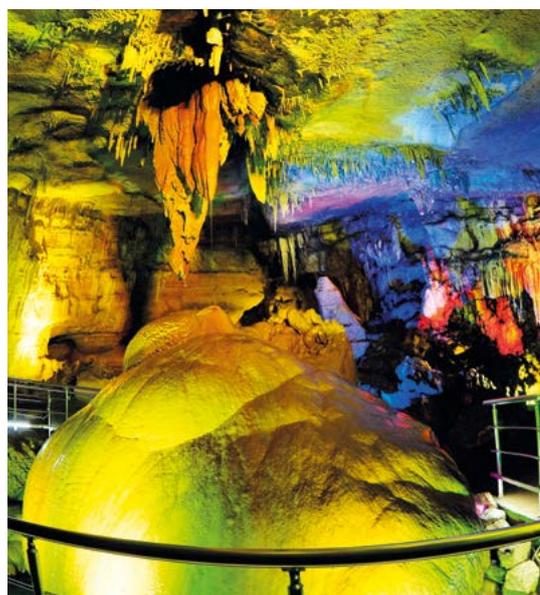


Georgia

Environmental Performance Reviews

Third Review - Highlights



Environmental conditions and pressures

Since 2008 the general trend of emissions of air pollution substances has been negative – almost all emissions have been on the rise. Nitrogen oxides emissions (NO_x), converted to NO₂, increased by 120.59 per cent from 18,534 tons in 2008 to 40,886 tons in 2013. There was also a 35.34 per cent increase in emissions of volatile organic compounds (VOCs), from 87,131 tons in 2008 to 117,926 tons in 2013.

The development of the SO₂ and TSP diverged from the increasing pollution trend. Sulphur oxide (SO₂) emissions decreased by 3.65 per cent between 2008 and 2013, from 9,873 tons to 9,513 tons. Emissions of total suspended particles (TSP) decreased by 21.47 per cent from 33,220 tons in 2008 to 26,080 tons in 2013.

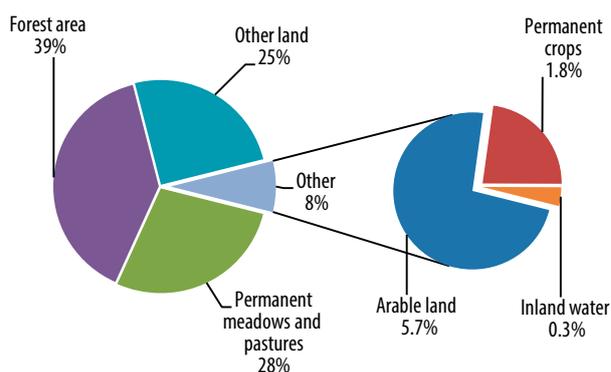
In 2013, annual total freshwater abstraction was 30.2 billion m³. In 2013, 57 per cent of the drinking water came from groundwater sources and the rest was surface water. Although about 70 per cent of the urban population is connected to the sewerage system, only 26 per cent of their wastewater was treated in 2013. The rural population is not connected to wastewater systems and there are no wastewater data available.

Soil erosion is the critical threat to Georgian soils. Nearly 35 per cent of agricultural land is degraded as a result of water and wind erosion, which are affecting particularly the mountainous areas and crop fields, especially in eastern Georgia. Modern farming techniques for cultivating steep areas such as terraces and buffer strips are not commonly applied. Wind erosion and desertification have become a critical issue in eastern Georgia due to overgrazing and the recent decline in rainfall in the region.

Soil salinization is another big threat affecting the soils of eastern Georgia. Large-scale secondary soil salinization is due to the non-observance of irrigation rules and dates. In addition to soil salinization, Soil pollution also takes place in some industrial areas. Especially in the vicinity of metal mining sites, soils are affected by pollution with heavy metals through irrigation water and atmospheric deposition.

In Georgia, the use of fertilizers has fluctuated over the past 15 years. Due to sharp price increases, fertilizer use diminished to 2,500 tons a year in 2006, which translated to about eight kg per sown hectare. Since then, fertilizer use has increased massively. In 2013, total fertilizer use was 35,300 tons – about 136 kg per sown hectare.

Figure 2: Land use, 2012, per cent



Source: FAO (<http://faostat.fao.org/>), accessed October 2014.

Legal, policy and institutional framework

The country's environmental sector underwent a profound reorganization in 2011, which was then reversed in 2013. This reorganization was the origin of a massive decrease of capacity at all levels of environmental governance. Institutional instability compounded with the Government's focus on maximum deregulation affected the pace of planned environmental policy reforms and hindered implementation.

After a two-year period of functioning with a narrowed mandate, in 2013 the Ministry regained its former functions almost entirely, and re-established or established several key units. However, the previous depth and breadth of the Ministry's presence at the subnational level was not re-established.

The process of EU association added more clarity in environmental policy objectives in Georgia. The Government put efforts into reconciling economic and environmental goals, though the former remain clearly predominant.

