NATIONAL AUDIT OFFICE OF LITHUANIA

ASSESSMENT OF THE STATE OF THE AMBIENT AIR

10 June 2022

No VAE-6

SUMMARY

Relevance of the Audit

According to the World Health Organisation, air pollution poses the highest risk to the environment and health in the European Union[1]. It causes premature deaths of around 400,000 people[2] and hundreds of billions of euros in health costs in the EU every year. Most of these premature deaths are caused by air pollutants, i.e. particulate matter (PM_{10}, $PM_{2.5}$), nitrogen dioxide and ground-level ozone[3].

Although Lithuania is among the countries with the cleanest air quality in Europe, the state of ambient air and its changes indicate that there are pressing problems at the national, municipal and local levels[4]. The National Progress Plan 2021–2030[5] mentions that not all Lithuanian territory meets the requirements of the European Union (Vilnius, Kaunas, Klaipėda, Šiauliai, and Panevėžys cities often exceed the concentration rate of particulate matter), cities with the highest number of people affected by air pollution exceed the air pollution levels (ensuring a minimum impact of the population on the health) recommended by the World Health Organisation.

The reduction of ambient air pollution is closely linked to the mitigation of the adverse effects of climate change and contributes to the reduction of air pollution and the

[1] European Environment Agency. Internet access: https://www.eea.europa.eu/themes/air/air-pollution-is-the-single (see 15/04 2022).

[2] The European Commission. Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. The Second Clean Air Outlook. 8.1.2021 COM (2021) 3 final, page 1.

[3] European Court of Auditors. Special Report No 23. Air pollution. Our health is still insufficiently protected, 2018, p. 1.

[4] Ref.Ares (2020)7252600 of the European Commission to Lithuania of 1 December 2020 on updating the policies and measures of the national air pollution control programmes established under Directive (EU) 2016/2284 indicating that Lithuania is at risk of not meeting its emission reduction commitments (SO2, NOx, NMVOC and PM2,5 for 2020-2029; SO2, NOx and NMVOCs from 2030 onwards).

[5] Government Resolution No 998 of 9 September 2020 (version No 797 of 29 September 2021), p. 42.

improvement of air quality through its objectives and measures[6]. Combating climate change is one of the most important priorities in the world and Lithuania. Lithuania has announced ambitious medium- and long-term climate change mitigation targets (e.g.: reduce greenhouse gas (GHG) emissions by at least 14% by 2030 compared to 2005; become a carbon-neutral country by 2050); however, the OECD 2021 Environmental Performance Review[7] states that current policies will not be sufficient to implement the mentioned targets. Overall GHG emissions have not decreased over the last decade and transport emissions have grown rapidly in Lithuania.

Continuous and systematic monitoring of ambient air quality and the collection and assessment of objective and relevant information is essential to ensure that ambient air quality improves, to protect a healthy and clean environment for the public, as well as to enable timely action to be taken to reduce air pollution. The Government's[8] programme foresees halving air pollution harmful to human health in Lithuanian cities and towns by 2030, supporting municipal and public initiatives to measure and improve air quality in urbanised areas. Lithuania commits to be at the forefront of the European Green Deal and to support the EU's most ambitious targets for tackling climate change. One of the success indicators for 2050 is Lithuania's transition to a climate-neutral country.

In order to assess how the monitoring of the state of the ambient air is carried out in Lithuania and whether it allows taking measures to reduce air pollution and mitigate climate change (GHG) and achieve the objectives set by the Government, we carried out a public performance audit.

Objective and Scope of the Audit

The objective of the audit is to assess whether continuous and systematic monitoring of the state of the ambient air is ensured, and opportunities are provided to take measures to reduce pollution and mitigate climate change (GHG).

Key audit questions:

- whether the monitoring and assessment of the state of the ambient air is ensured and appropriate for the adoption of sound solutions for air pollution reduction;
- whether the transport measures provided for in the National Energy and Climate Plan enable GHG reduction targets to be achieved.

