



PARLIAMENT OF GEORGIA

Thematic Inquiry Report
of the Environment Protection
and Natural Resources Committee
of the Parliament of Georgia on

Air Quality in Tbilisi

Thematic Inquiry #ECI-19/01





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Working Group

To conduct a thematic inquiry on ambient air quality in Tbilisi, a Working Group was formed at the Environmental Protection and Natural Resources Committee (hereinafter, the Environment Committee), comprising the following Members of the Parliament of Georgia:

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2. Tinatin Bokuchava | Deputy Chairperson of the Environment Committee
3. Giorgi Gachechiladze | Chairperson of the Faction of the Georgian Dream – Greens Party
4. Giorgi Khatidze | Member of the Parliament
5. Nino Tsilosani | Member of the Parliament
6. Nino Gogvadze | Member of the Parliament
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11. Levan Koberidze | Member of the Parliament
12. Gogi Meshveliani | Member of the Parliament
13. Sulkhan Makhatadze | Member of the Parliament
14. Elene Khoshtaria | Member of the Parliament

Authority

The Working Group ‘On Ambient Air Quality in Tbilisi’ at the Environment Committee (hereinafter, the Working Group) was formed on the basis of paragraph 3 of Article 50 of the Rules of Procedure of the Parliament of Georgia (as of 2018), and Resolution #6 of the Chairperson of the Environmental Protection and Natural Resources Committee, dated 18 April 2018.

The Working Group carries out its activities in accordance with the Constitution of Georgia, the Rules of Procedure of the Parliament of Georgia, the Provisions of the Environmental Protection and Natural Resources Committee of the Parliament of Georgia, the Provisions of the Staff of the Environmental Protection and Natural Resources Committee of the Parliament of Georgia, the legislation of Georgia, and the provisions of the Working Group on the Inquiry ‘On Ambient Air quality in Tbilisi’ at the Environmental Protection and Natural Resources Committee.

Report Accessibility

All of the materials received and used during the parliamentary thematic inquiry process, as well as all of the documentation, reports, opinions, transcripts of oral hearings and the final report of the Environment Committee, can be accessed on the website of the Parliament of Georgia www.parliament.ge

The following entities worked on the thematic inquiry:

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1 Introduction

1. All across the world, ambient air pollution is one of the most significant challenges. Recently, both the public and the media have become increasingly interested in air quality in Georgia, especially in Tbilisi. This concern has been reflected in numerous events, demonstrations and activities. Polluted air has a negative impact on human health and can cause many diseases, sometimes resulting in premature deaths. In 2016, around 60% of the expenses arising from treating diseases caused by air pollution were paid to clinics in Tbilisi. The Government of Georgia, the Ministry of Environmental Protection and Agriculture, and the Local Government of Tbilisi Municipality have planned and implemented many activities to address the growing issue of air pollution. However, the problem of ambient air pollution remains acute, rendering it necessary to elaborate effective measures to be enforced in a coordinated manner.

2. With the purpose of addressing the challenge of ambient air pollution, the Environment Committee initiated the ***first thematic inquiry in the history of the Parliament of Georgia*** in 2018, as part of which a Working Group was formed, comprising representatives of all of the political parties of the Parliament of Georgia.

3. It was important that the Working Group studied the ambient air quality in Tbilisi with the involvement of ***all relevant stakeholders***. To ensure this, the Terms of Reference for the thematic inquiry was published on the website of the Parliament, providing an opportunity for any relevant stakeholder to submit written evidence regarding the issue. During the inquiry process, the ***Environment Committee received and studied 20 pieces of evidence***. In addition, it ***conducted 19 oral hearings in the form of question-and-answer sessions*** with the stakeholders that had submitted their evidence and with the corresponding state agencies. The Working Group reviewed and analysed the available information, as well as the written answers, research papers, reports, best international practices, effective legislation, and sublegislative acts. Moreover, the Working Group acquired some written information from relevant agencies. It should be pointed out that ***the oral hearings were public and were broadcast via the Public Broadcaster (live on Channel Two) and via social media***.

4. The Environment Committee considers ***it necessary to improve the coordination among state agencies and to develop a common national approach to the issue***. Accordingly, based on the thematic inquiry, the Environment Committee made time-bound recommendations. For each recommendation, responsibility was designated to the relevant state agency to carry out particular activities, within the scope of its competencies and specific timeframes. After a set deadline, each state agency shall submit information to the Environment Committee on the progress of implementation of recommendations or reasons behind recommendations not being implemented.

5. The following report analyses the main sources of air pollution (transport, construction, natural dust, tires, asbestos containing brake pads, etc.), evaluates the system of legislative regulation, and identifies the necessity of creating a new legislative framework. It also considers the health impacts of air pollution, explains why this issue should be treated as a priority and presents examples of best international practices and contemporary approaches. Besides, the report evaluates the effectiveness of the Government's action plan and the measures that have already been taken. The proper implementation of the recommendations presented in the report would support the improvement of

air quality in Tbilisi (and other parts of Georgia), and would enable the relevant state agencies:

- To ensure the elaboration of a long-term strategy for air quality improvement to be made accessible to local authorities.
- To allocate relevant funding to improve and maintain air quality.
- To elaborate a new legislative basis, ensuring a higher level of monitoring of air quality that would be in full compliance with EU directives, in line with Georgia's commitments outlined in the Association Agreement.
- To concentrate on the institutional strengthening of the environmental healthcare system in Georgia.
- To initiate a national healthcare campaign, which conveys the dangers of air pollution and provides accurate and up-to-date information that is updated in real time.
- To set a specific and achievable deadline for the replacement of forms of transport that are harmful to the environment with more eco-friendly alternatives.
- To elaborate a fiscal policy and climate change adaptation plans, and to plan activities with regard to urban planning and public transportation consistent with global and local goals and strategies in pursuit of cleaner air.

2 Thematic Inquiry

6. Polluted air has a substantial impact on human health and life. Globally, 6.5 million people die because of diseases related to air pollution every year.¹ According to the data of the World Health Organization, Georgia ranks 70th for mortality caused by air pollution.² A report of the Public Defender of Georgia revealed two main sources of pollution – Stationary and mobile, and the main pollutants are coarse particulate matter (PM₁₀ and PM_{2.5}), Nitrogen Dioxide (NO₂), Ozone (O₃), Sulfur Dioxide (SO₂) and Carbon Dioxide (CO).³

7. On 18 April 2018, a Working Group was formed under the Environment Committee with the purpose of studying the ambient air quality in Tbilisi. The Working Group has studied the causes of air pollution, the effectiveness of monitoring, the possibility of creating a true picture on air quality, fiscal issues, best international practices, the causal relationship between environmental pollution and health status, the effectiveness of implemented/planned activities in improving the ambient air quality, and the role of various sectors with regard to air pollution.

8. In order to establish the truth in relation to air pollution and better plan the next steps, it was necessary to rely on research and evidence-based information.

9. As part of the thematic inquiry, a call was announced inviting stakeholders (representatives of the government and/or non-government sector, individuals from the private sector, subject-matter experts, researchers, and any other interested individuals) to submit fact-based written evidences, studies and findings. After reviewing the subsequently received evidence and additional material, it was revealed that the primary sources of ambient air pollution included the transportation sector, the construction sector, natural dust and many other causes for which there is no solution or where the existing responses are insufficient.

10. The Environment Committee completed a thematic inquiry, the first of its kind in the history of the Parliament of Georgia. During the inquiry process, the Environment Committee received 20 pieces of evidence and conducted 19 oral hearings. In addition, it acquired and examined various pieces of written information received from relevant agencies. The Working Group analysed the available information, submitted written evidences, relevant studies, best international practices, and the effective primary and secondary legislation. Based on the processed material, the Environment Committee made recommendations to respective state agencies. For each recommendation, responsibility was designated to a relevant government agency together with specific timeframes within which recommendations or assignments were to be implemented. The Environment Committee is confident that the implementation of its recommendations will support the improvement of the ambient air quality in Tbilisi (and other parts of Georgia). As a result:

¹ World Health Organization (WHO), Fact sheet 2018, as of March 27, 2019, via <https://bit.ly/2CJ2pJD>

² World Health Organization (WHO), Summaries of selected healthrelated SDG indicators, March 29, 2018, accessed on April 1st, 2019, via <https://bit.ly/2FBRXW2>

³ Public Defender of Georgia, Right to Clean Air (Ambient Air Quality in Georgia), special report 2019, page 4, accessed on April 1st, 2019, via <https://bit.ly/2ZbG2X0>

- ✓ Environmental protection and public healthcare will be improved
- ✓ Existing legislation on ambient air quality will be refined
- ✓ Commitments under the Association Agreement will be met on time
- ✓ There will be a timely and effective response to current challenges
- ✓ Communication among the responsible government agencies, as well as between all stakeholders and representatives of the public, will be improved substantially

“Ambient air quality is problematic in Tbilisi and there is a high public interest around this topic. There are various opinions, however, and the majority of them have not been duly corroborated. In my personal opinion, each piece of information in this regard should be based on substantial research and analysis. The committee needs to get credible evidences to respond to this issue properly. Consequently, we have decided to form a Working Group, for which the Committee is ready to get evidence, facts and recommendations from every stakeholder regarding the ambient air quality in Tbilisi.”

Kakha Kuchava

Chairperson of the Environmental Protection and Natural Resources Committee

3 Main Sources of Air Pollution Identified from the Inquiry

11. The main factors contributing to ambient air pollution in Tbilisi were identified during the thematic inquiry. Besides, there are many other factors left out of attention, harmful to human health.

Vehicle Emissions

12. Information received during the thematic inquiry and that was provided by various state agencies revealed that emissions from vehicles are the main cause of ambient air pollution in Tbilisi.

13. According to the performance audit report produced by the State Audit Office, there are two main sources of ambient air pollution: emissions from stationary sources (emissions of harmful substances from industrial and construction sites) and emissions from mobile sources (air pollution from harmful substances from vehicles). Special emphasis should be placed on the second source, because emissions from vehicles contribute 71% from total emissions and, at the same time, 37% of vehicles in the whole country (Information-Analytical Department of the Ministry of Internal Affairs) are concentrated in Tbilisi. The volume of transit and permanently moving vehicles is much higher in the capital because Tbilisi is by far the most populated city/area in the country and many of its residents rely on vehicles for their daily activities.

14. The same report states that the majority of municipal buses failed the periodical technical inspection due to their age, outdated internal combustion system and inability to restore those busses. From 03.10.2016 to 03.04.2017, about 25% of minibuses operating in Tbilisi did not show up for a mandatory technical inspection, and during 04.04.2017 – 06.10.2017 only 40% did it. It can therefore, be assumed that the state control mechanism for these vehicles is weak.⁴

15. The same report of the State Audit Office places particular emphasis on public transportation. The Municipal Transport Department of Tbilisi City Hall controls the “Tbilisi Transportation Company Ltd,” which is in charge of buses operating in Tbilisi, as well as metro and cable transport. The “Tbilisi Microbus Ltd” was founded in 2011 and operates four companies that won a tender announced by Tbilisi City Hall: “Tbil Line Ltd”, “Tbil Car Ltd”, “Capital Group” and “Public Cars Ltd”. These four companies obtained permits to transport passengers within the administrative boundaries of Tbilisi for a term of 20 years. According to the information provided by the Transport Department, there are 2,024 minibuses operating in Tbilisi for public transportation purposes. About 1,700 of these operate every day. Tbilisi City Hall carries out surveillance of the composition of the microbus fleet and their technical condition, within the scope of its competencies.⁵

16. According to a statement of Tbilisi City Hall, all means of public transportation will be upgraded and/or replaced by the end of 2019. During the oral hearings, it was not made clear whether any plans existed to utilise the old, so-called ‘yellow buses.’ Most of these buses failed to meet the

⁴ State Audit Office, Performance Report on Activities for the Reduction of Ambient Air Pollution Caused by Vehicle Emissions in Tbilisi, 2016, page 5, accessed on March 27, 2019, via <https://bit.ly/2DE9Krm>

⁵ Ibid, page 12.

minimum standards and represents one of the main sources of air pollution. Therefore, after their replacement, these yellow buses, which no longer fit for purpose, should be removed from operations (in case they cannot be repaired), and they should not be transferred to other cities of Georgia.

17. Based on the amendments made in 2004, the Tax Code of Georgia dated 1997, which previously set regulations for technical inspection of vehicles, was declared null and void. The new Tax Code dated 22 December 2004 (#692) did not envisage payment regulations for technical inspection of vehicles.⁶ At this time, many developed countries are lowering their export fees for outdated means of private transportation, which automatically generates interest among Georgian buyers. As a result, more than 90% of the vehicle fleet in the country is comprised of vehicles that are 10 or more years old. This is an alarming and severe problem.

18. The evidence submitted by ECOVISION provided information about the results of studies carried out specifically for this thematic inquiry. Its study was aimed at identifying the main causes of air pollution from light vehicles (technical condition, age, quality, and type of fuel), based on testing for vehicle emissions.

Tests were conducted on diesel and petrol vehicles. For all diesel vehicle tests, the same brand and type of fuel were used for each vehicle, and the same conditions were applied during petrol vehicle tests. The tests aimed to check the emissions from vehicles of different parameters and to conduct a comparative analysis. The test results suggested that when the same fuel was used, there were very different results for each vehicle, with some determined as technically unfit. The result is the same for both – diesel or gasoline engine vehicles.⁷

19. The Georgia Alliance for Safe Roads, one of the contributors to the thematic inquiry, indicated that according to the results of atmosphere studies conducted by SMART|AtmoSim_Lab of the Ivane Javakhishvili Tbilisi State University, vehicle emissions are the main source of air pollution and most vehicles do not have properly functioning catalytic converters. Moreover, the high composition of methane in the air indicates an impact from vehicles that have been remodelled to use natural gas.⁸

20. It was mentioned during the thematic inquiry that owners of high-volume engine vehicles often install a gas system in their vehicles. Most of these systems function poorly, produce more emissions and pollute the environment more. There was an opinion expressed that the vehicles older than 5 years should be subjected to higher customs clearance fees. It is also considered reasonable to set higher fees for the high-volume engine vehicles.

21. The Environment Committee echoes the recommendation of the State Audit Office to have more stringent monitoring of the technical condition of minibuses and buses, including fulfilling the obligation that these vehicles undergo technical inspections. The Ministry of Economy and Sustainable Development should submit an action plan to the Environment Committee within 2 months together with a list of activities required to implement this recommendation properly. The monitoring mechanism should contain a methodology⁹ that has been carefully elaborated

⁶ Invalidated by the Law of Georgia N692 dated 12/22/2004

⁷ ECOVISION, On Ambient Air Quality in Tbilisi, page 35, Tbilisi, 2018, accessed on March 30th, 2019, via <https://bit.ly/2UpMbzd>

⁸ Georgia Alliance for Safe Roads, Ambient Air Quality in Tbilisi, March 30th, 2019, via <https://bit.ly/2uH-daYE>

⁹ GeoWel Research, Monitoring and Evaluation of the Periodical Technical Inspection (PTI) Reform, first progress report, key findings and recommendations, November 21st, 2018, page 4, accessed on April 3rd, 2019, via <https://bit.ly/2D7lrK1>

and established in advance and should specify one particular agency that would be responsible for monitoring. The international practice shows that such agency could be respective to land transport agency.

22. Tbilisi Transport Company Ltd should submit a future vision to the Environment Committee within 2 months about how it plans to replace currently unfit public transport vehicles with new vehicles that would be safe and environmentally-friendly.

23. The technical inspections only measure the amount of Carbon Monoxide (CO) in the exhausts of petrol vehicles, and smoke emissions in the case of diesel vehicles. However, the measuring device can measure more elements. Meanwhile, the set limits are lower than desirable. To effectively reduce the adverse impact on the environment, it is important to determine and inspect the level of more than one harmful substance in vehicle exhausts, while the category of vehicle, production norms and the transition period should all be taken into consideration. The Ministry of Economy and Sustainable Development should submit to the Environment Committee its position regarding the issue of expanding the technical inspection within 2 months, together with the timeframes for implementing the respective measures.

24. As for the recommendations submitted by individual citizens, there were two particular suggestions that the Environment Committee considers worthy of pointing out:

- To conduct exhaust inspections of vehicles when they cross the border of Georgia, as well as during customs clearance. It would be reasonable to prepare a package of legislative amendments, according to which emission standards would be established for imported vehicles, and the import of vehicles with standards lower than EUR 4 would be prohibited in Georgia.
- To purchase portable devices to measure emissions (which are widely used in various countries worldwide), to enable on-the-spot vehicle inspections if emissions from the vehicle's exhaust are visible.

