead with diversification of its supply sources of petroleum, natural gas and electricity, and with the effective utilization of regional energy sources, as well as with the storage of petroleum and petroleum products. Georgia has limited supplies of resources such as petroleum, gas and coal, but it does have a certain quantity of reserves of primary resources, and much of it is as yet undeveloped. As such, issues include the development and effective utilization of such undeveloped primary resources. At the same time, the domestic demand for electricity is easily covered by domestic energy sources. As such, there is a need to progress with alternatives to imported energy sources.

- Use of reusable energy

Development of reusable energy<sup>20</sup> is the major countermeasure in regard to climate change and the development of clean energy sources. Georgia has great potential for hydroelectric generation, with additional ample resources

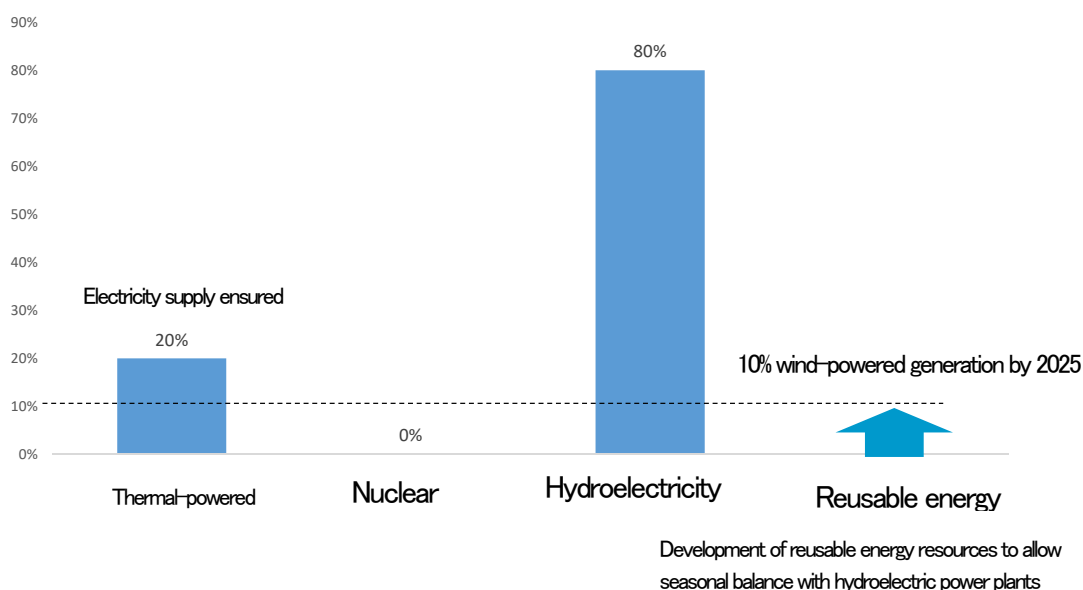
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<sup>19</sup>

<http://www.energy.gov.ge/projects/pdf/news/Sakartvelos%20Energetikuli%20Politika%20Proekti%20Araofitsialuri%20Inglisuri%20Targmani%20796%20geo.pdf>

<sup>20</sup> <https://investingeorgia.org/en/keysectors/energy>

for wind power, solar power, biomass and geothermal generation. Domestic and foreign investment is required in order to develop this generation capacity. Further adjustments to the investment environment will be required in order to attract this investment, and a stable, transparent and non-discriminatory legal framework is also necessary. Furthermore, it is considered that an electricity market that allows trading with surrounding countries, a cross-border transmissions network that connects to surrounding countries, and sufficient support for R&D are necessary in reducing energy imports and improving national energy security standards.



Source: Georgian Statistic Service

**Figure 22 Energy Mix in Georgia**

- **Bringing Georgia’s Legal System in Line with European Energy Regulations**

It is necessary to coordinate Georgia’s legal system with EU regulations in order to strengthen political and economic ties to the EU. In order for this to happen, there is a need for the introduction of a competitive, transparent, efficient energy market model, as well as the formation of a stable investment environment that is attractive to investors. Furthermore, promotion of energy trade between Georgia and the EU, and of the utilization of reusable energy and energy-saving measures are also expected to bring about results. Liberalization of energy purchase by consumers, and the introduction of grid codes and electricity capacity market rules are also necessary.

- **Creation of an Energy Trading Market and Improvements to Trading Mechanisms**

Competitive market activity is considered to be a tool in realizing an efficient and optimized supply/demand balance between energy resources such as electricity and natural gas. In order to introduce energy trading markets to Georgia, a more complex legal system, the establishment of a solid, transparent agency to oversee such trading, the creation of regulatory systems, technical coordination between Georgia's energy system and regional energy systems and further relaxing of regulations are all required.

- Strengthening Georgia's Role within Energy Transportation Systems (Distribution Routes)

Georgia is positioned on the corridor that connects Europe and Asia, and needs to improve its function as a connection between east-west and north-south. If it can maximize its geographical advantages, Georgia will be able to realize energy security and economic development.

- Generating Electricity from Clean Energy Sources, and Creation of Regional Trading Platforms

Georgia has ample resources for hydroelectric generation, and needs to improve its investment environment as a regional platform for the generation and trade of electricity produced from clean energy. In order to achieve this objective, infrastructure development needs to be implemented based on a scientific approach. Georgia's existing potential for clean technology must be re-evaluated, and a regional platform developed for clean energy trading.

- Development and Application of an Integrated Approach to Energy Saving

Energy intensity (MJ/US\$) is an indicator of energy consumption within economic activity. In comparison with EU member states and other developed countries, Georgia has a high energy intensity, and its energy consumption within economic activities is high in comparison with other countries (indicating that its energy efficiency is low). For this reason, it is necessary to reduce this high energy intensity through controlling demand. To achieve this, it will be necessary to improve energy saving technology within the generation, transmission and consumption sectors, while at the same time further optimizing energy consumption patterns throughout the country.

Creation of an appropriate legal framework is required in order to progress with demand control. The development and introduction of energy-saving technology and equipment within economic activity, and the creation of incentive schemes to promote energy-saving by electricity generation plants and consumers are necessary.

- Improved Environmental Considerations During Development of Energy Projects

It is necessary to be considerate of both society and the environment when developing large-scale hydroelectricity projects. For this reason, social and environmental assessments, consultations with local residents, dissemination of information and guarantees of access are required.

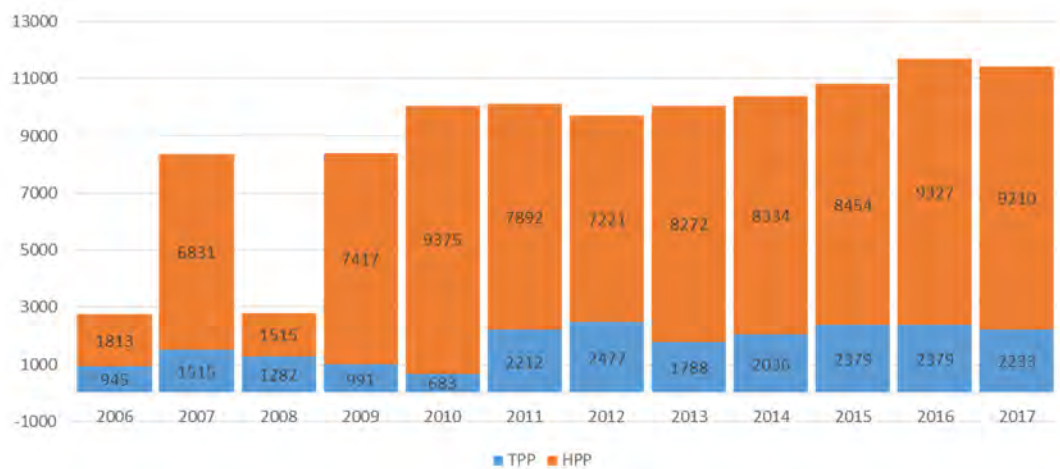
- Ensuring Consumer Benefit and Service Quality Improvements

Improved service quality (creation of transmission infrastructure, repairs and maintenance, individual metering) and consumer protection are important issues within energy policy. In the energy sector it is common for natural resources to be monopolized, and monitoring of service quality, as well as the establishment of a balance between energy providers and consumers are important roles of the regulator. For this reason, it is necessary for new criteria to be determined for service quality, and for fair rules to be established in regard to standards for evaluation and service quality monitoring.

A clear and fair pricing structure for electricity is also required for the energy market to function effectively. A fair pricing structure allows suppliers to achieve income that sufficiently offsets their costs, while at the same time guaranteeing users the ability to access a high-quality service at a transparent and fair price. The government must also guarantee a stable energy supply to those living in energy poverty through social programs and subsidies for those who require them. Long-term fixed pricing structures take into consideration a range of types of consumer, but at the same time must guarantee technical and financial sustainability for the energy system.

#### 4.2.1.2. State of Infrastructure Improvement

Between 2004 and 2010 existing hydroelectric plants were updated and repaired, with the result that their generation capacity increased significantly. Furthermore, since 2012, a further 12 hydroelectric plants have come online. At present, there are 17 hydroelectric plants under construction, of which seven have a combined capacity of 300 MW.



Note: TPP (Thermal Power Plant), HPP (Hydro Power Plant)

Source: Georgian Statistic Service

**Figure 23 Structure of Georgia's Electricity Sources (million kWh)**

Georgia has over 20,000 rivers, and the potential to construct a further 300 hydroelectric plants. Consideration is currently being given to the commercialization of the 25% of these which are considered to be economically viable for construction. The Ministry of Economy and Sustainable Department states that there are 60 sites with potential for development as hydroelectric plants, and as a result, Georgia anticipates that it can add a further 25 TWh to its generation capacity from hydroelectricity.

The opportunity to develop all of these hydroelectric plants has been opened up to the private sector, and private companies are able to purchase or newly develop hydroelectric generation facilities. The operators of these plants are guaranteed priority access to the new transmission lines to Turkey by the transmission company, and do not require an export license. This allows operators to select their market freely, and sell electricity to retailers at a negotiated price.

Georgia does not require hydroelectric plants generating less than 13 MW to have a generating license, and those generating less than 2 MW are not required to implement an environmental impact assessment. These generation plants are also able to retail power directly to consumers without the intervention of a third party.

The Artana Lopota hydroelectricity project, for example, operated by Artana Lopota LLC, has a generation capacity below 13 MW, and for the first ten years of its operation, sold the power it generated during winter to the Georgian government at 6 cents/kWh. During the summer, it sells its power within Georgia or exports it to Turkey via the Akhaltsikhe-Borcka transmission line.

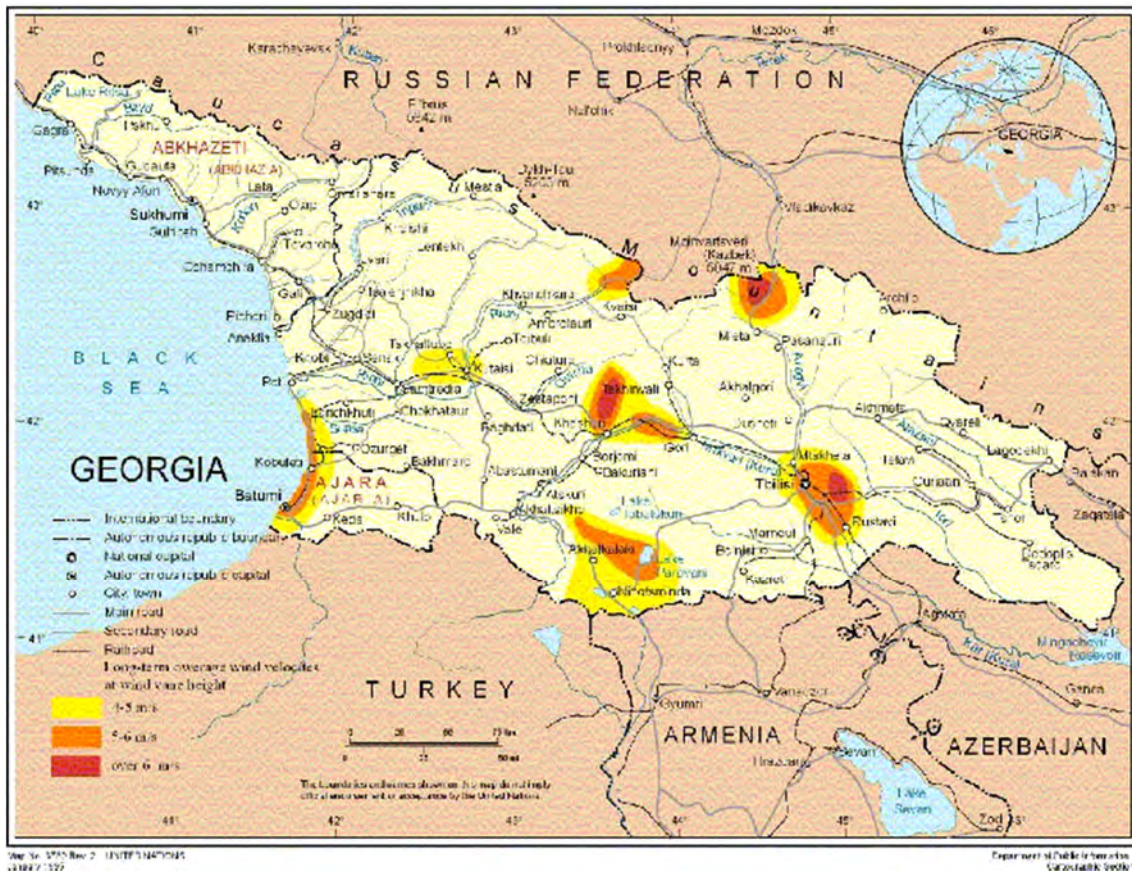
Thermal power plants, on the other hand, are usually unused, but when the power supply from hydroelectric plants drops in winter, for example, are sometimes put into action to generate electricity. The operating rate of thermal power plants in Georgia, therefore, is around 36%. Georgia keeps its thermal power plants on standby in order to maintain a stable power supply during winter, and as such it permits a pricing structure for electricity that covers maintenance and management as well as fixed costs, and pays the equivalent price to thermal power plants.

Georgia constructed a 230 MW-capacity new combined cycle thermal power plant to the end of 2015, and has begun operating it<sup>21</sup>. This project was developed and run by the Partnership Fund, and the plants were constructed by Çalık Enerji of Turkey. At present, Georgia's Energy Development Fund is planning the construction of a further 250 MW combined cycle thermal power plant, which is aimed to come online during 2019. A further 250 MW combined cycle thermal power plant is also planned for construction.

In terms of wind power, the country has potential to generate 4 TWh. Wind-powered generation increases in winter, when hydroelectric generation capacity falls, and therefore has potential as part of an electricity source portfolio, in combination with hydroelectricity. In 2025 it is anticipated that a total of 10% of all generation will be from wind power. At present, there is a 20 MW wind-powered generation pilot project under construction in Kartli, being developed by the Georgian Energy Development Fund. This is Georgia's first wind-powered generation project, and has been supported by the EBRD, but it is subject to capital support with no government guarantee. The project has the potential to be expanded to a maximum of 150 MW.

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<sup>21</sup>As of 2017, the generation capacity of thermal power plants was 926.4 MW, an increase in capacity of 230 MW compared to 2015, when it was 686.4 MW.  
[http://www.biokuras.lt/content\\_images/failai%20naujienoms/Ilia%20Eloshvili\\_Energy%20Sector%20of%20Georgia.pdf](http://www.biokuras.lt/content_images/failai%20naujienoms/Ilia%20Eloshvili_Energy%20Sector%20of%20Georgia.pdf)



Source: <http://ebrdrenewables.com/sites/renew/countries/Georgia/profile.aspx>

**Figure 24 Map of Wind-Powered Generation in Georgia**

Georgia also shows strong potential for solar generation. Georgia receives 250-280 days of sunshine per year, with between 1900-2200 hours of sunlight. The quantity of sunlight varies depending on the region, but is between 1250~1800 kWh/m<sup>2</sup>. At the same time, the average quantity of sunlight is 4.2 kWh/m<sup>2</sup>. The solar energy potential of Georgia as a whole is 108 MW, equivalent to 34,000 tons of petroleum.