Audited entities:

- The Ministry of the Environment, as it organises and coordinates state environmental monitoring, forms state policy in the areas of climate change, state control and pollution prevention and other areas.
- The Ministry of Transport and Communications, as it is responsible for designing and implementing measures in the transport sector of the National Energy and Climate Plan.

---

[6] National Air Pollution Reduction Plan, approved by Government Resolution No 371 of 17 April 2019, Annex 4, p. 1.

[7] OECD Environmental Performance Review. Lithuania. Accents. 2021, p. 3.

[8] Resolution No XIV-72 of the Seimas of 11 December 2020.

- Environmental Protection Agency (EPA), as it monitors ambient air.

During the audit, we collected information from the Environmental Protection Department and carried out a survey of 60 municipalities. We have assessed and recalculated the projected GHG effect of measures in the transport sector (32) contained in the National Energy and Climate Plan.

Audited period - 2018-2021. In some cases, we used historical (2003–2017) and 2022 data to assess trends and developments.

The audit has been performed in accordance with the International Standards of Supreme Audit Institutions. The scope and methods of the audit are described in more detail in Annex 2 Audit Scope and Methods (p. 56).

Key Results of the Audit

Lithuania does not ensure continuous and systematic monitoring of ambient air condition at three levels, i.e. state, municipal, and economic operators, and does not provide sufficient opportunities to take effective measures to reduce air pollution and mitigate climate change (GHG).

1. The results of ambient air monitoring are insufficient to make evidence-based decisions on reducing air pollution

- 51 out of 58 municipalities within the boundaries of the ambient air monitoring zone, which do not have stationary air quality measuring stations, are not subject to continuous monitoring at the state level, thus not ensuring continuous control when levels of contamination exceed the limit values[9]: on a separate request, the particulate matter (PM_{10} and $PM_{2.5}$) concentration tests[10] showed that the concentrations in 11 of these municipalities in 2019 exceeded the World Health Organisation's recommended norms[11] and/or the limit values set out in the Directive[12]. In the absence of air quality measuring stations installed in the 51 municipalities, the Environmental Protection Agency does not have the possibility of detecting exceedances of air pollution and does not inform the municipalities of deteriorating air quality so that they can take measures to reduce pollution (Section 1.1.1, p. 14).
- 4 out of the 14 air quality measuring stations do not meet the required criteria, as one station[13] measuring pollution in an agglomeration is located outside the urban area, although the agglomeration must cover urban boundaries[14], 3[15] of which are located in

[9] Law on Ambient Air Protection, Art. 5(1)

[10] WHO Global Air Quality Guidelines: particulate matter (PM2.5 and PM10), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide, executive summary, Table 0.1, WHO, 2021

[11] Report Assessment of Air Pollution Levels in Lithuania Using Diffuse Samplers.

[12] 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, Annex 11.

[13] Kaunas city Noreikiškės station.

[14] Directive2008/50/EC on ambient air quality and cleaner air for Europe, Chapter I, Article 2(17).

[15] Petrašiūnai station, Klaipėda city station nearby Bangų street and Šiauliai city station nearby Žemaitės street.

non-highest traffic areas for measuring the impact of transport on air quality. The locations of the stations must be sited in such a way as to provide data on the areas within zones and agglomerations with the highest concentrations of pollutants[16]. The reviews of the network of stations did not assess the changes in road infrastructure affecting air pollution, the development of new residential quarters, industrial districts, etc. The analysis of the traffic intensity of municipalities, the analysis of sustainable mobility plans and the results of the survey of municipalities (4[17] out of 9) show that there are more polluting, higher traffic-intensive places in cities than in the current places of national stations. Without taking into account changes in urban development, infrastructure and traffic intensity, it is not possible to have reliable and comprehensive information on air quality in the most polluting areas (Section 1.1.1, p. 17).