As these issues require further discussion, the Ministry of Environmental Protection and Agriculture (hereinafter, the Ministry of Environment), the Ministry of Internal Affairs, and Tbilisi City Hall should submit an analysis and overall opinion about these issues to the Environment Committee within 2 months.

Construction Activities and Construction Dust

25. The air quality and the climate in general in Tbilisi are affected by the direction and strength of the wind. The average annual temperature in the city center is higher than the suburbs by 2-3 degrees Celsius. Natural ventilation has a special impact on air quality in the city, which is mostly linked to the prevailing wind. The prevailing north-west wind should mostly blow along the valley of the Mtkvari River, but the wind can be diverted by the buildings located perpendicular to the river. It is noteworthy that since the construction of high-rise buildings in the city, the so-called 'wind rose' has changed and, therefore, relatively more 'hot spots' appeared in the city.¹⁰

¹⁰ ECOVISION, On Ambient Air Quality in Tbilisi, page 39, Tbilisi 2018, accessed on March 30th, 2019, via <https://bit.ly/2UpMbzd>

26. It is important that a study be conducted on the ecological efficiency of prevalent winds with the efforts of the National Environmental Agency and Tbilisi City Hall, so that no more high-rise buildings are built along the banks of the Mtkvari River and the more mountainous parts around the city, which may hinder wind movement and, consequently, the process of natural ventilation and climate regulation in Tbilisi.

27. Much of the construction activities that has taken place in Tbilisi for the last 20-25 years has been described as ‘chaotic’, distorting the natural ventilation system and contributing significantly to ambient air pollution. Since removing the minimum standard in relation to construction dust that was supposed to protect the city’s residents, particulate matters PM_{10} and $PM_{2.5}$ have become some of the main sources of air pollution in Tbilisi. During the oral hearings of the thematic inquiry, the head of the Municipal Department of Environment Protection of Tbilisi City Hall said that he reads all the received written evidences and followed the ongoing oral hearings. The Environment Committee appreciates his approach and also expresses its readiness to support Tbilisi City Hall in all of the activities that envisage resolution of the problems currently facing the city.

28. In Georgia, ambient air pollution from construction dust is not a problem specific to Tbilisi, but the issue is most severe in the capital. It is necessary that the measures taken by Tbilisi City Hall set good examples for other cities of Georgia to follow. Looking at the experience of Tbilisi, preventive measures should be taken in other cities to avoid running into similar difficulties. The larger cities of Georgia are of particular concern. Both the Members of the Parliament and representatives of the Office of the Public Defender of Georgia have expressed their views on this issue during committee hearings.

29. Regarding the accumulation of construction dust, Tbilisi City Hall and the Environment Committee have jointly initiated a draft law, which envisages making amendments to the Administrative Offences Code. In accordance with these amendments, all natural persons or legal entities that violate the regulations established with regard to the transfer, placement and sale of high-emission construction materials, will pay substantial fines. Discussions about the relevant legislative package will take place over at the spring session. After passing this law, 3 months after its enactment, Tbilisi City Hall should submit a report to the Environment Committee regarding the implementation of the law.

Natural Dust

30. One of the written evidences concerned the amount of natural dust in the ambient air of Tbilisi. This evidence shows that urban air is significantly polluted by dust of the various origins. Tbilisi is located in a structural basin and, in addition to other sources of dust formation, the natural dust originating from hillsides plays a significant role. The preliminary inquiry showed that the natural dust of such origin is problematic from sanitary-hygiene, respiratory and allergy standpoints. Besides, such dust contaminates the air by carrying various chemicals (heavy metals, and various cancerogenic and toxins). The purpose of holding a preliminary inquiry on the basis of best international experience is to highlight this problem and to elaborate short or long-term comprehensive measures to address them.¹¹

¹¹ LEPL Ilia State University, Problem of Pollution from Natural Dust in Tbilisi, page 1, accessed on April 2nd, 2019, via <https://bit.ly/2FRGsKr>

31. When there is little or no wind, a smog sometimes forms in Tbilisi's structural basin, which is especially visible in Didube, Chughureti, Krtsanisi, Mtatsminda, Vake and Saburtalo districts. This is complemented by widespread asphalt and concrete surfaces, which significantly increases the stuffiness in the city.¹²

32. Mr Maghalashvili, professor at Ilia State University also referred to the specific location of Tbilisi, and the consequent significance of natural dust coming from hillsides in the overall concentration. During windy conditions, the dust-forming natural material coming from the hillsides are characterised by the same intensity, which is complemented by sediment in the form of dust that remains after the mud has dried and where muddy water has accumulated in the outdated and obsolete rainwater drains and road drainage systems. Desert dust is added to this, as is characteristic of a city located in a structural basin, the dust-forming natural material coming from the hillsides.¹³

33. There are numerous activities (both short-term and long-term) to be carried out in this direction. The Environment Committee is addressing the Ministry of Environment Protection to study the evidence received within the thematic inquiry and to submit its opinion to the Environment Committee within 3 months about the feasibility of the suggested measures, to justify the rejection of any such measures, or to elaborate an action plan embracing the proposed measures implementation timeframes.

34. The Environment Committee recommends that Tbilisi City Hall plans and implements intensive measures for planting trees in the eastern parts of the city, to prevent dusty winds blowing in from the Iori Plateau, the successful accomplishment of which would have a positive impact on improving air quality in the city.

Lack of Green Areas

35. According to ECOVISION, one of the witnesses, among the natural factors contributing to the ambient air quality in Tbilisi, the most important is probably 'maintaining/adding more green areas that are crucial for keeping and restoring the ecological balance of the city'.¹⁴

36. Many necessary activities were carried out during the last year. With regard to green areas, it is noteworthy that a list of trees and plants to be planted throughout the city was drawn up. Maia Bitadze, Deputy Mayor of Tbilisi, said during an oral hearing, that the planting activities were progressing successfully. Besides, the trees planted during the pilot period have survived the winter season.

37. Most cities have calculated their current ratio in terms of square meters of green space per resident. In this respect, Tbilisi significantly lags behind many/most of its counterparts in Europe. According to information provided by the Public Defender of Georgia, the ratios for Kutaisi, Batumi, and Rustavi are 8 m², 5 m², and 6 m² respectively. However, this ratio has not been calculated for Tbilisi yet. In the developed countries of Europe, this ratio is on average more than 25 m².¹⁵

¹² ECOVISION, On Ambient Air Quality in Tbilisi, page 39, Tbilisi 2018, accessed on March 30th, 2019, via <https://bit.ly/2UpMbzd>

¹³ LEPL Ilia State University, Problem of Pollution from Natural Dust in Tbilisi, page 2, accessed on April 2nd, 2019, via <https://bit.ly/2FRGsKr>

¹⁴ ECOVISION, On Ambient Air Quality in Tbilisi, page 38, Tbilisi 2018, accessed on March 30th, 2019, via <https://bit.ly/2UpMbzd>

¹⁵ Public Defender of Georgia, Right to Clean Air (Ambient Air Quality in Tbilisi), special report 2019, page 36, accessed on April 1st, 2019, via <https://bit.ly/2ZbG2X0>

38. To mitigate levels of dust, it is necessary to protect and preserve the existing green areas in the city, to identify land that could be turned into green space as much as possible and to apply innovative approaches to expand green areas. Moreover, it is necessary to identify locations at the biggest risk of dust, and, consequently, to carry out additional planting activities.

39. One of the written evidence referred to supporting open spaces and maintaining open soil by applying mulch, which is successfully practised in the U.S. and Europe. Geo Mulch Ltd claim that this method is an effective means of combating air pollution and global warming. According to Geo Mulch Ltd, it is an alternative measure used to reduce dust pollution that entails covering the ground with mulch in the city, namely in gardens, squares, parks, slopes and green areas surrounding motorways.

40. Mulching would help to eradicate the problem of open soil (which would reduce pollution of air by dust particles). On the other hand, mulching of green areas of the city (new and perennial plants, lawns, etc.) improves the sustainability and health of the plants, which ensures they can perform their vital function of cleaning the air of carbon dioxide.¹⁶ After watering the mulched surface of the soil, or when there is a little dew, a certain kind of sticky layer (cover) is formed on said surface, the mulch's absorption capacity increases and the sedimented. Dust cannot enter the air.¹⁷

41. One of the witnesses of the thematic inquiry, it is necessary to introduce a vertical and horizontal green coefficient K4 for buildings and other constructions. The NGO 'Greens Movement of Georgia / Friends of the Earth' stated that there is not sufficient available land to establish new green spaces in the city. A solution here could be the introduction of a vertical and horizontal greening system. For this purpose, more stringent requirements should be set for the existence of green spaces. Today there is a construction coefficient K3 used to address this problem. A new construction coefficient K4 should also be determined, which would require at least 25% of the total external and roof space of any new construction to be classified as green space.¹⁸ **The Environment Committee recommends that Tbilisi City Hall provide a justified opinion regarding the proposed K4 coefficient within 3 months.**

42. **It is necessary for Tbilisi City Hall to identify the most prolific dust-producing surfaces (open soil) in the city (location, area, characteristics). This identification work could be carried out in a short period period by employing remote probing and GIS technologies. Tbilisi City Hall should plan for gradual coverage of the identified dust-producing surfaces (open soil), (greening, mulching, etc.); to carry out activities to restore/maintain the soil in the city, and replace chemical fertilizers with organic and natural fertilizers (organic, sludge, sapropel, manure, compost, etc.).¹⁹**

The Problem of Humidity and Sprinkling

43. To make the ambient air healthier in Tbilisi, it is essential to increase the relative air humidity. There are various studies confirming that water is an important factor in oxygen being permanently present in the ambient air in the ambient air. With the purpose of improving the environment,

¹⁶ LTD Geo Mulch, Mulching of open soil as an effective measure against air pollution and global warming, page 2, accessed on April 1st, 2019, via <https://bit.ly/2ulfyhM>

¹⁷ Ibid

¹⁸ Greens Movement of Georgia / Friends of the Earth, Ambient Air Quality, page 1, accessed on April 2nd, 2019, via <https://bit.ly/2JYaS1J>

¹⁹ ECOVISION, On Ambient Air Quality in Tbilisi, page 42, Tbilisi 2018, accessed on March 30th, 2019, via <https://bit.ly/2UpMbzd>

natural forests, artificially-planted green areas and internal green territories are especially important for big cities, as they create a microclimate. Green coverage enriches the air with oxygen and also regulates relative humidity. Besides, it produces biologically active, compound chemical substances, phytoncides, which clean the air of harmful gases and microorganisms, and particulate matter. The effective development of green infrastructure in the city and its surroundings will support the regulation of relative humidity, which is very important for the environment.²⁰

44. Other than adding more green territories, in order to reduce the negative impact of climate change and to improve the environment in Tbilisi, the relative air humidity should be increased as well. To this effect, more water is needed. For example, regular watering of plants and washing of city streets should be ensured as well as the restoration/development of fountains.²¹

45. Other than creating a healthy living environment, maintaining the natural, biological and landscape diversity of Tbilisi is a substantial precondition for making it attractive for tourism as well.²²

46. The Environment Committee recommends that Tbilisi City Hall should ensure the regular sprinkling of streets and sidewalks, and should increase the number of fountains. However, the international practice demonstrates that street sprinkling alone is insufficient. In order to remove the dust mass, it is necessary to wash the streets with high-pressure equipment. The Environment Committee recommends that Tbilisi City Hall develops its vision and action plan regarding the above-mentioned issue, and provides pertinent information to the Environment Committee within 2 months.

Fuel Quality and Monitoring

47. The amount and toxicity of fuel emissions from vehicle exhausts is one of the main causes of air pollution.

48. According to the study of the State Audit Service: ‘the proportion of NO₂ from vehicle exhausts (i.e. the ratio NO₂/NO_x) is significantly higher in diesel vehicles, than in petrol vehicles because their operating systems increase NO₂ oxidation and, therefore, more NO₂ is directly emitted.’²³

49. The following significant achievements have been reached in recent years in terms of improving fuel quality:

- ✓ Sulfur amount of petrol decreased 25-fold from 2012 to 2017.
- ✓ Sulfur amount in diesel decreased 6-fold from 2012 to 2019.
- ✓ Petrol of Euro 5 standard has been used in the country since 2017.

50. For diesel, the minimum standard has been increased to Euro 4 and, according to the Ministry of Environment, it will increase to Euro 5 in 2020.²⁴ During oral hearing for the thematic inquiry,

²⁰ Ibid, page 40

²¹ Ibid

²² Ibid, page 42

²³ European Organization of Supreme Audit Institutions (EUROSAI) Working Group on Environmental Auditing, Joint Audit Report on Air Quality, January 2019, page 24, accessed on March 26th, 2019, via <https://bit.ly/2GhPQaB>

²⁴ Palitra News, Levan Davitashvili, starting from January 1st, 2020, quality of diesel fuel in the country will be upgraded to EURO 5 standard, March 7th, 2019, accessed on March 28th, 2019, via <https://bit.ly/2GdE691>

Giorgi Sharkov, the head of Tbilisi Transport Company said that the State is planning to purchase buses that use Euro 6 standard. Such buses are of a high standard, producing minimal emissions. According to Sharkov, these buses have a special tank in which AdBlue liquid is added, which additionally cleanses the fuel and filters out additives that often accompany diesel consumption.²⁵

51. Although Georgia's fuel standards are moving toward EU standards, quality of fuel does remain a significant problem. In this regard, it is necessary to plan respective activities and ensure their effective implementation. During an oral hearing, the risk of falsification of fuel was highlighted. It was also emphasized that the fuel quality inspection and monitoring system needs improvement.

52. In 2018, fuel quality was inspected at 143 gas stations, but in 136 of these inspections, only petrol samples were taken, and from those only the lead amount was measured. Thus, the conducted monitoring does not provide a full picture and more effective data collection and supervision is required.²⁶

53. In accordance with a Decree of the Government of Georgia, starting from 1 January 2017, the benzol amount in petrol should not exceed 1%. However, the Environmental Supervision Department, which is in charge of fuel quality control, does not/cannot check the level of benzol in petrol at all.²⁷

54. Considering the above-mentioned issue, it is necessary to establish an effective monitoring system which would minimise the falsification risk in relation to imported fuel.

55. Fuel suppliers (for example, at gas stations) have a bearing on the risk of fuel and oil spillages, which have a harmful impact on passengers and local employees. It is noteworthy that the service personnel at such suppliers do not usually use special protective masks or other protective equipment (e.g. rubber shields for nozzles at gas stations). This increases the risk of disease caused by air pollution. In many cases, it is possible to see fuel spewing into the ambient air while a tank is being refilled.

56. Besides, fuel and oil spillages cause environmental pollution. These spillages flow into sewerage systems and can end up in the rainwater drainage system. In the long run, the State will need a significant amount of financial and human resources to respond to this issue. In order to avoid potentially dire consequences, it is necessary to carry out preventative measures in this regard.

57. The Government of Georgia should submit a program envisaging the improvement of the existing fuel quality monitoring system to the Environment Committee within 3 months. There should be one state agency responsible for monitoring fuel quality. It is required to elaborate and approve technical regulations enforcing the use of rubber splash shields (picture 1) at gas stations which would minimise the risk of fuel evaporation and spillage risk. It would also be reasonable to introduce a system for eco-marking of gas stations, and to purchase the respective laboratories and equipment at border checkpoints for the monitoring of harmful substances in fuel (e.g. benzopyrene, formaldehyde, benzol, acrolein, lead, ammonia, and other substances that are harmful for humans).