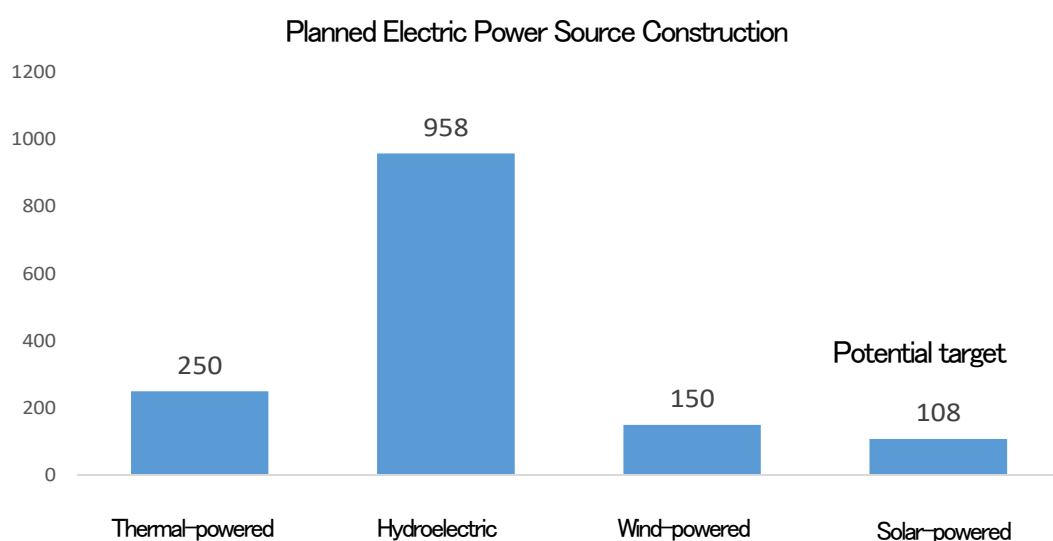
According to the latest hydrogeological research<sup>22</sup>, Georgia has reserves of 250 million m<sup>3</sup> of geothermal water. At present, 250 natural and artificial water channels exist in the country, emitting water that varies in temperature between 30°C and 100°C. They produce 160,000 m<sup>3</sup> of water per day. The water channels can be grouped into 44 areas. Within 3500 km, there are multiple chute wells from which water is emitted at 85°C or above. 80% of these are within western Georgia. In the Zugdidi-Tsaishi Geothermal Area, there are currently 9 chute wells and 7

<sup>22</sup> [http://www.energy.gov.ge/energy.php?id\\_pages=60&lang=eng](http://www.energy.gov.ge/energy.php?id_pages=60&lang=eng),  
[http://www.investingorgia.org/en/ajax/downloadFile/875/Investment Opportunities in Energy 2016](http://www.investingorgia.org/en/ajax/downloadFile/875/Investment%20Opportunities%20in%20Energy%202016)

reinjection wells, as well as 3 monitoring wells, and the potential for their development is currently under consideration.

Furthermore, Georgia has ample resources in terms of both forest and agriculture, and biomass generation plants have been completed that use both forestry and agricultural waste to produce heat and steam. Biomass is a particularly important source of energy in regional areas.

Georgia has more than 3000 km of electricity transmission lines and 100 substations. In 2013, a further 400 kV high-voltage AC transmission line was constructed, linking Georgia with Turkey.



Source: Ministry of Sustainable Development and Economy

**Figure 25 2025 Electric Power Source Plan (Proposed) (MW)**

#### 4.2.2. Infrastructure Improvement Agencies and Staff Organization

The Ministry of Economy and Sustainable Development is responsible for policy proposals within the energy sector. It also applies national strategies and programs, participates in the recruitment of national strategies and programs, researches their implementation, and creates related recommendations. The Ministry of Economy and Sustainable Development also makes decisions regarding the liberalization and partial liberalization of specific segments within the sector.

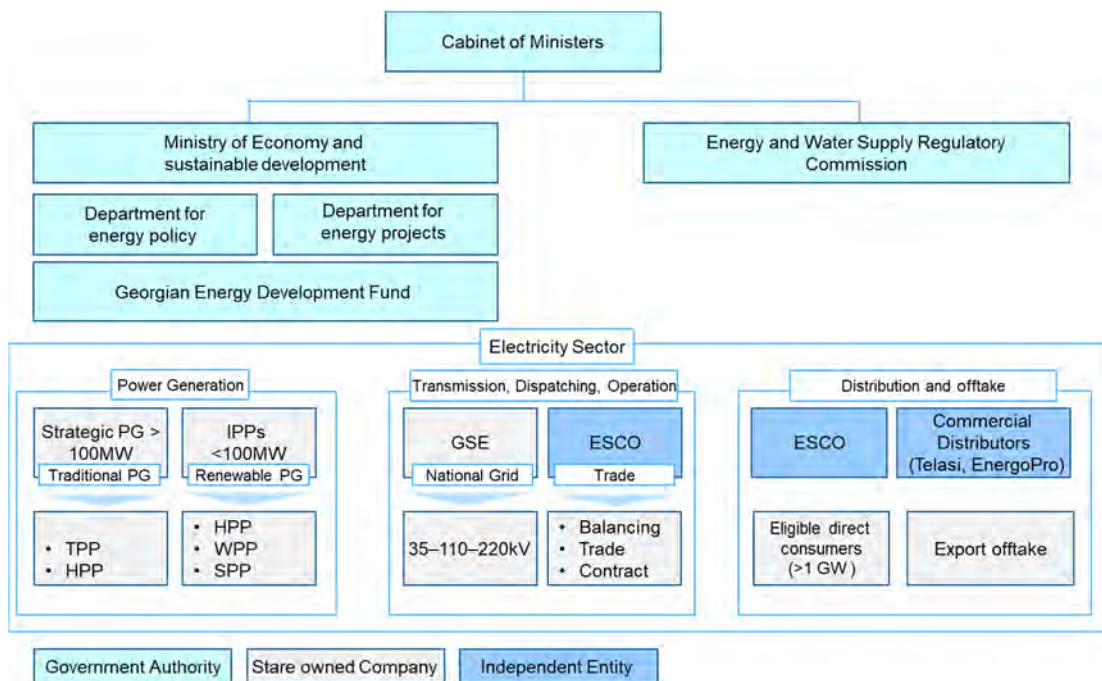
The Georgian National Energy and Water Supply Regulatory Commission is the regulating body for the energy sector. The Commission is funded by licenses and regulated payments by importers, electricity suppliers, operators of commercial electricity systems, etc., The Commission comprises five members, appointed by the



President. The Regulatory Commission issues licenses for generation, transmission, supply and distribution of electricity, and also approves methodology for tariffs.

Transmission and distribution of electricity requires two transportation licenses.

Georgian State Electrosystem (GSE) is a nationalized corporation that manages electrical transmission lines at 35-110-220 kV, and substations at 500/220/110/35 kV. It also operates three companies engaged in distribution of electricity – Telasi (Tbilisi Electric Distribution Company) in Tbilisi and its surrounds, the Kakheti Energy Supply Company in the Kakheti area, and Energo-Pro Georgia in other areas.



**Figure 26 Structure of Georgia’s Energy Industry**

#### 4.2.3. Cross-Regional Issues

Georgia is surrounded by countries that suffer either from structural insufficiency in the electrical supply or high electrical costs. In 2015, Turkey's electricity demand outstripped supply by 5 TWh, and the country experiences power shortages during the summer. Georgia is ideally placed to play a supplementary role in meeting seasonal variations in demand, since it generates more electricity than it needs during summer months. At the same time, in southern Russia, it is anticipated that there will be a structural lack of electric power by 2020 if electricity consumption patterns continue as they are. Russia and Georgia already have an electricity exchange contract in place, with Georgia importing electricity from Russia during the autumn and winter, and exporting it to Russia during the spring and summer. Since 2018, this electricity exchange has been subject to contract, and continues to date. In other markets, other than countries such as Azerbaijan and Kazakhstan, which are in receipt of subsidies in the generation sector, some countries are relatively cost-competitive, and there is potential for the export of electric power to these countries.

#### 4.2.4. Issues in Progressing Infrastructure Improvement

At present, the Finance Ministry is working seriously towards the procurement of new financing, while on the other hand hoping to procure capital from local corporations and encourage project participation. For these local corporations, it is difficult to participate in international projects proposed by international donor agencies without national guarantees, given their financial position.

At the same time, the electrification of mountainous areas is a particular issue for the government. According to the Ministry of Economy and Sustainable Development, 70% of the population of Georgia live in regional areas, with 43% engaged in the agricultural sector<sup>23</sup>. The tourism industry is also one of the fastest-growing sectors in Georgia<sup>24</sup>. According to an interview with the Ministry of Economy and Sustainable Development, 3 million tourists visit regional Georgia each year. For the tourism industry and agriculture, progress with electrification in the regions, ski resort management, and the operation of hotels that can cater to tourists from Europe are important issues, expected to contribute to halting the population decline in regional areas and maintaining and developing tourism and agriculture.

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<sup>23</sup> Created by NRI from GEOSTAT [http://www.geostat.ge/index.php?action=page&p\\_id=152&lang=eng](http://www.geostat.ge/index.php?action=page&p_id=152&lang=eng)

<sup>24</sup> GEOSTAT and Georgian Tourism in Figures. (<https://gnta.ge/wp-content/uploads/2018/07/2017-ENG.pdf>) Created by NRI via interview with Ministry of Economy and Sustainable Development

#### 4.2.5. Infrastructure Improvement Projects

Many hydroelectric generation plants are located near to high-voltage electricity transmission lines. The following tables show the projected construction of hydroelectric generation plants to 2022 under consideration by the Georgian Government (Table 17) and the transmission lines planned for construction in the vicinity of these (Table 18). A large number of the hydroelectric generation plants are relatively small, and in some cases, multiple hydroelectric generation plants are planned for use in a cascade formation on the same rivers. The following construction plans are summarized from information contained within viability studies, and at the point at which such studies were carried out, in 2018, capital plans had not been disclosed. The Georgian Government has plans to expand the electricity transmission network at a cost of 600 million euros by 2026<sup>25</sup>.

**Table 17 Outline of Plans for Hydroelectricity Generation Plant Construction by 2022 (as of 2017)**

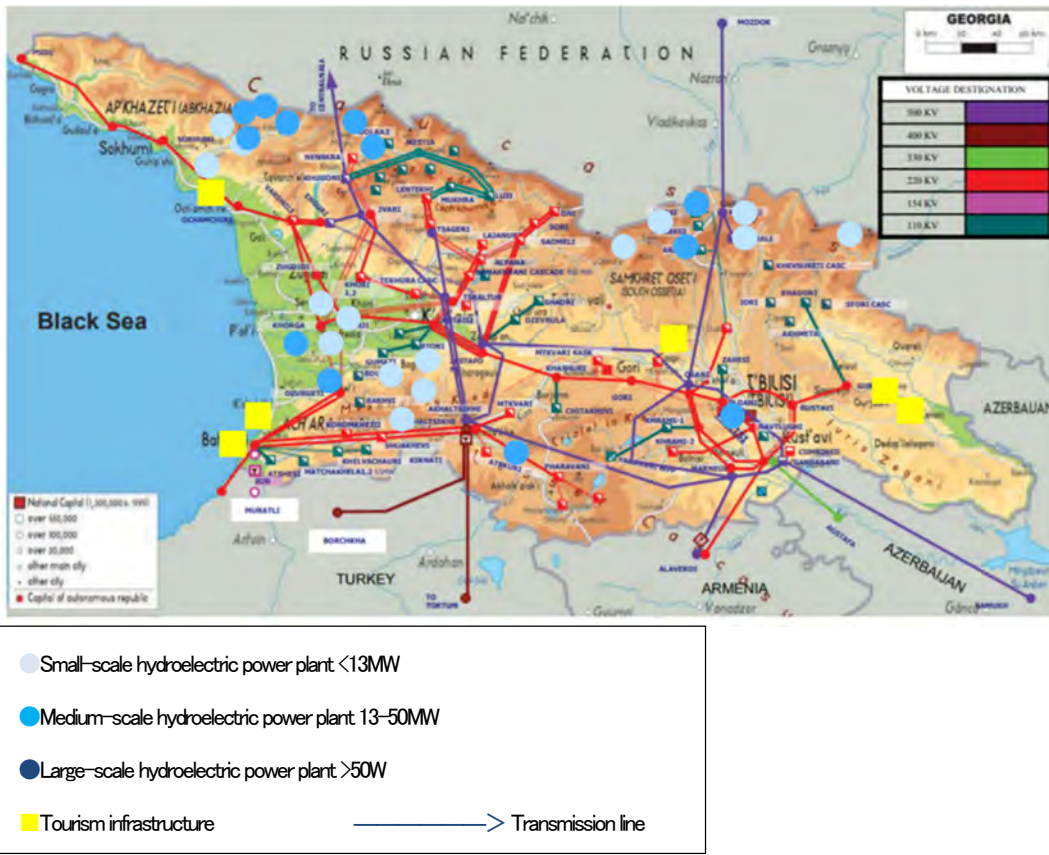
	<b>Project name</b>	<b>River</b>	<b>Location</b>	<b>Capacity (MW)</b>	<b>Output (year/MM KWh)</b>	<b>Type</b>
<b>1</b>	Akhalkalaki hydroelectric generation plant	Paravani	Samtskhe-Javakheti	15	85	Reservoir type
<b>2</b>	Atskuri hydroelectric generation plant	Mtkvar	Samtskhe-Javakheti	10.4	55.5	Inflow Type
<b>3</b>	Bakhvi hydroelectric generation plant	Bakhvistkali	Guria	15	78	Reservoir type
<b>4</b>	Bakhvi hydroelectric	Bakhvistkali	Guria	20	110	Inflow Type

<sup>25</sup> Investin Georgia ([https://investingeorgia.org/en/ajax/downloadFile/875/Investment\\_Opportunities\\_in\\_Energy\\_2016](https://investingeorgia.org/en/ajax/downloadFile/875/Investment_Opportunities_in_Energy_2016))

	<b>Project name</b>	<b>River</b>	<b>Location</b>	<b>Capacity (MW)</b>	<b>Output (year/MM KWh)</b>	<b>Type</b>
	generation plant 2					
<b>5</b>	Bakhvi hydroelectric generation plant 4	Bakhvistskali	Guria	1	5.6	Inflow Type
<b>6</b>	Bakhvi hydroelectric generation plant 5	Bakhvistskali	Guria	2	9.3	Inflow Type
<b>7</b>	Boriti hydroelectric generation plant	Dumala	Imereti	6.4	33.8	Inflow Type
<b>8</b>	Cheshura hydroelectric generation plant	Cheshura	Racha-Lechkhumi and Kvemo	7.5	32.4	Inflow Type
<b>9</b>	Chkheri hydroelectric generation plant	Chkheri	Mtskheta-Mtianeti	14.8	68	Inflow Type
<b>10</b>	Digomi hydroelectric generation	Mtkvari	Tbilisi	17.5	95	Inflow Type

	<b>Project name</b>	<b>River</b>	<b>Location</b>	<b>Capacity (MW)</b>	<b>Output (year/MM KWh)</b>	<b>Type</b>
	plant					
<b>11</b>	Duruji hydroelectric generation plant	Duruji	Kakheti	1.7	10.7	Inflow Type
<b>12</b>	Dviri hydroelectric generation plant	Mtkvari	Samtskhe-Javakheti	10.4	55.5	Inflow Type
<b>13</b>	Enguri hydroelectric generation plant 1	Enguri	Samegrelo-Zemo Svaneti	5.5	22.4	Inflow Type
<b>14</b>	Enguri hydroelectric generation plant 2	Enguri	Samegrelo-Zemo Svaneti	21.2	90.3	Inflow Type
<b>15</b>	Enguri hydroelectric generation plant 3	Enguri	Samegrelo-Zemo Svaneti	12.1	50	Inflow Type

Source: <http://www.energy.gov.ge/projects/pdf/pages/List%20of%20Potential%20HPPs%201759%20eng.pdf>



Source: [http://www.investingorgia.org/en/ajax/downloadFile/875/Investment\\_Opportunities\\_in\\_Energy\\_2016](http://www.investingorgia.org/en/ajax/downloadFile/875/Investment_Opportunities_in_Energy_2016)

**Figure 27 Map of Georgia's Hydroelectric Generation Plant Infrastructure**

**Table 18 Transmission Line Projects**

<b>Voltage (KV)</b>	<b>Route</b>	<b>Existing capacity</b>	<b>2018~2020 (plan)</b>
<b>500</b>	Georgia-Russia Kavkasioni (Notional transmission line)	700	NA
	Georgia-Russia Kazbegi (Notional transmission line)	850	1000
	Georgia-AzerbaijanGardabani Samukhi (Notional transmission line)	NA	NA
	Georgia-Armenia Mameuli-Airum (Notional transmission line)	NA	700
<b>400</b>	Georgia-Turkey Meskheta (Notional transmission line)	700	NA
	Georgia-Turkey Akhaltsikhe-Tortum	NA	350
	Georgia-AzerbaijanGardabani (Notional transmission line)	350	NA
<b>220</b>	Georgia-Russia Salkhino (Notional transmission line)	160	NA
	Georgia-Turkey Adjara (Notional transmission line)	160	NA
	Georgia-Armenia	150	NA
<b>154</b>	Georgia-Turkey Muratli-Batumi (Notional transmission line)	NA	350

Source: <http://www.energy.gov.ge/projects/pdf/pages/List%20of%20Potential%20HPPs%201759%20eng.pdf>

#### 4.2.6. Donor Activities

With the support of USAID, EBRD, KfW and EIB, Georgia has constructed an international electricity transmission network to export electric power to regions of Turkey and Western Europe with high levels of demand for electric power. The Georgian Government is also working to ensure that investment in hydroelectric generation plant becomes more attractive, and between 2011-2012, it completed the upgrade of its domestic transmission network by utilizing support from the US Government. The US Government also supported the construction of a model electricity trading market in 2015, facilitating trades in electric power with Turkey and other countries.

