

AIR QUALITY PROGRAMME OF THE REPUBLIC OF SERBIA FOR THE PERIOD 2022-2030

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Background

Serbia is facing significant challenges related to air pollution

Air pollution in urban and industrial areas main problem

Need for strategic, long-term framework

First time Serbia adopts a dedicated national air quality programme



LEGAL AND INSTITUTIONAL BASIS

The Air Quality Programme of the Republic of Serbia for the period 2022-2030 was adopted in December 2022, together with an Action Plan

It is linked to Serbia's environmental obligations and EU alignment efforts

The Ministry leads implementation, in collaboration with other responsible authorities at state and local level

On the basis of Article 38, paragraph 1 of the Law on the Planning System of the Republic of Serbia ("Official Gazette of the RS", No. 30/18)

The Government adopts

AIR QUALITY PROGRAMME OF THE REPUBLIC OF SERBIA FOR THE PERIOD 2022-2030 WITH AN ACTION PLAN

1 INTRODUCTION

Harmful effects of air pollution are well known and ambient Air pollution is a major environmental risk to health. The pollution is a mix of chemicals, particulate matter, and biological materials that react with each other to form tiny hazardous particles. The concentration of particulate matter (hereinafter: PM) is a key air quality indicator since it is the most common air pollutant that affects short term and long-term health. The smaller particles are more concerning since they don't stop in the upper airways but rather penetrate deep into the cardiopulmonary system. A 2013 assessment by WHO's International Agency for Research on Cancer (IARC) concluded that outdoor air pollution is carcinogenic to humans, with the particulate matter component of air pollution most closely associated with increased cancer incidence, especially lung cancer. Furthermore, poor air quality contributes to breathing problems, chronic diseases, increased hospitalization, and premature mortality. In addition to particulate matter, exposure to even short period of high concentration SO₂ can harm the human respiratory system and make breathing difficult. People with asthma, particularly children, are sensitive to these effects of SO₂.

Ozon at ground level which is mainly formed during the summer months by the reaction with sunlight (photochemical reaction) of pollutants such as nitrogen oxides (hereinafter: NO_x) from vehicle and industry emissions and volatile organic compounds (hereinafter: VOCs) can cause breathing problems, trigger asthma, reduce lung function and cause lung diseases. In addition to the above-mentioned pollutants the symptoms of bronchitis in asthmatic children increase in



Program proposal developed with the assistance of the project "EU for a better environment - Development of a framework for harmonization with EU legislation in the field of air, chemicals and horizontal issues"

Costs of implementation

Total estimated cost:
2595 million € for the period
2022-2030

Financing expected to come from
national, local budgets, EU funds,
international donors/projects



Methodological approach in Programme preparation

Major air pollutants included:

Sulphur dioxide SO_2

Nitrogen oxides (NO_x)

Particulate matter (PM_{10} , $\text{PM}_{2.5}$)

Ammonia (NH_3)

Volatile organic compounds (NMVOCs)



Aligned with Directive (EU) 2016/2284 on the reduction of national emissions of certain atmospheric pollutants (NERC Directive) and with Ambient air Quality Directive 2008/50/EC as amended.

Methodological approach in Programme preparation

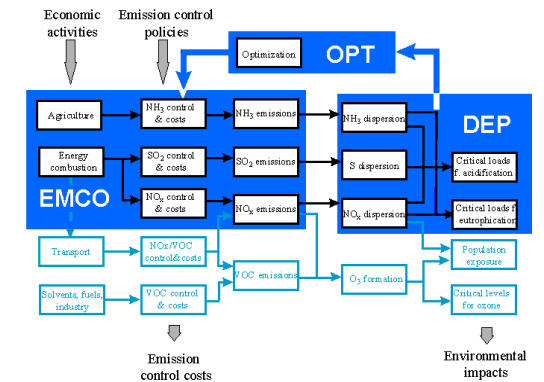
MODELLING TOOLS USED

Modified/upgraded **RAINS** model was used for the projection of the air quality pollutant by 2030 and beyond (base year 2015)

The **CHIMERE** dispersion model (multi-scale chemical transport model) was used for the atmospheric composition analysis and forecasting, which allows to translate future emission reductions of air pollutants from different sectors and sources into the expected future ambient air quality.

Alpha-RiskPoll (ARP) model was used for the assessment of health impacts (emission reductions are translated into decreased life expectancy and in years of life lost (YLL)) The version of the model used by technical team of experts has been used in the preparation of the Second Clean Air Outlook published by the European commission in January 2021.

The **RAINS** Model of Acidification and Tropospheric Ozone



Structure of the Programme

1. INTRODUCTION
2. PLANNING AND REGULATORY FRAMEWORK OF RELEVANCE FOR THE PROGRAMME
3. CURRENT SITUATION REGARDING AIR QUALITY
4. VISION
5. AIR QUALITY MITIGATION SCENARIOS
6. GENERAL OBJECTIVE AND SPECIFIC OBJECTIVES
7. MEASURES AND THEIR ENVIRONMENTAL IMPACTS
8. FRAMEWORK FOR MONITORING AND REPORTING ON THE PROGRAMME IMPLEMENTATION

ACTION PLAN for the period 2022 until 2026 (Activities for implementation of measures and achievement of goals set by the Programme)

- | | |
|------------|--|
| Appendix 1 | Information on the consultative process in the preparation of the Programme |
| Appendix 2 | Information on the legal framework to be adopted or amended |
| Appendix 3 | Presentation of air emission scenarios by sectors |
| Appendix 4 | Results of the dispersion modelling of the effects of WAM-A, WAM-B and WAM-C |
| Appendix 5 | Expected introduction of new appliances compliant with the Ecodesign D. |

PLANNING AND REGULATORY FRAMEWORK OF RELEVANCE FOR THE PROGRAMME

European Union and International policy framework

- Directive 2008/50/EC on ambient air quality and cleaner air for Europe and Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air (known as 4th Daughter Directive)
- Directive (EU) 2016/2284 on the reduction of national emissions of certain atmospheric pollutants (NEC Directive); National Air Pollution Control Programme
- Gothenburg protocol with amendments

National policy framework

- Law on Air Protection and the relevant bylaws that regulate the area of air quality and air emissions management
- Relevant regulatory framework in energy, transport, agriculture sector



CURRENT SITUATION REGARDING AIR QUALITY

Air Quality Categories in 2023

First: pure or slightly polluted air where the limit values of none of the pollutants are exceeded.

Second: moderately polluted air where limit values of one or more pollutants are exceeded, but tolerant values of none of the pollutants are not exceeded.

Third: too polluted air where tolerant values for one or more pollutants are exceeded.