²⁵ Giorgi Sharkov, Head of Tbilisi Transport Company, oral hearing of public agencies, February 26th, 2019

²⁶ InterPressNews, report – transport is gradually replaced with new ones in Tbilisi, but the buses operate on diesel fuel, and its quality does not meet the EU standard, February 26th, 2019, accessed on April 4th, 2019, via <https://bit.ly/2P1YVXN>

²⁷ Foundation Partnership for Road Safety, role of diesel in air pollution and the ways to reduce its negative consequences in the field of transport, Tbilisi, 2018, page 13, accessed on March 26th, 2019, via <https://bit.ly/29iYBPS>



Picture 1 – rubber splash shields for nozzles at a gas stations (source: google search engine)

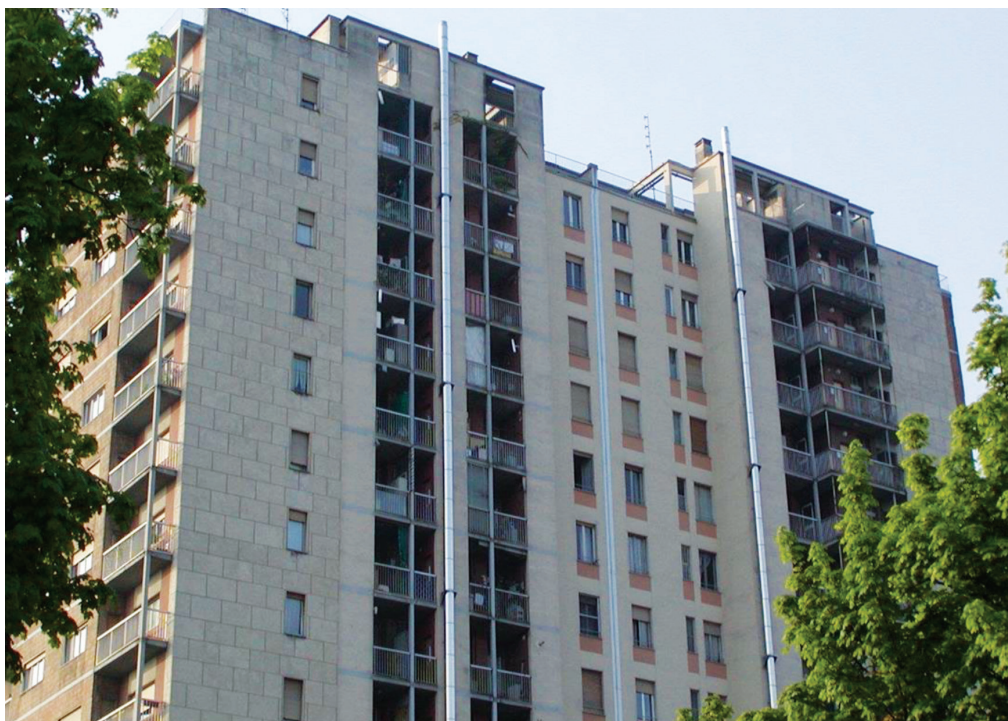
Boilers

58. During the thematic inquiry, one of the witnesses spoke about equipping high-rise buildings with collective emissions pipes of European standard. Air pollutants in the form of exhaust are emitted from almost all apartments in high-rise buildings in Tbilisi, all year round, largely through the burning of natural gas (CO, CO₂, NO_x, etc.), at breathing level.²⁸ European legislation, which has been developed based on modern sustainable development principles, requires that such emissions should be spewed out at higher levels of the atmosphere. However, the population in Tbilisi (and across Georgia) inhale such emissions regularly because many boilers have been installed incorrectly using simple and cheap pipes, which stick out horizontally from individual flats, and these are very harmful for the population.

59. In Europe, collective emissions pipes are commonly installed for the emission of fumes from the burning of fuel in the wall-hung boilers of high-rise apartment buildings, and it is not allowed to install individual exhaust pipes (Picture 2).²⁹

²⁸ Center "Energy Efficiency and Environment", equipping the high-rise apartment buildings with collective emissions pipes of European standard for sustainable development – NGO, page 1, accessed on March 28th, 2019, via <https://bit.ly/2ODShXi>

²⁹ Ibid, page 9.



Picture 2 – collective emissions pipes installed on an apartment building (source: non-commercial non-entrepreneurial legal entity Energy Efficiency and Environment Protection)

60. The draft law on Energy Efficiency prepared by the Ministry of Economy and Sustainable Development of Georgia envisages that no construction permits will be issued without until energy efficiency certification has been obtained after 31 December 2019.

61. In order to ensure that the products of natural gas burning (exhaust) generated from wall-hung boilers are emitted above room level, the European-style ‘coaxial’ collection pipes should be installed in Tbilisi and across Georgia, in old or newly constructed houses. This is important in terms of increasing energy efficiency in the residential sector of the city, as well as for protecting the environment and health of the population.

Asbestos Pads and Asbestos-Containing Products

62. According to the data of the World Health Organization, there are about 125 million people worldwide that are affected by asbestos in the workplace, and more than 107,000 deaths per year can be associated with the occupational impact of asbestos.³⁰ Exposure to asbestos (including chrysotile) causes mesothelioma (pleural and peritoneal cancer), lung and laryngeal cancer. After the dust produced by damaging asbestos is inhaled or swallowed, its sediments enter and irritate the lungs and stomach. It can take up to 20-40 years for the diseases to manifest.³¹

63. Asbestos-containing products are no longer produced in Georgia for almost 20 years, but they are still imported. Asbestos-containing products are widely used despite their potentially severe

³⁰ World Health Organization, Asbestos: elimination of asbestos-related diseases, February 15th, 2018, accessed on April 3rd, 2019, via <https://bit.ly/1NxqH9K>

³¹ Gela Kvashilava, founder and board member of the Partnership for Road Safety, asbestos impact on human health and ways of its substitution, 2018, page 6, accessed on April 2nd, 2019, via <https://bit.ly/2UnyaD7>

consequences.³² The use of asbestos is of special concern with regard to air pollution. Although air pollution is mostly caused by vehicle emissions, there are other contributors among which asbestos is significant. Asbestos-containing products are actively used as construction, isolation, hermitization, roofing materials in the construction, also as a refractory and acidproof material for producing various fabrics, means of insulation in electricity, also in paper production, etc. In terms of how asbestos pollutes the air, the most significant source is braking systems.³³ When a vehicle's brakes are applied, the asbestos-containing particles are emitted in the air and the dust sits on the roads, sidewalks or soil. Therefore, asbestos-containing brake pads have an adverse impact on the health of drivers, passengers and pedestrians, especially during traffic jams.

64. On 13 June 2016, the Government of Georgia approved Decree 263 'On the Rules of Export and Import of Certain Hazardous Chemicals and Pesticides, and on the Prior Informed Consent Procedure.' According to this Decree, it is prohibited to use asbestos for industrial purposes that contains the following fibres – actinolite, anthophyllite, amosite, crocidolite, and tremolite. These requirements are not routinely met because of the absence of marking on imported goods, and the chrysotile-containing asbestos fibre is not included in the list of prohibited substances. In terms of customs control, this issue is under the remit of LEPL Revenue Service under the Ministry of Finance of Georgia.

65. During an oral hearing of the thematic inquiry, Giorgi Sharkov, head of Tbilisi Transport Company, said that there is a requirement set during state procurement that brake pads should not contain asbestos. The Working Group double-checked this and has confirmed that Tbilisi Transport Company does adhere to this requirement.

66. There is no available information about the economic losses incurred as a result of diseases caused by asbestos in Georgia. Correspondingly, it is not possible to calculate the economic damage.

67. The thematic inquiry Working Group identified the following necessary steps after carefully studying the issue:

- ✓ **The Ministry of Environment Protection, together with the Ministry of Finance, should draft legislative amendments on banning the import of asbestos-containing materials, and submit these to the Environment Committee within 3 months.**
- ✓ **The LEPL State Procurement Agency should immediately ensure that any state procurement tender prohibits the procurement of asbestos-containing products.**
- ✓ **The Ministry of Environment Protection, together with the Ministry of Regional Development and Infrastructure, should prepare a long-term program on the safe disposal and utilisation of asbestos-containing waste, and submit it to the Environment Committee within 6 months. In line with best practices in most EU countries, it is necessary to elaborate and implement a program to make the country asbestos-free and to replace asbestos.**
- ✓ **To elaborate a national program and action plan on asbestos entitled 'Elimination/Minimization of Diseases Caused by Asbestos in Georgia.'³⁴ The Ministry of Finance should**

³² Ibid

³³ Letter of the National Center of Disease Control and Public Health, dated March 27th, 2019

³⁴ Ibid

equip the Customs Department with the respective equipment, devices and relevant authority to inspect asbestos-containing products at the border checkpoints.

- ✓ **The Government of Georgia should ensure data collection on asbestos-containing products and the import thereof in the country.**
- ✓ **The LEPL National Environment Agency should initiate control of the asbestos levels in the air. It should provide information to the Environment Committee by 1 June 2019 about its plans and specific timeframes.**
- ✓ **The Government of Georgia should make amendments to Decree #263 dated 13 June 2016 within 2 months, and to add chrysotile-containing asbestos fibre to the list of prohibited fibers. Furthermore, the Government should ensure the elimination of problems associated with the enforcement of this provision caused by the absence of marking on products.**

Tires in Air Pollution

68. During the thematic inquiry, Tire Green Ltd issued a report about the impact of harmful dust generated by the wear of vehicle tires on human health in Tbilisi.

69. A car produces on average 0.026 kg of dust if it runs 150 km per day. There are about 300,000 cars running per day in Tbilisi, meaning that 7.8 tons of dust particles are produced per day and that approximately 2,800 tons of dust particles are produced this way per year. Such emissions are especially high for trucks.³⁵

70. The witness expressed an opinion that the current practice of importing used tires should be banned. In addition, it is necessary to impose stiffer control on the validity of imported tires, and their quality should meet international standards with regard to wearability and safety. Their import should be allowed only if the tire tread is replaced with a new one of the quality that meets international standards and if the tires are going to be used this way.³⁶

71. **The Environment Committee in the frame of Working Group did not have possibility to study this issue and draw specific conclusions. Therefore, the Environment Committee requests the Ministry of Environment Protection to study this issue and submit its findings and elaborated action plan before 1 September 2019.**

Pyrotechnics and Fireworks

72. The thematic inquiry Working Group also discussed the issue of pyrotechnics and fireworks. Based on the provided information and research, it was found that this represents one of the sources of air pollution. This issue has not been explored in Georgia in detail and requires more attention. Specifically, it has been revealed that the composition and quality of imported products are not controlled. As a result of using pyrotechnics and fireworks, heavy metals and various chemicals and elements are emitted into the ambient air.

³⁵ Ltd TIRE GREEN, Study of the impact of harmful dust mass produced as a result of vehicle tire wear on the environment, atmosphere, soil and human health in Tbilisi and adjacent regions, page 3, accessed on March 26th, 2019, via <https://bit.ly/2K4nXXb>

³⁶ Ibid, page 4

73. The Government of Georgia should submit a package of legislative amendments and a program of activities with timeframes to the Environment Committee within 3 months, in order to set the threshold limits (composition and volume) and to control such products during customs clearance.

74. The Environment Committee recommends that Tbilisi City Hall elaborate instructions for using fireworks during a certain period of the day, their location and duration by 1 September 2019 and to provide information to the Environment Committee about the implemented activities. Large quantities of such substances are emitted into the air during holidays (e.g. New Year's Eve) which are harmful to human health and these substances linger on roads, sidewalks and green territories, and are subsequently inhaled by people. This issue requires a more detailed study and an adequate response.

4 Ambient Air Legislation

Legislative and Sublegislative Acts

75. **Constitution of Georgia** – in accordance with the new wording of the Constitution, the right to environmental protection means the right of a person to live in a healthy environment and to enjoy the natural environment and public space.³⁷ It is noteworthy that the right to enjoy the natural environment includes many aspects, and its practical implementation should reflect the interests of current and future generations. However, for the purposes of this report, the emphasis is placed on the legislative regulations covering ambient air quality as well.

76. **Law of Georgia on Ambient Air Protection** – this was passed in 1999 and established legal mechanisms for ambient air protection. Since its adoption, the law has been subject to various amendments. In addition, numerous pieces of secondary legislation and technical regulations have been issued with the purpose of law enforcement. However, the existing legislative basis does not accommodate the current challenges and fails to fully regulate some issues due to the ineffectiveness of regulatory norms. The law is somewhat outdated from legal and practical viewpoints and does not meet the requirements specified in the Georgia-EU Association Agreement. It is noteworthy that the law does not regulate the legal regime of air in buildings. Currently, enforceable laws do not designate a competent body which would be responsible for inspecting and monitoring air quality indoors.

77. **Law of Georgia on Environment Protection** – this law considers the ambient air to be one of the most important components of environmental protection. The scope of the law also covers the qualitative norms of environmental status, which includes ambient air. The qualitative norms of environmental status are set once every 5 years based on the Provisions “On Qualitative Norms of Environment Status” which are elaborated and approved by the Ministry of Internally Displaced Persons from the Occupied Territories, Labor, Health and Social Affairs of Georgia, in agreement with the Ministry of Environment.

78. **Law of Georgia on Public Health** – the main purpose of this law is to ensure that the environment is safe to public health. To this effect, the Ministry of Environment Protection establishes qualitative norms a safe environment for human health (ambient air, water, soil, noise, vibration, electromagnetic radiation, etc.) including the allowed concentrations and limits with regard to harmful impact. Besides, it also organizes the monitoring of ambient air quality in settled areas.

79. **Criminal Code of Georgia** – adopted on 22 July 1999 (N2287). Title Ten – *Crime against Environmental Protection and Rules for Enjoying the Natural Resources* – stipulates that violating the rules of environmental protection and enjoyment of natural resources amount to a criminal offence. Article 295 of the Code establishes the measures and types of responsibility with regard to ambient air pollution, which may result in significant deterioration of ambient air quality. It is noteworthy that since adopting the Criminal Code, Article 295 of the Code has never been applied in practice and could be described as obsolete. It is beyond the scope of this thematic inquiry on ambient air quality in Tbilisi to discuss why this article has never been used.

³⁷ Constitution of Georgia, Article 29, part 1

80. **Code on Administrative Offences of Georgia** – this includes a special chapter dedicated to violations in the field of environmental protection and ambient air protection entitled *Chapter VII. Administrative Offences in the Area of Environmental Protection, Natural Resource Management, Protection of Historical and Cultural Monuments and Education*. The norms stipulated in this chapter envisage the types of administrative responsibility, most of which are established to cover the violation of statutory requirements regarding ambient air. Articles, and parts thereof, of particular relevance here are:

Article 69⁶. Violations of requirements established in the service sector of air conditioning and cooling devices.

Article 77. Lack of a technical report on the inventory of air-polluting sources and harmful substances emitted by them or a lack of permissible limits for the emission of harmful substances, exceeding the emission limits “or adversely impacting upon” Ambient air.

Article 77¹. Exceeding the permissible limits of acoustic noise in residential houses, privately owned immovable property or in buildings of civic/public institutions during daytime or nighttime.

Article 82¹. Failure to present data on the registration of emissions of harmful substances into the ambient air in the established form and within the established timeframes.

81. **Law of Georgia on Traffic** – this defines the term “periodic technical inspection” which also covers the technical condition of the main elements of the safety of a vehicle movement, and the amount of harmful substances emitted from exhausts into the ambient air.