- In air quality measuring stations (9 out of 14), pollutants are not measured for the full period of time and a minimum amount of data (90 %) is not collected[18]: 46-89% capture of benzene and 85-89 % capture of other pollutants may affect the completeness of the data. In 2020, the national inventory of emissions into ambient air was carried out in 38 % of the sectors of the economy using the TIER1 method below the required[19] accuracy level, where the sources of pollution are not fully disclosed, the extent of their impact on air pollution, which may affect decisions on air pollution management and improvement of air quality (Section 1.1.2., p. 21).

- There is no cross-cutting analysis and assessment of monitoring data at three levels (state, municipal and economic operators), as the Ministry of the Environment and the Environmental Protection Agency do not have systematic data on air monitoring at all levels. State ambient air monitoring data[20] are collected in different information systems that are not interlinked, and the main environmental monitoring data and environmental information management integrated computer system (AIVIKS) contains only semi-automatic air monitoring surveys[21]. This system does not collect data on ambient air monitoring by municipalities and economic operators (monitoring programmes, reports) as there is no technical possibility for economic operators to submit them through AIVIKS and municipalities have no obligation to provide monitoring data as of 2021. Without systematising all levels of ambient air monitoring data, it is not possible to monitor trends in air quality across the country in the long term and to carry out a comprehensive analysis of them on the basis of which air pollution reduction decisions are taken (Section 1.2, p. 25).

- Municipalities need to take care of human health, maintain environment-friendly air quality, and reduce air pollution[22], however, 22 (out of 60) did not have environmental monitoring programmes[23], 32 (out of 60) did not monitor ambient air during the whole

[16] The Procedure for the Assessment of Ambient Air Quality, approved by Order No 596 of the Minister for the Environment of 12 December 2001, Annex 3, p. 2.

[17] Vilnius city, Kaunas city, Klaipeda city, Kėdainiai district

[18] Directive 2008/50/EC of the European Parliament and of the Council on ambient air quality and cleaner air for Europe, Annex I, Table A; Description of procedure for assessing ambient air quality, Annex 1, p. 1.

[19] Directive 2008/50/EC on ambient air quality and cleaner air for Europe, 21 May 2008, Annex I, Annex 4, p. 2; Description of procedure for assessing ambient air quality, Annex 2, p. 4.

[20] Data from automatic air monitoring stations, GHG inventories and national inventories of emissions into ambient air, data on air monitoring services procured through public procurement.

[21] Heavy metals, polycyclic aromatic hydrocarbons, benzene (in Kaunas and Kėdainiai research stations).

[22] Law on the Protection of Ambient Air, Article 4(2)

[23] Law on Environmental Monitoring, Article 8(2)

period of 2018-2021, other 15 that have performed monitoring did not do so every year. 16 (out of 60) municipalities indicated that they had not taken preventive measures for the management of ambient air quality in the strategic documents and that no municipality had assessed and analysed the monitoring data carried out by economic operators in their territory [24]. Only 9 municipalities are subject to continuous monitoring of air quality at the state level, while in 29 municipalities, air monitoring is not carried out at all. In the absence of state or municipal air monitoring in all municipal areas, the state does not have data on air quality throughout Lithuania, residents of municipalities do not know what the state of the air is like and are not informed when air pollution has an adverse effect on health, and no appropriate measures are taken to reduce pollution (Section 2.1, p. 28).

- Municipal ambient air monitoring data is not used for the state monitoring: data from 1 municipality was used in 2018 and for 2019-2021 no data of any municipality was used as the frequency of monitoring methods and surveys did not correspond to those used during the state monitoring. The Department of Environmental Protection did not perform its function [25] of monitoring the compliance of the methods used by municipalities with legislation and the quality of monitoring data in 2018-2021. Since 2021, the authority has not been designated for this function and the quality of the monitoring data has to be ensured by the municipality itself[26]. Due to the failure to assess and control the quality of municipal monitoring methods and data, and the use of this data for state monitoring, the reliability of municipal monitoring data and the ability to use it for national decision-making to reduce air pollution and improve air quality is not ensured (Section 2.2, p. 32).