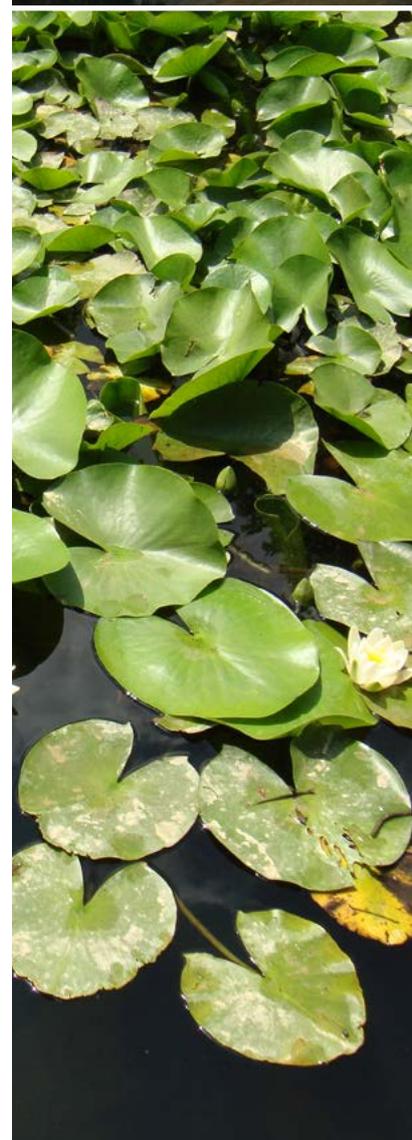
Environmental planning has progressed along several lines. After an aborted NEAP for 2008–2012, the development and adoption of the NEAP for 2012–2016 (NEAP-2) was an important landmark in environmental policymaking in Georgia. Overall, both in terms of process organization and its outcome, NEAP-2 development has been well aligned with good international practice. The development of NEAP-3 has started in 2014.

There was no progress on developing a national sustainable development strategy. National action on the MDGs was monitored irregularly. The second MDG progress monitoring report was issued in September 2014, almost a decade after the first progress monitoring report. The assessment report is rather descriptive and does not review achievements in relation to national targets.

There has been little progress on revising environmental standards since 2010. Ambient standards are Soviet standards transposed into the Georgian law. Computer models used to derive emission standards for individual stationary sources are outdated. The development of general binding rules (technical regulations that may indicate emission standards for a specific sector) have stagnated.

There were some changes in product standards, in particular fuel quality regulation. Despite a gradual improvement, fuel quality standards continue to be below the international benchmarks (especially for sulphur), while the number of cars has been growing exponentially and their technical state has been degrading.

Georgia's spatial planning system has significant gaps, especially in terms of implementation. Legislation is vague or incomplete. Mandates are not well defined in both a vertical and horizontal perspective. Land use categories are not sufficiently specific. Community tenure of land is not part of the legislation although it concerns most of the country's pasture land. Information for planning remains scarce, especially data on land privatized prior to 2006 and its use category. Data sharing is limited and information management infrastructure obsolete.





In Georgia, an assessment of impacts is necessary for both new and existing facilities and infrastructure projects. EIA is performed on the basis of design documentation, while the acceptability of the proposed site for the planned development is not evaluated and an alternatives analysis is not undertaken.

The quality of EIA reports tends to be poor; some reports are missing essential elements. In its current design and functioning, the EIA procedure is far from compliance with international benchmarks. Its flaws concern the coverage of projects (i.e. EIA scope), organization and transparency of the procedure, clarity and enforceability of EIA conditions, and compliance with them. Public participation in this procedure is limited.

There is no mandatory environmental insurance in Georgia, despite the stipulation in the 1996 Law on Environmental Protection that activities that can cause severe environmental damage should be subject to it. Relevant normative acts, which would enact the mentioned requirement, have not been adopted.

The NEA has succeeded in improving environmental and hydrometeorological monitoring networks. Advancements have been most significant in relation to surface water monitoring, which was extended and comprises 69 monitoring points on 40 water bodies. In 2012–2013, seven automated stations measuring the degree of γ -radiation exposure were installed. Real time data received from the stations are gathered daily in the central office and published on the official website of the NEA. Soil and geological surveillance remain very limited. New forms for statistical reporting on water have been developed.

Recommended measures:

- **Make strategic environmental assessment mandatory at all levels;**
- **Integrate environmental and disaster risk management elements into spatial planning;**
- **Fully align the scope and procedure of EIA and permitting with international practices;**
- **Optimize the monitoring network;**
- **Improve environmental statistics and enhance capacity for data analysis.**

Note: The sections entitled “Recommended measures” represent an abridged version of selected recommendations from the EPR report and are provided for information purposes only. Please consult the text of the report for the full text of recommendations as adopted by the UNECE Committee on Environmental Policy.

Economic instruments, environmental expenditures and investments for greening the economy

Since 2010 no new environmentally related economic instruments have been introduced. Although the Law on Environmental Protection provides for the establishment of eco-labels, there is as yet no legal framework for eco-labelling of products in Georgia.

The Law on Public Procurement does not consider environmental criteria in public sector procurement of goods and services. There is no information on the extent to which such considerations have been made on a voluntary basis during the past few years.

Georgia has made progress in improving its public sector budgetary and financial management framework pertaining to strategic budget planning, budget formulation and execution. As from 2010, the Basic Data and Directions document provides a medium-term budget framework.

The management of environmental pollution does not rely on pollution charges to create economic incentives for reducing emissions of air and water pollutants to acceptable standards. The excise duties applied in Georgia appear, however, to be rather low for creating such incentives. In a similar vein, the excise duty levied on imports of motor vehicles creates wrong incentives by favouring the purchase of older vehicles, which are, in general, more polluting than newer cars.

Both the polluter-pays and user-pays principles are not followed in the water sector. There are no payments of fees for surface water abstraction. Fees for groundwater abstraction are low. Water supply and sewerage tariffs for households are quite low. Water supply tariffs are not cost reflective. A large proportion of households have no water meters and pay a flat fee per person.