During 2023, the Serbian Environmental Protection Agency carried out systematic measurements of air quality in the state network in accordance with the Regulation on the establishment of the Air Quality Control Program in the state network („Off. Gazette RS” No. 58/11) and collected and processed measurement results from all measurement points of the state network and also from local networks of local self-government units.

Suspended particles **PM₁₀** were in 2023, as in previous years, the **dominant pollutant** in the Republic of Serbia.

CURRENT SITUATION REGARDING AIR QUALITY

Emissions of air pollutants

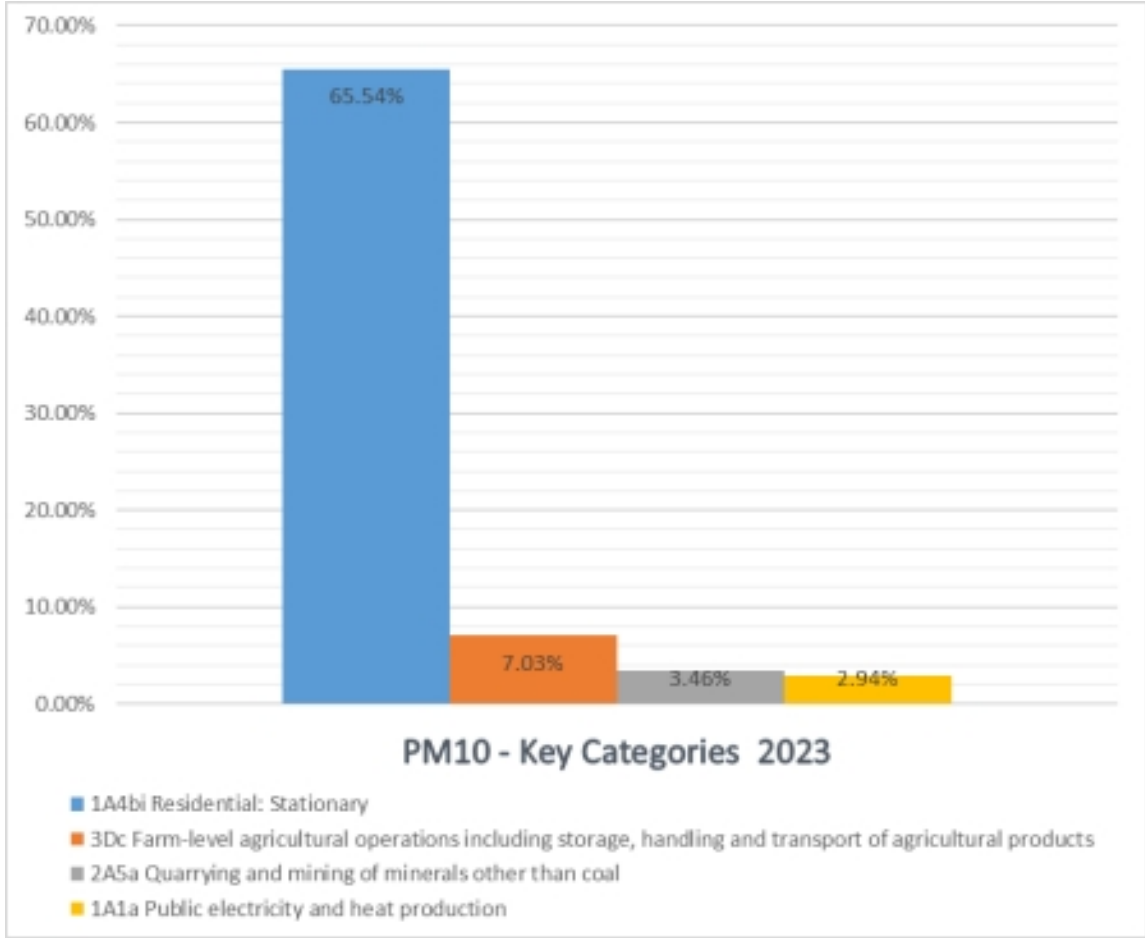


Figure 23. Key Categories assessments of PM10 emissions for 2023

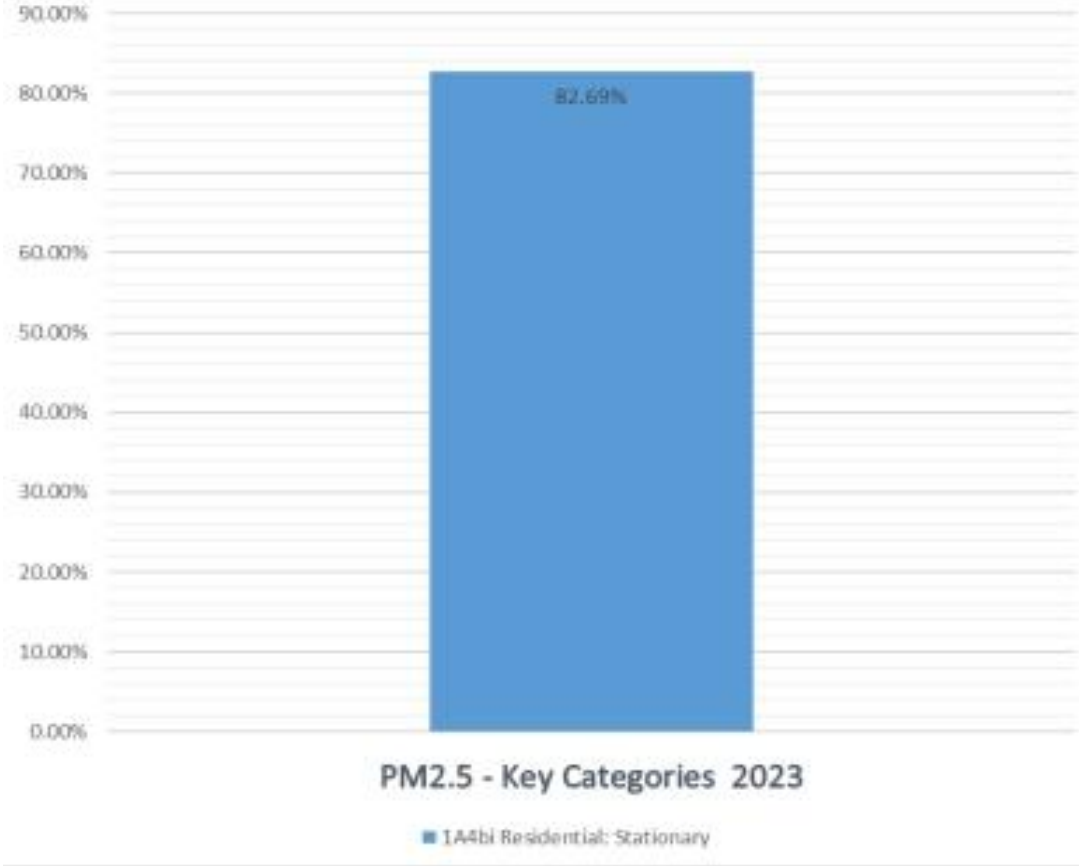
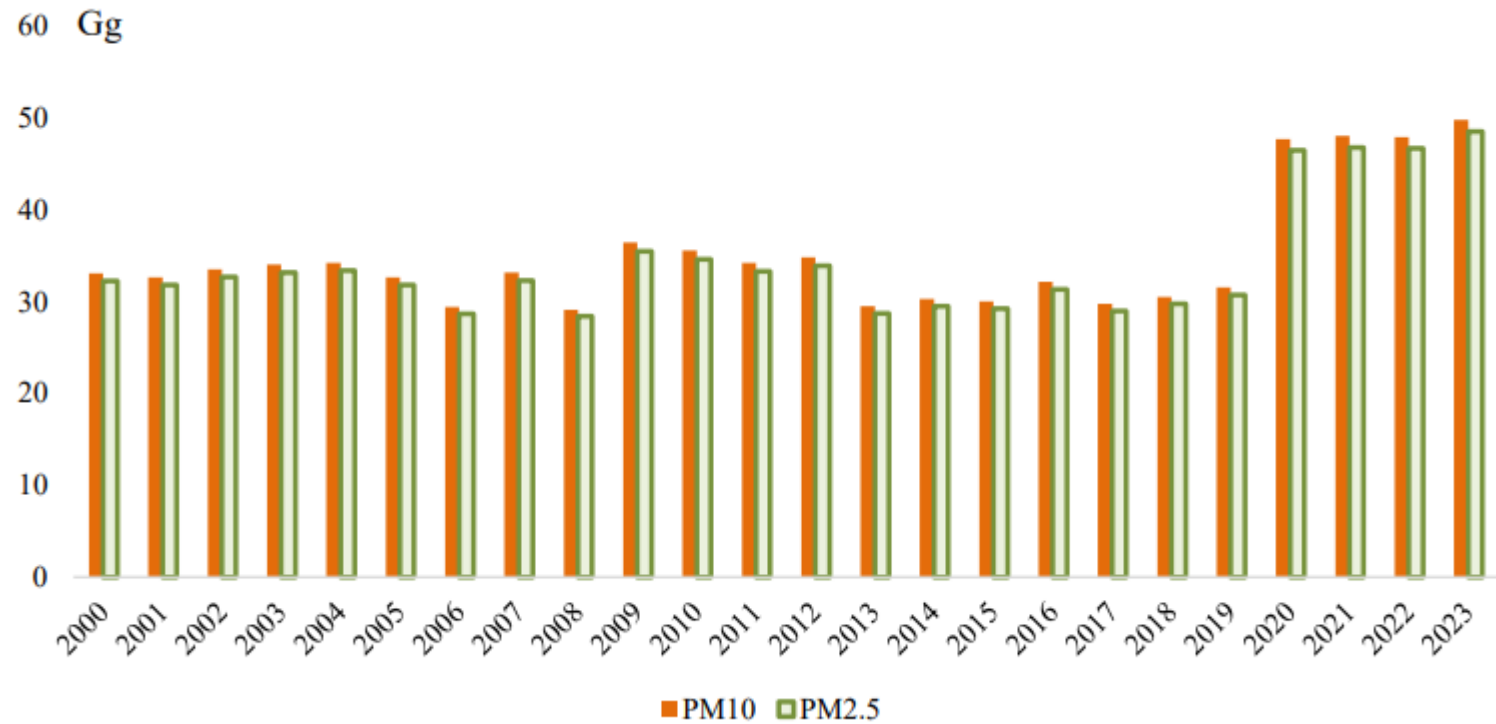


Figure 19. Key Categories assessments of PM 2.5 emissions for 2023.

Source: Republic of Serbia Informative inventory report to LRTAP convention for 2025

CURRENT SITUATION REGARDING AIR QUALITY

Emissions of air pollutants



Emissions of PM₁₀ and PM_{2.5} emissions from combustion plants less than 50MW and individual burning in Serbia 2000–2023