- All economic operators required to carry out ambient air monitoring are not identified, as the Environmental Protection Agency and the Environmental Protection Department do not collect data according to the established criteria for monitoring, and the information available to them about the number of economic operators to carry out monitoring does not coincide, therefore, it is not ensured that all economic operators carry out the monitoring. Monitoring is carried out on the basis of programmes agreed with the Agency or by an exemption provided for, where they are not required[27], but the Agency does not compile structured data on the relevant programmes and does not assess whether all monitoring reports have been submitted to it. 61% (out of 171) of the monitoring reports for 2020 were not submitted to the Agency by the operators we audited. Due to the lack of accurate, up-to-date data on the operators that are obliged to carry it out, their programmes and the results of their monitoring, it is not ensured that operators are monitoring air emissions, their potential impact on the environment, and taking measures to reduce pollution (Section 3.1, p. 33).

- The Agency is designated to assess the completeness, accuracy and veracity of monitoring data and reports of economic operators, and from 31 March 2021 it is tasked to carry out an assessment of the data quality and methods of compliance with the legislation, as well as to analyse monitoring data and to assess whether the activities

[24] Ibid., Art. 8(4), p. 2

[25] General Regulations on Municipal Environmental Monitoring approved by Order No D1-436 of the Minister of the Environment of 16 August 2004, p. 19 (in the version in force from 1 July 2018 to 26 February 2021)

[26] General Regulations on Municipal Environmental Monitoring approved by Order No D1-117 of the Minister of the Environment of 26 February 2021, p. 18.1–18.2

[27] Law on Environmental Monitoring, Article 9(2) and Regulations on Environmental Monitoring of Economic Operators approved by Order No D1-546 of the Minister of the Environment of 16 September 2009, p. 13 (version in force until 31 March 2021), p. 14–15 (version in force from 1 April 2021)

of economic operators do not have unacceptable negative effects on the environment. However, the Agency has not established procedures for carrying out these functions, does not carry out them or is unable to carry out them because it does not ensure that all economic operators are accountable for the monitoring carried out, and the format of the monitoring reports required is incomplete and does not provide information on all the results of air monitoring carried out by economic operators. Operators have misstated the information on the air monitoring carried out: 27 out of 67 completed data on air quality monitoring, although did not perform it; 6 out of 67 did not provide data in the analysis reports. The Environmental Protection Department found that 8.6% of the operators inspected had exceeded air emissions (2019-2020), but not all of them detected and reported exceedances during their monitoring. In the absence of reports by economic operators, the Agency does not have complete data on the monitoring carried out by them, does not assess the reliability of their data and does not carry out an analysis. In this way, the Agency is not aware of their emissions into the air, the impact on the environment and does not take decisions on setting stricter limits for economic operators and reducing pollution or other adverse impacts (Section 3.2, p. 36).

2. Transport measures in the national energy and climate plan do not ensure the achievement of climate change reduction targets

- Following the launch of the National Energy and Climate Plan in 2021, there was no monitoring mechanism to ensure the collection, structuring and analysis of the results of the implementation of the measures. The National Climate Change Agenda foresees the introduction of an information monitoring system for the implementation of the Plan, but there is no deadline set. In preparation for the update of the Plan at the end of 2021, consultants were used by the coordinating Ministry of Environment and Energy to collect data on the results of the implementation of the measures. Without a monitoring system in place, the Plan's measures may not be implemented on time and to the full extent, thus failing to ensure that commitments are met. In May 2022, the Ministry of the Environment informed that a prototype monitoring system had been developed and a feasibility study was being procured for the development of the information system (Section 4.1, p. 39).
- 91.4% of the financing of vehicles in the transport sector (EUR 1.16 billion) is planned from EU funding sources, while private investment is not foreseen among funding sources, although the Plan states that they should account for 28% of the funds. At the end of the period of implementation of the EU funds' investments and the lack of sufficient private investment, the objectives will not be met (Section 4.2, p. 41).
- The measures in the transport sector, accounting for almost one-third of total GHG emissions, were planned following a foresight calculation of their impact on GHG reductions, but the transport experts found[28] that 12 (out of 32) measures were forecasts based on inaccurate or unsubstantiated assumptions, 15 (out of 32) measures were not accurate. 10 (out of 32) implementation delays (from 2018-2021), 6 of which estimated GHG savings. According to the Ministry of Transport and