The main donor-supported projects and programs are as below.

**Table 19 Main Projects Supported by International Donor Agencies in the Electricity Sector**

Category	Donor	Outline	Period	Budget	Scheme	Location
Enguri hydroelectric generation plant upgrade project (Climate change resilience)	EBRD, EU	Upgrade projects for the Enguri hydroelectric generation plant, intended to provide electric power to Georgia in areas where it is required at low cost, and bring the plant into line with environmental requirements. The new loans from EBRD enabled improvements to the hydroelectric generation plant in order to comply with climate change.	2018~2021	35 MM EURO	28 MM/Loan assistance 7 MM Grant aid	Enguri
500-220 kv Jvari - Khorga transmission line and 500 kv Ksani - Stefanwminda transmission line , Zestafoni (planned) substation 250 MGvar facility construction project	EBRD, KfW, EU	Construction of Kavkasioni transmission line (as far as Jvari substation and Jvari substation-Khorga substation section). Construction of 500 kV transmission line linking Ksani substation-Stepantsminda substation. Construction of 250 MGvar capacity Zestafoni500 substation	2013~2018	68.2 MM EURO	60.2 MM /Financial Assistance 8MM/ Grant Assistance	Jvari



Category	Donor	Outline	Period	Budget	Scheme	Location
Transmission network improvement project (220 kv "Akhaltsikhe - Batumi" )	WB	Construction of Akhaltsikhe-Batumi (142 km) 220 kV transmission line. Revision of loan agreement underway as part of restructuring of Ministry/Agencies.	2014~ 2019	60 MM USD	60 MM/Credit	Akhaltsikhe- Batumi
Transmission network improvement project (North Ring – Tskaltubo (Phase I)	EBRD, KfW	Construction of 220 kV Double loop notional transmission line (Khudoni Nenskra) Construction of 110 kV Notional transmission line (Khudoni-Mestia) Construction of 125 MVA, 110/35 kV substation (Mestia) Construction of 500/220/110 kV substation (Khudoni) Construction of 500 kV Notional transmission line Kavkasioni -Khudoni substation Construction of 110kV double loop Notional transmission line (Kheledu Jakhunderi) Construction of 220 kV substation (Lajanuri (plan))	n/a	n/a	n/a	Khudonir

### 4.3. Environment

#### 4.3.1. Current State of Infrastructure Improvement

##### 4.3.1.1. Waste Processing

Georgia's waste sector faces issues such as the disposal of waste remaining from the Soviet era, including the radioactive waste used in medical treatments, and the country is still aiming to escape from the current situation, in which it still has unprocessed radioactive medical waste. In the past, illegal disposal was a regular occurrence, causing serious soil and water pollution<sup>26</sup>.

As of the end of December 2018, Georgia's local authorities produced around 900,000 tons of waste per year, of which 700,000 tons (approximately 80%) was processed by landfilling. Approximately 1.500 tons of toxic medical waste are produced each year. The total quantity of toxic waste and industrial waste is unclear, but approximately 4000 tons of waste agrochemicals and more than 600 tons of PCB-containing waste oil is produced, while 120,000 tons of waste containing arsenic substances is estimated to be produced<sup>27</sup>. As it works towards EU membership, it is required by the EU to bring its practice and its laws in line with EU criteria for the disposal of waste (for example the EU Directive on Landfill (1999)), but at present, Georgia's industrial waste processing system is not sufficiently prepared for this.

The EU Landfill Directive (1999) is detailed below for reference.

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<sup>26</sup> Survey Project Completion Report on Mixed Waste Disposal in Georgia (2016, Clean System Inc.)

<sup>27</sup> "Waste Management Issues in Georgia" (International Business and Economic Development Center, Georgia) 2016 (<http://ibedc.ge/images/pdf/report.pdf>)

(Reference) EU Directive on the Landfill of Waste (1999)<sup>28</sup>

According to the waste management hierarchy, landfilling is the least preferable option and should be limited to the necessary minimum. Where waste needs to be landfilled, it must be sent to landfills which comply with the requirements of Directive 1999/31/EC on the landfill of waste. The objective of the Directive is to prevent or reduce as far as possible negative effects on the environment, in particular on surface water, groundwater, soil, air, and on human health from the landfilling of waste by introducing stringent technical requirements for waste and landfills.

The Landfill Directive defines the different categories of waste (municipal waste, hazardous waste, non-hazardous waste and inert waste) and applies to all landfills, defined as waste disposal sites for the deposit of waste onto or into land. Landfills are divided into three classes:

- landfills for hazardous waste;
- landfills for non-hazardous waste;
- landfills for inert waste.

The Directive does not apply to:

- the spreading on the soil of sludges (including sewage sludges and sludges resulting from dredging operations);
- the use in landfills of inert waste for redevelopment or restoration work;
- the deposit of unpolluted soil or of non-hazardous inert waste resulting from prospecting and extraction, treatment and storage of mineral resources as well as from the operation of quarries;
- the deposit of non-hazardous dredging sludges alongside small waterways from which they have been dredged and of non-hazardous sludges in surface water, including the bed and its subsoil.

A standard procedure for the acceptance of waste in a landfill is laid down so as to avoid any risks, including:

- waste must be treated before being landfilled;
- hazardous waste within the meaning of the Directive must be assigned to a hazardous waste landfill;
- landfills for non-hazardous waste must be used for municipal waste and for other non-hazardous waste;
- landfill sites for inert waste must be used only for inert waste;
- criteria for the acceptance of waste at each landfill class must be adopted by the Commission in accordance with the general principles of Annex II.

The following wastes may not be accepted in a landfill:

- liquid waste;
- flammable waste;
- explosive or oxidizing waste;
- hospital and other clinical waste which is infectious;
- used tires, with certain exceptions;
- any other type of waste which does not meet the acceptance criteria laid down in Annex II.

The Directive sets up a system of operating permits for landfill sites. Applications for permits must contain the following information:

- the identity of the applicant and, in some cases, of the operator;
- a description of the types and total quantity of waste to be deposited;
- the capacity of the disposal site;
- a description of the site;
- the proposed methods for pollution prevention and abatement;
- the proposed operation, monitoring and control plan;
- the plan for closure and aftercare procedures;
- the applicant's financial security;
- an impact assessment study, where required under Council Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment.

Member States must ensure that existing landfill sites may not continue to operate unless they comply with the provisions of the Directive.

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<sup>28</sup> "The State of Waste in Europe" (<http://www.jsim.or.jp/kaigai/1707/003.pdf>)

The capital Tbilisi emits 1,000 tons of waste per day. The existing final disposal location for this waste is predicted to last for another 10 years, and as a result, reduction of waste is not considered an urgent issue<sup>29</sup>.

**Table 20 The State of Collection → Final Disposal of Waste in Georgia**

<b>Process</b>	<b>Current state</b>
<b>Collection</b>	In the cities of Tbilisi and Rustavi, waste is mainly collected from collection containers located throughout the city. Kakheti and Autonomous Republic of Adjara, among others, experience significant illegal waste disposal, due to the lack of an efficient collection system (according to an interview with USAID). Tbilisi’s waste collection is handled by Tbilservice Group, while in Rustavi the city implements collections. Almost no separation of waste is implemented.
<b>Transportation</b>	Waste is transported directly from the collection point to its final disposal location (In Tbilisi and other major cities, it is sometimes collected and stored in a reshipment storage center until being transported to its final disposal location). Transportation between the collection point and the final disposal location is done by private sector companies under contract to the various local authorities (Tbilservice Group in Tbilisi).
<b>Final Disposal</b>	Most waste is sent to landfill. Only two of 53 Georgia’s landfill locations, however, meet EU criteria (the EU Landfill Directive: see the previous page). Only the landfill site at Rustavi implements separation of hard plastic, soft plastic and paper waste (which is sold to neighboring countries such as Turkey).

Source: Survey Project Completion Report on Mixed Waste Disposal in Georgia (2016, Clean System Inc.)

#### **4.3.1.2. Water and Sewage**

The proportion of people in Georgia served by water and sewage systems reaches almost 100% in the capital Tbilisi and other large cities (population 140,000 or above), but is as low as under 20% in some regional cities such as Zugdidi. Furthermore, water is only available for around 12 hours a day, and for fewer than 12 hours in large cities (population 140,000 or above) such as Rustavi and Kutaisi. Georgia’s water and sewage system is still in development.

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<sup>29</sup> Interview at Tbilisi City Hall by JICA survey group (17<sup>th</sup> June 2018)

**Table 21 Water and Sewage in Georgia**

Group	City/town	Total population in the baseline year	Abstracted from		Total volume of water abstracted	Reported share of population served by centralized water supply system	Water consumption by households	Water supply regularity
			Underground sources	Surface sources				
		people	%	%	1,000 m <sup>3</sup> /year	%	l/c/d	hour/day
<b>Large cities (above 140,000 people)</b>								
1	Tbilisi	1,080,000	60%	40%	553,279	100%	743	24
	Rustavi	140,500	100%	0%	10,070	100%	94	8
	Kutaisi	189,960	100%	0%	16,642	99.5%	116	6
	Average in the group		86.6%	13.4%			<b>Mean value</b>	13
<b>Resort towns of the Black sea coastal zone</b>								
2	Batumi	138,000	34%	66%	31,938	90.0%	432	24
	Borjomi	18,900	33%	67%	2,035	40.5%	324	8
	Tskhaltubo	13,600	100%	0%	1,791	100%	180	20
	Poti	70,000	100%	0%	3,382	65%	101	10
	Kobuleti	21,600	100%	0%	1,112	91.0%	84	12
	Average in the group		86.8%	13.2%			<b>Mean value</b>	16
<b>Other settlements</b>								
3	Samtredia	30,000	100%	0%	4,032	61.3%	260	24
	Khashuri	32,000	100%	0%	1,700	49.4%	87	10
	Zugdidi	70,000	100%	0%	234	14.3%	31	10
	Mameuli	28,400	100%	0%	1,350	100.0%	75	7
	Chiatura	22,500	100%	0%	1,186	80.0%	57	10
	Zestaphoni	25,000	100%	0%	977	36.0%	119	8
	Ozurgeti	23,000	100%	0%	240	35.0%	37	8
	Senaki	28,000	100%	0%	2,122	47.5%	150	14
	Gori	66,300	100%	0%	3,030	60%	112	24
	Kaspi	15,200	100%	0%	886	62.5%	149	5
	Gurdjaani	12,000	100%	0%	726	81.0%	125	4
	Terdjola	5,500	100%	0%	1,451	100%	447	22
Average in the group		100%	0%			<b>Mean value</b>	12	

Source: 「SUPPORT TO THE GEORGIAN GOVERNMENT IN DEVELOPING AND IMPLEMENTING A FINANCIAL STRATEGY FOR URBAN WATER SUPPLY AND SANITATION IN GEORGIA AND CARRYING OUT THE FEASIBILITY ANALYSIS」 (OECD 2015)

The percentage of water and sewage systems requiring improvement by scale of city is 21.4% as a national average, but 32.7% for large cities with a population of over 100,000 (Tbilisi, Kutaisi, Rustavi, Batumi etc.) Repairs to the water supply infrastructure in major cities is an outstanding issue.

**Table 22 Percentage of water and sewage systems requiring improvement, by scale of city**

<b>Population size</b>	<b>Water supply extension (km)</b>	<b>Repair required water supply extension (km)</b>	<b>Repair required ratio (%)</b>
<b>Less than 1,500</b>	144	14	9.7%
<b>1,500 to 10,000</b>	1709.6	293.8	17.2%
<b>10,000 to 25,000</b>	1588.3	137.1	8.6%
<b>25,000 to 50,000</b>	1022.6	131.4	12.8%
<b>50,000 to 100,000</b>	681.2	55	8.1%
<b>More than 100,000</b>	4128.2	1349.5	32.7%
<b>Total</b>	9273.9	1980.8	21.4%

Source: "MUNICIPAL WATER AND WASTEWATER SECTOR IN GEORGIA (Status Report)

(David Melua:2015)

At the same time, with the exception of Tbilisi and Khashuri, almost no cities have wastewater processing facilities.

The provision of sewage infrastructure in major cities in Georgia is a future issue.

**Table 23 Sewage in Georgia**

Group	City/town	Reported share of population connected to the centralized sewerage system	Total volume of wastewater collected	Including		Total volume of treated wastewater
				Domestic sewage	Wastewater from industries and other consumers	
		%	th.m <sup>3</sup> /year	th.m <sup>3</sup> /year	th.m <sup>3</sup> /year	%
<b>Large cities (above 140,000 people)</b>						
1	Tbilisi	96.4%	296,096	272,001	24,095	74%
	Rustavi	68.3%	7,000	4,800	2,200	
	Kutaisi	74.1%	12,200	11,900	300	
<b>Resort towns of the Black sea coastal zone</b>						
2	Batumi	76.8%	17,900	16,300	1,600	0%
	Borjomi	26.5%	470	300	170	0%
	Tskhaltubo	48.4%	880	580	300	0%
	Poti	8.7%	3,150	2,170	980	0%
	Kobuleti	63.0%	1,070	900	170	0%
<b>Other settlements</b>						
3	Samtredia	8.3%	324,0	146	178	0%
	Khashuri	34.4%	800,0	570	230	100%
	Zugdidi	23.4%	500,0	250	250	0%
	Mameuli	25.0%	400,0	350	50	0%
	Chiatura	55.6%	1050,0	346	704	0%
	Zestaphoni	36.0%	440	280	160	0%
	Ozurgeti	14.3%	114	91	23	0%
	Senaki	0.0%	0	0	0	0%
	Gori	57%	1,750	1,200	520	0%
	Kaspi	36.0%	700	620	80	0%
	Gurdjaani	80.0%	650,0	490	160	0%
Terdjola	16.4%	200	80	120	0%	

Source: 「SUPPORT TO THE GEORGIAN GOVERNMENT IN DEVELOPING AND IMPLEMENTING A FINANCIAL STRATEGY FOR URBAN WATER SUPPLY AND SANITATION IN GEORGIA AND CARRYING OUT THE FEASIBILITY ANALYSIS」 (OECD 2015)

The extent of availability of water and sewage systems by scale of city is 100% access to water supply in large cities with a population of over 140,000, and 93.2% access to sewerage. In tourist areas on the Black Sea coast, the access to water supply is 80.5%, and access to sewerage is 32.3%. In other regions, access to water supply is 63.7%, and access to sewerage is 28.7%. Provision of sewerage infrastructure to small and medium-sized cities in the regions is an outstanding issue.