CURRENT SITUATION REGARDING AIR QUALITY

Emissions of air pollutants

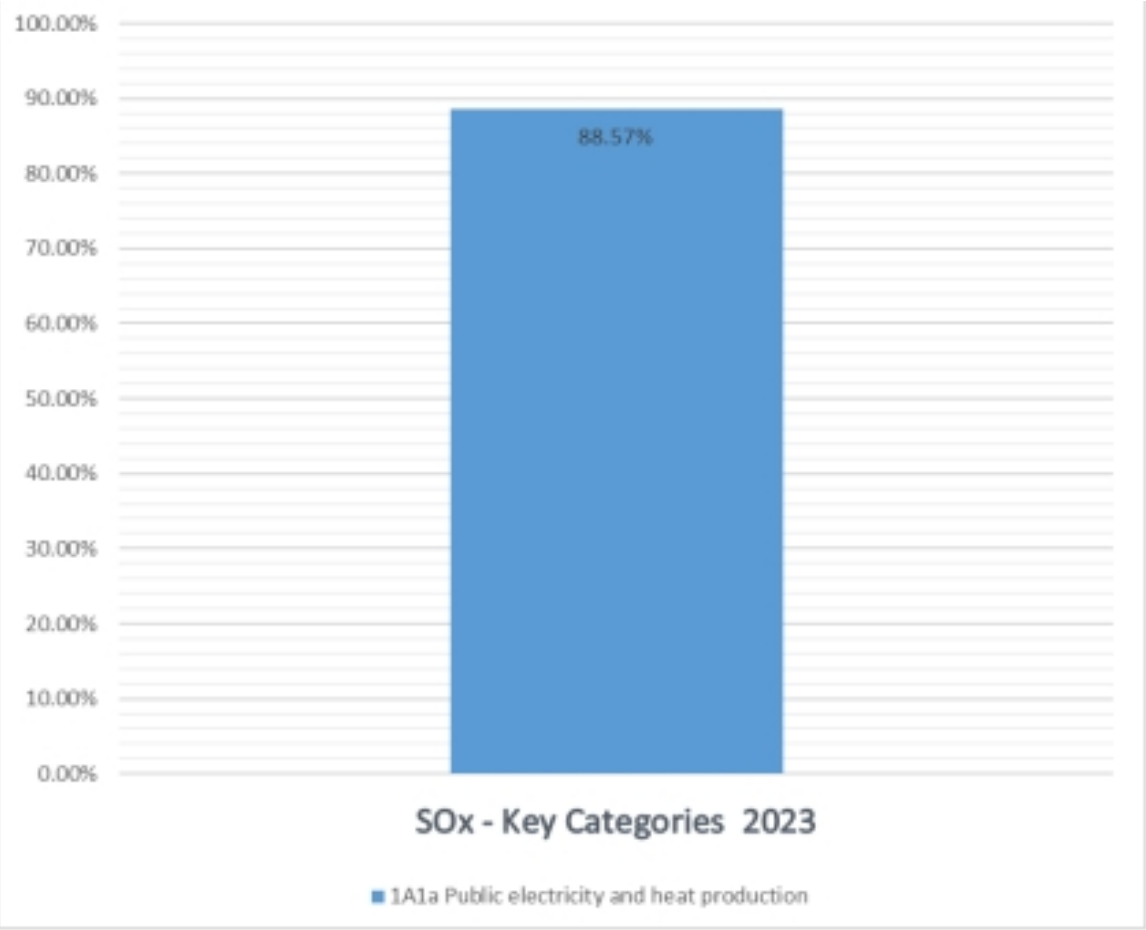


Figure 11. Key Categories assessments of SOx emissions for 2023.

