

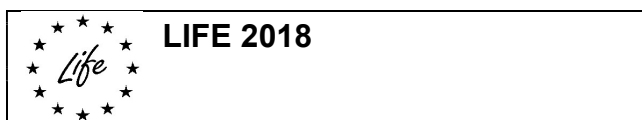


LIFE Integrated projects 2018

Stage 2 – FULL PROPOSAL

Technical application forms

Part A – administrative information



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LIFE18 IPE/SK/000010

PROJECT

Project title (*max. 120 characters*):

Enhancing the implementation of Air Quality Management Plans in Slovakia by strengthening capacities and competencies of regional and local authorities and promoting air quality measures

Project acronym (*max. 25 characters*):

LIFE-IP SK AQ Improvement

The project will be implemented in the following Country(s) and/or Administrative region(s):

The project area, which will directly benefit from the project activities, is the entire territory of Slovakia (5.4 mil. inhabitants, 49,035 km²) and Czech Republic (10.6 mil. Inhabitants, 78,866 km²). Furthermore, the neighbouring countries include Ukraine, Poland, Hungary, Austria and Germany.

Project activities will be implemented in 7 out of 8 NUTS statistical regions of Slovakia¹: Banská Bystrica, Trenčín, Trnava, Žilina, Prešov, Košice, Bratislava, on which territory the air quality zones and agglomerations are located (see the map of the general location of the project area), including the Air Quality Management Areas (AQMAs).

Furthermore, selected municipalities, namely Bratislava, Košice, Banská Bystrica, Jelšava, Hnúšťa, Tisovec, Krompachy, Prešov, Prievidza, Nováky, Trenčín, Trnava, Nitra, Ružomberok, Žilina, located in the zones/agglomerations and AQMAs will be involved in project activities, as “other stakeholders” (see the annex for more information).

The project will also focus at all the regions in the Czech Republic, (via the activity C4), as Slovakia and the Czech Republic both deal with many similar challenges.

The complete list of stakeholders is available in form B5.

Consortium partners take into account the possibility to involve as partners other regions or municipalities implementing and updating their related Air Quality Management Plans during the course of the project.

Expected start date: 1/1/2020

Expected end date: 31/12/2027

¹ <https://ec.europa.eu/eurostat/documents/345175/7451602/2016-NUTS-3-map-SK.pdf>

PROJECT POLICY AREA

You can only tick one of the following options:

LIFE Integrated Project Nature: Integrated project implementing prioritised action frameworks pursuant to Article 8 of the Habitats Directive which may include Green Infrastructure actions that contribute to the coherence of the Natura 2000 network in a cross-border context

LIFE Integrated Project Environment: Integrated project implementing:

- waste management plans pursuant to Article 28 of the Waste Framework Directive

- river basin management plans pursuant to Annex VII to the Water Framework Directive

- air quality plans pursuant to the Air Quality Directive or national air pollution control programmes pursuant to the National Emission Ceilings Directive.

The project will implement the following plan/strategy (*full copy is to be provided if modified since Concept Note submission*):

Air Quality Management Plans (AQMPs), which were elaborated for the following Air Quality Management Areas in Slovakia (data valid in 2019):

No.	NUTS Region of Slovakia	Involvement in the LIFE-IP SK	Air Quality Management Area	Involvement in the LIFE-IP SK
1	Bratislava	-	Territory of the capital city of SR Bratislava ²	Stakeholder
2	Košice	Associated beneficiary	Territory of the city Košice and villages Bočiar, Haniska, Sokoľany, Veľká Ida ³	Stakeholder
3			Territory of the city Krompachy ⁴	Stakeholder
4	Banská Bystrica	Associated beneficiary	Territory of the city Banská Bystrica ⁵	Stakeholder
5			Territory of the city Jelšava and villages Lubeník, Chyžné, Magnezitovce, Mokrú Lúka, Revúcka Lehota ⁶	Stakeholder
6			Territory of the city Hnúšťa, city parts Brádno, Hačava, Likier, Polom, city Tisovec and city part Rimavská Píla and village Rimavské Brezovo ⁷	Stakeholder