Table 1: Government expenditures on environmental protection according to functional classification of expenditures (COFOG), 2009–2013, million lari

Government sector	2009	2010	2011	2012	2013
State budget	28.69	18.03	24.68	21.78	30.98
Local government budget	86.31	106.00	86.13	66.73	109.20
Total	115.00	124.03	110.81	88.51	140.21
Memorandum items					
Total in € million	51.71	55.77	49.82	39.80	63.04
Total as per cent of general government expenditures	1.60	1.70	1.30	1.00	1.60
Total as per cent of GDP	0.64	0.60	0.46	0.34	0.52

Source: Ministry of Finance; ECE calculations.

Note: Exchange rate: €1 = 2.2239 lari (average monthly rate for October 2014).

Table 2: General government environmental expenditure, 2009-2013, million lari

COFOG Code / Domain	2009	2010	2011	2012	2013
7051 Waste collection, recycling and disposal	61.84	75.76	63.47	33.91	75.14
7052 Wastewater management	15.07	13.71	11.94	14.32	15.66
7053 Pollution abatement	5.01	4.12	2.73	0.89	0.65
7054 Protection of biodiversity and landscape	12.85	19.10	21.44	26.16	27.54
7055 R&D in environmental protection	1.18	0.99	0.00	0.00	0.00
7056 Environmental protection n.e.c.	19.06	10.35	11.22	13.22	21.21
705 Total	115.00	124.03	110.81	88.51	140.21
705 Total in € million	51.71	55.77	49.82	39.80	63.04

Source: Ministry of Finance; ECE calculations.

Notes: COFOG = Classification of Functions of Government.

Exchange rate: €1 = 2.2239 lari (average monthly rate for October 2014).

Recommended measures:

- Eliminate the financial incentives for purchasing older vehicles;
- Reintroduce water pollution charges;
- Introduce a system of payments for surface water abstraction for all user groups;
- Meter use of irrigation water.

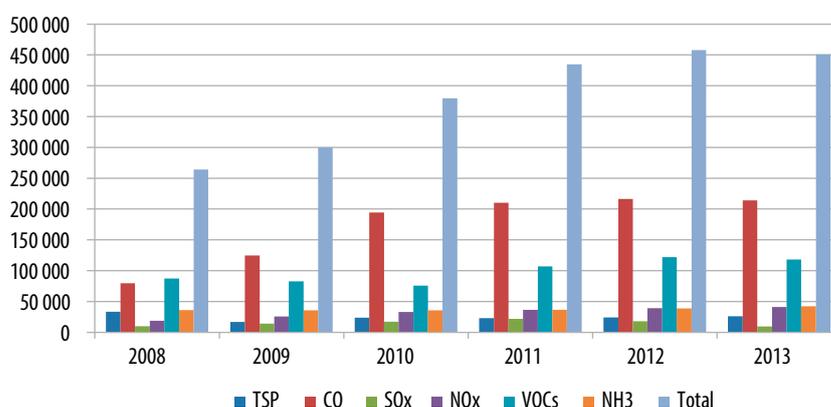
Air protection

National air quality standards are still based on maximum allowable concentrations and cannot be directly compared to the standards used by the World Health Organization or the EU. The air quality measurements are performed according to Georgian standards. Air quality monitoring is based on seven manual and one automatic monitoring stations that are operated by the NEA. Except of Tbilisi there is only one monitoring station in other four cities. The monitoring stations are mostly located in places with high levels of air pollution, near industrial blackspots or near traffic hotspots.

In 2004 Georgia abandoned a yearly, mandatory test of safety and roadworthiness for light duty vehicles. Without appropriate regulations and a mandatory annual test of safety, roadworthiness and exhaust emissions, it is not possible to ban the most polluting vehicles from the road.

Georgia has phased out the use of chlorofluorocarbons and halons. Georgia acceded to the Beijing Amendment in 2010. The country is in full compliance with control measures under the Montreal Protocol. The main ODSs (annex A and B of the Protocol) have been phased out two years prior to the requirement (2010).

Figure 3: Emissions of air pollutants, 2008-2013, tons



Source: Ministry of Environment and Natural Resources Protection, 2015.

Recommended measures:

- **Reintroduce the mandatory annual test of the safety, roadworthiness and exhaust emissions of all vehicles;**
- **Restrict the use of the most polluting vehicles in urban areas;**
- **Regularly inform the population of the health effects of road transport pollution.**



Water management

While Georgia is rich in water resources, access to safe drinking water is still a problem in almost all regions. The water supply infrastructure in Georgia is in poor condition. The unsatisfactory sanitary and technical conditions existing in the water supply systems often lead to breakdowns, leading to losses of 40–60 per cent.

Municipal wastewater remains a major polluter of surface waters in Georgia: on average, 70 per cent of the urban population is served by collection systems but only 26 per cent of wastewater is treated. Currently, sewage collection systems exist in only 41 towns and urban centres but most of the municipal wastewater treatment plants (WWTPs) are inoperable. The exceptions are Gardabani WWTP, built in 1988, which only has mechanical pre-treatment, and the Sachkhere and Batumi WWTPs (operating since 2013), which have biological treatment.

In the last few years, the drinking water quality monitoring system has worsened substantially, due to the abolition, in 2006, of the Sanitary Supervision Service within the Health Ministry. The Service used to analyse more than 50,000 samples annually. However, since 2012, the situation has been gradually improving as the National Food Agency is strengthening its presence in the country with three regional laboratories. There has been an increase in the number of analyses performed since 2012.

Currently, 19 automated hydrological stations and 12 manual stations are operational. The monitoring network for surface water quality has improved from 41 points in 2009 to 69 points in 2014, and at 32 rivers and 8 lakes. The number of monitored parameters was increased to 33.

The coverage rate of water supply in Tbilisi was already 100 per cent by 2008, but only 70 per cent of the population was served 24 h/day; 30 per cent of the population covered by the supply system had water for only three to four hours per day.