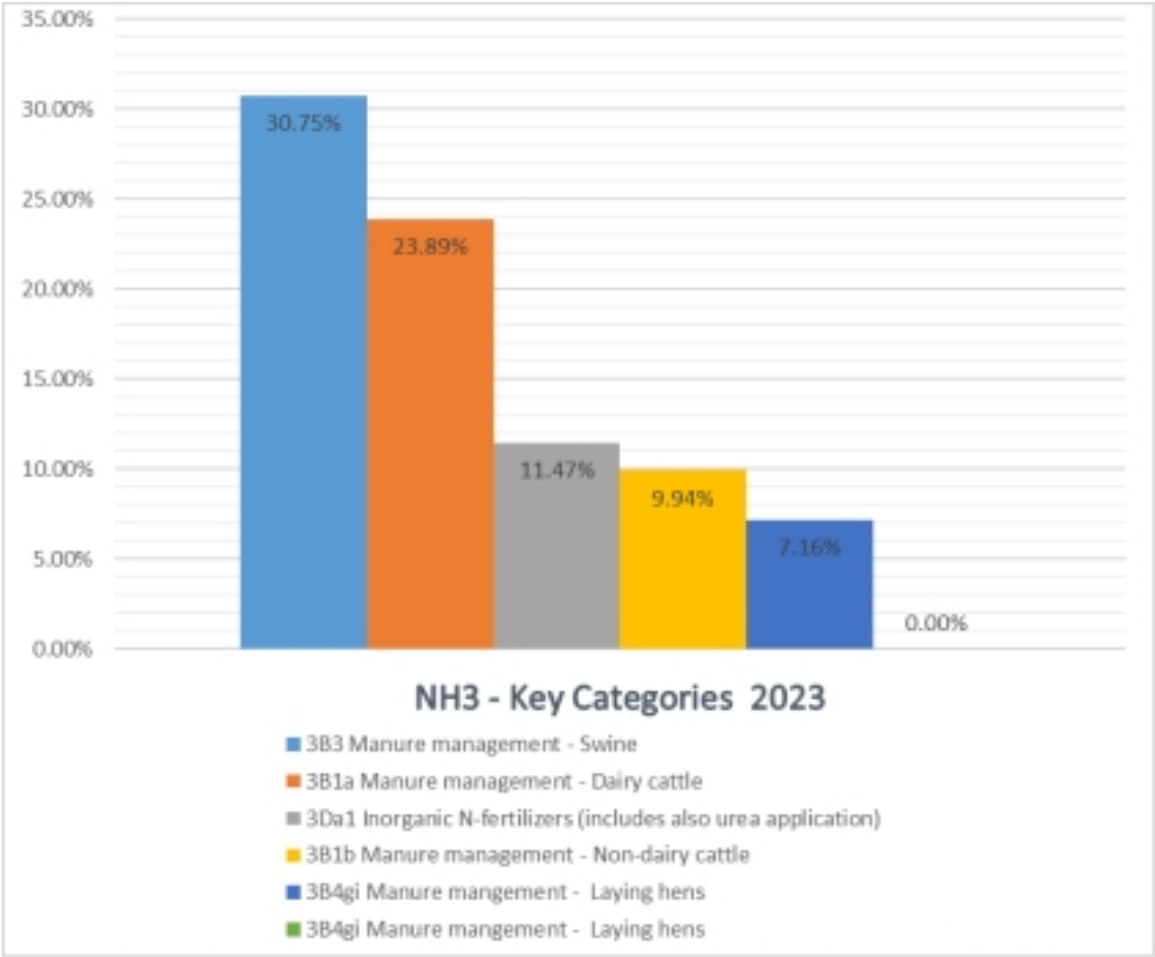


Figure 15. Key Categories assessments of NH3 emissions for 2023

CURRENT SITUATION REGARDING AIR QUALITY

Emissions of air pollutants

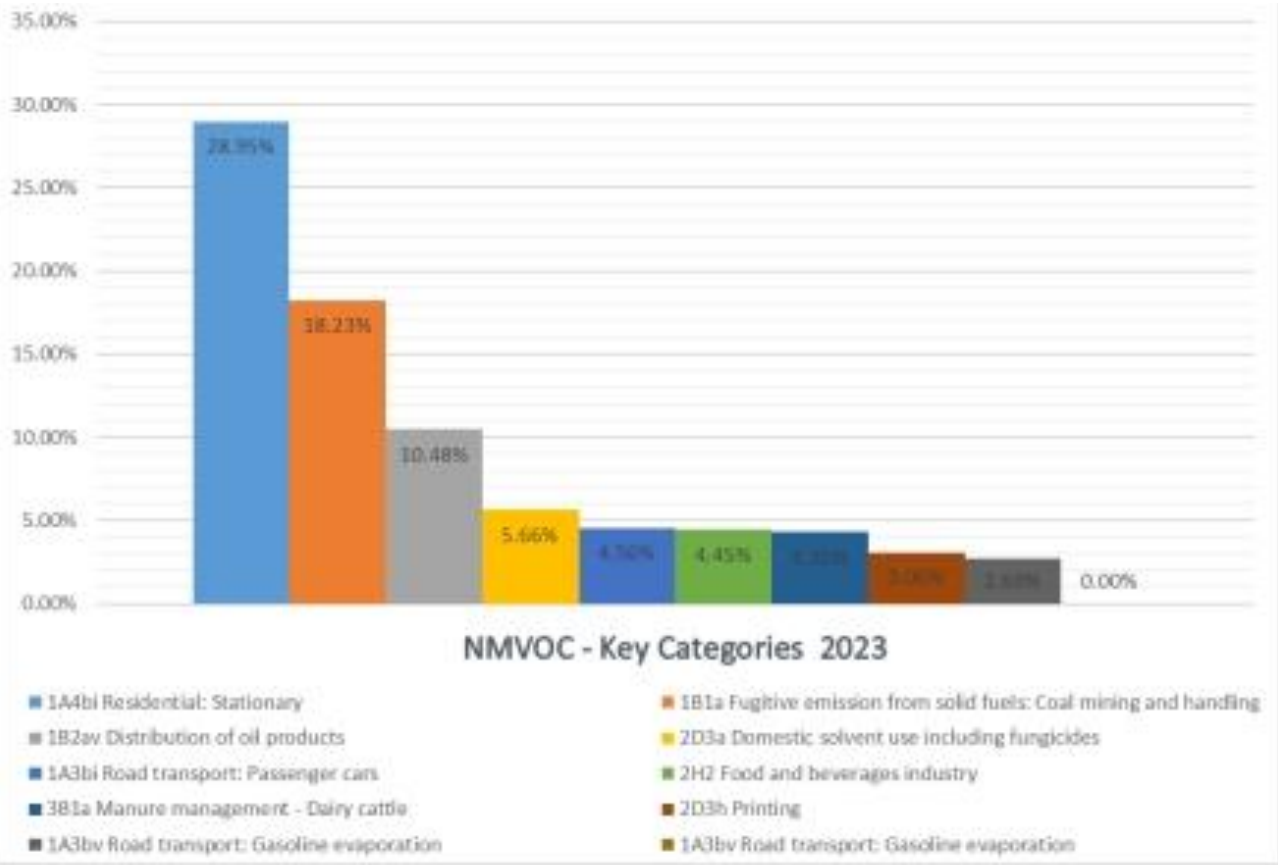


Figure 7. Key Categories assessments of NMVOC emissions for 2023

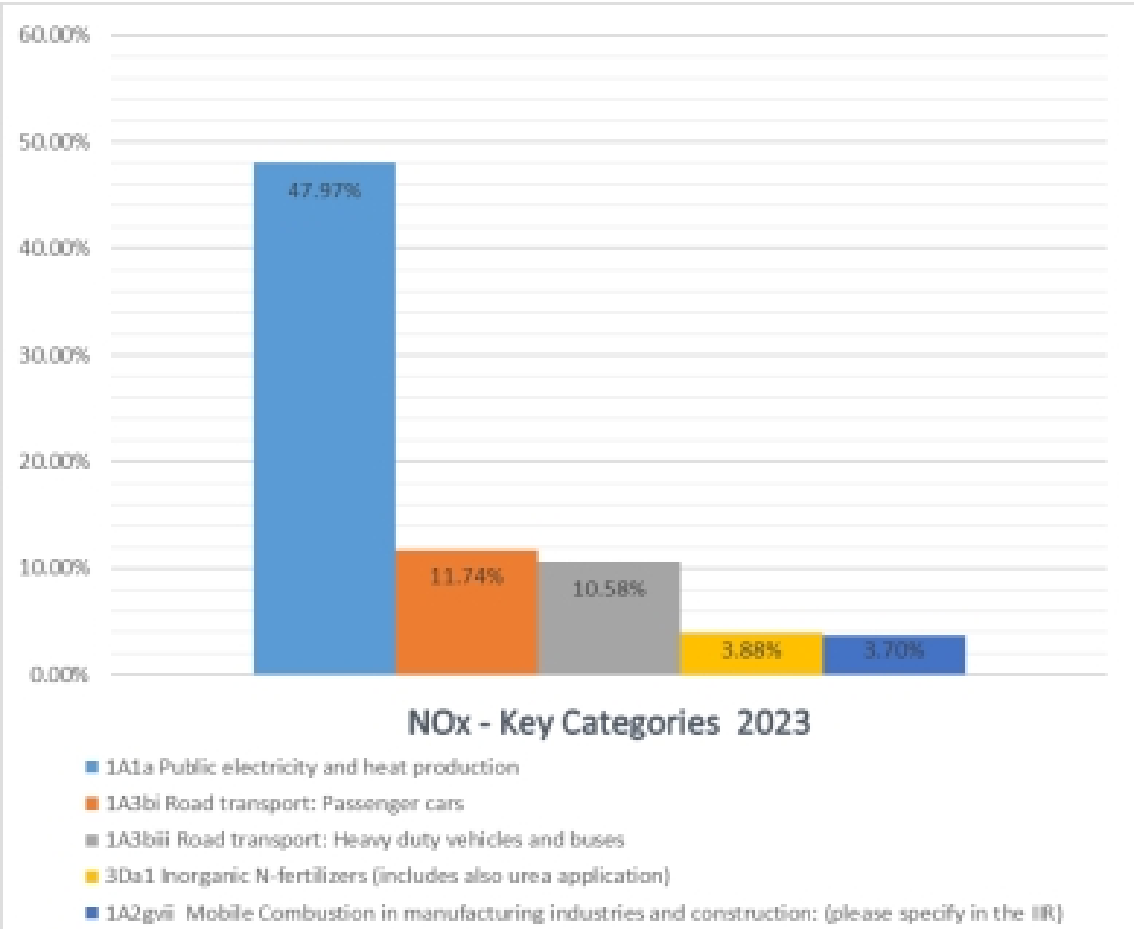


Figure 3. Key Categories assessments of NOx emissions for 2023

Source: Republic of Serbia Informative inventory report to LRTAP convention for 2025

Vision

The Republic of Serbia
is to ensure that by
2030 everybody should be
able to breathe clean
ambient air



AIR QUALITY MITIGATION SCENARIOS

1) **WAM A Scenario:** Full implementation of all relevant EU directives and regulations related to ambient air quality not yet fully transposed and implemented.

2) **WAM B Scenario:** It is intensive control scenario. In addition to WAM A, introduction in some cases, of stricter emission limit values and introduction of national financial and fiscal policies and measures in key emission source categories (such as scraping and promotion schemes for passenger cars and household wood/coal appliances).

3) **WAM C Scenario:** Full control scenario. In addition to WAM B, all necessary measures including local specific measures (such as incentives, restrictions and bans) aiming to ensure compliance with limit values as defined in Directive 2008/50/EC regarding particles (PM2.5 and PM10), NOx, SO2 and O3.