**Table 24 Availability of Water and Sewage Infrastructure by Scale of City**

<b>City group</b>	<b>% of access to water infrastructure (pipeline)</b>	<b>% of access to sewage infrastructure (pipeline)</b>
Cities with a population of 140,000 and above	100.0%	93.2%
Resorts on the Black Sea Coast	81.5%	32.3%
Other residential areas	63.7%	28.7%

Source: 「SUPPORT TO THE GEORGIAN GOVERNMENT IN DEVELOPING AND IMPLEMENTING A FINANCIAL STRATEGY FOR URBAN WATER SUPPLY AND SANITATION IN GEORGIA AND CARRYING OUT THE FEASIBILITY ANALYSIS」 (OECD 2015)

The government's policy in regard to the water sector was defined in the Urban Water/Sewage Sector Development Plan, based on the vision to ensure a stable, highly reliable water supply defined in 2009 by the Ministry of Regional Development and Infrastructure of Georgia with the support of the ADB. The country aims to supply safe sanitation services to the citizens of all cities in Georgia by 2020. The Urban Water/Sewage Sector Development Plan aims to achieve the following things: (1) Technical sustainability and environmental conservation, (2) ensuring systematic and fiscal sustainability, and (3) the enactment of laws and regulatory frameworks. To achieve these things, investment totaling 1.65 billion is anticipated between 2011 and 2020.

**Table 25 Estimated Investment in Urban Water Supply and Sanitation in Georgia (million USD)**

<b>Category</b>	<b>2011-2015</b>	<b>2016-2020</b>	<b>Total</b>	<b>Percentage per category (%)</b>
<b>Infrastructure Improvement</b>	1285	285	1570	95.44
<b>System creation</b>	15	5	20	1.22
<b>Project Management</b>	45	10	55	3.34
<b>Total</b>	1345	300	1645	100.00

Source: SECTOR ASSESSMENT (SUMMARY): WATER SUPPLY AND SANITATION (Urban Services Improvement Investment Program (RRP GEO 43405))

<https://www.adb.org/sites/default/files/linked-documents/43405-01-geo-ssa.pdf>



#### 4.3.2. Agencies Engaged in Infrastructure Improvement and Staff Organizations

- Ministry of Regional Development and Infrastructure of Georgia (MRDI)

Responsible for planning, budgeting and project implementation in regard to social infrastructure improvements. In terms of the environment, it is also responsible for policy relating to water supply system creation, construction and management of landfill waste disposal sites, and creation and management of waste collection sites. It is also responsible for the processing of general waste. The main environmental departments within MRDI are the Georgia United Water Supply Company and the Georgia Solid Waste Management Company.



Source: Created by NRI from information on Ministry of Regional Development and Infrastructure website (<http://www.mrdi.gov.ge/en>)

**Figure 28 Organizational Structure of Ministry of Regional Development and Infrastructure (MRDI)**

- Georgian United Water Supply Company (GUWSC)

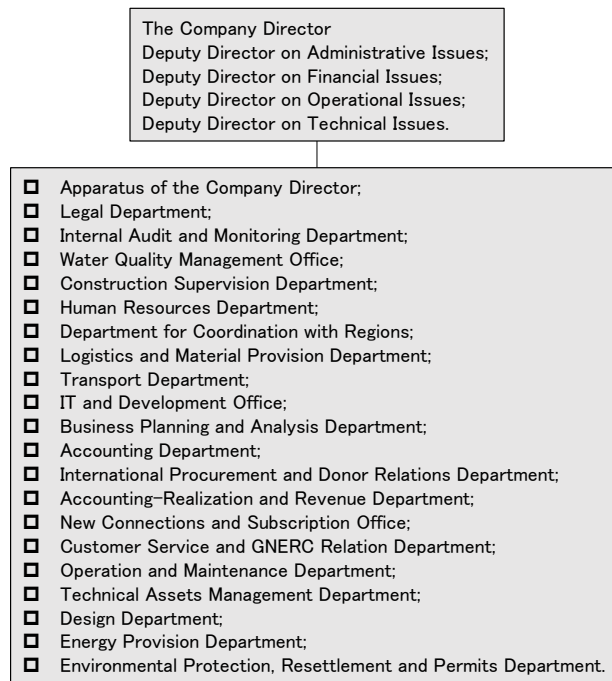
The Georgian United Water Supply Company operates under the umbrella of the Ministry of Regional Development and Infrastructure of Georgia and provides services to approximately 58.5% of the population of Georgia, outside the Tbilisi and Autonomous Republic of Adjara. The Georgian Government established

GUWSC in January 2010 in response to the need to develop water supply and sanitation systems. According to President No. 978 (October 11, 2010), GUWSC is 100% state-owned, but its right of management has been transferred to the MRDI. GUWSC supplies 269,894 households (713,132 people) and 6,767 commercial clients. It has one headquarters, six branch offices and 53 service centers, and employs 2380 people.



Source: Materials issued by Georgia United Water Supply Company LLC ([https://www.unece.org/fileadmin/DAM/env/water/npd/United\\_water\\_supply\\_company\\_of\\_Georgia.pdf](https://www.unece.org/fileadmin/DAM/env/water/npd/United_water_supply_company_of_Georgia.pdf))

**Figure 29 Area Supplied by United Water Supply Company of Georgia (GUWSC)**



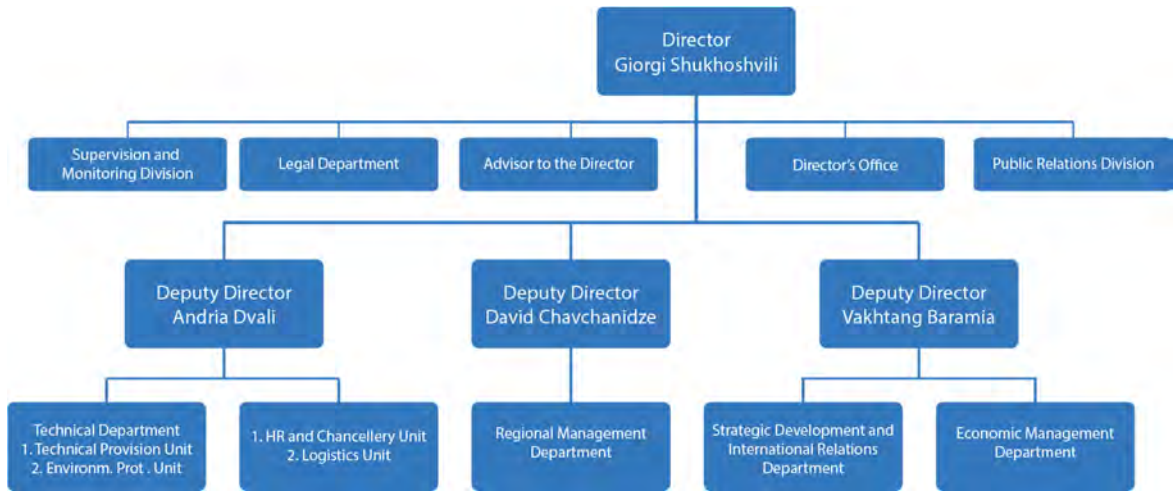
Source: Created by NRI from Outline of Georgia United Water Supply Company LLC  
(<http://water.gov.ge/public/images/page/pdf/87.pdf>)

**Figure 30 Organization of United Water Supply Company of Georgia (GUWSC)**

● Georgia Solid Waste Management Company

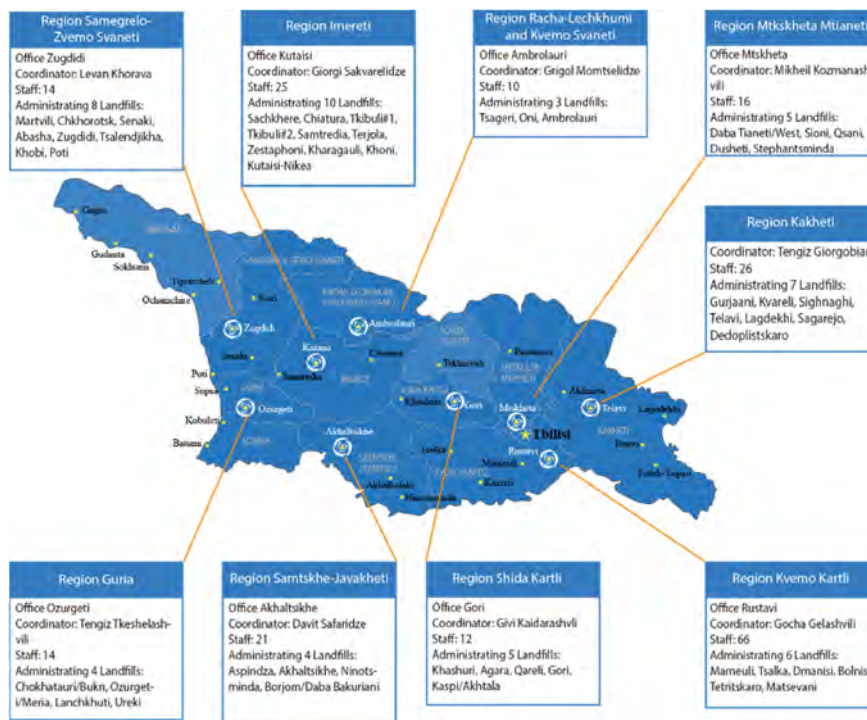
Georgia Solid Waste Management Company has created the sole effective waste processing system at the national level, and is aiming to develop regional environmentally friendly landfill sites as a necessary part of the management of a national integrated waste management system, and network comprising an appropriate number of waste transportation stations. The company’s mission statement is as follows.

- ① Rehabilitating existing landfills to the measure needed until new regional landfills become functional
- ② Closing down existing landfills that are no more needed
- ③ Constructing new regional landfills including transfer systems and waste recovery facilities
- ④ Assuring involvement of all regional stakeholders in operating the new systems
- ⑤ Raising awareness and involving citizens in waste separation and recycling



Source: Georgia Solid Waste Management Company website ([http://waste.gov.ge/ka/?page\\_id=24&lang=en](http://waste.gov.ge/ka/?page_id=24&lang=en))

**Figure 31 Organization of Georgia Solid Waste Management Company**



Source: Georgia Solid Waste Management Company website ([http://waste.gov.ge/ka/?page\\_id=24&lang=en](http://waste.gov.ge/ka/?page_id=24&lang=en))

**Figure 32 Areas Covered by Activities of Georgia Solid Waste Management Company Georgia**

- Ministry of Environmental Protection and Agriculture of Georgia

The Ministry was reorganized from the Ministry of Environment Protection in October 2012 by the Ministry of Environment Protection, and then merged with the Ministry of Agriculture in 2017 to become the Ministry of Environmental Protection and Agriculture of Georgia in March 2018.

The Ministry has the main authority on water management at national level and the authority related to natural resource management and protection.

In addition, the ministry has organized environmental planning system, implemented national policy on environmental protection, environmental monitoring such as biodiversity, air, water, land and mineral resources, protection and preservation of rare species and endangered species of specific flora and fauna, industry It also oversees management and regulation of waste management, chemistry, nuclear, radiation safety related activities.



Source: Created by NRI from information on the Ministry of Environmental Protection and Agriculture of Georgia website (<http://www.moa.gov.ge/En/Department>) (2018/12/31)

**Figure 33 Organization of the Ministry of Environmental Protection and Agriculture**

### 4.3.3. Cross-Regional Issues

#### 4.3.3.1. Water and Sewage

Other than in Tbilisi and Khashuri, almost all cities are underdeveloped in terms of wastewater processing. Sewerage infrastructure in regional small and medium-sized cities is also yet to be provided. As a result of this, river pollution is worsening. The Alazani, Khrami and Iori rivers, which are tributaries in the George region of the River Kura, one of the main rivers in Azerbaijan, are all mildly polluted, with phenol levels at around 4-5 times the reference value<sup>30</sup>. As a result, pollution of the upstream areas of the Kura River in Azerbaijan is also becoming an issue<sup>31</sup>.

#### 4.3.4. Issues Relating to Infrastructure Improvement

In terms of waste processing, issues requiring attention include the environmental management and monitoring of landfill and disposal sites, and the management and processing of industrial and hazardous waste. In terms of water and sewerage, the major issue is the development of water supply and sewerage infrastructure for regional cities.

**Table 26 Issues/Lessons in Progressing Infrastructure Improvement**

Sector	Level of interest	Specific issues and themes	Extent of issue
<b>Waste Disposal</b>	High	Construction of landfill disposal sites for waste, introduction of collection/recycling facilities, purchase of vehicles to transport waste.	(Normal) Many ODA projects already implemented.
	High	Environmental management/monitoring of waste disposal sites	(Large) Air pollution (odors/methane gas explosions), water quality pollution, earth pollution from managed landfill sites is a nationwide issue.

<sup>30</sup> <http://georgiatoday.ge/news/10389/Kura-River-Pollution>

<sup>31</sup> United Nations Economic Commission for Europe (2011) Environmental Performance Reviews Azerbaijan Second review Synopsis, [http://www.unece.org/fileadmin/DAM/env/epr/epr\\_studies/Synopsis/Azerbaijan%20ECE.CEP.158.synopsis%20english.pdf](http://www.unece.org/fileadmin/DAM/env/epr/epr_studies/Synopsis/Azerbaijan%20ECE.CEP.158.synopsis%20english.pdf)

<b>Sector</b>	<b>Level of interest</b>	<b>Specific issues and themes</b>	<b>Extent of issue</b>
	High	Industrial waste, hazardous waste management and processing	(Large) Less is known about the state of industrial waste and hazardous waste management and processing than about general waste.
	Low	Introduction of waste incineration plants	(Small) Currently no clear policy in favor of introduction of waste incineration plants
<b>Water and sewerage</b>	High	Construction of water and sewage infrastructure in regions	(Large) Low rate of access to water and sewage infrastructure in regional cities.
	High	Repairs to water and sewage infrastructure in major cities	(Normal) Improving rate of access to water and sewage infrastructure in regional cities is higher priority than repairing that in major cities.

#### 4.3.5. Infrastructure Improvement Projects

##### 4.3.5.1. Waste Disposal

Many ODA projects have been implemented in the waste disposal sector, in areas such as construction of disposal sites, introduction of collection/recycling facilities and purchase of vehicles to transport waste, and competition is a possibility. At the same time, there is no realistic need for the introduction of waste incineration plants of the sort used in Japan. Environmental conservation measures at waste landfill sites are insufficient, and there is a specific need for the introduction of systems to monitor air, soil and water pollution in the areas surrounding landfill sites.

The Ministry of Environmental Protection and Agriculture's Waste and Chemical Substance Control Department has expressed a need for cooperation in regard to the disposal of medical waste, specifically, ascertaining and evaluating the state of medical waste management, improvements to separation of medical waste at source (education of trainers, guidance etc.), provision of guidance relating to final disposal or incineration of medical waste).

##### 4.3.5.2. Water and Sewage

Georgia is moving swiftly to improve its water and sewage infrastructure. As noted above, with support from the ADB, an Urban Water and Sewage Sector Development Plan is in progress, but given the scale of the market and the costs involved, there are not many opportunities for Japanese companies to become involved. At present, no Japanese companies have expressed an interest in becoming involved in such projects. As in Uzbekistan, regional cities may have a need for greater access to simple septic tanks.