82. Secondary legislation that regulates various issues relating to air quality is found in many documents:

Resolution of the Government of Georgia

- On the Approval of the State Program on Measures to Support the Reduction of Ambient Air Pollution in Tbilisi

Decrees of the Government of Georgia

- On the Approval of the Provisions “On Protecting Ambient Air from the Pollution Caused by Microorganisms and Biologically Active Substances of Microbial Origin”
- On the Approval of the List of Settlements in Georgia, where the Values of Indexes of Ambient Air Pollution with Harmful Substances Are Calculated Annually
- On the Approval of the technical regulation on Calculating the Indexes of Ambient Air Pollution with Harmful Substances, and Defining the Values of Indexes of Ambient Air Pollution with Harmful Substances for the Regions that Fall Under the Categories of Extremely Polluted, Highly Polluted, Polluted and Unpolluted Settlements, According to the Level of Ambient Air Pollution with Harmful Substances
- On the Approval of the Technical Regulation on the Production and Consumption of Air Separation Products

- On Allowing the Georgian Standard SST 82:2016 “Production and Consumption of Air Separation Products. Safety Requirements” to Be Operational in the Territory of Georgia
- On the Approval of the Technical Regulation of Inventory of Ambient Air Pollution from Stationary Sources
- Technical Regulation – On Approving the Ambient Air Quality Standards
- On the Approval of the Provisions “On Protecting Ambient Air from the Pollution Caused by Microorganisms and Biologically Active Substances of Microbial Origin”
- On the Approval of the Technical Regulation on the Ambient Air Protection during Unfavorable Weather Conditions

Ministerial Orders

- On the Approval of the Instruction on the Rule of Ambient Air Protection during the Landfill Operations
- On the Approval of the Instruction on Ambient Air Protection during Mining Activities, Explosive Works, Bulk Placement and Operations
- On the Approval of the List of Settlements in Georgia, where the Values of Indexes of Ambient Air Pollution with Harmful Substances are Calculated Annually
- On the Approval of the List of Stationary Objects of Ambient Air Pollution that Are Registered and Identified by 2010
- On the Approval of the Provisions “On Special Requirements for Ambient Air Protection in Resorts, Sanitary Protection Zones of Resorts and Protected Areas”
- On the Approval of the Instruction “On the Rules of Ambient Air Protection in the Event of Emergency Emissions of Harmful Substances into Ambient Air as a result of an Accident”

83. Special emphasis should be placed on the following two legislative acts:

- 1) *Resolution of the Government of Georgia “On the Approval of the Third National Environmental Action Programme of Georgia”; and*
- 2) *Decree of the Government of Georgia “On the Approval of the National Action Plan of Georgia of Environment and Health for 2018-2022 (NEHAP-2).”*

84. On 22 May 2018, the Government of Georgia issued Resolution (#1124) to approve the Third National Environmental Action Programme of Georgia. The program was elaborated pursuant to the legislation of Georgia, as well as the international commitments of the country. Chapter 4 of the program is dedicated to ambient air protection. Part 4.1. describes the current situation and points out that an overall country-wide picture with regard to air pollution has not yet been established. The document also states that the main causes of air pollution from the transport sector (one of the main sources of ambient air pollution in Tbilisi) are considered to be the age of existing vehicles and their technical condition, the number of vehicles and traffic intensity, the type and quality of fuel, and underdeveloped public transportation. There is an action plan set out at the end of Chapter 4, which includes not only specific activities but also indicators to measure the results. **It is necessary that**

the Environment Committee holds a committee hearing one year after approving the program to check on the progress being made in terms of implementing the activities envisaged in the program by the Government of Georgia.

85. The Government of Georgia issued Decree #680 on 29 December 2018 to approve the 'National Action Plan of Georgia of Environment and Health for 2018-2022' (NEHAP-2). The third strategic objective of the Action Plan is to *reduce the harmful impact of indoor and ambient air pollution on the health of the population*. The section on current problems and challenges states that the existing system of air quality evaluation does not allow for a comprehensive assessment of air pollution and its impact on the population's health throughout the country, in accordance with the parameters recommended by the World Health Organization. Therefore, it is important to improve the assessment system. Work is ongoing to improve air quality monitoring and management, but the capacities still need to be increased in order to assess air pollution's impact on human health based on reliable monitoring results and medical statistics. This is one of the goals of the National Action Plan of Environment and Health.

86. **The effective legislative framework do not fully meet the requirements specified in the Georgia-EU Association Agreement, particularly when it comes to the best available technologies (BAT)³⁸ and Emission Limit Values (ELV). It would be a reasonable step to elaborate a new legislative package to ensure better regulation of the above-mentioned issues.**

87. Another example of a legislative gap exists where the limited values of significant air pollutants PM₁₀ and PM_{2.5} are not defined by the legislation (these limits are defined only by a technical regulation), and the corresponding fines envisaged (for example, for a violation such as operating an enterprise without a filter) in the Administrative Offences Code are inadequately low. The Ministry of Environment should put together a package of legislative amendments and present them to the Parliament of Georgia within 3 months, increasing the corresponding fines for administrative offences.

88. The Ministry of Environment Protection should discuss together with respective agencies the causes behind and circumstances concerning the failure to exercise Article 295 of the Criminal Code. It should then submit the findings and planned steps to the Parliament of Georgia to ensure full implementation of the law.

89. It would be reasonable to hold training for judges, prosecutors and public servants working in the field of environmental protection, and to raise their awareness about environmental protection and natural resources and their importance for the sustainable development of the country. The Government should elaborate on respective programs and corresponding implementation deadlines together with the Ministry of Environment Protection.

New Legislative Regulations

90. Analysis of the current legislation clearly highlights the necessity of working on new legislative initiatives to strengthen norms for regulating air quality protection. The legislation on air quality should

³⁸ Third National Environmental Action Programme of Georgia 2017-2021, page 49, accessed on March 30th, 2019, via <https://bit.ly/2l6vft3>

include the classification of zones according to pollution levels, as designated by local authorities. The new law should specify the methodology of such zone classification and should set timeframes for the completion thereof. The local authorities need to have an air quality management plan in place that includes problem identification timeframes, and a list of activities needed to address the identified problems, as well as specific timeframes for their implementation and for the securing of necessary financial resources. The respective finances should be approved annually in the local budget and, when specially required, in the central budget.

91. The current legislation fails to protect the public and environmental health with regard to securing and improving air quality. Besides, it does not adequately reflect the systemic approach of the State and its specific goals in the area of environmental health. A report was produced and recommendations were offered as part of the twinning program of the EU and the National Center for Disease Control and Public Health. The Environment Committee is prepared to hold a joint hearing of the report together with the Health Committee of Parliament of Georgia and adopt the recommendations at the parliamentary level.

92. The new legislation on air quality should provide effective ways to implement a 'green policy' and 'green economy.' The World Health Organization guidelines on air quality should be considered while drafting the new law.

93. **The Government of Georgia should form a Working Group to work on a new legislative initiative on air quality within 1 month and submit information to the Environment Committee within 2 months about the working group's composition and action plan, which should contain a specific deadline for tabling the initiated legislative package to the Parliament of Georgia. It is necessary to develop a national air policy and long-term strategy before drafting legislative amendments.**

94. **In accordance with Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe, as well as Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air, the State shall draw up a list of zones and agglomerations and classify them accordingly with the purpose of ambient air quality management. Moreover, the State will introduce and implement relevant measures with regard to the respective polluting substances, with the purpose of maintaining/improving the ambient air quality.**

With the purpose of managing fluorinated greenhouse gases, the State shall also create a registration, restoration, neutralization, usage, emission prevention and control system (Regulation (EU) No 517/2014 of the European Parliament and of the Council of 16 April 2014 on fluorinated greenhouse gases and repealing Regulation of 17 May 2006 (EC) No 842/2006).

It is necessary that the state enforces legislative regulations that meet the requirements of these directives, and to ensure air quality management in accordance with EU approaches. According to the information provided to the Environment Committee, the respective draft law is almost finalized. The Government of Georgia should prepare and initiate the respective legislative amendments in the Parliament of Georgia within 3 months.

The U.S. – Impact of the Clean Air Act³⁹

- ✓ The adoption and enforcement of the Clean Air Act has contributed to reducing the levels of 6 major pollutants in the ambient air. These pollutants are: particulate matters PM_{2.5} and PM₁₀; ozone; lead; carbon monoxide; nitrogen dioxide; and sulfur dioxide.
- ✓ The total volume of these pollutants decreased by 73% from 1970 to 2017, whereas the country's GDP increased by 324% over the same period.
- ✓ From 1990 to 2017, the volume of lead in the air decreased by 80%, carbon monoxide dropped by 77%, sulfur dioxide dipped by 88%, the annual concentration of nitrogen dioxide shrank by 56%, and the ozone decreased by 22%. Concentration of particulate matter also decreased from 2000 to 2015: PM_{2.5} by 40%; and PM₁₀ by 34%.
- ✓ The results achieved with regard to air quality improvement have enabled many settlements to meet the air quality standards set at the national level. For example, all 41 settlements where the situation had previously been classed as dire in terms of pollution from carbon monoxide in 1991, now meet the national standards. One of the preconditions for this success was a cleaner car fleet, which was achieved through the setting of strict emission standards for vehicles in the 'Clean Air Act'.
- ✓ Lead pollution is another major problem that has been addressed by the Environmental Protection Agency (EPA) which has managed to phase out lead-containing gasoline in line with the Clean Air Act. Currently, lead concentration levels meet the national air quality standards in most parts of the country.
- ✓ Despite the above-mentioned achievements in regard to air quality, in 1980-2015:
 - o Car mileage increased by 106%
 - o The population increased by 41%
 - o Energy consumption increased by 25%

³⁹ Clean Air Act Overview, Progress Cleaning the Air and Improving People's Health, accessed on March 28th, 2019, via <https://bit.ly/2K5uh0P>

5 Environment and Health

Health Impacts of Polluted Air

95. Polluted air is the biggest environmental risk causing death.⁴⁰ The World Health Organization has described the global situation in this regard as a **Public Health Emergency**.⁴¹

96. Air pollution may have an acute and/or chronic effect on human health. Usually, the acute effect is demonstrated immediately and often it is reversible once the pollutant is no longer present. Meanwhile, most of the time, the chronic effects are not demonstrated immediately⁴² and they are not reversible even after the pollutants are no longer active.

97. The National Center for Disease Control and Public Health, in general, is focused on communicable diseases, but due to recent developments, more attention is being driven toward this direction as well. Cardiovascular diseases, heart failure, diabetes, and chronic respiratory diseases have become more prevalent worldwide. Correspondingly, the responsibilities of disease control centers have increased and special attention is being drawn to the monitoring and prevention of such diseases.

98. There are various health disorders related to air pollution, for example, lung, cardiovascular and central nervous system diseases. Polluted ambient air has an impact on individuals' health. High-risk groups such as the elderly, children, pregnant women and persons with chronic heart and lung diseases are more sensitive to air pollution.⁴³ The United Nations Children's Fund (UNICEF) published a report describing how air pollution hinders brain development among children, especially younger children.⁴⁴

99. Globally, about 63% of deaths are linked to noncommunicable diseases, while 20-25% of deaths are caused by infectious diseases. The five major causes of noncommunicable diseases are: hypertension, unhealthy diet, tobacco, lack of physical activity/obesity, and environmental pollution.⁴⁵

100. The long-term impact of toxic air pollutants includes chronic effects such as reduced lung capacity and lung cancer. The scientific techniques for evaluating the health impact of air pollution involves air pollution monitoring, evaluation of pollutants' effects, dosimetry, toxicology and epidemiology. The polluted air affects the skin, eyes and other systems, but its most severe effect is on the respiratory system.

101. The quality of both ambient air and indoor air are of concern. Unfortunately, the use of firewood and coal consumption is still high in Georgia.⁴⁶ Another factor contributing to ambient and indoor air pollution is tobacco.⁴⁷

⁴⁰ Institute for Health Metrics and Evaluation, Top 10 risks contributing to DALYs in 2017 and percent change, 2007- 2017, all ages, number, What risk factors drive the most death and disability combined?, accessed on April 2nd, 2019, via <https://bit.ly/2FxtOyM>

⁴¹ The Guardian, Shock figures to reveal deadly toll of global air pollution, January 16th, 2016, accessed on March 28th, 2019, via <https://bit.ly/29iYBPS>

⁴² Ambient Air Quality Portal, accessed on March 29th, 2019, via <http://air.gov.ge/pages/13/13>

⁴³ Ibid.

⁴⁴ Netgazeti, Air Pollution Can Affect Brain Development in Children – UNICEF paper, December 14th, 2017, accessed on March 29th, 2019, via <http://netgazeti.ge/news/240616/>

⁴⁵ National Center for Disease Control and Public Health, burden of noncommunicable diseases at the global and national level, 2015, page 79, accessed on April 2nd, 2019, via <https://bit.ly/2WOGVmr>

⁴⁶ National Statistics Office of Georgia, Results of Survey on the Consumption of Energy Resources, December 17th, 2018, accessed on April 2nd, 2019, via <https://bit.ly/2WLTfKu>

⁴⁷ Amiran Gamkrelidze, Director General of the National Center for Disease Control and Public Health, oral hearing of public agencies, February 27th, 2019

“The less pollution, the fewer diseases we will have, and the less money will be spent”.

Amiran Gamkrelidze

Director General of the National Center for Disease Control and Public Health

102. Air pollution in Tbilisi is one of the main issues of public interest and one of the main causes of public dissatisfaction. The Government of Georgia and local authorities should make combating air pollution a priority and should elaborate a comprehensive strategy accordingly.

103. A clean air strategy should include suitable methods, time-bound measures and a list of relevant activities, as a result of which: (a) the air quality will significantly improve; (b) the causes of air pollution will be phased out; (c) prevention measures will be carried out as planned; and (d) adequate funding will be allocated. The strategy should set the goals and specific corresponding timeframes within which these goals should be reached.

104. The Government of Georgia (in cooperation with Tbilisi City Hall) should inform the Environment Committee before 1 July 2019 about the status of implementation of the program approved by the Government, the activities added to this program based on new challenges and findings, set specific timeframes to reach the program’s goals, and determine the corresponding budget.

105. The Parliament of Georgia and the Government of Georgia should make it their priority to elaborate and approve a long-term clean air strategy in the country. The Government of Georgia should submit to the Environment Committee its vision for the elaboration of a clean air strategy, the composition of the working group, the terms of reference for the working group, and it should specify a deadline for the strategy’s elaboration before 1 June 2019.

Lack of Communication on Health and Environmental Issues

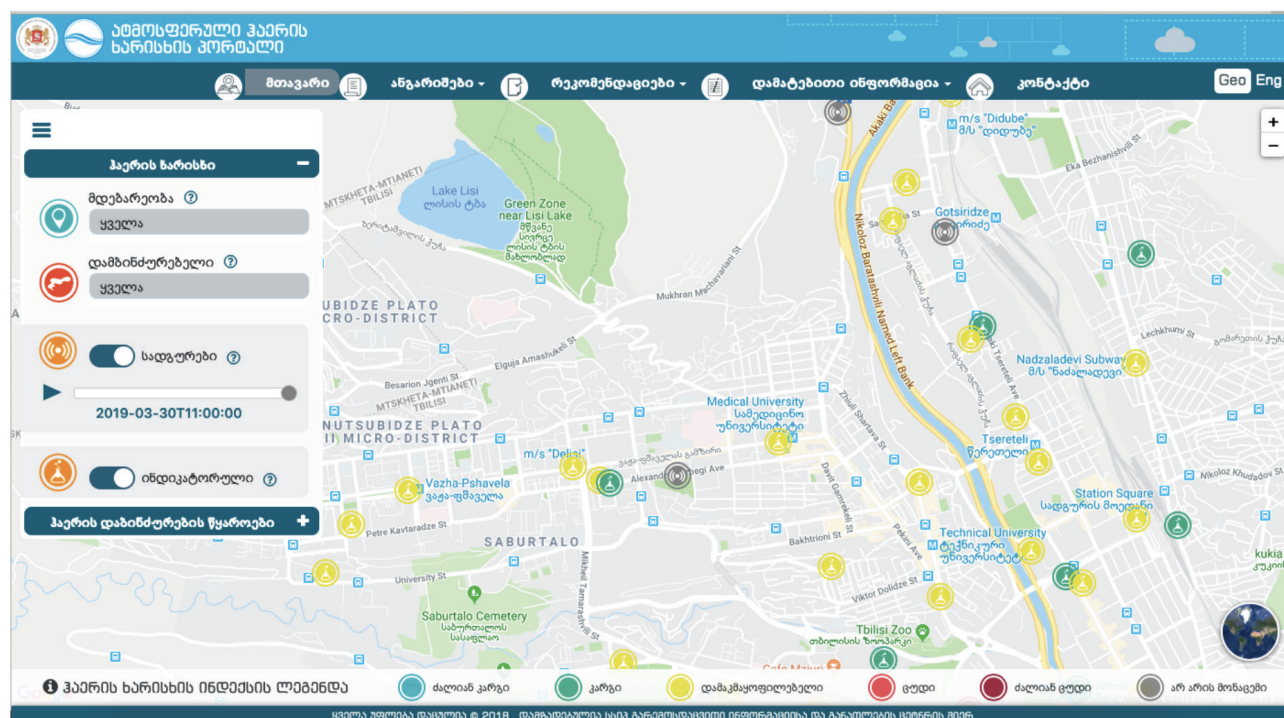
106. The impact of environmental factors on human health is one of the most acute issues, which necessitates a multisectoral approach. In order to eliminate or prevent the associated challenges, the involvement of The Ministry of Internally Displaced Persons from the Occupied Territories, Labour, Health and Social Affairs of Georgia alone is not sufficient.

107. There is limited information on air pollution sources made available to the public. During the oral hearings, many of the public agencies used the term ‘information hunger’ to describe the lack of publicly available information. In Georgia, those living in the regions are particularly poorly informed on such issues.