Recommended measures:

- **Establish basin management structures for river basin districts;**
 - **Expand the surface water and groundwater monitoring networks;**
 - **Assess the status of urban wastewater collection and treatment.**
-



Waste management

Collection of municipal waste is provided only in urban areas, while rural areas remain unserved. It is estimated that about 70 per cent of generated municipal waste is collected by regular services and delivered to local disposal sites. Practically all collected waste is transported directly to disposal sites. Material recovery from municipal waste is not performed except in the sorting plant at Rustavi city landfill. Separate collection has not yet been introduced in Georgia.

Management of health-care waste in Georgia is undergoing a transformation. Old practices, when waste from hospitals was dumped together with municipal waste, are being abandoned and a network of specialized incinerators for medical waste is emerging. The old system of health-care waste management, which is still used, is based on disposal of non-infectious waste in municipal landfills; infectious waste is sterilized and then disposed of, and anatomical waste is buried in cemeteries. The new system, which has been developed with the assistance of international donors, uses incinerators for the destruction of health-care waste.

The environment is affected by air, ground and surface water pollution from improperly constructed official municipal landfills. Most of the 63 official municipal landfills operational today do not have a groundwater protection barrier and a leachate collection/treatment system. Spontaneous, low-temperature combustion of waste occurs in landfills, emitting harmful substances including dioxins and furans into the air. These persistent organic pollutants (POPs) degrade slowly in the environment and are transported long distances by atmospheric flows.

An integrated waste management framework law did not exist in Georgia until 2015, despite there having been several attempts to adopt a waste law, in 2003, 2005 and 2010. A new legal act on waste management, the Waste Management Code, was adopted on 26 December 2014 and entered into force on 15th of January 2015.

Georgia has neither a waste management strategy nor a waste management policy. Targets and measures for waste management and for management of radioactive waste were defined in the National Environmental Action Programme 2012–2016 (NEAP-2).

Recommended measures:

- **Implement a waste data information system based on internationally recognized waste classification**
 - **Conduct systematic monitoring and control of hazardous waste hotspots;**
 - **Carry out a feasibility study for a hazardous waste depository.**
-



Biodiversity and protected areas

Within Georgian flora, 4,130 species of vascular plants have been recorded.

In 2014, the Caucasus plants Red List has been published and the assessment resulted in the first comprehensive list of plants endemic to the Caucasus region (about 2,950 species/subspecies).

The rich nature of Georgian flora is evident from its high level of endemism,

with around 21 per cent of Georgian flora (up to 900 species) being endemic. Among these, around 600 (14 per cent of all species) are Caucasus endemics and 300 (9 per cent of all species) are endemic to Georgia.

There have been improvements in the management of protected areas since 2010.

New protected areas have been established and the initiation of the Emerald Network was a step forward. As a result, the area of protected areas increased from 494 050 ha (7.09 per cent of Georgia's territory) to 600,668 ha (8.62 per cent of Georgia's territory). In respect of geographical coverage of the country and representativeness of Georgian biomes, critical gaps still exist, in particular in the Central Caucasus Mountain Range.

No protected area network is yet developed in Georgia,

and neither is there a spatial development plan in order to strengthen the existing protected areas and transform them into a network. Protected areas appear isolated and no actions are taken for establishing an interconnected protected area network. Nevertheless, a plan and steps to set up a protected area network exist.

Until 2010, hunting was allowed only on hunting farms and in certain areas of strict nature reserves,

except for hunting of migratory birds, which was allowed everywhere except in settlements and some categories of protected areas. Today, there are 18 hunting farms (four more licenses have been issued to fishing farms) but they do not operate effectively and only some of them have approved extraction quotas.

The existing monitoring system in protected areas is insufficient.

Biodiversity monitoring studies in protected areas are mainly conducted by university research departments and NGOs in the frameworks of projects.

Recommended measures:

- **Develop and maintain a unified, well-equipped biodiversity monitoring system;**
- **Develop and maintain a protected areas network.**



Energy and environment

Georgia has very small proven oil and natural gas reserves. More than 70 per cent of primary energy supply is imported; fossil fuels make up more than 70 per cent of this. Current crude oil production is not high and most of the fields are heavily depleted. Plans call for boosting oil production to three million tons per year by 2020, and gas production to two billion m³ by the same date.

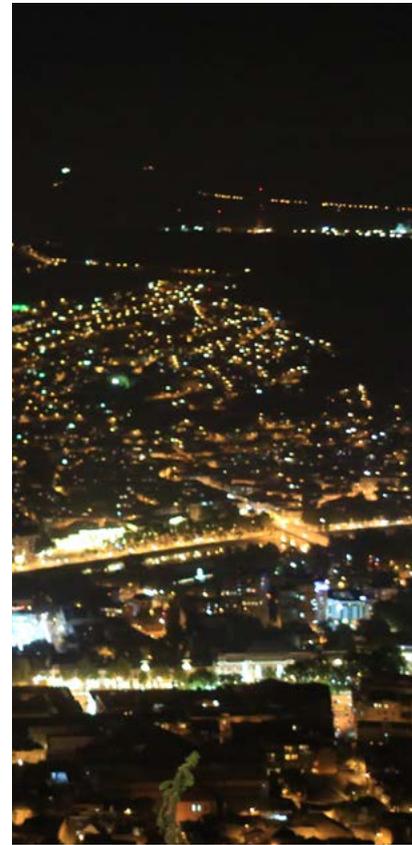
Georgia's energy sector has experienced significant growth in recent years, from having annual electricity generation of 7,061 GWh in 2005 to reaching 10,059 GWh in 2013; it became a net exporter of electricity in 2007. Exports reached its peak in 2010 and then decreased sharply in the period 2011–2013, from 1,524 GWh in 2010 to 450 GWh in 2013. In 2013, electricity generated from HPPs amounted to 8,271 GWh (83 per cent of total generation) and from TPPs, 1,788 GWh (17 per cent).