**Table 27 Potential Projects in Georgia (Based on responses to interviews)**

<b>Sector</b>	<b>Name of Project</b>	<b>Anticipated scheme</b>	<b>Considering organization</b>	<b>Extent of government interest</b>	<b>Extent of issue</b>	<b>Potential for Japanese involvement</b>	<b>Overall evaluation</b>
<b>Waste processing</b>	(1) Improvement of landfill waste processing sites, introduction of collection/recycling facilities, purchase of vehicles to transport waste	Yen loan	MRDI, Solid Waste Management Company of Georgia	Strong	Large	Medium	○
	(2) Introduction of systems to monitor air, soil and water pollution in the areas surrounding landfill sites	Yen loan Technical cooperation	Ministry of Environmental Protection and Agriculture	Strong	Large	Medium	○
<b>Water and sewage</b>	(1) Construction of water and sewage infrastructure	Yen loan	MRDI, GUWSC	Strong	Large	Small	△

#### 4.3.6. State of Donor Activity

##### 4.3.6.1. Waste Disposal

The main activities of ODA donors in the waste disposal field are the improvement of disposal sites, introduction of collection/recycling facilities and purchase of vehicles to transport waste.

**Table 28 Activities of ODA Donors in Waste Disposal Sector**

<b>Donor name</b>	<b>Project name</b>	<b>Project period</b>	<b>Amount approved</b>	<b>Outline</b>
<b>World Bank</b>	Local authority infrastructure repair project	1994~2000	Total of 17.7 million USD (of which 1.46 million USD earmarked for waste disposal management)	Components include technical support for the definition of a master plan for waste disposal in Tbilisi, and the improvement of waste disposal infrastructure in the three cities of Tbilisi, Batumi and Poti (construction of walls around existing landfill site at Batumi, for example)
<b>UNDP</b>	Technical support for development of wood biomass for use as fuel	2013~2016	1.08 million USD	EU funding of an NGO capacity building program is supporting waste separation activities by Coop-Georgia (a social enterprise promoting waste separation and recycling)
<b>ERDB</b>	Tbilisi waste management project (viability study)	2009- (Currently under repayment) <sup>32</sup>	0.25 million EUR	Technical support for waste management in Tbilisi (collection infrastructure improvement, introduction of recycling, upgrades to existing landfill sites)
	Kvermo Kartli Province (Marneuli) Solid Waste Disposal		10 million EUR	Currently planning construction of landfill disposal site that meets EU requirements. Procurement of

<sup>32</sup> <https://www.ebrd.com/work-with-us/project-finance/project-summary-documents.html?c10=on&s8=on&keywordSearch=>

Donor name	Project name	Project period	Amount approved	Outline
	Site Improvement project			collection trucks and containers anticipated.
	Autonomous Republic of Adjara (Chakvi) Solid Waste Disposal Site Improvement project		8.3 million EUR	Construction of landfill disposal site that meets EU requirements.
	Kvermo Kartli Province (Rustavi) Solid Waste Disposal Site Improvement project <sup>33</sup>		5.46 million EUR	Construction of landfill disposal site that meets EU requirements.
<b>KfW</b>	Imereti Province (Kutaisi) Solid Waste Disposal Site Improvement project	2015	22 million EUR	Construction of landfill disposal site that meets EU requirements, separation/recycling facility, collection sites.
	Kakheti and Samegrelo Provinces Solid Waste Disposal Site Improvement project	2015	30 million EUR	Construction of landfill disposal site that meets EU requirements, construction of collection sites, provision of collection/transport equipment, technical support for reducing waste.

Source: Report on completion of commercialization survey relating to creation of systems for processing mixed waste (JICA, May 2016). [http://open\\_jicareport.jica.go.jp/pdf/12260212.pdf](http://open_jicareport.jica.go.jp/pdf/12260212.pdf)

<sup>33</sup> <http://georgia.e5p.eu/wp-content/uploads/sites/4/2017/08/7.-E5P-KfW-Activities-in-Georgia-Tbilisi-March-2015.pdf>

#### 4.3.6.2. Water and Sewage

The major activities of ODA donors in the water supply sector are the operation and improvement of water supply companies, the training of local staff, and support for local authorities in supplying water (provision of water supply equipment etc.), sponsored by the ADB and the World Bank.

**Table 29 Activities of ODA Donors in Water/Sewage Sector, by Donor Name**

	<b>Project name</b>	<b>Project term</b>	<b>Amount agreed</b>	<b>Outline</b>
<b>ADB</b>	Improvement to water and sewage services	2018	750,000 euro	This project aims to improve inefficiencies in GUWSC operation, and maximize the use of assets. The project includes facilities renewal and the introduction of management information systems, organizational restructuring, human resources training and improvements to commercial activities.
<b>World Bank</b>	Support for sustainable sewage management	2013~2020	12.7 million dollars	Introduction of a pilot sewage processing facility in order to promote sustainable sewage management in Georgia.  Two components have been annexed – technical cooperation (surveys, consulting, training etc.) and improvements to the regulatory environment.

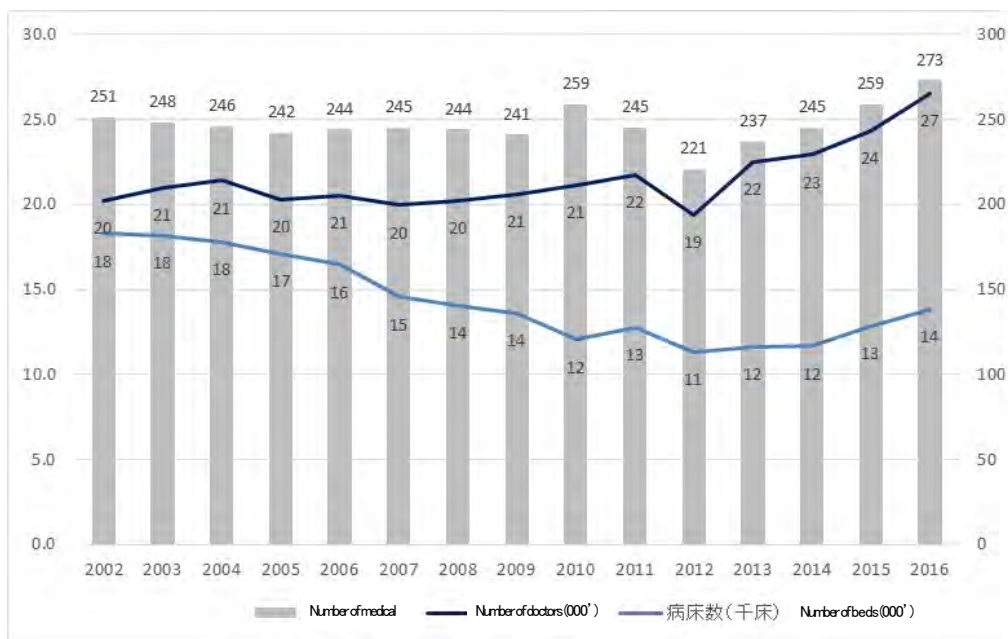
Source: ADB “Sector Assessment (Summary) Water Supply and Sanitation” and World Bank (2017) “Georgia and the World Bank Group 25 Years of Partnership”

#### 4.4. Healthcare

##### 4.4.1. Current State of Infrastructure Improvement

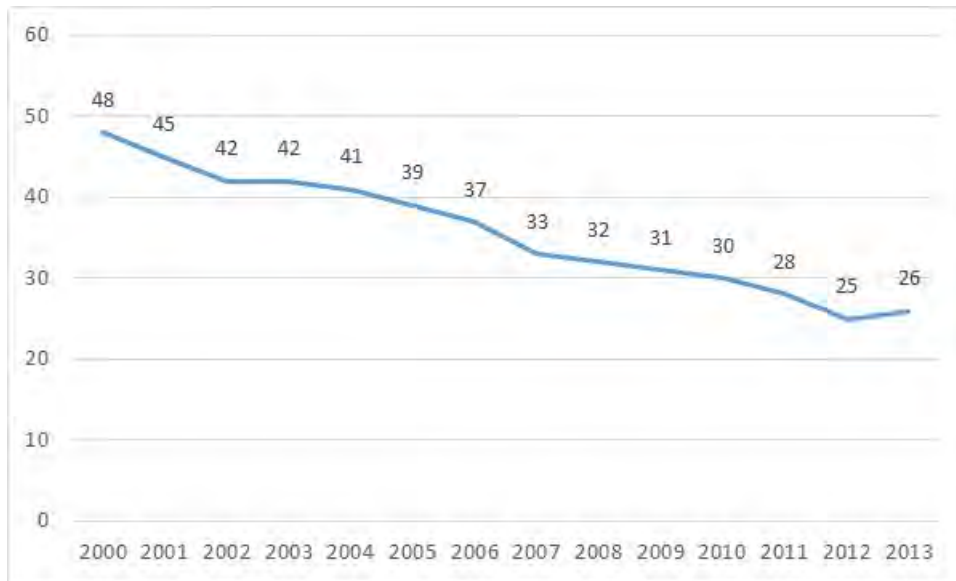
86% of Georgia’s hospitals are privatized, and other than the national university hospital, regional hospitals in difficult-to-access mountainous areas and military hospitals, hospitals are in principle private. Other than private-sector hospitals, however, some screening centers and other medical facilities and services are provided that provide consultations free of charge. These centers were built with public funds but are operated by the private sector. In such cases, the operation is overseen not by the state, but by local authorities.

The number of medical facilities fell after privatization, but private-sector hospitals are now increasing. The number of doctors is also increasing, in line with the number of hospitals (Figure 34). Data is available up to 2013 showing that the number of hospitals per 10,000 population fell (Figure 35).



Source: Ministry of Labor, Health and Social Affairs of Georgia.

**Figure 34 Trend in Number of Medical Facilities, Number of Doctors, Number of Hospital Beds**

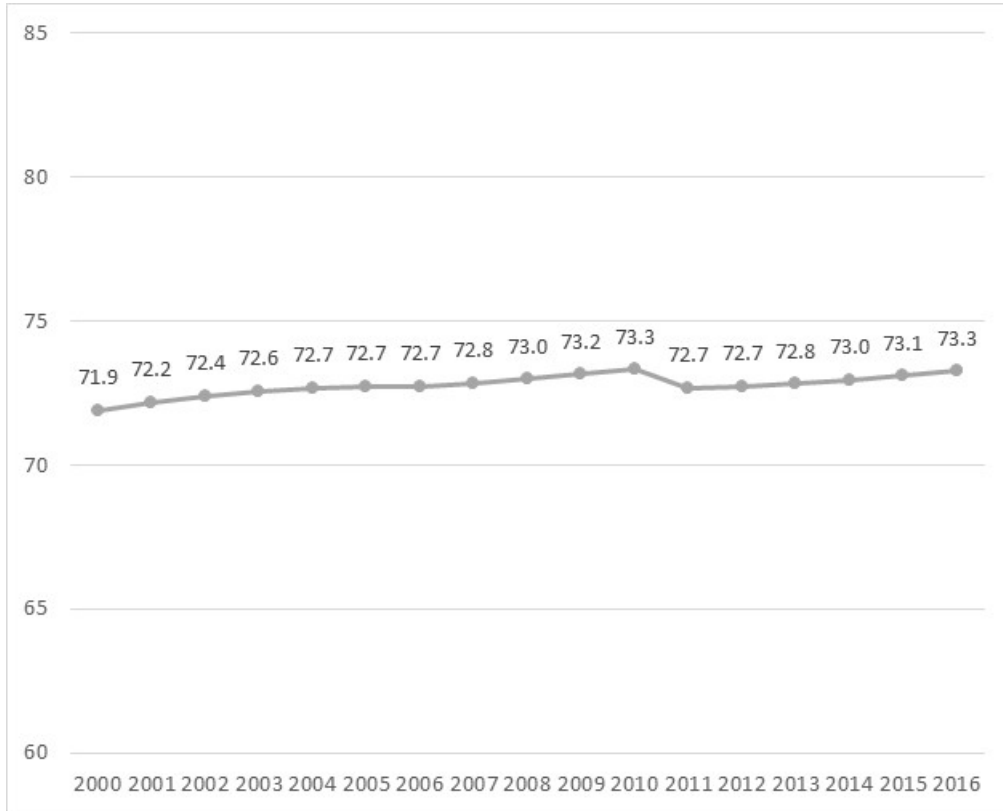


Source: WHO

**Figure 35 Trend in Number of Hospital Beds per 10,000 Members of Population (beds)**

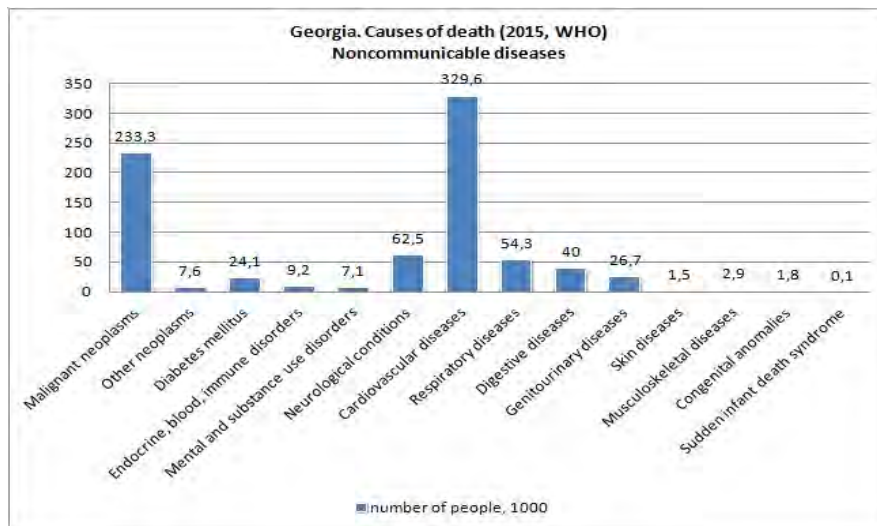
Georgia has a relatively high average life expectancy, but a large number of patients with respiratory conditions contracted during the Soviet era, and a growing rate of death from cancer. The Ministry of Labor, Health and Social Affairs of Georgia is engaged particularly in preventative health measures, and is improving cancer screening.

The state's programs in regard to non-infectious diseases includes improved measures to prevent cancer, the incidence of which is rising every year. Particular measures are being taken to prevent breast cancer, cervical cancer, prostate cancer and thyroid cancer.



Source: WHO

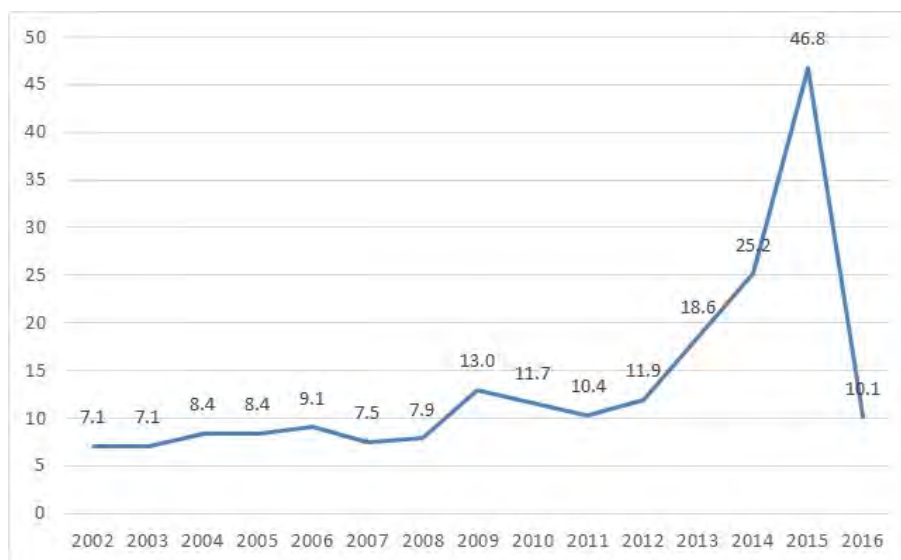
**Figure 36 Trends in Average Life Expectancy at Birth (Years)**



Source: WHO

**Figure 37 Cause of Death by Non-Communicable Disease per 1,000 of the Population (Incidents per 1,000 people)**

The rate of cancer occurrence is rising, and the government is beginning to strengthen its medical screening programs. In Tbilisi, the National Screening Center implements screening for breast cancer, cervical cancer, prostate cancer and thyroid cancers.