108. The population is especially vulnerable to the dissemination of inaccurate statistical indicators and false information especially with regard to increased mortality, ratios of diseases caused by polluted air, the volume of lead in fuel, causes of air pollution, etc.

109. A new portal of the Ministry of Environment Protection has been launched - air.gov.ge

(picture 3). The website provides real-time information about ambient air quality and monitoring. The website aims to support e-governance, planning activities related to air quality improvement, and engaging the broader public in decision-making and policy-planning processes. According to a statement of the Ministry, it is important that the public gets timely information about air quality, as well as how to protect air quality and planned initiatives. According to the statement of the Ministry of Environment: ‘raising public awareness is a decisive factor in addressing this problem because each of us can contribute to improving the air quality, which will let us reach the final goal.’⁴⁸



Picture 3 – Website of the Ambient Air Quality

110. In the context of resolving the air pollution problem, it is important to raise public awareness about this objective and to embrace public engagement in deciding on the best way to mitigate air pollution.

111. In addition to the above-mentioned portal, the environmental working group of the European Organization of Supreme Audit Institutions recommended that the Government of Georgia ensure that public awareness is raised on the effect of air pollution and the mechanisms for its reduction.⁴⁹

112. The LEPL Environmental Information and Education Center should elaborate an action plan and produce guidelines for providing information to all age groups in simple and understandable language about various aspects of air pollution.

113. According to the joint audit report on air quality, the Government of Georgia has been advised ‘to plan and take appropriate action to raise public awareness of the effects of air

⁴⁸ IMEDI NEWS, the Portal air.gov.ge Launched to Make Information on Air Quality Accessible, January 26th, 2019, accessed on April 2nd, 2019, via <https://bit.ly/2FGoVDv>

⁴⁹ European Organization of Supreme Audit Institutions (EUROSAI) Working Group on Environmental Auditing, Joint Audit Report on Air Quality, January 2019, page 22, accessed on March 26th, 2019, via <https://bit.ly/2GhPQaB>

pollution and their mitigation tools.⁵⁰ The Government of Georgia should submit information to the Environment Committee about the measures taken to meet this recommendation within 2 months.

114. There is no dispute about the negative impact of using fossil fuels (gasoline, diesel, gas) on air quality and human health. Working on awareness-raising in this area should become a priority task for the Government and local authorities. Every individual should understand well the level of harm done to the environment and how the air is polluted by vehicles operating on gasoline, diesel and gas (especially vehicles in poor or outdated technical condition). Accordingly, today it is essential that transport which is environmentally-friendly is prioritized.

115. The thematic inquiry revealed that fuel quality is not a cause of the increased level of lead in blood. The Government of Georgia should designate responsible bodies and initiate research to find out what has caused the increased level of lead in human blood. Once the causes have been identified, it will become possible to take appropriate action. The Government should submit an action plan to the Environment Committee within 3 months about how it is going to study this issue in order to establish a causal relationship between the increased level of lead and the factors causing this. At the same time, the Government should elaborate a program of actions, outlining how the studies will be carried out, in what target areas, and during what period.

116. A list of recommendations is provided below, elaborated by representatives of the executive power. The list has been uploaded on the ambient air quality portal. The Environment Committee approves the envisaged measures as reasonable and is approaching the relevant responsible agencies to ask them to provide information to the Committee about the progress of the implementation of these measures by September 2019. The recommendations are as follows:

- ✓ To raise public awareness
- ✓ To conduct an information campaign promoting the use of public transportation
- ✓ To carry out a public awareness-raising campaign about the impact of ambient air pollution on human health and the environment, as well as about the protection of ambient air (through media coverage, targeted literature, and promotion of education)
- ✓ To include additional topics about the eco-friendly driving of cars in the tests one has to pass to obtain a driver's license
- ✓ To incorporate the sustainable development principles for the environment into the national curriculum
- ✓ To inform the public about the advantages of cycling and walking as safe and healthy modes of transport
- ✓ To upload data on the automated monitoring network in Tbilisi online

⁵⁰ Ibid.

6 Evaluating the Government's Approach to Air Quality

'Green Policy'

117. 'Green Policy' is one of the declared priorities of the Government of Georgia, with air quality improvement and its management being central components thereof. For the Government, clean air and the right to live in an environment that is unarmful to health is an inseparable part of the sustainable development of the country.

118. Georgia has been successful in nationalizing the Sustainable Development Goals (SDGs) of the United Nations. In order to realize the SDGs, it is necessary to allocate equal attention to economic, social and environmental issues. Despite the Government's declared will and specific initiatives, the environment does not appear to be a priority in state budgeting and programs.

119. When presenting the Green Policy, Mamuka Bakhtadze, Prime Minister of Georgia, emphasised the significance of eco-friendly transport for Georgia and set specific steps to achieve goals in this regard.

120. According to the statement of the Prime Minister: 'the Government of Georgia has come up with a plan which envisages the substitution of 90% of our current pool of transport in Georgia with electric cars. It is a very ambitious plan, but it will bring tremendous advantages to Georgia at the same time.'

'Georgia will thus become the first country to substitute its pool of transport with such electric vehicles in such a short timeframe'.

Mamuka Bakhtadze

Prime Minister of Georgia

121. Mamuka Bakhtadze also stated: 'We have already given considerable preference to electric cars in contrast to those of internal combustion, by almost entirely removing customs tariffs. We will gradually increase the price difference between electric cars and conventional vehicles. At the same time, we will develop the infrastructure to further accelerate and facilitate the interest of more people towards imported electric cars. We will be giving a significant financial incentive to the development of leasing schemes in Georgia, which will allow individuals to buy electric cars, with the money saved as a result of not having to incur additional expenses for fuel, within five years, in fact, without having any extra expenses. Obviously, this creates significant advantages.'

122. This statement is encouraging. However, there is a serious question about whether a relevant state program exists (or if one is being worked out) to shift 90% of the making 90% of its car fleet electrical within the next 10 years.

123. It would be reasonable for the Government to start the process by making the car fleet of its state agencies eco-friendly. Besides, the Government should take measures to reduce the number of government vehicles. First and foremost, more public servants should start using public transportation.

124. Under the initiative of MPs Kakha Kuchava and Paata Kvizhinadze, a new draft law has been presented making amendments to the Law on Public Procurement. The purpose of the draft law is to make it mandatory for all vehicles purchased with public money to be hybrid or electric. This amendment envisages some exceptions for those agencies where it is necessary to have vehicles with an internal combustion engine.

125. The Government of Georgia should submit information to the Environment Committee about the number of vehicles allocated to each public agency, as well as the type and age of vehicles, within 1 month.

126. The Government of Georgia should submit an action plan to the Environment Committee within 3 months, about a reduction in the number of government vehicles, and the replacement of the existing fleet with eco-friendly vehicles, specifying corresponding timeframes for the completion of specific activities.

127. Developing public transport in order to make it more comfortable and convenient for every resident is one of the priorities of urban development in Tbilisi. The money saved from reducing the car fleet of the State and freeing up fuel money could be invested in public transport. The Government of Georgia, in agreement with Tbilisi City Hall, should submit its vision to the Environment Committee by 1 September 2019, about what steps need to be taken and what timeframes should apply for reaching them. Funds for such efforts should be clearly allocated in the draft budget of 2020.

Enforcement Evaluation

128. State control with regard to the pollution of ambient air with harmful substances is carried out by the Environmental Supervision Department⁵¹ and authorized bodies as stipulated by the legislation of Georgia, within the scope of their competencies. The Ministry of Economy and Sustainable Development is responsible for elaborating transport policy and technical regulations for the transport sector throughout the country (including the technical inspection of vehicles).

129. The State Audit Office of Georgia concluded that there is inadequate and ineffective coordination among the various agencies that are responsible for air protection. It has called on the Ministry of Environment Protection to engage in more coordination and supervision to ensure that government efforts become more effective in improving air quality.⁵²

130. To bring about better coordination, there should be more frequent interaction between various subjects at the national, local and regional levels. Monitoring the ambient air quality needs a systemic approach, which is unimaginable without the proper coordination and cooperation between the relevant bodies. Eventually, poor coordination would hinder the implementation of policy and corresponding activities. **It is necessary to improve coordination among the responsible agencies.**

⁵¹ State subagency of the Ministry of Environment Protection and Agriculture of Georgia

⁵² European Organization of Supreme Audit Institutions (EUROSAI) Working Group on Environmental Auditing, Joint Audit Report on Air Quality, January 2019, page 45, accessed on March 26th, 2019, via <https://bit.ly/2GhPQaB>

131. It is noteworthy that today the air quality is inspected in only 10 locations, which is not sufficient to provide a clear picture regarding pollution nationwide. Moreover, there is no integrated modelling system. Although the law has established legal limits for significant air pollutants, namely PM₁₀ and PM_{2.5}, they are not measured. Besides, the limited values stipulated in the legislation of Georgia for the major polluting substances – SO₂, NO₂, NO_x, lead, benzene, CO, arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons (PAH) – are higher than those set for the EU.⁵³

132. The Joint Audit Report on Air Quality contains a recommendation to improve the monitoring network. Namely, the report states that it is necessary to introduce a system for modelling and forecasting the spread of ambient air pollution.⁵⁴

133. Looking at the example of Estonia, ambient air protection is the responsibility of its Ministry of the Environment. Its policy is implemented through various plans that are focused on development, including a national plan for energy sector development; a national plan for transport sector development; a national healthcare plan; and a national agriculture development plan. Its policy entails coordination in terms of combining and implementing these development plans. In addition, all respective agencies are involved in this process.

134. On 26 January 2019, a presentation on ambient air protection policy was given at Expo Georgia by Levan Davitashvili, Minister of Environmental Protection and Agriculture of Georgia, as part of the Green Initiative. The Minister placed special emphasis on the progress being made with regard to improving fuel quality, as well as improvements being made to the air quality monitoring and evaluation system.⁵⁵ This was a direct response to the findings in the National Audit Report on Air Quality, according to which the Georgian monitoring systems do not provide comprehensive and/or reliable data.⁵⁶

135. Together with presenting a report on the activities being carried out by the Ministry of Environment and its future plans, the ambient air quality portal www.air.gov.ge was also unveiled. This portal enables every interested individual to get up-to-date information about air quality from all cities of Georgia in which the air quality is being monitored. The portal provides the most recent information in easily understandable indexes about the ambient air quality and, where needed, respective healthcare recommendations as well.

136. The Ministry of Environment Protection is engaged in negotiations with the European Environment Agency to have the data for ambient air in Georgia constantly uploaded on the European air quality portal.⁵⁷

137. The Joint Audit Report on Air Quality states that it is not possible to evaluate the effectiveness and efficiency of measures taken by the Government, allegedly because during the audit period the

⁵³ Third National Environmental Action Programme of Georgia 2017-2021, page 50, accessed on March 30th, 2019, via <https://bit.ly/2i6Vft3>

⁵⁴ European Organization of Supreme Audit Institutions (EUROSAI) Working Group on Environmental Auditing, Joint Audit Report on Air Quality, January 2019, page 21, accessed on March 26th, 2019, via <https://bit.ly/2GhPQaB>

⁵⁵ National Environment Agency, presentation of the Ambient Air Protection Policy, January 28, 2019, accessed on March 30th, 2019, via <https://bit.ly/2HMNZwb>

⁵⁶ European Organization of Supreme Audit Institutions (EUROSAI) Working Group on Environmental Auditing, Joint Audit Report on Air Quality, January 2019, page 21, accessed on March 26th, 2019, via <https://bit.ly/2GhPQaB>

⁵⁷ Hearing of Levan Davitashvili, Minister of Environment Protection and Agriculture at the Parliament – within the format of the ministerial hour, 7 March 2019

country had neither approved the respective policy nor were evaluation criteria or adequate monitoring information available.⁵⁸

138. The same report states that governments (among them the Government of Georgia) did not sufficiently prioritize the problem of ambient air pollution and did not take sufficient measures to improve the ambient air quality.⁵⁹

139. It is necessary to conduct a comprehensive analysis of the findings of the Joint Audit Report on Air Quality, particularly with regard to the following issues:

- ✓ **Requirements in terms of national and international standards are not observed**
- ✓ **Georgia does not have a national air policy and, most importantly, it has not identified evaluation criteria**
- ✓ **There is no coordination between the sectoral policy and its subjects**
- ✓ **There is no comprehensive information about necessary budget resources to implement environmental activities**
- ✓ **The current budget allocation for ambient air quality protection is not sufficient The monitoring system is not reliable**
- ✓ **Public awareness can be improved**

The Government of Georgia should submit an action plan to the Environment Committee by 1 June 2019 about the steps to be taken to address the listed issues, which should contain solutions to specific problems, timeframes and anticipated results.

Refining the Action Plan and Improving Monitoring

140. The current legislation in the field of ambient air protection does not fully regulate vehicle emissions. The technical inspection of vehicles was abolished in 2004 and only became mandatory again in 2019. For 15 years, cars imported in Georgia did not have to meet any technical requirements. In addition, after significantly reducing the customs clearance fees for light vehicles, the number of imported cars increased notably. For environmental protection, it is essential that technical inspection of vehicles is carried out. According to the available data, the opinion of the State Audit Office and the information obtained from oral hearings held during the thematic inquiry, technical inspections are still not being properly conducted. Consequently, many of the light vehicles operating on Georgia's roads are most likely not fit technically, which is a major cause of air pollution.

141. For the municipalities where the air is very polluted, the Ministry of Environment, in cooperation with local governments and the private and/or NGO sector, should elaborate short-term and long-term plans to eradicate the problem.

142. In terms of compliance with national and international standards, the Government of Georgia

⁵⁸ European Organization of Supreme Audit Institutions (EUROSAI) Working Group on Environmental Auditing, Joint Audit Report on Air Quality, January 2019, page 4, accessed on 26 March 2019, via <https://bit.ly/2GhPQaB>

⁵⁹ Ibid.

should clearly specify the permissible limited values. Meanwhile, the limited values of other indicators should be revised in accordance with EU standards.⁶⁰

143. “Today it is the National Environmental Agency that is in charge of state monitoring of ambient air quality in Tbilisi, which is under the Ministry of Environment Protection and Agriculture.”⁶¹

144. The LEPL National Environmental Agency should expand the air quality monitoring network as much as possible, in order to ensure a more accurate and exhaustive evaluation of the current situation in Tbilisi and the regions. The National Environmental Agency should submit a list of activities needed to expand the monitoring network to the Environment Committee within 2 months, along with justifications for amendments to be made to the state budget and specific timeframes for the implementation of the planned activities.

145. In January 2019, Working Group on Environmental Auditing of the European Organization of Supreme Audit Institutions produced the Joint Audit Report on Air Quality, where a whole range of recommendations were issued for Georgia. Based on these recommendations, the Government of Georgia should provide detailed plans to the Environment Committee within 3 months, with the purpose of evaluating the effectiveness of measures taken by the Government of Georgia. Such plans should aim to:

- ✓ **Measure and evaluate the effectiveness of implemented activities**
- ✓ **Improve coordination**
- ✓ **Register relevant data and conduct a comprehensive cost-benefit analysis**
- ✓ **Improve the monitoring system**

⁶⁰ European Organization of Supreme Audit Institutions (EUROSAI) Working Group on Environmental Auditing, Joint Audit Report on Air Quality, January 2019, page 18, accessed on March 26th, 2019, via <https://bit.ly/2GhPQaB>

⁶¹ ECOVISION, On Ambient Air Quality in Tbilisi, page 4, Tbilisi, 2018, accessed on March 30th, 2019, via <https://bit.ly/2UpMbzd>

7 Economic Loss of Polluted Air and financing

146. Polluted ambient air is especially harmful to the socially vulnerable groups within the population. In most cases, the expensive and long treatment required to treat noncommunicable diseases caused by such pollution is not affordable to people from such groups. The World Health Organization assumes economic loss from early mortality caused by air pollution to be around 35.2% of Georgia's GDP.⁶²

147. The Government should elaborate an effective policy for air quality management to address this problem, to improve air quality in the country, and to improve the health and quality of life of its citizens.⁶³

148. About 1 billion GEL from the state budget is spent on healthcare. This expense is growing annually. However, the budget allocation for one of the major causes of noncommunicable diseases, namely environmental pollution, is inadequately low.⁶⁴

149. It should be understood that environmental pollution causes long-term impacts. Environmental damage gradually transforms into human health damage which sometimes takes several years to manifest itself. The generations that have grown up in a polluted environment will be burdened by associated problems for their entire life.