Despite installed hydropower capacity of around 2,700 MW, only 1,600 MW (60 per cent) of hydropower capacity actually generates electricity. The rehabilitation of the remaining 1,100 MW installed capacity could bring around 2.2–2.5 TWh of additional hydroelectricity. This is the least costly way to expand generation capacity and is given priority by the Government. Many of these rehabilitations are already under way.

Local biofuels (mainly in the form of firewood) play an important role in primary energy supply. Its share in total energy consumption is about 20 per cent. Firewood is mainly consumed in rural areas for cooking and heating purposes. For these purposes, the average rural household consumes 5–15 m³ of firewood annually. Annual consumption of firewood has been estimated at 1 million m³. The consumption of firewood is very inefficient due to the widespread practice of using woodstoves of very low efficiency (35–40 per cent). Georgia has considerable potential for biomass utilization (3–4 TWh), given the share of forests and agriculture in the national estate.

The energy intensity of the Georgian economy is high and the amount of specific energy needed to produce goods and services in Georgia is 2–2.5 times higher than in Western countries. It is estimated that energy efficiency measures can provide up to 20 per cent of energy saving in the country, in particular up to 1 TWh of electricity, up to 250 m³ of natural gas and up to a million m³ of firewood.

Georgia uses 40–50 per cent more energy for heating per m² of floor space than EU countries with the same climate. As a result, 80–90 per cent of the energy consumed in Georgia's residential sector is used for space heating. In general, buildings in Georgia consume about 40–45 per cent of all energy for heating purposes. The problem is equally acute for residential, office and industrial buildings. In Tbilisi, the thermal resistance of buildings to heat losses is three to four times less than recommended for energy efficiency for the Tbilisi climate zone. Currently, there are no effective mandatory or indicative energy efficiency standards in the Building Code. The residential sector in Georgia has a huge energy efficiency potential, due to the high share of the residential sector in the energy balance.





Geothermal achievable potential is 3 TWh per year. Geothermal waters are currently used in Georgia for district heating, fishpond heating, agricultural drying, industrial applications and greenhouse heating. The nation's geothermal resources are of the highest quality, containing minimal amounts of dissolved salts, which consequently reduces scaling during utilization.

The climatic conditions of Georgia are favourable for utilizing solar energy.

The achievable potential of solar energy in Georgia is estimated at 60–120 GWh annually. Most regions of the country have 250–280 days of sunshine per year. Direct and global radiation reaches daily values of 3.5–5.3 kW/m² and an annual average of 1,550 kW/m². The potential of solar energy, however, is strongly seasonal and varies by a factor of more than four from mid-summer to mid-winter.

The technical potential of the major biomass sources in Georgia amounts to 12.5 TWh.

The achievable potential is estimated at 3–4 TWh. This estimate does not incorporate the potential of farming energy crops. Apart from firewood, which is used for cooking and heating, and a few donor-supported biogas initiatives, the biofuel potential remains untapped.

Table 3: Electricity balance, 2008-2014, GWh

	2008	2009	2010	2011	2012	2013	2014
Generation	8 450.5	8 407.7	10 057.7	10 104.5	9 694.7	10 058.7	10 369.6
Hydropower plants	7 169.0	7 417.0	9 374.9	7 892.5	7 222.6	8 271.0	8 333.7
Thermal power plants	1 281.5	990.7	682.8	2 212.1	2 472.1	1 787.7	2 035.9
Import	649.2	258.2	222.1	471.0	614.6	484.1	851.9
Export	680.0	749.4	1 524.3	930.6	528.2	450.4	603.6
Consumption	8 419.7	7 916.5	8 755.4	9 644.9	9 781.2	10 092.5	10 618.0
Domestic consumption	8 075.0	7 642.1	8 441.1	9 256.6	9 379.4	9 690.2	10 170.1
Losses	344.7	274.4	314.3	388.3	401.8	402.3	448.0

Source: Ministry of Energy, 2015.

Recommended measures:

- **Finalize a national energy strategy;**
- **Apply hydropower plant site selection criteria based on international best practices;**
- **Develop national rules on the methodology for determining environmental flows.**

Industry and environment

Pollution flows from industry are difficult to assess in terms of volume and composition, since only a few industrial enterprises carry out self-monitoring and self-reporting. Nevertheless, the data available indicate that air emissions and pollution of surface water, groundwater and soil due to industrial activities remain important issues in regions where manufacturing and mining enterprises are located (e.g., Bolnisi, Chiatura, Rustavi and Tbilisi).

Total air emissions from the industrial sector have increased remarkably, to 35,627 tons in 2012, after a drastic decrease in 2009 to 14,363 tons. This increase is mainly due to higher amounts of TSPs, but emissions of VOCs, NO_x, CO and SO_x have also shown a moderate increase in the same period.

The regions that rank as the most polluted due to air emissions from industry are Imereti, with its manganese and coal mining, metallurgical and ferroalloys industries, followed by Kvemo Kartli, with its copper/gold mining, metallurgical, chemical and cement production industries.

In 2013, industry water use accounted for 35 per cent of total water use, excluding hydropower generation. Industrial wastewater discharges have increased by a factor of 1.6 from 2011 to 2013. In 2013, 48 per cent of total industrial wastewater was not treated before discharge into surface water bodies.