Figure 14: the evolution of emissions of PM2.5 and PM10 by 2030 and beyond

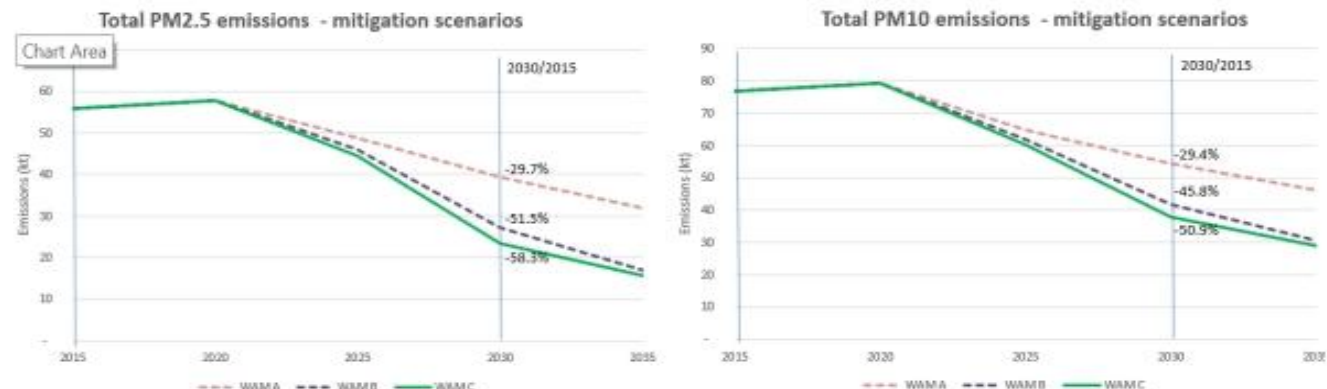


Figure 14: The evolution of emissions of NOx and SO2 by 2030 and beyond

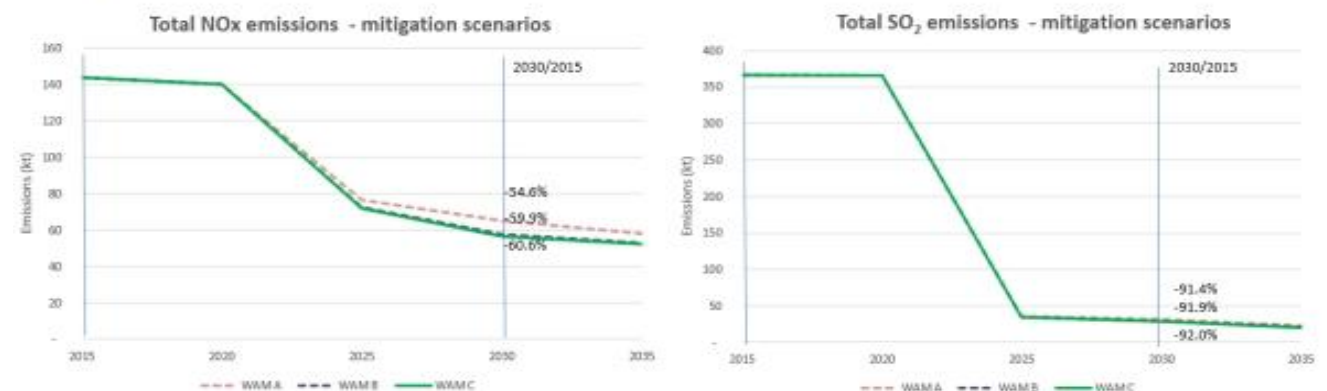
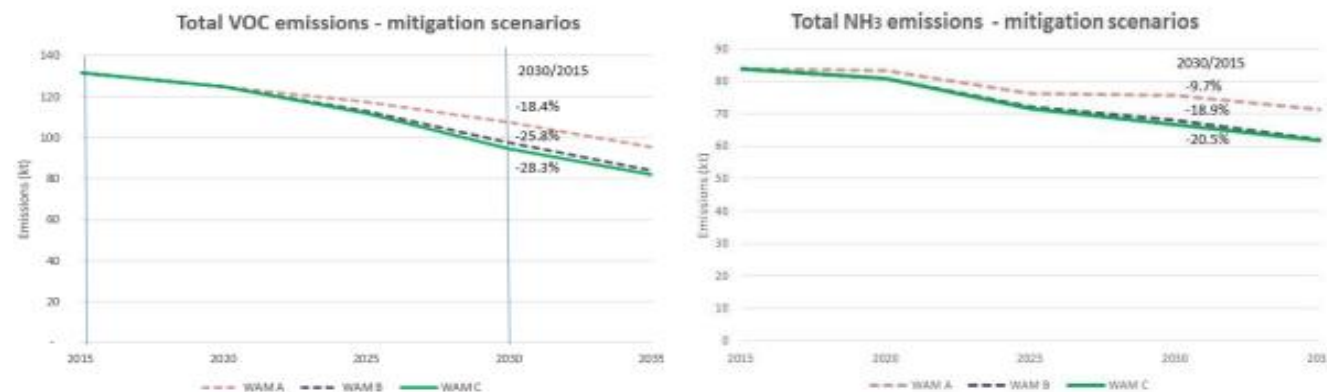


Figure 15: The evolution of emissions of VOC and NH3 by 2030 and beyond



Objectives and targets

The general objective:

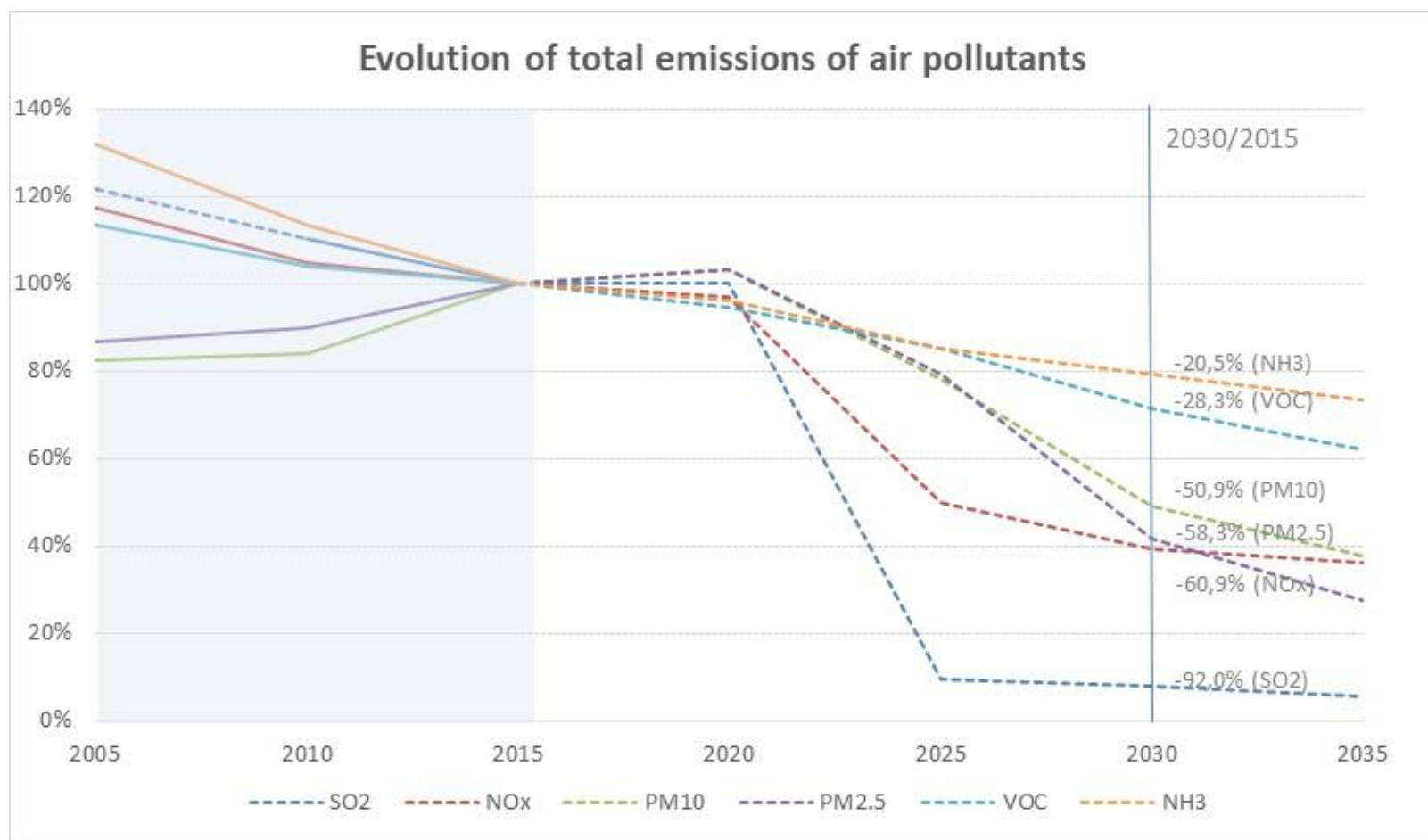
To reduce up to 2030 the health damage due to poor air quality by half compared to 2015 by reducing exposure to air pollution while also limiting the damage on ecosystems

Emphasis on reducing emissions in key sectors
(energy, combustion plants, transport,
industry, agriculture)



Objectives and targets

In order to achieve general objective Serbia will need to significantly reduce emissions of SO₂ by 92%, NO_x by 60.6%, PM₁₀ by 50.9%, PM_{2.5} by 58.3%, VOC by 28.3% and NH₃ by 20% by 2030, compared to 2015



Objectives and targets



Specific objective 1: Reduce emissions of SO_2 by 92% and fine particles $\text{PM}_{2.5}$ by 58.3% from Energy sector (including traffic and residential combustion) in 2030 compared to 2015



Specific objective 2: Reduce emission of air pollutants and heavy metals from Industrial processes and product use through compliance with BAT AELs



Specific objective 3: Reduce NH_3 emissions from Agriculture sector by 20.5% compared to 2015



Specific objective 4: Promote transition to clean air for everyone (through awareness project)

Measures to achieve the objectives

The Programme defines **17 measures** and **49 activities** that will be implemented in the following period with the aim of improving the quality of air.

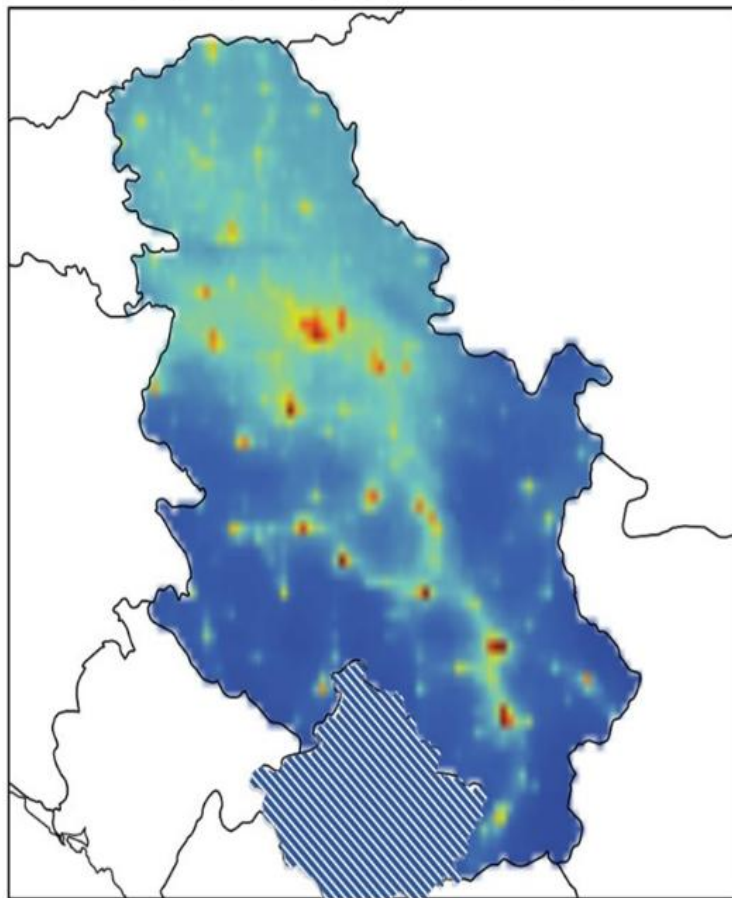
Specific Objective	Measure	Stakeholders Affected
<i>Specific objective 1: Reduce emissions of SO₂ by 92% and fine particles PM_{2.5} by 58.3% from Energy sector (including traffic and residential combustion) in 2030 compared to 2015</i>	Enforcement of the Chapter II of the EU Directive Industrial emissions for Large Combustion Plants with consideration of the mean of upper and lower levels of BAT AELs	Public electricity and heat producers, Operators of Large industrial installations
	Enforcement of the EU Directive 2015/2193 on the limitation of emissions of certain pollutants into the air from medium combustion plants	Operators of medium sized combustion plants
	Implementation of the Regulation on emission limit values for polluting matters into the air from combustion plants in the part related to small plants with small combustion plants (capacity up to 1 MW), and which are not subject to the Eco-design Directive	Operators of small and medium enterprises
	Enforcement of minimum Euro standards for second-hand imported vehicles: Euro 5/V from 1st January 2024 and Euro 6/VI from 1st January 2025	Consumers (road vehicles owners), Road transport services providers Vehicles Imports and sales providers
	Additional vehicle fleet renewal due to financial incentives for scrapping oldest Euro 1, 2 and 3 diesel passenger cars and light duty vehicles (except N3) and for EURO I, II and III diesel busses.	Consumers (road vehicles owners), road transport service providers
	Enforcement of regulation (EU) 2016/1628 on requirements relating to gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for NRMM	Suppliers of equipment, Construction companies
	Faster replacement of existing household heating appliances with new Eco-Design compliant appliances with financial	Local communities, households