150. Some oppose the introduction of environmental regulations and provide economic arguments for doing so. Indeed, some claim that such regulations will slow down economic growth. To counter this argument, the economic losses caused by environmental damage should be pointed out, especially in Western Europe and the US. According to the World Bank data, air pollution results in annual losses of 225 billion USD worldwide.⁶⁵ If we add the losses incurred in terms of worsening quality of life and early mortality, then the total losses amount to 1 trillion USD. According to the research produced by the OECD, within several decades the damage caused by air pollution will reach 2.6 trillion USD, i.e. 1% of the global GDP. According to World Bank data, some developing countries lose 7.5% of their GDP annually because of environmental damage.⁶⁶

151. Stiffening environmental regulations would bring economic benefits in two interlinked ways. First, appropriately planned regulations would help to reduce economic losses caused by environmental damage. Secondly, such regulations would help to create new sources of investment and stimulate economic activity. According to the research of the EPA, the effect of stimulating investment by reducing environmental damage can counterbalance the negative effect of rising prices caused by tightened regulation. Based on research, the Clean Air Act passed in the US in 1970 has reduced the

⁶² European Organization of Supreme Audit Institutions (EUROSAI) Working Group on Environmental Auditing, Joint Audit Report on Air Quality, January 2019, page 8, accessed on March 26th, 2019, via <https://bit.ly/2GhPQaB>

⁶³ Ibid. page 9.

⁶⁴ The Georgian Times, Deaths caused by air pollution per 100,000 people is the highest in Georgia, March 28th, 2018. Accessed on April 2nd, 2019, via <https://bit.ly/2UpL4zF>

⁶⁵ Imedi News, 225 billion USD is lost as a result of air pollution per year. April 1, 2018, accessed on April 2nd, 2019, via <https://bit.ly/2FW4SkV>

⁶⁶ The Georgian Times, Deaths caused by air pollution per 100,000 people is the highest in Georgia, March 28th, 2018. Accessed on April 2nd, 2019, via <https://bit.ly/2UpL4zF>

pollutants in the air significantly (70% reduction by 2019). According to one of the studies, every US dollar invested in air quality control in the USA returns 30 USD.⁶⁷

152. It should also be kept in mind that viewing environmental damage through a prism of economic loss is problematic. Assigning a monetary value to the provision of a safe environment for human health creates an incomplete picture.⁶⁸

153. In some economies, access to a safe and clean environment is presented as a consumer product rather than a human right. ‘Trade with health’ is extremely problematic, because the commodification of health or life (converting it into a calculable economic product) has limitations. Many experts have claimed that it is basically impossible to express the value of health in monetary terms. For many people, offering monetary assistance to compensate for damage to their health does not even partially address their problems.⁶⁹

154. From a broader perspective, assessing environmental damage in purely economic frameworks can disguise environmental crises as doing so categorizes environmental damage as an accounting and/or technical problem. The political dimension of environmental crises can thus go unobserved. By deploying such an approach, problems emerge as classical economic indicators fail to adequately account for environmental damage (for example, the damage done to the environment is not calculated correctly). One of the solutions here is to modify accounting approaches, such as measuring “green GDP” instead of GDP, and “sustainable development” instead of economic development, etc.⁷⁰

155. Air pollution is such a serious problem in Georgia that it should be addressed without delay. This is why effective steps should be taken immediately to protect the health of the country’s population and future generations.

156. The Government (with the involvement of the National Center of Disease Control, the Ministry of Finance, and the Ministry of Environment) should submit to the Environment Committee the draft expenses earmarked for the improvement of air quality in the next year’s budget, along with the relevant programmatic contents.

⁶⁷ Imedi News, 225 billion USD is lost as a result of air pollution per year. April 1, 2018, accessed on April 2nd, 2019, via <https://bit.ly/2FW4SkV>

⁶⁸ Radio Liberty, Mortality caused by air pollution is alarmingly high, March 28, 2018, accessed on March 30th, 2019, via <https://bit.ly/2FW2tX5>

⁶⁹ Ibid.

⁷⁰ Janet Currie & Joshua Graff Zivin & Jamie Mullins & Matthew Neidell, 2014, “What Do We Know About Short- and Long-Term Effects of Early-Life Exposure to Pollution?,” Annual Review of Resource Economics, Annual Reviews, vol. 6(1), pages 217-247, accessed on 4 April 2019, via <https://bit.ly/2UibMLa>

8 Supporting the Usage of Eco-Friendly Transport

157. The transport sector of the country is characterized by an annually increasing number of cars and a substantial amount of outdated vehicles. Overall, 46% of the cars in Georgia are older than 20 years, and the share of vehicles older than 10 years is more than 9%.⁷¹

158. The technical inspection was fully resumed in 2019. In addition, Government's technical regulation was introduced in 2018 to control the amounts of nitrogen dioxide and particulate matter in the ambient. Even though this is an important and positive development, solely this measure is insufficient.

159. The mandatory inspection procedure is flawed and until this flaw is remedied the air quality cannot be improved properly. The Ministry of Internal Affairs of Georgia still does not have the capacity to identify vehicles that have passed periodical technical inspection as a result of one-time temporary artificial interference but continue to emit harmful substances following the inspection. In many cases, violating vehicles are clearly visible to the naked eye as they emit thick, black exhaust fumes.

160. The recommendation presented in the Joint Audit Report responded precisely to this flaw. In particular, the report claimed that the state system and mechanisms for controlling the mandatory inspection of vehicles are weak and need to be strengthened.⁷²

161. To address this problem, any vehicle with visible black exhaust fumes should be fined. It should also be mentioned that the State has already taken effective steps and offered incentives to renew or replace the car fleet.

162. Within the thematic inquiry, representatives of state agencies confirmed during the oral hearings that the technical inspection process has some flaws in Georgia. In order to pass the inspection, in some cases, car owners borrow spare parts, which means that there are still technically unfit vehicles in operation despite having been inspected.⁷³

163. During the oral hearings, some MPs posed questions about possible corruption in the technical inspection process. It should be pointed out that cases of corruption have already been identified and guilty individuals have been charged. In order to establish reliable technical inspection of vehicles, it is necessary to study the current practices and to ensure timely remedying of the shortcomings revealed.

164. According to Erekle Kezherashvili, Deputy Head of the Transport Department of the Ministry of Economy, the Government of Georgia established obligatory periodical technical inspection to eradicate this problem and issued a regulation where timeframes for subsequent inspection are specified. According to him, the technical regulation has been amended as well. Now, if a car does not pass the inspection because of a problem with a certain spare part, then a second inspection is scheduled to look at this problem exclusively. Now the inspector is obliged to visually inspect the car.

⁷¹ Shalva Uriadmkopeli, recently developed events regarding safe vehicles in Georgia, June 14th, 2017, accessed on April 3rd, 2019, via <https://bit.ly/2U5GJ5b>

⁷² European Organization of Supreme Audit Institutions (EUROSAI) Working Group on Environmental Auditing, Joint Audit Report on Air Quality, January 2019, page 78, accessed on March 26th 2019, via <https://bit.ly/2GhPQaB>

⁷³ Oral hearing of public agencies, February 27th 2019

165. Shalva Uriadmkopeli, Head of the Security Service of the Land Transport Agency declared that, in some cases, when car owners brought their vehicles for a second inspection, other flaws were found in parts of the car that had previously passed the first inspection.

166. According to Shalva Uriadmkopeli, the transmission is not inspected during a second inspection. He said that this is because the second inspections, which focus on specific issues identified in the first inspection, are free. There is a private sector involved in the inspection, and this will create problems to them. According to him, a full inspection cannot be completed for second inspections because only 15-30 minutes are allocated for such inspections.⁷⁴

167. During the oral hearings, one of the MPs asked if there were cases where a vehicle had been brought for a second (repeat) inspection, and visually looked acceptable but its transmission was faulty. The agency representatives confirmed that such risk does exist.

168. Erekle Kezherashvili stated that the purpose of the technical inspection is prevention. He said that a vehicle might pass the technical inspection and then become damaged within a few months. In such cases, the car owner is not obliged to pass the inspection immediately, because the periodicity of vehicle inspection is regulated in the secondary legislation and the car owner is not obliged to have the car inspected for the second time even if it is damaged. According to him, in such cases, people's awareness is important as a technical inspection cannot resolve all issues.⁷⁵

169. Malkhaz Kharebava, acting Director General of the Accreditation Center, claimed that 13,897 vehicles were found to be unfit because of inadequate exhausts in 2018. In addition, more than 2,400 vehicles were prohibited from moving on the roads after being inspected for a second time. He said that currently it is not known whether any of these vehicles are still being driven or not despite failing the technical inspection. Kharebava also clarified that the Center had provided information about this issue to the Ministry of Economy and the Ministry of Internal Affairs as well.⁷⁶

170. Shalva Uriadmkopeli stated that these shortcomings could be eliminated if mobile centers were set up on the roads. He said that if such equipment is available, then car owners would not be able to cheat the technical inspection, because the checks would be random and unannounced.⁷⁷

171. The situation in the transport sector of the country is complicated by the annual growth of the car fleet and a big number of old vehicles. 45% of the car fleet is older than 20 years. The technical inspection was fully resumed in 2019, however, the inspection does not envisage the inspection of major pollutants from the exhausts of vehicles, and it is mostly focused on controlling the amounts of nitrogen dioxide and particulate matter. This narrow focus is a significant weakness of the system.⁷⁸

172. The Ministry of Internal Affairs does not have an effective mechanism for identifying vehicles that, despite having passed the periodical technical inspection, continue to emit harmful substances thereafter because they had only passed the inspection in the first place courtesy of one-time temporary artificial interference.

⁷⁴ Shalva Uriadmkopeli, Head of the Security Service of the Land Transport Agency, oral hearing of public agencies, February 27th 2019

⁷⁵ Erekle Kezherashvili, acting deputy head of the transport and logistics development policy department, oral hearing of public agencies, February 27th 2019

⁷⁶ Malkhaz Kharebava, acting Director General of the Accreditation Center, oral hearing of public agencies, February 27th 2019

⁷⁷ Shalva Uriadmkopeli, Head of the Security Service of the Land Transport Agency, oral hearing of public agencies, February 27th 2019

⁷⁸ European Organization of Supreme Audit Institutions (EUROSAI) Working Group on Environmental Auditing, Joint Audit Report on Air Quality, January 2019, page 78, accessed on March 28th 2019, via <https://bit.ly/2GhPQaB>

173. Public transport in Tbilisi is gradually being replaced with newer vehicles. The Ombudsman pointed out that even buses which have been passed as technically fit can still carry a pollution risk if they use diesel fuel which does not meet EU standards. Euro 4 diesel is already used in Georgia since January 2019, and they plan to shift the country to the consumption of Euro 5 diesel starting from 2020.⁷⁹

174. The national strategy envisages using electric vehicles to improve ambient air quality in Georgia. Tax breaks were introduced as an incentive to purchase and use electric vehicles. Such vehicles are now exempt from import duty and parking fees. The Transport Department of Tbilisi Municipality also plans to waive licensing obligations for these cars.⁸⁰ The newly established private company E-Space supports the use of electric vehicles and associated technologies in Georgia. The company has a network of public charging stations (52 locations at the time of the inquiry) countrywide. It is noteworthy that the power costs for powering 33 stations in Tbilisi are financed by the Tbilisi City Hall.

175. It is noteworthy that if eco-friendly public transport is realized, harmful substances will be significantly reduced in the air, which will have a direct positive impact on the public health and will potentially facilitate the saving of several hundreds of millions of GEL from the state budget for treating diseases caused by air pollution. In accordance with the legislative amendments made in 2018, all buses and minibuses operating with electric engines are exempt from import duties and VAT on the supply.⁸¹

176. Together with developing eco-friendly public transport, it is necessary to develop bicycle lanes in Tbilisi and other cities of Georgia.

177. It is important that restrictions are placed on vehicles regarding their age, that fuel quality is improved, and that the technical fitness of vehicles is properly controlled. In addition, suitable and correctly enforced traffic regulations and improvement of public transportation are also of the utmost importance.

178. It should be pointed out that, in accordance with EU standards, questions on eco-driving were added to the theory section of the test to obtain a driver's license to raise drivers' awareness about the activities to be carried out to reduce air pollution.

179. This report reflects the list of key eco-friendly driving principles, which is also available at the ambient air quality portal:⁸²

- ✓ Avoid keeping the engine running when the car is stationary
- ✓ Change the engine air filter on a regular basis
- ✓ Maintain the recommended air pressure in tires
- ✓ When the volume of fuel in the tank is near capacity, the fuel pump pistol stops automatically - vehicle users should avoid adding further fuel after this point
- ✓ Use cruise control (if available) as much as possible

⁷⁹ Public Defender of Georgia, Right to Clean Air (Air Quality in Georgia), special report 2019, page 30, accessed on April 1st, 2019, via <https://bit.ly/2ZbG2X0>

⁸⁰ European Organization of Supreme Audit Institutions (EUROSAI) Working Group on Environmental Auditing, Joint Audit Report on Air Quality, January 2019, page 38, accessed on March 26th 2019, via <https://bit.ly/2GhPQaB>

⁸¹ European Organization of Supreme Audit Institutions (EUROSAI) Working Group on Environmental Auditing, Joint Audit Report on Air Quality, January 2019, page 78, accessed on March 26th 2019, via <https://bit.ly/2GhPQaB>

⁸² Ambient Air Quality Portal, accessed on April 3rd, 2019, via <http://air.gov.ge/>

- ✓ Avoid driving at high speeds to reduce fuel consumption
- ✓ Shift up the gears as quickly as possible, and shift down gears as slowly as possible
- ✓ Approach red lights cautiously and slowly to avoid stopping and starting repeatedly, unnecessarily
- ✓ Plan your trips in advance
- ✓ Do not wait for your engine to warm up before moving, and instead try to drive at a low speed for a short period to warm up the engine at the beginning of a journey
- ✓ Do not use winter tires in summer
- ✓ Minimise the use of air conditioning
- ✓ Do not start your engine when towed – this may damage the catalytic converter.

180. There have been many incentives introduced already to promote more eco-friendly transport, and many others are planned. However, there remains a need for more innovative or experimental activities to be implemented. During the thematic inquiry, there were meetings with various stakeholders and new initiatives were mentioned and/or proposed, which deserve more discussion and attention. These include the following:

- ✓ To introduce eco-classification of means of transportation
- ✓ To introduce a fee in Tbilisi for vehicles, based on their engine volume. Correspondingly, the owners of vehicles that have lower volume engines will enjoy more favourable conditions. Vehicles with higher volume engines contribute more exhaust fumes and air pollution. There should also be incentives for those who drive eco-friendly vehicles.
- ✓ There should be an additional fee for households owning three or more vehicles.
- ✓ A special state program of allowances should be elaborated offering incentives for students to use bicycles and other eco-friendly modes of transport.
- ✓ In old parts of Tbilisi (e.g. Sololaki), which feature cultural landmarks and that are attractive tourist destinations, movement of all transport except hybrid and other eco-friendly vehicles owned by local residents should be prohibited. This would not only improve the air quality in the city center, but it would also free up space currently used for parking. This would result in more pedestrianised areas, an expanded network of cafés and restaurants and would, correspondingly, boost the potential for tourism.
- ✓ The city center is one of the most heavily polluted areas of the city. Tbilisi City Hall should look at the possibility of closing Shota Rustaveli Avenue for vehicles one day a week (for example, on Sundays) and have it open only to pedestrians. Meanwhile, of the 6 lanes of this avenue, it should be possible to dedicate two (one on each side) for public transportation. Many other cities worldwide use a similar approach but this proposal requires additional analysis and the consideration of various potential side-effects.
- ✓ Maia Bitadze, Deputy Mayor of Tbilisi, presented an interesting initiative during the oral hearing which entailed introducing cable cars to transport people from the suburbs to the city center. The Working Group considers that such an innovative infrastructure project could be very timely and could play an important role in reducing the number of vehicles and, most significantly, the level of air pollution as well.