There are no landfills for industrial waste in the country. Industrial wastes are disposed of at municipal waste landfills or, more often, at the site of the facility producing the waste. In general, environmental requirements are not observed, resulting in diffuse pollution of surface water and groundwater and soil. Industrial hazardous wastes and mining wastes, including old and present tailings containing heavy metals and other toxic substances, can be found in several regions of Georgia, but are mainly concentrated in the Imereti region (85 per cent) and Racha-Lechkhumi and Kvemo Svaneti regions (11 per cent).

Environmental management systems, such as the ISO 14001 series and EU Eco-Management and Audit Scheme (EMAS), are not common in Georgia. At present, only eight industrial enterprises in the country are ISO 14001 certified. Capacities on environmental management (mainly environmental economics, eco-innovation, assessment of environmental technologies) are lacking, as are incentives to improve performance. This is reflected in the low level of environmental compliance by the industrial and mining sectors.

Recommended measures:

- **Strengthen environmental requirements for licences and permits for industry and mining facilities;**
- **Develop legislation on integrated pollution prevention and control;**
- **Establish a national pollutant release and transfer register.**



Agriculture and environment

In 2013 agriculture share in GDP was 9.4 per cent, and 9.2 per cent in 2014.

From an employment perspective, agriculture still remains a mainstay, as the population classified as employed in agriculture has remained fairly constant from 2000 (52.1 per cent) to 2013 (52 per cent).

Agricultural productivity of Georgia is low: between 2006 and 2012, the average wheat yield was 1.5 tons/ha and that of maize 2.2 tons/ha. The reasons for this are very small family farms, a low degree of entrepreneurship, the lack of cooperative development, limited educational opportunities (19 per cent of the agricultural labour force have training in agriculture) and the low use of agricultural inputs.

Large-scale breeding facilities (cattle and poultry) have closed down, resulting in the establishment of many small-scale facilities, and this has redistributed the emissions from a small number of large sources to a large number of small sources. The impacts of localized large emissions have been reduced. The cattle and pigs are held exclusively on private small farms and dispersed throughout the territory: in 2012, there was an average of about 1.5 cows and 0.25 pigs per farm, so that there is no manure management at the farm level.

Of the 3 million ha of agricultural land, 35 per cent is degraded because of erosion. Due to the climate and the topography, natural soil erosion takes place on quite a large scale in Georgia. Water erosion takes place in the western part of the country and is accelerated by overgrazing and the ploughing of steep slopes. Wind erosion takes place in the eastern part and is due to the destruction of the wind shelter belts (out of a total of 2,000 km, 1,800 km were logged for firewood) and overgrazing by large sheep flocks.

Irrigation and drainage systems deteriorated seriously in the past two decades, because there was no funding for their maintenance and rehabilitation. As a result, water losses lowered water availability, negatively affecting crop yields.

Recommended measures:

- **Improve land resource management legislation;**
- **Rehabilitate existing and construct new irrigation and drainage systems.**



Transport and environment

The development of Georgia's transport sector is determined to a large extent by its strategic position for energy imports by the EU from neighbouring Azerbaijan, and for east–west and north–south trade flows. In response to its strategic position as a transit country, Georgia has invested in important infrastructure projects to increase the effectiveness of its transport system.

Since 2004, the number of wheeled vehicles has increased three times, from 319,461 in 2004 to 1,021,261 in 2014. The steep increase is primarily due to the increase in road passenger transport with eight seats; which increased by 220 per cent from 256,153 in 2004 to 820,819 in 2014. About 531,000 vehicles, i.e. 70 per cent of the vehicle fleet, are older than 15 years.

Georgia has invested heavily in modernizing and upgrading its rail network since 2004. The rail network in 2004 was 1,565 km, 4 per cent of which was included in the Trans-Caucasian Corridor (TRACECA) rail corridor. Today, the network has reached 2,344 km.

The transport sector accounts for 87 per cent of CO₂, 70 per cent of NO_x, 50 per cent of SO₂ and 40 per cent of VOCs emissions in the country. According to NEAP-2, factors exacerbating the emission of air pollutants by the sector include the age, poor quality and high number of the vehicle fleet. Furthermore, even though most cars are imported from Europe, the catalytic converters are outdated, thus dramatically increasing the amount of emitted harmful substances.

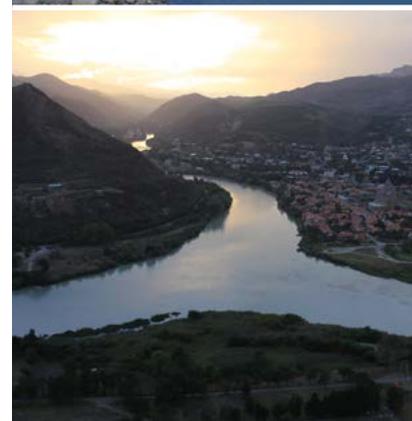
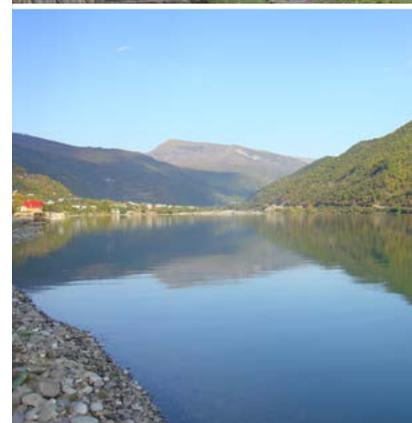
In recent years, efforts have been made to promote public transport in Georgia. In recent years, it has received considerable investments. The underground system extends to a total of 57 km, corresponding to two lines and 22 stations. In 2012, aerial tram/cable car from Rike Park to Narikala Fortress was built. The funicular railway that runs up to Mtatsminda Mountain was opened in 1905 and was recently reconstructed.