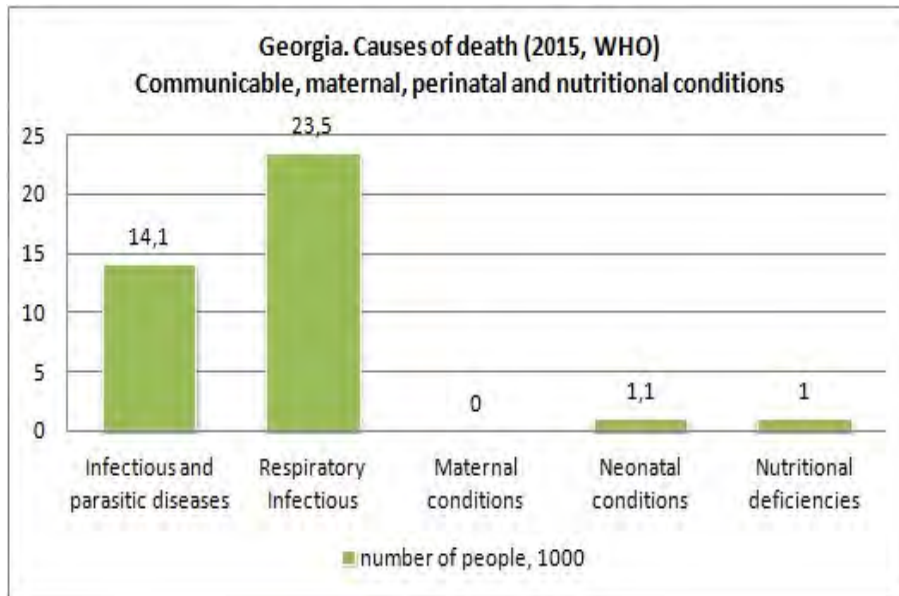
Note) In 2016 a different source of data was used (Cancer Population Registration Data). From 2009, regional data is included in the totals.

Source: Ministry of Labor, Health and Social Affairs of Georgia.

**Figure 38 Trends in Occurrences of Cancer and other Tumors (1,000 incidences)**

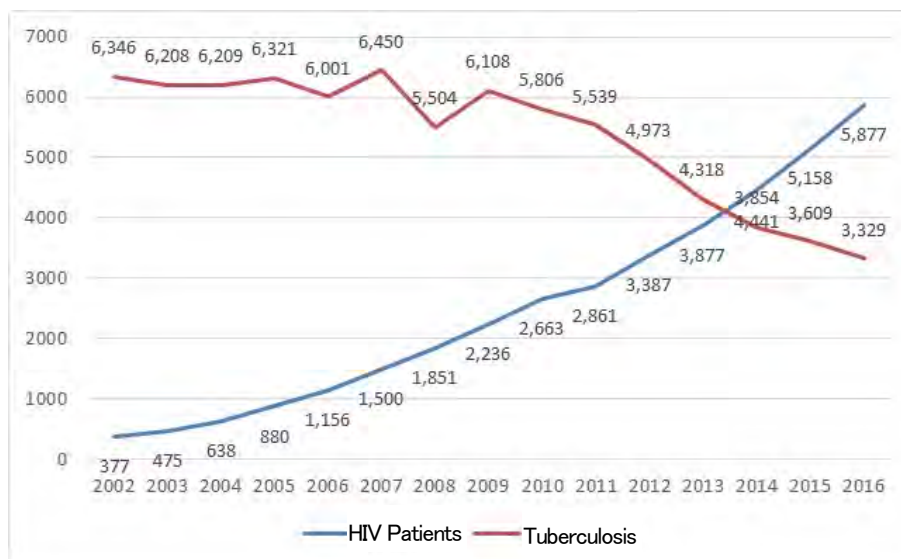
According to the national medical program, the infant fatality rate has fallen as a result of improved measures to prevent vertical infection (infection from mother to child). At the same time, the high smoking rate means that the country has a large number of patients with respiratory conditions. Tuberculosis is falling, but remains at a high rate of transmission compared to other conditions. Furthermore, there is still a high proportion of HIV infection, which is an issue. At present, medical programs include programs to tackle lifestyle-related diseases including those caused by smoking, drug prevention and other measures to prevent the cause of disease.





Source: WHO

**Figure 39 Cause of Death by Communicable Disease per 1,000 of the Population (Incidents per 1,000 people)**



Source: Ministry of Labor, Health and Social Affairs of Georgia.

**Figure 40 Trends in HIV and TB Patients (no. of cases)**

#### 4.4.1.1. Public Hospitals

The state university hospital<sup>34</sup>, regional hospitals in difficult-to-access mountainous areas and military hospitals are public hospitals. Furthermore, emergency medicine centers are also under the umbrella of the Ministry of Labor, Health and Social Affairs of Georgia as public medical facilities. Only just over 14% of hospitals are in the public sector.

#### 4.4.1.2. Publicly Established, Privately Run Medical Agencies

The Screening Center, which tests for cancer and other diseases as part of the nation's medical program improvements, implements free testing. Within the primary care sector, publicly established, privately run medical facilities are being opened in various regions. Other than cancer screening, drug recovery facilities and other programs are offered for free to those who need them. These are established by the public sector but operated by the private.

#### 4.4.1.3. Private Hospitals

Along with increasing privatization, insurance companies are active in gaining business, and large-scale insurance companies operating hospitals has become an established business model. EVEX and other large insurers are opening hospitals throughout Georgia, including the latest in equipment and facilities. The insurers' business model of restricting the scope of its services to hospitals under its own umbrella, and a tendency to implement excessive numbers of tests in order to acquire income from consultations have been identified recently as issues.

#### 4.4.1.4. University Hospital/University

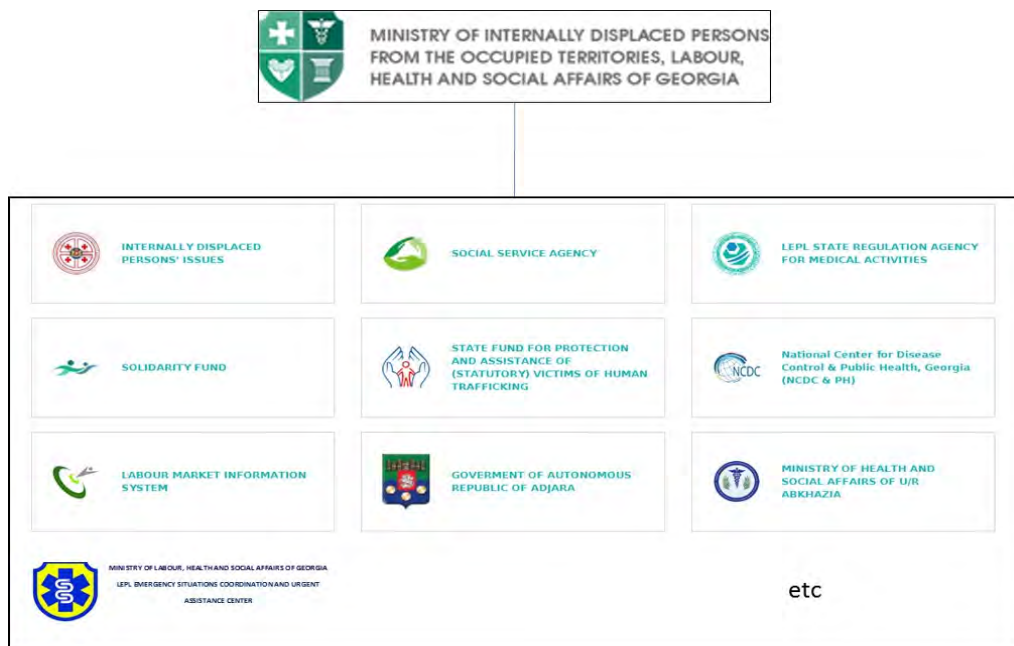
Medical departments and university hospitals are operated under the management of the state, and partnered with state programs, in order to raise the level of treatment provided by the state. The State University has welcomed students from various countries (more than 70 countries).

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<sup>34</sup> Ex, Tbilisi State Medical University

#### 4.4.2. Infrastructure Improvement Agencies and Staff Organizations

Jurisdiction is held by the Ministry of Labor, Health and Social Affairs of Georgia. In addition to medical and social security systems, it is responsible for everything other than the Ministry of Internally Displaced Persons' Issues. The various agencies under its umbrella are partnered with and managed, and the public hospitals that are part of the seven facilities<sup>35</sup> in mountainous and regional areas (according to a survey in December 2018) and 87 emergency medicine dispatch centers (according to a survey in October 2018) are managed by the Ministry of Labor, Health and Social Affairs of Georgia as public medical agencies under its infrastructure improvement program. The dispatch centers do not function as hospitals, in principle, but have doctors, staff, drivers etc. located at them on call. Dispatch centers are often built alongside hospitals in mountainous areas. Publicly established, privately run medical facilities are under the jurisdiction of local authorities, not the Ministry of Labor, Health and Social Affairs of Georgia, and as such their infrastructure improvement is managed by the local authority in question. Private hospitals are not under the jurisdiction of the Ministry of Labor, Health and Social Affairs of Georgia, and are therefore responsible for their own infrastructure improvement and operation.



**Figure 41 Ministries and Bureaus Responsible for Medicine and Healthcare, and Organizations under their Umbrella (as of December 2018)**

<sup>35</sup> A Regional Health Center is attached to LENTEKHI, TSAGERI, ONI, AMBROLAURI and KHAZBEGI hospitals, while Mestia Hospital Ambulatory Union, ABASTUMANI is attached to Abastumani Anti-tuberculosis Hospital,

#### 4.4.3. Cross-Regional Issues

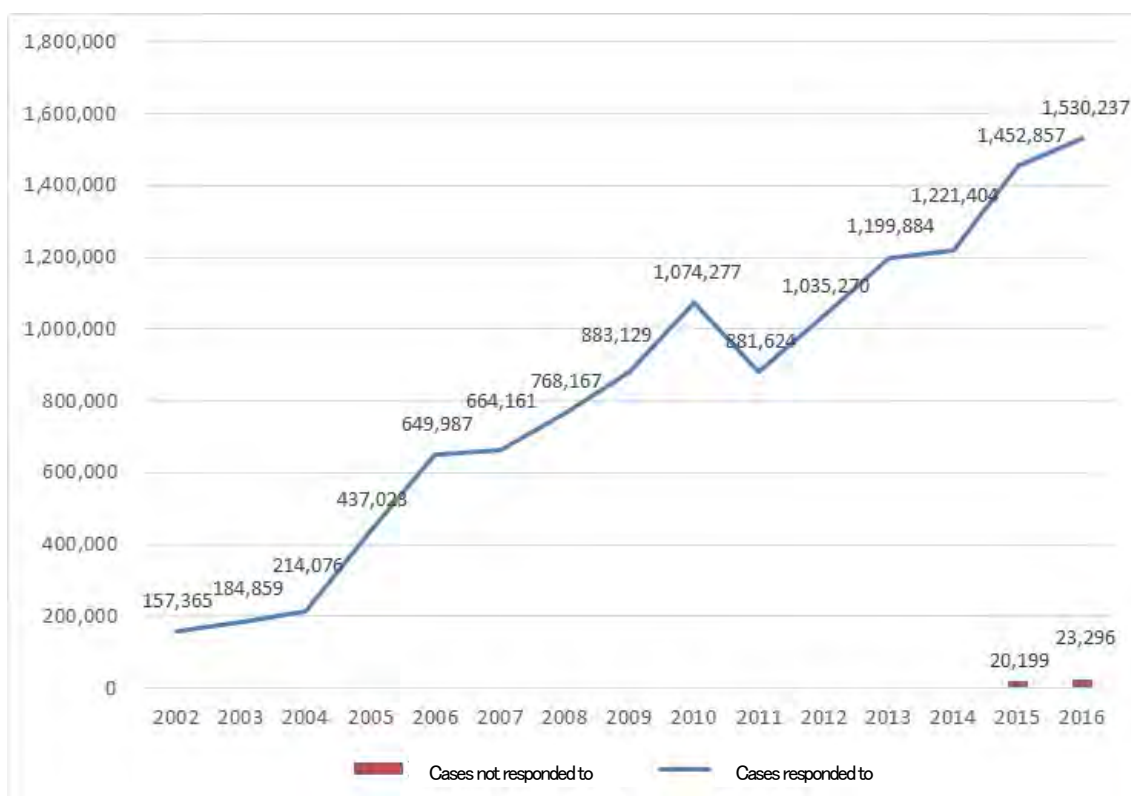
Since the system of medicine and healthcare differs depending on the country, there are no examples of inter-country cooperation. In terms of medical education, however, students are proactively accepted from other former CIS countries, Arab countries, Southeast Asia, East Asia and south Asia, which offer relatively low-level medical care.

In terms of accepting patients, hospitals are not proactive about accepting patients from Russia due to historical disagreements. Many patients come from other neighboring countries such as Azerbaijan and Kazakhstan. Recently, however, a lack of medical equipment and capacity issues mean that Georgian patients are given precedent. Non-Georgian patients pay for consultations, and as such most such patients are well-off.

#### 4.4.4. Issues with Progressing Infrastructure Improvement

Most of the public hospitals that are subject to support are in the regions, and have a strong need to upgrade and renew their medical equipment and facilities. Georgia has many tourists in its regions, with a specific seasonal increase in the number of tourists during the ski season. While some regions have kept up with infrastructure improvements alongside the increase in the number of tourists, in some areas, tourists taking showers in the morning and evening leaves hospitals without water. In these regional hospitals there is a profound lack of medical equipment and doctors. In terms of childbirth, while in some cases it is unavoidable for mothers to give birth in cities, the cost of living in the city for several months can be prohibitive, leading to a regional population drain. Furthermore, doctors in the regional hospitals are ageing, with some areas seeing over 70 year-old women doctor being forced to continue in hard work schedules.

At the same time, there is an increasing need for emergency medicine in Georgia, with the number of dispatches (the number of patients) rising. The main reason for emergency transportation is sudden onset of illness, but the next most common reasons are injury in accidents, sudden onset of labor, etc. Since 2015, the number of cases not responded to has also been recorded, and is expected to continue increasing. For this reason, the Ministry of Labor, Health and Social Affairs of Georgia is considering improvements to emergency medicine as a priority issue. In particular, in mountainous areas and other areas that are difficult to access, poor road conditions mean that 4WD ambulances are needed. There are insufficient ambulances to deal with the tourist season, and an increase in number is required.



Note) Calls not responded to are included in data since 2015

Source: Ministry of Labor, Health and Social Affairs of Georgia.

**Figure 42 Trends in the number of cases for emergency medicine**

The following table shows the level of government concern, specific issues and their importance, by sector.

**Table 30 Issues in the Medicine/Healthcare Sector**

Sector	Level of concern	Specific issues, themes	Scale of issue
<b>Emergency medicine</b>	High	As of 2016, there were 87 emergency centers located in mountainous and tourist areas. Ambulances, medical equipment and staff education are important themes, requiring improvements in both systems and the level of medical treatment offered. Increasing numbers of foreign tourists during ski season etc. have increased the need for emergency medicine for injuries etc.	Large Tourism is now one of Georgia's main industries, and the emergency medical network needs to be improved in line with the increase in tourism. Need for ambulances (vehicles capable of operating in mountainous areas) and their equipment, communication tools that work in mountainous areas

Sector	Level of concern	Specific issues, themes	Scale of issue
		Significant issues with number of ambulances, capacity of medical agencies and availability of medical equipment.	(with poor reception) etc. increasing.
<b>Regional public hospitals</b>	High	Increasing need for renovation and upgrades to equipment in public hospitals in mountainous areas. While hospitals in the regions have fewer patients than those in the cities, the mountainous and other regions are tourist destinations, and so medical needs increase during the tourist season. Old buildings and medical equipment need to be improved and replaced, and more doctors are required.	Large Hospitals in the mountains and other regions experience increased patient numbers during the tourist season. Issues include how to deal with this situation, and also the fact that regional hospitals do not have maternity units.
<b>Primary medical care</b>	Normal	The fact that treatment was free during the Soviet era means that people's level of interest in medicine is low. The former Soviet Union had no tradition of screening, and so people's awareness of preventative medicine and health issues remains low. The state's medical program includes screening and other improved primary healthcare aspects, but there is a lack of screening equipment. Rates of cancer are increasing, and there is an awareness of this as an issue.	Normal Screening is being improved, but there is a lack of medical equipment for cancer screening. There are also issues with image processing and storage.
<b>Improvements to medical system</b>	Low	The social security system has been simplified and pensions abolished. The abolition of pensions was done for the single reason that it was difficult to ensure the budget to pay for them. There is a need to ensure a budget for the medical sector and reconstruct the social security system.	Normal The government has reduced the scope of the care it needs to provide by privatizations, but sectors that the government should be contributing are getting left behind.