9 Recommendations of the Environment Committee

Vehicle emissions

1. The Environment Committee echoes the recommendation of the State Audit Office to have more stringent monitoring of the technical condition of minibuses and buses, including fulfilling the obligation that these vehicles undergo technical inspections. The Ministry of Economy and Sustainable Development should submit an action plan to the Environment Committee within 2 months together with a list of activities required to implement this recommendation properly. The monitoring mechanism should contain a methodology that has been carefully elaborated and established in advance and should specify one particular agency that would be responsible for monitoring. The international practice shows that such agency could be respective to land transport agency (paragraph 21).
2. Tbilisi Transport Company Ltd should submit a future vision to the Environment Committee within 2 months about how it plans to replace currently unfit public transport vehicles with new vehicles that would be safe and environmentally-friendly. (paragraph 22).
3. The technical inspections only measure the amount of Carbon Monoxide (CO) in the exhausts of petrol vehicles, and smoke emissions in the case of diesel vehicles. However, the measuring device has the capacity to measure more elements. Meanwhile, the set limits are lower than desirable. To effectively reduce the adverse impact on the environment, it is important to determine and inspect the level of more than one harmful substance in vehicle exhausts, while the category of vehicle, production norms, and the transition period should all be taken into consideration. The Ministry of Economy and Sustainable Development should submit to the Environment Committee its position regarding the issue of expanding the technical inspection within 2 months, together with the timeframes for implementing the respective measures (paragraph 23).
4. As for the recommendations submitted by individual citizens, there were two particular suggestions that the Environment Committee considers worthy of pointing out:
 - ✓ To conduct exhaust inspections of vehicles when they cross the border of Georgia, as well as during customs clearance. It would be reasonable to prepare a package of legislative amendments, according to which emission standards would be established for imported vehicles, and the import of vehicles with standards lower than EUR 4 would be prohibited in Georgia.
 - ✓ To purchase portable devices to measure emissions (which are widely used in various countries worldwide), to enable on-the-spot vehicle inspections if emissions from the vehicle's exhaust are visible.

As these issues require further discussion, the Ministry of Environmental Protection and Agriculture (hereinafter, the Ministry of Environment), the Ministry of Internal Affairs, and Tbilisi

City Hall should submit an analysis and overall opinion about these issues to the Environment Committee within 2 months (paragraph 24).

Construction and Construction Dust

5. It is important that a study be conducted on the ecological efficiency of prevalent winds with the efforts of the National Environmental Agency and Tbilisi City Hall, so that no more high-rise buildings are built along the banks of the Mtkvari River and the more mountainous parts around the city, which may hinder wind movement and, consequently, the process of natural ventilation and climate regulation in Tbilisi (paragraph 26).

6. Regarding the accumulation of construction dust, Tbilisi City Hall and the Environment Committee have jointly initiated a draft law, which envisages making amendments to the Administrative Offences Code. In accordance with these amendments, all natural persons or legal entities that violate the regulations established with regard to the transfer, placement and sale of high-emission construction materials, will pay substantial fines. Discussions about the relevant legislative package will take place over at the spring session. After passing this law, 3 months after its enactment, Tbilisi City Hall should submit a report to the Environment Committee regarding the implementation of the law (paragraph 29).

Natural Dust

7. There are numerous activities (both short-term and long-term) to be carried out in this direction. The Environment Committee is addressing the Ministry of Environment Protection to study the evidence received within the thematic inquiry and to submit its opinion to the Environment Committee within 3 months about the feasibility of the suggested measures, to justify the rejection of any such measures, or to elaborate an action plan embracing the suggested measures implementation timeframes (paragraph 33).

8. The Environment Committee recommends that Tbilisi City Hall plans and implements intensive measures for planting trees in the eastern parts of the city, to prevent dusty winds blowing in from the Iori Plateau, the successful accomplishment of which would have a positive impact on improving air quality in the city (paragraph 34).

Lack of Greening

9. The Environment Committee recommends that Tbilisi City Hall provide a justified opinion regarding the proposed K4 coefficient within 3 months (paragraph 41).

10. It is necessary for Tbilisi City Hall to identify the most prolific dust-producing surfaces (open soil) in the city (location, area, characteristics). This identification work could be carried out in a short period by employing remote probing and GIS technologies. Tbilisi City Hall should plan for gradual coverage of the identified dust-producing surfaces (open soil), (greening, mulching, etc.); to carry out activities to restore/maintain the soil in the city, and replace chemical fertilizers with organic and natural fertilizers (organic, sludge, sapropel, manure, compost, etc.) (paragraph 42).

The Problem of Humidity and Sprinkling

11. The Environment Committee recommends that Tbilisi City Hall should ensure the regular sprinkling of streets and sidewalks, and should increase the number of fountains. However, best international practice demonstrates that street sprinkling alone is insufficient. In order to remove the dust mass, it is necessary to wash the streets with high-pressure equipment. The Environment Committee recommends that Tbilisi City Hall develops its vision and action plan regarding the above-mentioned issue, and provides pertinent information to the Environment Committee within 2 months (paragraph 46).

Fuel Quality and Monitoring

12. The Government of Georgia should submit a program envisaging the improvement of the existing fuel quality monitoring system to the Environment Committee within 3 months. There should be one state agency responsible for monitoring fuel quality. It is required to elaborate and approve technical regulations enforcing the use of rubber splash shields (picture 1) at gas stations, which would minimise the risk of fuel evaporation and spillage risk. It would also be reasonable to introduce a system for eco-marking of gas stations, and to purchase the respective laboratories and equipment at border checkpoints for the monitoring of harmful substances in fuel (e.g. benzopyrene, formaldehyde, benzol, acrolein, lead, ammonia, and other substances that are harmful for humans) (paragraph 57).

Boilers

13. In order to ensure that the products of natural gas burning (smoke) generated from wall-hung boilers are emitted above room level, the European-style 'coaxial' collective pipes should be installed in Tbilisi and across Georgia, in old or newly constructed houses. This is important in terms of increasing energy efficiency in the residential sector of the city, as well as for protecting the environment and health of the population (paragraph 61).

Asbestos Pads and Asbestos-Containing Products

14. The thematic inquiry Working Group identified the following necessary steps after carefully studying the issue:

- ✓ The Ministry of Environment Protection, together with the Ministry of Finance, should draft legislative amendments on banning the import of asbestos-containing materials, and submit these to the Environment Committee within 3 months.
- ✓ The LEPL State Procurement Agency should immediately ensure that any state procurement tender explicitly prohibits the procurement of asbestos-containing products.
- ✓ The Ministry of Environment Protection, together with the Ministry of Regional Development and Infrastructure, should prepare a long-term program on the safe disposal and utilization of asbestos-containing waste, and submit it to the Environment Committee within 6 months. In line with best practices in most EU countries, it is necessary to elaborate and implement a program to make the country asbestos-free and to replace asbestos.

- ✓ To elaborate a national program and action plan on asbestos entitled “Elimination/Minimization of Diseases Caused by Asbestos in Georgia.” The Ministry of Finance should equip the Customs Department with the respective equipment, devices and relevant authority to inspect asbestos-containing products at the border checkpoints.
- ✓ The Government of Georgia should ensure data collection on asbestos-containing products and the import thereof in the country.
- ✓ The LEPL National Environment Agency should initiate control of the asbestos levels in the air. It should provide information to the Environment Committee by 1 June 2019 about its future plans and specific timeframes.
- ✓ The Government of Georgia should make amendments to Decree #263 dated 13 June 2016 within 2 months, and to add chrysotile-containing asbestos fibre to the list of prohibited fibres. Furthermore, the Government should ensure the elimination of problems associated with the enforcement of this provision caused by the absence of marking on products. (paragraph 67).

Role of Tires in Air Pollution

15. The Environment Committee in the frame of Working Group did not have possibility to study this issue and draw specific conclusions. Therefore, the Environment Committee requests the Ministry of Environment Protection to study this issue and submit its findings and elaborated action plan before 1 September 2019 (paragraph 71).

Pyrotechnics and Fireworks

16. The Government of Georgia should submit a package of legislative amendments and a program of activities with timeframes to the Environment Committee within 3 months, in order to set the threshold limits (composition and volume) and to control such products during customs clearance (paragraph 73).

17. The Environment Committee recommends that Tbilisi City Hall elaborate instructions for using fireworks during a certain period of the day, their location and duration by 1 September 2019 and to provide information to the Environment Committee about the implemented activities. Large quantities of such substances are emitted into the air during holidays (e.g. New Year’s Eve) which are harmful to human health and these substances linger on roads, sidewalks and green territories, and are subsequently inhaled by people. This issue requires a more detailed study and an adequate response (paragraph 74).

Effective Laws and Sublegislative Acts

18. The effective legislative framework do not fully meet the requirements specified in the Georgia-EU Association Agreement, particularly when it comes to the best available technologies (BAT) and Emission Limit Values (ELV). It would be a reasonable step to elaborate a new legislative package to ensure better regulation of the above-mentioned issues (paragraph 86).

19. Another example of a legislative gap exists where the limited values of significant air pollutants PM₁₀ and PM_{2.5} are not defined by the legislation (these limits are defined only by a technical regulation), and the corresponding fines envisaged (for example, for a violation such as operating an enterprise without a filter) in the Administrative Offences Code are inadequately low. The Ministry of Environment should put together a package of legislative amendments and present them to the Parliament of Georgia within 3 months, increasing the corresponding fines for administrative offences (paragraph 87).

20. The Ministry of Environment Protection should discuss together with respective agencies the causes behind and circumstances concerning the failure to exercise Article 295 of the Criminal Code. It should then submit the findings and planned steps to the Parliament of Georgia to ensure full implementation of the law (paragraph 88).

21. It would be reasonable to hold training for judges, prosecutors and public servants working in the field of environmental protection, and to raise their awareness about environmental protection and natural resources and their importance for the sustainable development of the country. The Government should elaborate on respective programs and corresponding implementation deadlines together with the Ministry of Environment Protection (paragraph 89).

New Legislative Regulations

22. The Government of Georgia should form a Working Group to work on a new legislative initiative on air quality within 1 month and submit information to the Environment Committee within 2 months about the working group's composition and action plan, which should contain a specific deadline for tabling the initiated legislative package to the Parliament of Georgia. It is necessary to develop a national air policy and long-term strategy before drafting legislative amendments (paragraph 93).

23. In accordance with Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe, as well as Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air, the State shall draw up a list of zones and agglomerations and classify them accordingly with the purpose of ambient air quality management. Moreover, the State will introduce and implement relevant measures with regard to the respective polluting substances, with the purpose of maintaining/improving the ambient air quality.

With the purpose of managing fluorinated greenhouse gases, the State shall also create a registration, restoration, neutralization, usage, emission prevention and control system (Regulation (EU) No 517/2014 of the European Parliament and of the Council of 16 April 2014 on fluorinated greenhouse gases and repealing Regulation of 17 May 2006 (EC) No 842/2006).

It is necessary that the state enforces legislative regulations that meet the requirements of these directives, and to ensure air quality management in accordance with EU approaches. According to the information provided to the Environment Committee, the respective draft law is almost finalized. The Government of Georgia should prepare and initiate the respective legislative amendments in the Parliament of Georgia within 3 months (paragraph 94).

Impact of Polluted Air on Human Health

24. Air pollution in Tbilisi is one of the main issues of public interest and one of the main causes of public dissatisfaction. The Government of Georgia and local authorities should make combating air pollution a priority and should elaborate a comprehensive strategy accordingly (paragraph 102).

25. A clean air strategy should include suitable methods, time-bound measures and a list of relevant activities, as a result of which: (a) the air quality will significantly improve; (b) the causes of air pollution will be phased out; (c) prevention measures will be carried out as planned; and (d) adequate funding will be allocated. The strategy should set the goals and specific corresponding timeframes within which these goals should be reached (paragraph 103).

26. The Government of Georgia (in cooperation with Tbilisi City Hall) should inform the Environment Committee before 1 July 2019 about the status of implementation of the program approved by the Government, the activities added to this program based on new challenges and findings, set specific timeframes to reach the program's goals, and determine the corresponding budget (paragraph 104).

27. The Parliament of Georgia and the Government of Georgia should make it their priority to elaborate and approve a long-term clean air strategy in the country. The Government of Georgia should submit to the Environment Committee its vision for the elaboration of a clean air strategy, the composition of the working group, the terms of reference for the working group, and it should specify a deadline for the strategy's elaboration before 1 June 2019 (paragraph 105).

Limited and Ineffective Communication on Health and Environment Issues

28. The LEPL Environmental Information and Education Center should elaborate an action plan and produce guidelines for providing information to all age groups in simple and understandable language about various aspects of air pollution (paragraph 112).

29. According to the joint audit report on air quality, the Government of Georgia has been advised 'to plan and take appropriate action to raise public awareness of the effects of air pollution and their mitigation tools.' The Government of Georgia should submit information to the Environment Committee about the measures taken to meet this recommendation within 2 months (paragraph 113).

30. There is no dispute about the negative impact of using fossil fuels (gasoline, diesel, gas) on air quality and human health. Working on awareness-raising in this area should become a priority task for the Government and local authorities. Every individual should understand well the level of harm done to the environment and how the air is polluted by vehicles operating on gasoline, diesel and gas (especially vehicles in poor or outdated technical condition). Accordingly, today it is essential that transport which is environmentally-friendly is prioritized (paragraph 114).

31. The thematic inquiry revealed that fuel quality is not a cause of the increased level of lead in blood. The Government of Georgia should designate responsible bodies and initiate research to find out what has caused the increased level of lead in human blood. Once the causes have been identified, it will become possible to take appropriate action. The Government should submit an action plan to the Environment Committee within 3 months about how it is going to study

this issue in order to establish a causal relationship between the increased level of lead and the factors causing this. At the same time, the Government should elaborate a program of actions, outlining how the studies will be carried out, in what target areas, and during what period (paragraph 115).

32. A list of recommendations is provided below, elaborated by representatives of the executive power. The list has been uploaded on the ambient air quality portal. The Environment Committee approves the envisaged measures as reasonable and is approaching the relevant responsible agencies to ask them to provide information to the Committee about the progress of the implementation of these measures by September 2019. The recommendations are as follows:

- ✓ To raise public awareness
- ✓ To conduct an information campaign promoting the use of public transportation
- ✓ To carry out a public awareness-raising campaign about the impact of ambient air pollution on human health and the environment, as well as about the protection of ambient air (through media coverage, targeted literature, and promotion of education)
- ✓ To include additional topics about the eco-friendly driving of cars in the tests one has to pass to obtain a driver's license
- ✓ To incorporate the sustainable development principles for the environment into the national curriculum
- ✓ To inform the public about the advantages of cycling and walking as safe and healthy modes of transport
- ✓ To upload data on the automated monitoring network in Tbilisi online (paragraph 116).

'Green Policy'

33. The Government of Georgia should submit information to the Environment Committee about the number of vehicles allocated to each public agency, as well as the type and age of vehicles, within 1 month (paragraph 125).

34. The Government of Georgia should submit an action plan to the Environment Committee within 3 months, about a reduction in the number of government vehicles, and the replacement of the existing fleet with eco-friendly vehicles, specifying corresponding timeframes for the completion of specific activities (paragraph 126).

35. Developing public transport in order to make it more comfortable and convenient for every resident is one of the priorities of urban development in Tbilisi. The money saved from reducing the car fleet of the State and freeing up fuel money could be invested in public transport. The Government of Georgia, in agreement with Tbilisi City Hall, should submit its vision to the Environment Committee *by 1 September 2019*, about what steps need to be taken and what timeframes should apply for reaching them. Funds for such efforts should be clearly allocated in the draft budget of 2020 (paragraph 127).

Evaluation of Enforcement

36. It is necessary to conduct a comprehensive analysis of the findings of the Joint Audit Report on Air Quality, particularly with regard to the following issues:

- ✓ Requirements in terms of national and international standards are not observed
- ✓ Georgia does not have a national air policy and, most importantly, it has not identified evaluation criteria
- ✓ There is no coordination between the sectoral policy and its subjects
- ✓ There is no comprehensive information about necessary budget resources to implement environmental activities
- ✓ The current budget allocation for ambient air quality protection is not sufficient The monitoring system is not reliable
- ✓ Public awareness can be improved

The Government of Georgia should submit an action plan to the Environment Committee by 1 June 2019 about the steps to be taken to address the listed issues, which should contain solutions to specific problems, timeframes and anticipated results (paragraph 139).