[28] Kaunas Kaunas University of Applied Engineering Sciences, "Experience Evaluation of Vehicles Provided for in the National Energy and Climate Plan (NECP) 2021-2030 (approved by the Governmen's Protocol No 52 of 30 December 2019)", Kaunas, 2022.

Communications, which is responsible for the design and implementation of measures in the transport sector, the assumptions of some measures were unduly increased in view of the lack of GHG reduction effect. Due to inaccurate calculations, the effect of measures in the transport sector for the period 2021-2030 is likely to be 6020.5 thousand t CO2eq lower, i.e. 7129 thousand tonnes of CO2eq. After applying reasonable realistic assumptions[29] and taking into account the unachievable effect of the delay of the measures, the overall effect of the measures would be even lower and the envisaged measures may not be sufficient to achieve the international GHG reduction commitments. At the end of the audit, other assumptions, data, calculations or changed period submitted by the Ministry of the Environment other than those submitted for assessment in the course of the audit procedures or publicly available may affect the forecasts and recalculation of the GHG effect (Section 4.2, p. 41).

Changes during the Audit

- Following the adoption of the National Climate Change Management Agenda on 30 June 2021, the National Energy and Climate Plan includes a 9% reduction in transport GHG emissions by 2030 (compared to 2005) has been changed to 14 %. The process of updating this Plan started in Q4 2021: meetings of the working groups take place, the implementation of existing measures is analysed, proposals for new measures are presented and evaluated. The Member States must submit a draft updated plan to the European Commission by 30 June 2023.
- As part of the update of the NECS Plan, a database is being prepared to monitor the Plan's measures. The methodological framework for assessing the effect of the measures in the NECS Plan is being improved: the measure effect spreadsheets have been redesigned and standardised, and the process for modelling policies and measures has been defined.

Recommendations

To the Ministry of the Environment

1. In order to modernise the management of information on the condition of the environment, establish a common information system for the submission of environmental air monitoring data by the State, municipalities and economic operators, so that all incoming environmental monitoring data can be assessed, analysed, used to assess and forecast the condition of the environment in a comprehensive manner (1 key audit result).

To the Environmental Protection Agency

2. In order to ensure the monitoring of air quality in the most polluting areas of Lithuania, taking into account air pollution data, changes in infrastructure and traffic intensity, and as many residents as possible would have information on the condition of air quality in their territory:

- prepare legislative amendments imposing an obligation on municipalities to monitor ambient air in polluting areas and to report on the results of their implementation (1 key audit result).

- in cooperation with municipalities, review the locations of state air quality research stations and expand the number of municipal areas where air quality would be measured at the state or municipal level (1 key audit result).

3. To increase the share of economic activity sectors with higher accuracy (TIER2 or TIER3) (key audit result) in order to ensure that the national inventory of emissions into ambient air is accurate and discloses in detail the source of pollution and the extent of their impact on air pollution for each pollutant being accounted for.
4. In order for the State and municipalities to have relevant information on the unacceptable adverse environmental impact caused by the activities of economic operators and to be able to take timely measures to reduce it, to ensure the monitoring of economic operators, to account for it and to analyse the environmental monitoring data of economic operators due to their negative impact on the environment (1 key audit result).

Measures and deadlines for the implementation of the recommendations, the expected impact of the audit and indicators for measuring change are set out in the Recommendations Implementation Plan section of the Report (p. 48). Up-to-date information on the status of implementation of the recommendations, results and developments is published as open data on the National Audit Office's website https://www.valstybeskontrole.lt/LT/AtviriDuomenys.