² <http://www.minv.sk/?odbor-starostlivosti-o-zivotne-prostredie-1>

³ <https://www.enviroportal.sk/uploads/files/Dokumenty/PZKO-Kosice.pdf>

⁴ <https://www.enviroportal.sk/uploads/files/Dokumenty/PZKO-Krompachy-2013.pdf>

⁵ <https://www.enviroportal.sk/uploads/files/Dokumenty/PZKO-Banska-Bystrica.pdf>

⁶ <https://www.enviroportal.sk/uploads/files/Dokumenty/PZKO-Jelsava-Lubenik-2013.pdf>

⁷ <https://www.enviroportal.sk/uploads/files/Dokumenty/PZKO-Hnusta-Tisovec-2013.pdf>

7	Prešov	Associated beneficiary	Territory of the city Prešov and village L'ubotice ⁸	Stakeholder
8	Trenčín	Associated beneficiary	Territory of the city Trenčín ⁹	Stakeholder
9			Territory of the district Prievidza ¹⁰	Stakeholder
10			Territory of Bystricany, Novaky, Zemianske Kostolany, Kamenec pod Vtacnikom and Cerenany	Stakeholder
11	Trnava	Associated beneficiary	Territory of the city Trnava ¹¹	Stakeholder
12	Žilina	Associated beneficiary	Territory of the city Žilina ¹²	Stakeholder
13			Territory of the city Ružomberok and village Likavka ¹³	Stakeholder
14	Nitra	-	Territory of the city Nitra ¹⁴	Stakeholder

The AQMPs are publically available here:

<https://www.enviroportal.sk/ovzdušie/zlepsenie-kvality-ovzdušia?>

Note (data valid in 2019):

Currently, 14 AQMAs above have been recommended in 2018 based on the air quality measurements in 2015-2017. LIFE-IP SK will cover all of them either through the work of associated beneficiaries or the direct involvement of stakeholders concerned (see the table above).

We confirm that the attached Air Quality Management Plans are still valid. These plans (with one exception) were adopted in 2013, the last one in 2016. Only the Air quality management plan for Bratislava agglomeration was abolished by the court.

AQMP of Bratislava is not valid, as the Slovak Court annulled its validity, due to missed key quantifiable indicators. The new plan is under preparation; therefore, concrete budget information necessary for implementation of measures is not available at the moment. We assume that measures will be financed by complementary funds available, as well as the City budget itself.

⁸ <http://www.minv.sk/?informacie-odboru-starostlivosti-o-zivotne-prostredie-ochrana-ovzdušia>

⁹ http://www.minv.sk/?Programy_na_zlepsenie_kvality_ovzdušia_OUTN

¹⁰ http://www.minv.sk/?Programy_na_zlepsenie_kvality_ovzdušia_OUTN

¹¹ <https://www.enviroportal.sk/uploads/files/Dokumenty/PZKO-Trnava-2013.pdf>

¹² http://www.minv.sk/?Ochrana_ovzdušia_za

¹³ http://www.minv.sk/?Ochrana_ovzdušia_za

¹⁴ <http://www.minv.sk/?oddelenie-statnej-spravy-vod-a-vybranych-zloziek-zivotneho-prostredia-kraja>

In 2021, new AQMAs have been declared by the SHMI based on the measurements from 2018-2020. These are:

Nr.	NUTS Regions in Slovakia	Involvement in the LIFE-IP SK	Air Quality Management Area	Involvement in the LIFE-IP SK
1.	Bratislava	-	Territory of the capital city of SR Bratislava	Stakeholder
		-	<i>Risk areas in the zone were identified on the basis of air quality modelling. *</i>	
2.	Košice	-	Territory of the city Košice and villages Bočiar, Haniska, Sokolany, Veľká Ida	Stakeholder
		-	<i>Risk areas in the zone were identified on the basis of air quality modelling. *</i>	
3.	Banská Bystrica self-governing region	Associated beneficiary	Territory of the city Banská Bystrica	Stakeholder
4.			Territory of the city Jelšava and villages Lubeník, Chyžné, Magnezitovce, Mokrú Lúka, Revúčka Lehota	Stakeholder
			<i>Risk areas in the zone were identified on the basis of air quality modelling. *</i>	
5.	Bratislava self-governing region	Associated beneficiary	<i>Risk areas in the zone were identified on the basis of air quality modelling. *</i>	
6.	Košice self-governing region - the territory of the region except the territory of the city of Košice and the municipalities of Bočiar, Haniska, Sokolany and Veľká Ida.	Associated beneficiary	Territory of the city Krompachy	Stakeholder
			<i>Risk areas in the zone were identified on the basis of air quality modelling. *</i>	

	Nitra self-governing region	-	<i>Risk areas in the zone were identified on the basis of air quality modelling. *</i>	
7.	Prešov self-governing region	Associated beneficiary	Territory of the city Prešov a village Ľubotice	Stakeholder
			<i>Risk areas in the zone were identified on the basis of air quality modelling. *</i>	
8.	Trenčín self-governing region	Associated beneficiary	Territory of the city Trenčín	Stakeholder
9.			Territory of the district Prievidza	Stakeholder
			<i>Risk areas in the zone were identified on the basis of air quality modelling. *</i>	
	Trnava self-governing region	Associated beneficiary	<i>Risk areas in the zone were identified on the basis of air quality modelling. *</i>	
10.	Žilina self-governing region	Associated beneficiary	Territory of the city Ružomberok and village Likavka	Stakeholder
11.			Territory of the city Žilina	Stakeholder
			<i>Risk areas in the zone were identified on the basis of air quality modelling. *</i>	

Measures to improve air quality need to cover as much of the territory where high concentrations of pollutants may occur, as possible. Since the monitoring stations cannot cover the whole country with such a diverse terrain as Slovakia, the areas of air quality management (stated above) which are defined according to the measurements, were supplemented by risk areas identified on the basis of mathematical modelling.

* Risk areas have been identified for all zones and agglomerations based on modelling. High concentrations of PM and benzo(a)pyrene may occur in these areas.

The updating of these Plans is carried out in 2021. Air Protection Strategy, which will include measures to improve the air quality as well as guidance on how to elaborate new and more effective Air Quality Management Plans, will be prepared with regard to revision of air quality directives at the European level and also with a regard to Zero pollution strategy. The new Strategy should identify effective measures and assess the cost-effectiveness of their implementation. We believe that the Strategy will help to introduce more effective measures in the fields of e.g. transport and household heating. They will be included in the Air Quality Management Plans even if they might be not very popular and would be dependent on political will.

The MoE SR focuses on making air quality management more effective. The zoning on the territory of the Slovak Republic is regularly being re-assessed. The aim is to better define the representative areas for purposes of the air quality assessment and management.

Introduction of the new zoning is connected with the installation of new monitoring stations to comply with requirements regarding the minimum number of sampling points for fixed measurements of concentrations of air pollutants in accordance with the requirement of the Directives 2008/50/EC and 2004/107/EC. New zoning is based on the results of the yearly report prepared by the SHMI on the air quality in Slovakia.

Slovak Republic is currently in the process of improving the effectiveness of achieving air quality objectives. A necessary prerequisite is the correct setting of the air quality management mechanisms. Therefore, the current approach will be re-assessed. We are focusing on:

- Preparation of the Air Quality Strategy (part of the Air Protection Strategy) including effective measures and assessment of their cost-effectiveness,
- Extension of air quality monitoring network by 14 new monitoring stations,
- New zoning for the effective air quality management,
- Preparation of a subsidy scheme for the replacement of old boilers in households,
- Strengthening the enforcement of measures included in Air Quality Management Plans (by legislative amendments),
- Legally underpinning the competences and responsibilities of municipalities in the field of air quality management.

The objective of the integrated LIFE project is to support capacity building and strengthen regional and local authorities in air quality management by creating positions of "air quality managers" at the level of local authorities (self-governing regions and selected cities/municipalities in the areas of air quality management).