#### 4.4.5. Infrastructure Improvement Projects

There have been no recent projects and none are planned immediately. The Ministry of Labor, Health and Social Affairs of Georgia is considering improvements to emergency medicine as a priority issue. Specifically,

there is a need for more ambulances at each dispatch center, and the replacement of medical equipment within the ambulances, but it is also necessary to upgrade and replace both the dispatch centers and the regional hospitals to which they are attached in many cases.

There have been proactive approaches from the private sector in various countries, with approaches from Czech Republic, Romania, Bulgaria and other Eastern European countries increasing. In addition to fund and foundation grants, these countries have expanded into Georgia by partnering with universities and proposing new projects to private sector hospitals. Foreign businesses have, for example, proposed to Georgia that they enter the country to provide pharmaceuticals (exports) or care services, and offered business proposals to partner with local medical service providers. Furthermore, medical service providers, pharmaceutical manufacturers and equipment manufacturers have been approaching the Ministry of Labor, Health and Social Affairs of Georgia and national hospitals and universities to consider partnership and the establishment of local branches.

#### 4.4.6. Activities by Donors

Many donor activities are in the form of grant aid, with much of these being small in scale. Grant aid has been provided to LEPL L. Sakvarelidze National Center for Disease Control and Public Health<sup>36</sup>, under the umbrella of the Ministry of Labor, Health and Social Affairs of Georgia.

The activities of each supporting agency often start at the smallest end of the grant scale, and progress to loans for larger projects once relationships with Georgia and its government. Recently, various countries have been proactive in making proposals to Georgia. The scale of grant aid is at maximum a few hundred million yen, with typical donors including WHO and UNICEF. Supported projects include the provision of medical equipment, consumable goods, education and technical support.

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<sup>36</sup> LEPL stands for Legal Entity of Public Law, and indicates a government-related organization or similar organization type. L. Sakvarelidze is a person's name, and the official name is the National Center for Disease Control and Public Health.

## 5. Activities of Japanese Companies in the Relevant Regions

### 5.1. Urban Planning, Logistics and Transportation

#### 5.1.1. State of Activities by Japanese Companies

In regard to the new port at Anaklia, the Singaporean ports operator Portek, in which Mitsui & Co., Ltd. has invested, has shown an interest in becoming the project lead, while Mitsubishi Corp. is interested in bidding for the existing container terminal. This survey identified the fact that marine constructors and commercial companies are interested in participating in Phase 2.

#### 5.1.2. SWOT Analysis of Japanese Companies and Services, and Predominant Subsectors

The following is a list of projects in which Japanese companies may have an advantage.

Firstly, the provision of a Single Window System for the port. Japanese companies could use their experience in constructing customs information systems throughout Southeast Asia to gain an advantage.

Secondly, the contracted management of domestic airports related to the promotion of tourism. Japan's airport operators are skilled at welcoming passengers, and in promoting tie-ups with regional tour operators, as well as having experience with domestic concessions, etc. They could use this experience in Georgia.

Thirdly, road maintenance. Japanese expressway companies use sensor technology to detect ageing in bridges and tunnels, and have developed asset management systems. They have knowhow that is required by road management companies in other countries, and are in an advantageous position for that reason.

Fourthly, development of areas beside railway lines in Tbilisi. In line with the construction of a public transport network, Japanese companies are experienced in demonstrating methods to increase commercial/transport interconnectedness, while developers and rail companies overseas are less experienced at this.

Fifth, the development of multi-floor car parks. Although there are some automated car parks overseas, there are not many operators with the technology to build mechanical car parks. In Tbilisi, there is almost no spare land, and there is an excellent opportunity for Japan's mechanical parking technology to be used in cities that can only build car parks by redevelopment.



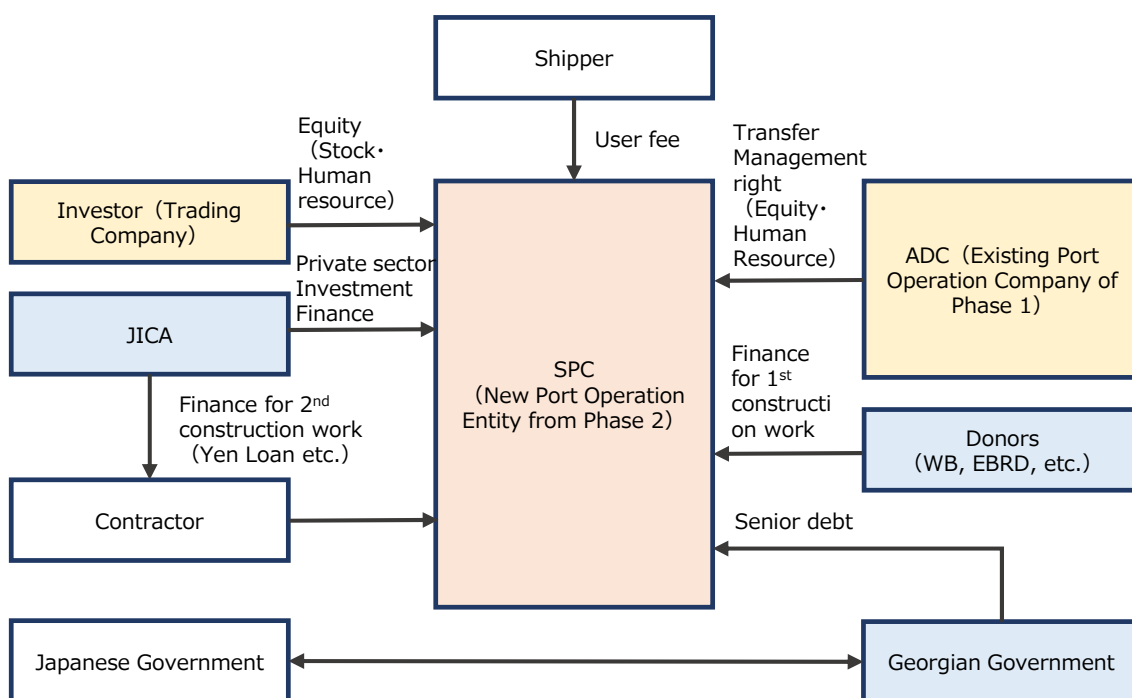
**Table 31 Potential for Japanese Involvement in Transportation/Logistics/Urban Development**

<b>Sector</b>	<b>General trend</b>	<b>Activities in relevant country</b>	<b>SWOT Analysis (Analysis of applicability based on Japanese companies' strengths/weaknesses)</b>
<b>Ports</b>	Marine construction and steel manufacturers are interested in port construction, while trading companies are interested in its operation. NACCS Center is interested in customs information system.	The new port at Anaklia has seen some investment interest from trading companies in its construction Anaklia.	◎: Single Window is close to systems that have been devised by the NACCS Center and the Ministry of Land, Infrastructure, Transport and Tourism
<b>Airports</b>	Trading companies, real estate companies and airport operation companies are interested in airport operation projects based on their experience of privatizing Japanese airports.	No activity at present (as TAV already has taken on major airports)	○: Airports other than those that have already been privatized may have some possibility if construction and operation schemes are put in place.
<b>Railways</b>	Carriage and signal manufacturers, as well as trading companies are interested in rail construction projects. Underground rail operators are interested in advising and offering technical cooperation with railway operation.	No activity at present.	-: (No movement from either the government or Japanese companies)
<b>Urban transportation</b>	IT vendors and signal manufacturers are interested in signal operation and ITS, etc. Car park manufacturers are interested in car park construction.	No activity at present	○: Possible if consultation offered as a set including making car parks obligatory, and their construction.
<b>Roads</b>	Bridge/steel girder manufacturers and general contractors are interested in hanging bridges, and road/tunnel construction in mountainous areas. NEXCO is interested in road operation projects.	No activity at present	○: NEXCO is aiming to enter the field of inspections and maintenance technology for overseas road banks, tunnels and bridges. The Ministry of Land, Infrastructure, Transport and Tourism is also interested in infrastructure maintenance overseas. The north-south road features many bridges and tunnels, and there is a high

<b>Sector</b>	<b>General trend</b>	<b>Activities in relevant country</b>	<b>SWOT Analysis (Analysis of applicability based on Japanese companies' strengths/weaknesses)</b>
			possibility that Japanese companies could be involved.
<b>Logistics</b>	Trading companies are interested in the construction of logistics facilities with Japanese companies.	No activity at present	-: (No movement from either the government or Japanese companies)
<b>Urban development</b>	Trading companies and developers are interested in urban development capable of attracting Japanese companies IT vendors are interested in smart cities, etc. The Ministry of Land, Infrastructure, Transport and Tourism, UR Urban Institute and others are interested in TOD development.	No activity at present	△: Japanese experience could be of use if the creation of a Tbilisi Expansion Master Plan gets under way.

### 5.1.3. Participation in Second Phase of New Port at Anaklia

If the creation of demand subsequent to the first phase is successful, the port at Anaklia will become a hub for the Black Sea, and prosper as a trading port connecting China, Central Asia and the Mediterranean. The second phase is expected to begin in around 2025, and there is the possibility that Japanese companies will be involved. In the first phase it is thought that Japanese companies could become involved in the construction of an expanded port, dredging and construction of the base of the port. In the second phase, there is the possibility of investment in the port corporation, and the potential for trading companies. Fig. 43 shows the anticipated scheme for these to progress simultaneously. In other words, it is a scheme in which Japanese investors can become involved by increasing capital through jointly founding a new SPC (Port Operation Company) with the existing port operation company ADC. The financing of the second phase will be implemented using JICA capital, and there is a possibility that Japan can be involved in both funding and financing. As capital from other donors such as the World Bank and the Georgian Government is taken on by different partners, it is anticipated that there will be opportunities for Japan to become involved in both funding and financing.



**Figure 43 Japan's Involvement in the Second Phase of the New Port at Anaklia (Project Scheme Proposal)**

During these interviews, respondents indicated that the possibilities for Japanese involvement in the second phase were as above. For this reason, it is important that a feasibility study is carried out as soon as possible in 2019, and that Japanese investors and construction companies are drawn in.

## 5.2. Energy

### 5.2.1. State of Activities by Japanese Companies

The Georgian energy sector currently does not feature any actively involved Japanese corporations. In some cases, however, Japanese companies have been active in proposing projects. Potential for Japanese involvement is as follows.

- Hydroelectricity projects
- Wind generation project
- Analysis of transmission system, and extension of system and smart grids

## 5.2.2. SWOT Analysis of Japanese Companies and Services, and Predominant Subsectors

The following is a summary of the main strengths and weaknesses, as well as predominant subsectors from the point of view of manufacturers within Georgia's energy sector.

A common factor for Japanese companies is the fact that Japanese factories are located in Japan or Asia, a long way from Georgia, and as a result, when in competition with companies in Europe and Russia they face significant costs relating to logistics. For this reason, if the companies invested by the Japanese company develop the projects, the costs of their projects make the use of Japanese products prohibitively expensive. Considering the profitability of the project, using Japanese products will be difficult.

In the energy generation sector within Georgia, it is difficult to ensure that the government offers a 12-month purchase guarantee (PPA), and for the most part eight-month purchase contracts are proposed, mainly over the winter, with the remaining four months requiring electricity to be sold to Turkey and other surrounding countries via transmission lines. This factor means that it is difficult to form a clear picture of income and expenditure for projects. As a result, since it becomes difficult for Japanese companies to formulate a project under these circumstances, involvement in projects is considered difficult.

Against this background, the possibilities that emerge are for Japanese construction technology to be offered in solving issues in projects caused by geological factors in existing hydroelectricity projects, or in reorganizing projects by offering to manage the technology. In such cases, refinancing or additional financing may support the use of Japanese products. In Georgia, the construction of the Mtkvari hydroelectric generation plant is still incomplete; the water inflow tunnel on the Shuakhevi hydroelectric generation plant has collapsed, and landslides near the Bakhvi 3 hydroelectric generation plant, Dariali hydroelectric generation plant and Larsi hydroelectric generation plant have caused them to cease functioning<sup>37</sup>. Construction work in Georgia is largely carried out by major Georgian construction companies or European contractors, but in particular northern European contractors find construction work in mountainous areas complicated and often encounter issues. There is a possibility that Japanese finance and technology could make a contribution to existing construction work in these areas.

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<sup>37</sup> Murman Margvelashvili (2018) Problems of Hydroplant Constructing in Georgia – Dead-end or Opportunity?, [http://weg.ge/sites/default/files/hpps\\_eng.pdf](http://weg.ge/sites/default/files/hpps_eng.pdf)

**Table 32 Potential for Japanese Involvement in Energy Sector**

<b>Sector</b>	<b>General trends</b>	<b>Activities in relevant country</b>	<b>SWOT Analysis (Analysis of applicability based on Japanese companies' strengths/weaknesses)</b>
<b>Hydroelectricity</b>	Multiple hydroelectric generation plant have been constructed in Georgia, and in particular, they now provide the main source of power in the summer. In the future, there is the potential for generation based on small-scale hydroelectric plants, and with a view to exporting power to surrounding countries, the Georgian Government is being proactive in developing hydroelectric generation plants.	Companies engaged in surveys	△: Bidding documentation is within specification to European manufacturers in many cases, so involvement may be difficult. Despite this, when it comes to construction, many European contractors are not used to working in mountainous areas, and have failed to deal with landslides on slope, with the result that projects have been abandoned part way through. There is, therefore, the possibility for participation by Japanese companies when the construction is started over.
<b>Wind powered generation</b>	Georgia has multiple sites suited to wind generation, from Tbilisi out into the regions, and during winter, when hydroelectric generation falls, it is considered that the development of wind powered generation could provide a stable source of electric power.	No activity at present	△ ; Japanese companies own large-scale wind-powered generation facilities, but the transportation distance is large compared with European manufacturers, and as such they cannot compete on cost. Some wind-powered generation projects are in progress, with Turkish companies funded by Japanese corporations negotiating PPAs with the Georgian government. As these companies are already engaged with existing projects, it is considered possible for projects to expand based on opportunities in the future.
<b>Geothermal generation</b>	Geographically, there is potential for this. There is possibility for a base load power source distributed across regions. This could result not only in power generation but also the development of peripheral facilities such as hot springs and other tourism-related developments.	No activity at present	×: If progress occurs it is likely to be in binary generation, in which Japanese companies do not possess technological knowledge.

Sector	General trends	Activities in relevant country	SWOT Analysis (Analysis of applicability based on Japanese companies' strengths/weaknesses)
<b>Transmission</b>	Georgia has potential for hydroelectric and wind-powered generation, and is aiming to export power to neighboring countries. For this reason, international transmission lines are an area of urgent concern, and improvements to the system are being carried out with the support of international donors.	No activity at present	○ : The development of hydroelectric and wind-powered generation locations and the connection of branch lines to the main transmission line system in Georgia is required alongside the construction of generation plants, so there is potential for Japanese companies to enter the market in the periphery of hydroelectric and wind-powered generation plants.

### 5.3. Environment

#### 5.3.1. State of Activities by Japanese Companies

##### 5.3.1.1. Waste Processing

Clean System Inc., a waste processing company, implemented a survey entitled “Survey into the Potential for Small and Medium Enterprises to Support Georgia via JICA 2015 (Georgia Mixed Waste Processing System Creation Survey)”. Below, consideration is given to the potential for SWMCG (Solid Waste Management Company of Georgia) to work collaboratively with JICA on recycling.