Measures to achieve the objectives

Specific Objective	Measure	Stakeholders Affected
	incentives and a higher percentage of replacement in the cities of Kragujevac, Beograd, Nis, Valjevo and Užice	
	Enforcement of the amended fuel quality Directive 2009/30/EC and Directive 2016/802/EC on the reduction of the sulphur content of certain liquid fuels	Liquid fuel producers and providers
	Limiting VOC emissions by implementing the requirements of VOC Petrol Directives 94/63/EC (Stage I) and 2009/126/EC (Stage II) collecting petrol vapours from the storage and transport of petrol and refuelling motor vehicles at petrol stations	Petrol storage and distribution infrastructure, petrol transportation companies and stations
<i>Specific objective 2: Reduce emission of air pollutants and heavy metals from industrial processes and product use through compliance with BAT AELs</i>	Enforcement of the Chapter II of the EU Directive Industrial emissions for industrial processes with consideration of the mean of upper and lower levels of BAT AELs and the lower levels copper production and sulphuric acid production in Bor	Copper smelting company
	Enforcement of the IED Chapter V, Annex VII for VOC or chapter 2 for plants with a consumption of solvents larger than 200 t per year or 150 kg per hour	Companies performing surface treatment of substances, objects or products using organic solvents, in particular for dressing, printing, coating, degreasing, waterproofing, sizing, painting, cleaning or impregnating,
<i>Specific objective 3: Reduce NH3 emissions from Agriculture sector in 2030 by 20.5% Compared to 2015</i>	Implementation of best practices for slurry storage	Operators of Pigs and cattle farms eligible for IPCC permit
	Substitution of Urea with ammonium nitrate fertilizer	Farmers and Agricultural land owners
	Introduction of the best practices at spreading for solid manure application by faster incorporation of manure in the soil	Operators of Pig and Poultry farms
	Introduction of best practices at spreading for pig and cattle slurry	Agricultural land owners
	Limitation of the burning of agricultural residues (0% in 2030)	Farmers and Agricultural land owners
<i>Specific objective 4: Promote transition to clean air for everyone</i>	Education on air quality, training for implementation of best practices and awareness raising.	Universities; schools; adult training centres; local communities, households,

Results of Program implementation in view of PM₁₀

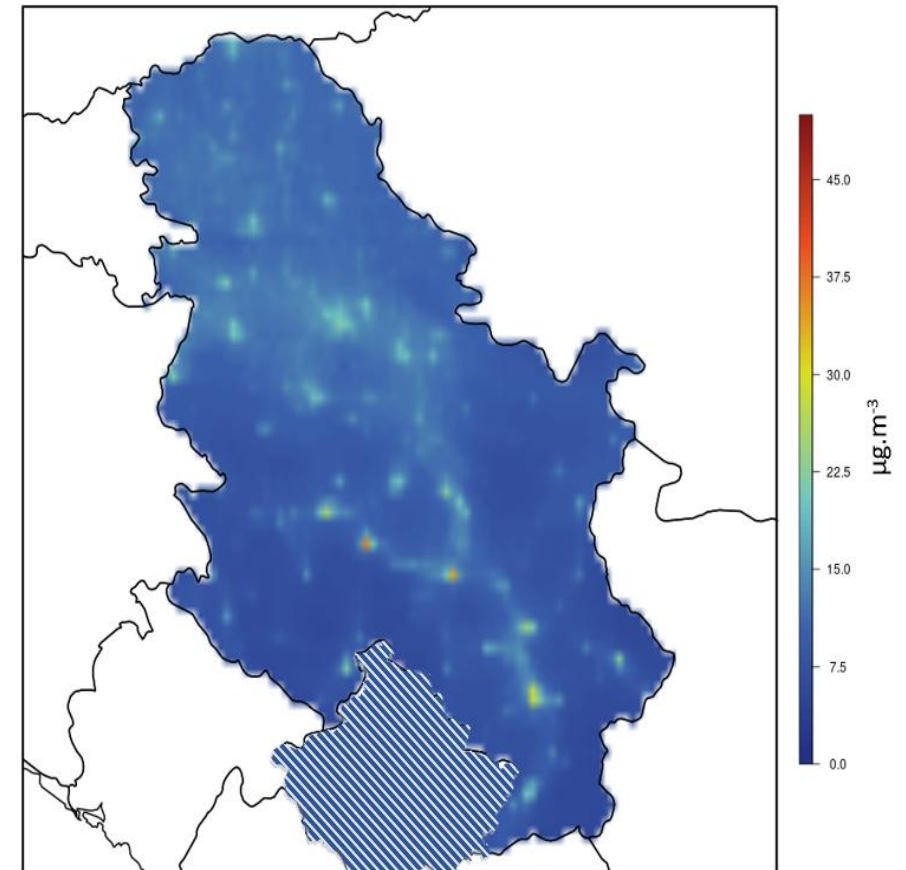
Концентрације PM₁₀ у референтној 2015. години



Implementation of
the Programme



Концентрације PM₁₀ 2030. године по сценарију WAM C





PROGRESS AND EARLY CHALLENGES

Technological challenges
(retrofitting, infrastructure limitations)

Some replacements of heating systems and funding allocated to local units

Calls for co-financing being launched to support local measures

Limited enforcement, gaps in monitoring, financial constraints

The new **Law on Air Protection** was adopted in June 2025 to strengthen legal framework and align with EU acquis



IMPLEMENTATION OF THE PROGRAMME:

is a long-term process

requests a systematic approach

connecting of all stakeholders

sustainable long-term cooperation

Annual reporting on implementation



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