From 1 January 2014, regulations and standards on fuel quality in force have become more strict. In particular, those concerning lead content standards in Georgia are as stringent as those in the EU. However, there is no inspection system in place to control the quality of fuel at the distribution points.

Despite the fact that the new standards for sulphur content are considerably more stringent than their predecessors, they remain a clear outlier from equivalent standards in the EU. In petrol, maximum sulphur concentrations in Georgia are 15 times higher than those allowed in the EU. In diesel, the same concentrations are 20 times higher than those allowed in the EU. Given the adverse environmental and health effects of sulphur emissions, this is an area of concern with considerable room for improvement.

Recommended measures:

- **Adopt emission standards for vehicles and technical specifications;**
- **Make car insurance obligatory;**
- **Promote active (non-motorized) mobility in the cities.**



Forestry and environment



Forests occupy about 40 per cent of the territory of Georgia, a total of 2,822,500 ha, with an unequal distribution across the regions. Approximately 97 per cent are located on the slopes of the Greater and Smaller Caucasus Mountain ranges; the rest are found in the valleys of east Georgia and the Kolkheti lowlands.

The assessment of the total growing stock of Georgian forests is 455 million m³, of which 124 million m³ are coniferous and 312 million m³ broadleaved. The average growing stock per ha is 170 m³ and continues to be higher than the EU average of 150 m³ per ha. Regarding its net annual natural increment, this amounts to 1.8 m³ per ha per year.

In combination with unsustainable logging, excessive grazing is causing severe damage to forest ecosystems in the country. Overgrazing by livestock is a serious threat in certain locations near settlements, in winter pastures. Grazing is often shifted to nearby forests. Limited control from the state authorities, rural poverty, limited alternative livelihood opportunities, improper range management, and a lack of awareness of shepherds and livestock owners are considered to be main causes of overgrazing in the country. At present, there are no data on forest areas affected by overgrazing.

About 87.1 per cent of households in rural areas and 17.4 per cent of households in urban areas depend heavily on wood for cooking and heating.

Most of the wood harvested in Georgia is used directly for fuelwood and comes from forests; however, trees from fruit orchards, gardens, windbreaks, etc. complement the supply. Fuelwood is mainly traded in informal markets and official recorded data do not properly reflect the fuelwood situation in the country.



Data and assessments on the status of Georgian forests are incomplete and based on a sample of inventory or satellite images over limited periods of time. A complete forest inventory dates back to 1997, and partial updates have only recently been initiated through temporary ground plots.

Recommended measures:

- **Carry out a forests inventory;**
- **Implement an effective forests monitoring system;**
- **Promote incentive mechanisms for the sustainable use of forest areas by forest license holders.**

Tourism and environment

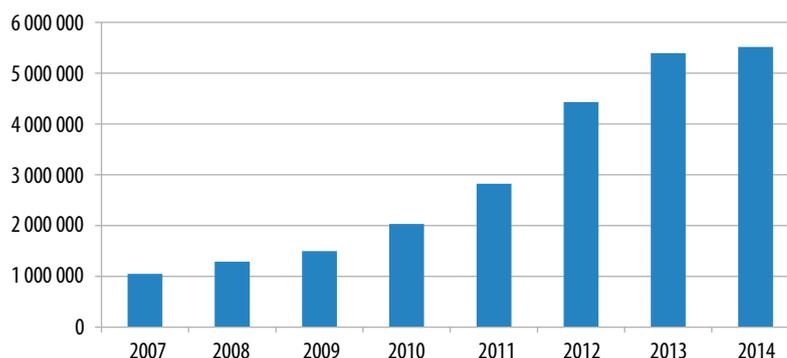
In the period 2005–2013, the tourism industry in Georgia demonstrated impressive growth. The number of international arrivals grew more than ninefold, from 560,021 in 2005 to 5,515,559 in 2014. In 2012, 2013 and 2014 the number of international arrivals was higher than the total population of the country.

The statistics for 2011–2014 demonstrate that the most popular season among international travellers is summer (35 per cent of all international arrivals). Eighty-eight per cent of all arrivals are from four neighbouring countries: Turkey, Azerbaijan, Armenia and the Russian Federation, in that order. An increasing trend is observed in the number of tourists from the Russian Federation. This was made possible by the visa liberalization process and the reintroduction of direct flights.

Tourism is an important sector in the Georgian economy. Approximately 59 per cent of Georgia's service export revenue comes from tourism. Revenues consisting of international tourism receipts demonstrated an increasing trend, reaching US\$1.79 billion in 2014. Tourism's gross value added, as a proportion of GDP, increased to 6 per cent.

The number of hotels has more than doubled since 2008, from 353 to 836 in 2013. This growth was achieved thanks to private investments in the hotel industry. During the same period, the number of state-owned hotels decreased sixfold, from 30 in 2008 to 5 in 2013.

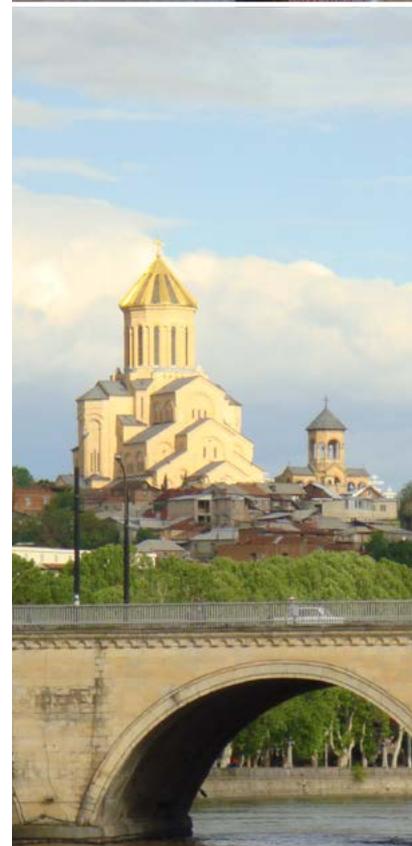
Figure 8: International arrivals, 2007-2014, number



Source: Georgian Tourism Industry Overview, 2012; Georgian Tourism in Figures, 2013.