##### 5.3.1.2. Water and Sewage

In 2005, Sapporo City’s Water Department implemented a study to find out more about the state of water provision in Georgia and Azerbaijan, while at the same time gathering information with a view to starting a regional training course that aims to train water technicians. The training course program was defined, but at present, no Japanese companies have expressed an interest in becoming involved in Georgia’s water/sewage systems.

#### 5.3.2. SWOT Analysis of Japanese Companies and Services, and Predominant Subsectors

##### 5.3.2.1. Waste Processing (Dangers and Weaknesses)

As noted above, Georgia has already received funding to construct waste processing landfill facilities, introduce recycling facilities, and purchase vehicles for the collection of waste from the World Bank, UNDP, EBRD, KfW and other ODA donors. To put it another way, the competition for Japanese companies in this area is stiff. As of writing this, no need has been expressed for the introduction of incineration plants for use in the final disposal of waste.

##### (Opportunities and Strengths)

Environmental management of landfill sites is required, and specific needs include the introduction of monitoring systems for air, soil and water pollution.

There is also an urgent need to deal with issues raised by the management and disposal of industrial and hazardous waste.

##### 5.3.2.2. Water/Sewage

##### (Dangers and Weaknesses)

There is a need to provide water and sewage infrastructure as soon as possible, but given the size of the market

and the costs involved there are not many opportunities for Japanese companies.

(Opportunities/Strengths)

In the past (2005) there have been case in which information was gathered regarding regional training courses for engineers in water and sewerage, and training course programs developed, but it is considered that there are few opportunities for this to lead to business for Japanese companies. As in Uzbekistan, it is possible that a need will develop in regional cities for simple septic tanks.

Based on the above, the areas in which Japanese companies can play a part are as follows.

**Table 33 Opportunities for Japanese Companies to be involved in the Environment Sector**

<b>Sector</b>	<b>General trend</b>	<b>Activity in relevant country</b>	<b>SWOT Analysis (Analysis of applicability based on Japanese companies' strengths/weaknesses)</b>
<b>Waste processing</b>	Japanese companies aiming for involvement in projects in Russia etc. (Mitsubishi Heavy Industries Environmental & Chemical Engineering Co., Ltd., Hitachi Zosen Corporation, Sanko Co., Ltd., Superfaiths Co., Ltd. etc.) are currently not expressing an interest in Georgia due to their Russian strategy.	No activity at present	△ : ODA donors such as the World Bank, UNDP, EBRD and KfW have contributed to construction of landfill sites, collection and recycling facilities and the purchase of vehicles to collect waste. Put another way, opportunities for Japanese companies to compete are limited. At present, there is no clear need for the introduction of incineration plants for waste.  At the same time, there is a specific need for better environmental management of landfill sites, and the introduction of systems to monitor air, soil and water pollution.
<b>Water and sewage</b>	Japanese companies aiming for involvement in projects in Russia etc. (Sekisui Chemical Co., Ltd., Yokogawa Electric Corporation etc.) are currently not expressing an interest in Georgia.	No activity at present	△ : In urban areas, donors such as the World Bank, ADB and Islamic Development Bank are investing in infrastructure improvement, so there are concerns about competition.  At the same time, large-scale water and sewage infrastructure for the regions is a financial issue. In regional areas, JICA's Support for Small and



Sector	General trend	Activity in relevant country	SWOT Analysis (Analysis of applicability based on Japanese companies' strengths/weaknesses)
			<p>Medium Enterprises Developing Business Overseas scheme and Grass-roots Technical Cooperation Project (special sector for local regeneration) scheme may be worth considering for the introduction of simple septic tanks.</p>

## 5.4. Healthcare and Medicine

### 5.4.1. State of Activities by Japanese Companies

As is the case throughout central Asia and the Caucasus, a lack of local information and the small scale of the market mean that Japanese companies do not seem interested, and there has been no particular move to enter the medical/healthcare market.

Neighboring countries (Germany, UK, other eastern European countries) have made significant approaches to Georgia, and there are many approaches by other countries and donors. Large German companies are already involved in supplying medical equipment.

Japan has predominance within the automobile market in Georgia. Many cars in the area are Japanese, and Toyota has a local corporation there. Many second-hand Japanese cars are on the road, and grants have enabled Japanese police cars to be purchased. Japanese cars are often seen in mountainous tourist areas, and Toyota 4WD vehicles are being introduced as ambulances in mountainous areas.

### 5.4.2. SWOT Analysis of Japanese Companies and Services, and Predominant Subsectors

The following is a list of areas in which strength may be demonstrated.

Firstly, emergency medicine and hospitals in mountainous/regional areas<sup>38</sup>. Emergency medicine and regional hospitals in areas where the main industry is tourism has already begun, with Japanese vehicles being introduced as ambulances and police cars, thereby contributing to public life. Furthermore, Japan has a history of providing medical equipment for regional hospitals, and there is much compatibility in this area.

Secondly, in particular in the cancer field, medical equipment and technical support. There is a role for the technical strength and quality of Japanese medical equipment, and existing know-how from past ODA projects.

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<sup>38</sup>Private hospitals do not usually construct facilities in mountainous areas. According to the Deputy Minister, it is said that about 86% of Georgia's hospitals are private. According to this survey, in which the number of hospitals in material provided was counted, there are only seven hospitals in mountainous and regional areas, with 87 emergency dispatch centers. Since both these are operated out of the national budget, they are counted as public hospitals. (2018/12/31)

**Table 34 Opportunities for Japanese Companies to be involved in the Medical/Healthcare Sector**

Sector	General Trends	Activity in relevant country	SWOT Analysis (Analysis of applicability based on Japanese companies' strengths/weaknesses)
<b>Improvements to emergency medicine and regional public hospitals</b>	<p>Japanese companies have more experience than other companies in delivering ambulances, and there may be a further market for Toyota vehicles.</p> <p>Usually, medical equipment and onboard equipment is procured from the same group as the vehicle, but partnership with a local company is preferable for the procurement of medical equipment.</p>	<p>No activity at present</p>	<p>◎ : Toyota has a local corporation in the area and its 4WD vehicles are already used as ambulances in mountainous areas.</p> <p>Regional public hospitals have already been supported by Japanese ODA in the past, and Japanese medical equipment is highly compatible.</p> <p>More recently, the Japanese embassy in Georgia has provided fire engines and cancer screening equipment through Partnership program.</p>
<b>Cancer and other medical equipment</b>	<p>Trading companies' prior experience of introducing large-scale medical equipment can be utilized here.</p>	<p>No activity at present</p>	<p>◎ : In addition to a need for MRI and CT equipment, there is also a need for image processing, storing and management. As such, Japanese medical IT field expertise could be useful here.</p> <p>Formatting of images and cloud storage do not present significant linguistic issues.</p> <p>Ordinarily this is an area in which language localization is an issue, and there are significant hurdles to working in Georgia due to its minority language.</p>

## 6. Appendices

### 6.1. Objectives of literature and desktop studies

The following government's websites are studies for desktop studies and literature findings.

**Table 35 Related government ministries and departments**

<b>Related government ministries and departments</b>	<b>URL</b>
<b>Ministry Economy and Sustainable Development</b>	<a href="http://www.moesd.gov.ge">www.moesd.gov.ge</a>
<b>Anaklia Development Consortium</b>	<a href="http://www.anakliadevelopment.ge">www.anakliadevelopment.ge</a>
<b>Georgian State Electro-System</b>	<a href="http://www.gse.com.ge">www.gse.com.ge</a>
<b>Electricity Market Operator</b>	<a href="http://www.esco.ge">www.esco.ge</a>
<b>Georgian National Energy and Water Supply Regulatory Commission</b>	<a href="http://www.gnerc.org">www.gnerc.org</a>
<b>National Statistics Office of Georgia</b>	<a href="http://www.geostat.ge">www.geostat.ge</a>
<b>Road Department</b>	<a href="http://www.georoad.ge">www.georoad.ge</a>
<b>Ministry of Regional Development and Infrastructure</b>	<a href="http://www.mrdi.gov.ge">www.mrdi.gov.ge</a>
<b>Georgian Railway</b>	<a href="http://www.railway.ge">www.railway.ge</a>
<b>Georgian Maritime Transport Agency</b>	<a href="http://www.mta.gov.ge">www.mta.gov.ge</a>
<b>Ministry of Agriculture and Environment Protection</b>	<a href="http://www.mepa.gov.ge">www.mepa.gov.ge</a>
<b>Tbilisi City Hall</b>	<a href="http://www.tbilisi.gov.ge">www.tbilisi.gov.ge</a>
<b>Ministry of Labor, Health and Social Affairs of Georgia</b>	<a href="http://www.moh.gov.ge">www.moh.gov.ge</a>
<b>National Screening Center</b>	<a href="http://www.gnsc.ge">www.gnsc.ge</a>

Following literatures and URLs are used for the study.

**Table 36 List of literatures for the study**

Sectors	Literatures and URLs
<b>Energy</b>	<ul style="list-style-type: none"> <li>▪ Ministry of energy of Georgia (old version) <a href="http://www.energy.gov.ge/">http://www.energy.gov.ge/</a></li> <li>▪ Invest in Georgia <a href="https://investinggeorgia.org">https://investinggeorgia.org</a></li> <li>▪ Geo Stat <a href="http://www.geostat.ge">http://www.geostat.ge</a></li> <li>▪ Electricity Market Operator <a href="http://www.esco.ge">www.esco.ge</a></li> <li>▪ Georgian State Electro-System <a href="http://www.gse.com.ge">www.gse.com.ge</a></li> <li>▪ Ministry Economy and Sustainable Development <a href="http://www.moesd.gov.ge">www.moesd.gov.ge</a></li> </ul>
<b>Environment</b>	<ul style="list-style-type: none"> <li>▪ United Nations Economic Commission for Europe(2011) Environmental Performance Reviews Azerbaijan Second review Synopsis, <a href="http://www.unece.org/fileadmin/DAM/env/epr/epr_studies/Synopsis/Azerbaijan%20ECE.CEP.158.synopsis%20english.pdf">http://www.unece.org/fileadmin/DAM/env/epr/epr_studies/Synopsis/Azerbaijan%20ECE.CEP.158.synopsis%20english.pdf</a></li> </ul>
<b>Healthcare</b>	<ul style="list-style-type: none"> <li>▪ Ministry of Labour, Health and Social Affairs of Georgia <a href="http://www.moh.gov.ge/">http://www.moh.gov.ge/</a></li> <li>▪ National Center for Disease Control and Public Health <a href="http://www.ncdc.ge/">http://www.ncdc.ge/</a></li> <li>▪ National Screening Center <a href="http://www.gnsc.ge/">http://www.gnsc.ge/</a></li> <li>▪ Tbilisi City Hall <a href="http://www.tbilisi.gov.ge">http://www.tbilisi.gov.ge</a></li> </ul>

## 6.2. List of interviewees

Following is the list of interviewees in the report.

**Table 37 List of interviewees for the study**

<b>Organization</b>	<b>Interviewees</b>
<b>Ministry of Economy and Sustainable Development</b>	Mr. Giorgi Cherkezishvili, Deputy Minister
	Mr. Giorgi Chikovani, Deputy Minister (energy)
	Mr. Romeo Mikautadze, Deputy minister (energy policy)
	Ms. Ketevan Salukvadze, Head of Transport and Logistics Development Policy Department
	Ms. Ketevan Takaishvili, Head of Transport Corridor and Logistics Development Division
<b>Anaklia Port Development</b>	Mr. Mamuka Khazaradze, Chairman / Founding Partner
	Mr. Levan Akhvlediani, CEO
	Ms. Vanda Kakiashvili, Chief Legal Officer
	Mr. Zurab Pichkhaia, CFO
	Mr. Ronny Solberg, CEO Construction Management
	Ms. Natia Miminoshvili, Head of international Relations Division
<b>United Airports of Georgia</b>	Mr. Ivane Petraiashvili (Executive Manager)
	Ms. Dea Matchavariani
<b>Georgian State Electro System</b>	Mr. Sulkhan Zumburidze, Chairan of Georgian State Electro system
<b>Ministry of Regional Development and Infrastructure</b>	Mr. Irakli Karseladze, Deputy Minister/ Chairman of Road Department
	Mr. Grigol Katsia, Deputy Minister
	Mr. Mamuka Shalikashvili, Head of division
<b>Georgian railway</b>	Mr. Irakli Titvinidze, CFO
	Mr. Giorgi Suramelashvili, Mr. Levan Iobashvili
<b>Maritime Transport Agency</b>	Mr. Zaza Makharadze, First Deputy Director
	Mr. Ivane Abashidze, Deputy Director
<b>Ministry of Agriculture and Environment</b>	Mr. Nodar Kereselidze , First Deputy Minister

<b>Organization</b>	<b>Interviewees</b>
	Ms. Khatia Tsilosani, Head of International Relations Department (now Deputy Minister) ,Ms.Eka Naobishvili ,Head of Internations Relations Dibision, International Relation Department
<b>Tbilisi City Hall Environment Protection Department</b>	Giga Gigashvili, Head of Municipal Service for Environmental Protection
<b>Tbilisi City Hall Healthcare and Social Services department</b>	Mr. Gela Chiviashvili, Head of Healthcare and Social Department of Tbilisi City Hall Ms. Natia Verdzadze, Head of Healthcare Programs Department
<b>Ministry of Labour, Health and Social Affairs</b>	Mr.Zaza Bokhua, First Deputy Minister Maia Nikoleishvili, Chief Specialist at the Executive Department Mr.Avtandil Talakvadze, LEPL Emergency Situations Coordination and Urgent Assistance Center,Director Ms. Tea Gzirishvili, LEPL Emergency Situations Coordination and Urgent Assistance Center Ms.Eka Kapanadze , LEPL Emergency Situations Coordination and Urgent Assistance Center,Department of Medical Service,Quality and Call Management
<b>National Screening Center</b>	Ms. Eter Kiguradze, Director Ms.Tamar Skhirtladze, Head of medical Department, National Screening Center Mr. Levan Bakuradze, Head of Financial Department
<b>First University Clinic of Tbilisi State Medical University</b>	Irakli Kokhreidze MD. PhD.,Mammologist Vice Rector of the Medical University (2018/6/30) Giorgi Abesadze, General Director (2018/6/30) Ms. Anni bokuchave, PR Manager (2018/6/30)
<b>Jvania Children Hospital</b>	General Director - Lia Dzidziguri, Anesthesiologist Tbilisi State Medical University Associated Professor

<b>Organization</b>	<b>Interviewees</b>
	Head of Podiatry - Manana Jvania, Pediatricist Tbilisi State Medical University Associated Professor



### 6.3. Statistics

Following statistics are used in the report.

**Table 38 List of statistics and data sources**

Sector	URL
<b>Energy</b>	<ul style="list-style-type: none"> <li>▪ Geo Stat <a href="http://www.geostat.ge/">http://www.geostat.ge/</a></li> <li>▪ Ministry Economy and Sustainable Development <a href="http://www.moesd.gov.ge">www.moesd.gov.ge</a></li> <li>▪ CIA World Factbook <a href="https://www.cia.gov/">https://www.cia.gov/</a></li> </ul>
<b>Healthcare</b>	<ul style="list-style-type: none"> <li>• Ministry of Labor, Health and Social Affairs of Georgia <a href="http://www.moh.gov.ge/">http://www.moh.gov.ge/</a></li> <li>▪ National Center for Disease Control and Public Health <a href="http://www.ncdc.ge/">http://www.ncdc.ge/</a></li> <li>▪ National Screening Center <a href="http://www.gnsc.ge/">http://www.gnsc.ge/</a></li> <li>▪ Tbilisi City Hall <a href="http://www.tbilisi.gov.ge">http://www.tbilisi.gov.ge</a></li> <li>▪ Tbilisi State Medical University <a href="http://new.tsmu.edu/">http://new.tsmu.edu/</a></li> <li>▪ Geo Stat <a href="http://www.geostat.ge/">http://www.geostat.ge/</a></li> </ul>