Improving the Action Plan and Monitoring

37. The LEPL National Environmental Agency should expand the air quality monitoring network as much as possible, in order to ensure a more accurate and exhaustive evaluation of the current situation in Tbilisi and the regions. The National Environmental Agency should submit a list of activities needed to expand the monitoring network to the Environment Committee within 2 months, along with justifications for amendments to be made to the state budget and specific timeframes for the implementation of the planned activities (paragraph 144).

38. In January 2019, Working Group on Environmental Auditing of the European Organization of Supreme Audit Institutions produced the Joint Audit Report on Air Quality, where a whole range of recommendations were issued for Georgia. Based on these recommendations, the Government of Georgia should provide detailed plans to the Environment Committee within 3 months, with the purpose of evaluating the effectiveness of measures taken by the Government of Georgia. Such plans should aim to:

- ✓ Measure and evaluate the effectiveness of implemented activities
- ✓ Improve coordination
- ✓ Register relevant data and conduct a comprehensive cost-benefit analysis
- ✓ Improve the monitoring system (paragraph 145).

Economic Loss from Polluted Air and Financing

39. The Government (with the involvement of the National Center of Disease Control, the Ministry of Finance, and the Ministry of Environment) should submit to the Environment Committee the draft expenses earmarked for the improvement of air quality in the next year's budget, along with the relevant programmatic contents (paragraph 156).

Promoting Eco-Friendly Transport

40. There have been many incentives introduced already to promote more eco-friendly transport, and many others are planned. However, there remains a need for more innovative or experimental activities to be implemented. During the thematic inquiry, there were meetings with various stakeholders and new initiatives were mentioned and/or proposed, which deserve more discussion and attention. These include the following:

- ✓ To introduce eco-classification of means of transportation
- ✓ To introduce a fee in Tbilisi for vehicles, based on their engine volume. Correspondingly, the owners of vehicles that have lower volume engines will enjoy more favourable conditions. Vehicles with higher volume engines contribute more exhaust fumes and air pollution. There should also be incentives for those who drive eco-friendly vehicles.
- ✓ There should be an additional fee for households owning three or more vehicles.
- ✓ A special state program of allowances should be elaborated offering incentives for students to use bicycles and other eco-friendly modes of transport.
- ✓ In old parts of Tbilisi (e.g. Sololaki), which feature cultural landmarks and that are attractive tourist destinations, movement of all transport except hybrid and other eco-friendly vehicles owned by local residents should be prohibited. This would not only improve the air quality in the city center, but it would also free up space currently used for parking. This would result in more pedestrianized areas, an expanded network of cafés and restaurants and would, correspondingly, boost the potential for tourism.
- ✓ The city center is one of the most heavily polluted areas of the city. Tbilisi City Hall should look at the possibility of closing Shota Rustaveli Avenue for vehicles one day a week (for example, on Sundays) and have it open only to pedestrians. Meanwhile, of the 6 lanes of this avenue, it should be possible to dedicate two (one on each side) for public transportation. Many other cities worldwide use a similar approach but this proposal requires additional analysis and the consideration of various potential side-effects.
- ✓ Maia Bitadze, Deputy Mayor of Tbilisi presented an interesting initiative during the oral hearing which entailed introducing cable cars to transport people from the suburbs to the city center. The Working Group considers that such an innovative infrastructure project could be very timely and could play an important role in reducing the number of vehicles and, most significantly, the level of air pollution as well. (paragraph 180).

Recommendations per Agencies

The Government of Georgia

- paragraphs 4, 12, 13, 14, 16, 21, 22, 23, 24, 25, 26, 27, 29, 31, 32, 33, 34, 35, 36, 38, 39, 40

Tbilisi City Hall

- paragraphs 4, 5, 6, 8, 9, 10, 11, 13, 17, 26, 32, 35, 40

Ministry of Environmental Protection and Agriculture

- paragraphs 4, 7, 14, 15, 19, 20, 21, 32, 39, 40

Ministry of Economy and Sustainable Development

- paragraphs 1, 3, 40

Environmental Information and Education Center

- paragraphs 28, 30, 32

National Environment Agency

- paragraphs 5, 37

Ministry of Finance

- paragraphs 14, 39

Ministry of Internal Affairs

- paragraphs 4, 32

Ministry of Regional Development and Infrastructure

- Paragraph 14

National Center for Disease Control and Public Health

- Paragraph 39

Tbilisi Transport Company Ltd

- Paragraph 2

State Procurement Agency

- Paragraph 14

10 Published Written Evidence

- 1 Mulching of open soil as an effective measure against air pollution and global warming | LTD Geo Mulch
- 2 Role of diesel in air pollution | Gela Kvashilava
- 3 Climate change, global warming and the importance of greening in improving urban air quality | Kukuri Goginashvili, Gia Muradov
- 4 Committee inquiry of the Environmental Protection and Natural Resources Committee of the Parliament of Georgia on Ambient Air Quality in Tbilisi | ECOVISION
- 5 Equipping the high-rise residential apartment buildings of Tbilisi with European-style pipes for sustainable development | non-commercial (non-entrepreneurial) legal entity Energy Efficiency and Environment Protection
- 6 On Ambient Air Quality in Tbilisi | ECOVISION
- 7 Yearbook on the values of gamma-radiation exposure doses in the ambient air in Georgia | National Environment Agency
- 8 Ambient Air Quality in Tbilisi | Georgia Alliance for Safe Roads
- 9 Ambient Air Quality | National Water Partnership of Georgia
- 10 Role of diesel in air pollution and ways of reducing its adverse effects in the transportation sector | Partnership for Road Safety
- 11 The problem of pollution from natural dust in Tbilisi | LEPL Ilia State University
- 12 Effects of asbestos on human health and ways it can be replaced | Gela Kvashilava
- 13 Project “Covenant of Mayors for Energy and Climate” | Giorgi Abulashvili
- 14 Ambient Air Quality | Greens Movement of Georgia / Friends of the Earth
- 15 Study on the effects of harmful dust mass generated as a result of wear of vehicle tires on the environment, air, soil and human health in Tbilisi and the neighbouring regions | Revaz Popkhadze
- 16 Ambient Air Pollution in Tbilisi | Temur Vekua
- 17 Brief Overview of Environment Pollution in Georgia, newsletter #4 | National Environment Agency
- 18 Results of the eleventh stage of indicative measurements of ambient air pollution | National Environment Agency
- 19 A brief overview of environment pollution in Georgia, newsletter #2 | National Environment Agency
- 20 Audit report on the effectiveness of measures to reduce ambient air pollution caused by vehicle emissions in Tbilisi | State Audit Office

The pieces of evidence received within the thematic inquiry are available on the website of the Parliament of Georgia.

11 Oral Hearings

After reviewing the evidence submitted in writing, oral hearings held with the witnesses and the state agencies that are directly responsible for the topic of the thematic inquiry.

Oral Hearings of Witnesses | 26 September 2018

Members of the Working Group: Kakha Kuchava, Sulkhan Makhatadze, Gogi Meshveliani, Guguli Maghradze, Giorgi Khatidze, Nino Tsilosani, Nino Gogvadze, Tinatin Bokuchava, Levan Koberidze, Emzar Kvitsiani.

The following individuals answered questions during the oral hearings:

- Nino Sulkhanishvili | ECOVISION
- Ekaterine Laliashvili | Georgia Alliance for Safe Roads
- Gela Kvashilava | Partnership for Road Safety
- Nelly Verulava | Energy Efficiency and Environment Protection Center
- Inga Grdzelishvili
- Temur Vekua
- Archil Maghalashvili | Ilia State University
- Revaz Popkhadze | LTD Tire Green
- Giorgi Abulashvili | Energy Efficiency Center Georgia
- Giorgi Dzamukashvili | National Water Partnership of Georgia
- LTD Geo Mulch
- Kukuri Goginashvili | Global Warming

Oral Hearings of Public Agencies | 26 February 2019

Working Group members: Kakha Kuchava, Giorgi Gachechiladze, Tinatin Bokuchava, Giorgi Khatidze, Nino Gogvadze.

The following agencies and representatives responded to questions at the oral hearings:

State Audit Office

- Tornike Shermadini | Head of the Economic Activities Audit Department
- Elene Eliazarashvili | Senior Auditor
- Nino Kashibadze | Senior Auditor
- Tengiz Tevdoradze | Senior Auditor

Tbilisi Transport Company

- Giorgi Sharkov | Director General

Ministry of Environmental Protection and Agriculture

- Nino Tandilashvili | Deputy Minister
- Marine Arabidze | Head of the Department of Environmental Pollution Monitoring at the National Environmental Agency
- Nino Tkhlava | Head of the Department of Environment and Climate Change
- Noe Megrelashvili | Head of the Ambient Air Division

Oral Hearings of Public Agencies | 27 February 2019

Members of the Working Group: Kakha Kuchava, Giorgi Gachechiladze, Tinatin Bokuchava, Giorgi Khatidze.

The following agencies and representatives responded to questions at the oral hearings:

National Center for Disease Control and Public Health

- Amiran Gamkrelidze | Director General of the Center
- Nana Gabriadze | Head of the Environmental Health Division

Environmental Supervision Department

- Nelly Korkotadze | Deputy Head of the Supervision Service
- Archil Adamia | Head of the Primary Structural Unit of the Legal Service
- Khatuna Omiadze | Head of the Laboratory Division of the Integrated Environmental Control Service

Ministry of Economy and Sustainable Development of Georgia

- Genadi Arveladze | Deputy Minister
- Zurab Meskhi | Head of the Construction Policy Department
- Malkhaz Kharebava | National Accreditation Body

Oral Hearing of Public Agencies | 28 February 2019

Members of the Working Group: Kakha Kuchava, Giorgi Gachechiladze, Tinatin Bokuchava, Giorgi Khatidze, Nino Gogvadze.

The following agencies, and representatives responded to the questions at the oral hearing:

Tbilisi City Hall

- Maia Bitadze | Deputy Mayor of Tbilisi
- Giga Gigashvili | Head of the City Service of Environmental Protection
- Teimuraz Bolotashvili | Head of the Architecture Service of Tbilisi
- Mamuka Mumladze | Head of the Transport Service

12 References

- ✓ Third National Environmental Action Programme of Georgia 20172021
- ✓ State Audit Office, Performance Audit Report on the Measures for Reducing Ambient Air Pollution Caused by Vehicle Emissions in Tbilisi, 2016
- ✓ European Organization of Supreme Audit Institutions (EUROSAI) Working Group on Environmental Auditing, Joint Audit Report on Air Quality, January 2019
- ✓ Public Defender of Georgia, Right to Clean Air (Ambient Air Quality in Georgia), special report 2019
- ✓ Letter of the National Center for Disease Control and Public Health, 27 March 2019
- ✓ National Center for Disease Control and Public Health, burden of noncommunicable diseases at the global and national level, 2015
- ✓ Hearing of Levan Davitashvili, Minister of Environmental Protection and Agriculture at the Parliament – within the format of the ministerial hour, 7 March 2019
- ✓ Yearbook on the Values of Gamma-Radiation Exposure Doses in the Ambient Air in the Territory of Georgia | National Environment Agency
- ✓ Brief Overview of Environmental Pollution in Georgia, newsletter #4 | National Environment Agency
- ✓ Results of the Eleventh Stage of Indicative Measurements of Ambient Air Pollution | National Environment Agency
- ✓ Brief Overview of Environmental Pollution in Georgia, newsletter #2 | National Environment Agency
- ✓ Janet Currie & Joshua Graff Zivin & Jamie Mullins & Matthew Neidell, 2014, “What Do We Know About Short and LongTerm Effects of EarlyLife Exposure to Pollution?,” Annual Review of Resource Economics, Annual Reviews, vol. 6(1), pages 217247

Legislative Framework

- ✓ Constitution of Georgia
- ✓ Law of Georgia on Ambient Air Protection
- ✓ Law of Georgia on Environmental Protection
- ✓ Law of Georgia on Public Health
- ✓ Criminal Code of Georgia
- ✓ Code of Administrative Offences of Georgia
- ✓ Law of Georgia on Road Traffic
- ✓ Resolution of the Government of Georgia on the Approval of the State Program on Measures to Support the Reduction of Ambient Air Pollution in Tbilisi

- ✓ Resolution of the Government of Georgia on the Approval of the Third National Environmental Action Programme of Georgia

Decrees of the Government of Georgia

- ✓ On the Approval of the Provisions “On Protecting the Ambient Air from the Pollution Caused by Microorganisms and Biologically Active Substances of Microbial Origin”
- ✓ On the Approval of the List of Settlements in Georgia, where the Values of Indexes of Ambient Air Pollution with Harmful Substances Are Calculated Annually
- ✓ On the Approval of the Technical Regulation on Calculating the Indexes of Ambient Air Pollution with Harmful Substances, and Defining the Values of Indexes of Ambient Air Pollution with Harmful Substances for the Regions that Fall Under the Categories of Extremely Polluted, Highly Polluted, Polluted and Unpolluted Settlements, According to the Level of Ambient Air Pollution with Harmful Substances
- ✓ On the Approval of the Technical Regulation on the Production and Consumption of Air Separation Products
- ✓ On Allowing the Georgian Standard SST 82:2016 “Production and Consumption of Air Separation Products. Safety Requirements” to Be Operational in the Territory of Georgia
- ✓ On the Approval of the Technical Regulation of Inventory of Ambient Air Pollution from Stationary Sources
- ✓ Technical Regulation – on Approving the Ambient Air Quality Standards
- ✓ On the Approval of the Provisions On Protecting the Ambient Air from the Pollution Caused by Microorganisms and Biologically Active Substances of Microbial Origin
- ✓ On the Approval of the Technical Regulation on the Ambient Air Protection during Unfavorable Weather Conditions
- ✓ On the Approval of the National Action Plan of Georgia of Environment and Health for 2018-2022 (NEHAP-2)

Ministerial Orders

- ✓ On the Approval of the Instruction on the Rules of Ambient Air Protection during Landfill Operations
- ✓ On the Approval of the Instruction on the Rules of Ambient Air Protection during Mining Activities, Explosive Works, Bulk Placement and Operations
- ✓ On the Approval of the List of Settlements in Georgia, where the Values of Indexes of Ambient Air Pollution with Harmful Substances are Calculated Annually
- ✓ On the Approval of the List of Stationary Objects of Ambient Air Pollution that Are Registered and Identified by 2010

- ✓ On the Approval of the Provisions On Special Requirements for the Ambient Air Protection in Resorts, Sanitary Protection Zones of Resorts and Protected Areas
- ✓ On the Approval of the Instruction On the Rules of Ambient Air Protection in the Event of Emergency Emissions of Harmful Substances into Ambient Air as a result of an Accident

Media and Internet Resources

- ✓ Palitra News, Levan Davitashvili – Quality of diesel fuel will be upgraded up to Euro 5 standard in the country from January 1, 2020; 7 March 2019
- ✓ InterPressNews, report – Public Transport in Tbilisi to be Gradually Replaced but Buses use Diesel Fuel Below EU Standards; 26 February 2019 <https://bit.ly/2P1YVXN>
- ✓ Netgazeti, Air Pollution Can Affect the Brain Development in Children – UNICEF paper, 14 December 2017, accessed on 29 March 2019 <http://netgazeti.ge/news/240616/>
- ✓ IMEDI NEWS, the Portal air.gov.ge Launched to Make Information on Air Quality Accessible on Air Quality, 26 January 2019 <https://bit.ly/2FGoVDv>
- ✓ National Environment Agency, presentation of the Ambient Air Protection Policy, 28 January 2019 <https://bit.ly/2HMNZwb>
- ✓ Amiran Gamkrelidze, Director General of the National Center for Disease Control and Public Health, 27 February 2019, <https://bit.ly/2WF8oGR>
- ✓ Ambient Air Quality portal <http://air.gov.ge/pages/13/13>
- ✓ National Statistics Office of Georgia, Results of Survey on the Consumption of Energy Resources, 17 December 2018 <https://bit.ly/2WLTfKu>
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- ✓ Clean Air Act Overview, Progress Cleaning the Air and Improving People's Health, <https://bit.ly/2K5uh0P>
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- ✓ World Health Organization (WHO), Fact sheet 2018 <https://bit.ly/2CJ2pJD>
- ✓ World Health Organization (WHO), Summaries of selected health-related SDG indicators <https://bit.ly/2FBRXW2>
- ✓ World Health Organization (WHO), Asbestos: elimination of asbestos-related diseases <https://bit.ly/1NxqH9K>

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