Recommended measures:

- Regularly collect environment-related data on the tourism sector;
- Undertake an assessment of the impact of the tourism sector on the environment;
- Promote sustainable tourism development.



Health and environment

The under-five mortality rate per 1,000 live births has been declining since 2000. It was estimated at 28.7 (per 1,000 live births) in the period 1990–1994, 24.9 in 2000 and 13.0 in 2013. This is still higher than that in the EU (5 per 1,000 live births) and the European region (9 per 1,000 live births).

During the last decade, the incidence of respiratory system diseases increased.

The incidence rate is much higher in children (35,000 per 100,000 children in 2012) compared with the general population (12,000 per 100,000 population in 2012). The most widespread chronic respiratory diseases are asthma, respiratory allergic diseases and chronic obstructive pulmonary diseases. Tobacco smoke is the main cause of chronic pulmonary diseases. Air contamination in buildings, atmospheric air pollution, occupational dust and chemicals also constitute risk factors.

Each year from 9,000 to 11,000 people are dying in Georgia from diseases associated with tobacco use; among them, 3,000 are passive smokers. The prevalence of smoking in Georgia is one of the highest among countries in Europe.

In Georgia, there is a strong contrast between urban and rural areas in terms of the proportion of households with piped water supply (97 per cent in urban areas, 66 per cent in rural areas). In big cities, water supply performances increased due to the construction and optimization of water networks by companies.

In 2007 the surveillance, control and majority of services involved in sanitary surveillance were abolished without an alternative structure or new legislation. Legislation related to environmental health was also cancelled or suspended. There is a lack of legislation and control of the authorities in several environmental health domains, for example, safe use of chemicals, waste management, industrial emissions, and outdoor and indoor air quality.

There is no plan or programme on environmental health. In 2003, a national environmental health action plan was elaborated but was never adopted. There is no children's environment and health action plan in Georgia.

Recommended measures:

- Carry out an assessment of environmental health;
- Develop actions to reduce the population's exposure to air pollution;
- Develop a system for monitoring recreational water quality.



Risk management of natural and technological/anthropogenic hazards

Georgia is exposed to a wide variety of natural hazards, however they do not cause as many fatalities as technological disasters. Floods and debris- and mudflows contribute to most natural-disaster-related fatalities. The economic losses stemming from disasters are not consistently assessed and collected.

The 2014 Law on Civil Safety prescribes responsibilities for the Ministry of Internal Affairs, while many activities described in the Law are also mandated to the Ministry of Environment and Natural Resources Protection, such as monitoring, sampling and analysis following emergencies. However, the capacities within the Ministry of Environment and Natural Resources Protection are very limited to undertake these tasks. The Law requires the development of some 50 by-laws to harmonize existing legislation with that of the EU.

No national strategy for disaster risk management has been developed, although a thorough assessment of capacities for disaster risk reduction (DRR) has been undertaken on which a capacity-development plan could be based.

In 2014, Georgia undertook a DRR Capacity Assessment. It revealed that there is a high level of government willingness and potential to move from a reactive approach of disaster response to a more proactive DRR approach. It stated that technical, human and financial capacities exist; however, coordination, prioritization and systematization across all relevant sectors, governance levels and institutions are insufficient.

The response component of the disaster management system is well developed in Georgia. However, its engagement in international fora, including the United Nations Disaster Assessment and Coordination (UNDAC) teams, Environmental Emergency Response Network and International Search and Rescue Advisory Group (INSARAG) is limited.

Recommended measures:

- **Identify and map hazardous activities;**
 - **Include site-specific risk reduction measures in the EIA and environmental permits.**
-



Georgia

Environmental Performance Reviews

Third Review

The United Nations Economic Commission for Europe (ECE) Environmental Performance Review Programme assesses progress made by individual countries in reconciling their economic and social development with environmental protection, as well as in meeting international commitments on environment and sustainable development.

The third Environmental Performance Review of Georgia was carried out in 2014-2015, and recommendations to the country on how it can improve its environmental governance were adopted by the ECE Committee on Environmental Policy in October 2015. The third review examines the progress made by Georgia in the management of its environment since the second review in 2010. It covers policymaking, implementation and the financing of environmental policies, as well as efforts in the area of greening the economy. It addresses air protection, water management, waste management, biodiversity and protected areas and discusses integrating environmental concerns into selected sectors, in particular, energy, transport, forestry, tourism and health. It makes suggestions for strengthening efforts towards a comprehensive and systemic response to sustainable development challenges.

The Highlights of the third Environmental Performance Review of Georgia draw attention to the key findings of the review to inform and guide policymakers and representatives of civil society, as well as the international community, in their efforts to improve environmental management and to further promote sustainable development in Georgia.

Printed Environmental Performance Reviews may be obtained from the United Nations Publication department at:
<https://unp.un.org/>

Environmental Performance Reviews are available online at:
<http://www.unece.org/env/epr/>

Information Service
United Nations Economic Commission for Europe

Palais des Nations
CH - 1211 Geneva 10, Switzerland
Telephone: +41(0)22 917 44 44
Fax: +41(0)22 917 05 05
E-mail: info.ece@unece.org
Website: <http://www.unece.org>