We believe that building these capacities will help us make the air quality management system more effective, in situ, and also promote and implement tailor-made measures for specific areas. This is the reason why we apply for the integrated project.

BENEFICIARIES

- Name of the **coordinating** beneficiary (1): **Ministry of Environment of the Slovak Republic (MoE SR)**
Name of the associated beneficiary (2): Slovak Environment Agency (SEA)
Name of the associated beneficiary (3): Banská Bystrica Region (BBSK)
Name of the associated beneficiary (4): Trenčín Region (TSK)
Name of the associated beneficiary (5): Trnava Region (TTSK)
Name of the associated beneficiary (6): Žilina Region (ŽSK)
Name of the associated beneficiary (7): Prešov Region (PSK)
Name of the associated beneficiary (8): Košice Region (KSK)
Name of the associated beneficiary (9): Slovak Hydrometeorological Institute (SHMI)
Name of the associated beneficiary (10): PEDAL Consulting (PEDAL)
Name of the associated beneficiary (11): Energy Research Center - Technical University of Ostrava (VSB)
Name of the associated beneficiary (12): Bratislava Region (BSK)
Name of the associated beneficiary (13): CEPTA – Centre for sustainable alternatives, civic association

PROJECT BUDGET AND REQUESTED EC FUNDING

- Total integrated project budget: 15,000,000.00 €
Total LIFE eligible project budget: 15,000,000.00 €
EC LIFE financial contribution requested: 9,000,000.00 € (60 % of total eligible budget)

FORMS A2 – A8 to be added by (MoE SR)

Forms updated in 2021, specifically - A3 (MoE SR), A4 (all of the associated beneficiaries including new beneficiaries) and A5 (new beneficiaries) will be provided separately.



LIFE Integrated projects 2018

Stage 2 – FULL PROPOSAL

Technical application forms

Part B – technical summary and overall context of the project

SUMMARY DESCRIPTION OF THE PROJECT

1. Overall context/background/geographical scope

IP itself:

Air quality in the project area

The Slovak Republic, as well as its neighbouring countries, especially the Czech Republic and Poland belong to the EU Member States facing problems with air quality, being subject to the infringement procedure due to non-compliance with the AAQD (Ambient Air Quality Directive) requirements, and having negative impacts on public health and environment.

Despite some improvements achieved over the past years, the situation still remains unsatisfactory.

The main air quality problems in Slovakia are caused by exceeding concentrations of suspended particles (PM₁₀ and PM_{2,5}) coming mainly from burning solid fuels for household heating, benzo(a)pyrene (80% of BaP is coming from household heating), and nitrogen oxide (NO_x) emissions coming mainly from transport. Some air quality problems were also indicated in relation to ground-level ozone (O₃).

The sources of air pollution in respective Air Quality Management Areas (AQMAs) are described in the Air Quality Management Plans (AQMPs)¹⁵.

Significant share of the local air pollution by the emissions of PMs and BaP is represented by emissions generated by household heating. The main reasons for this can be found in burning solid and low-quality fuels (even waste) or inappropriate heating techniques in households, which is also connected with the low level of public awareness (but also due to energy poverty), as well as missing competences to ensure inspections of small air pollution sources. Besides household heating, one of the key AQ problems especially in cities relates to traffic and emissions from transport (mainly NO_x).

The contribution of agricultural activities (main source of ammonia emission) on the creation of secondary PMs has to be considered as well.

In some areas, the air pollution is still caused by local industrial sources.

Slovakia shares borders with the most polluted countries in the EU and Ukraine, therefore the transboundary air pollution pose another considerable issue. Ukrainian relevant authorities will be invited to the selected conferences of our LIFE IP, which will be conducted in the framework of actions E and C2, and thus complement activities of the UNECE Air Convention¹⁶.

The air quality in the neighbouring countries (mainly CZ and PL) is also highly affected by the air pollution caused by household heating. Since Slovakia, Czech Republic and Poland are influencing each other's air quality and have similar air pollution sources, it is very important that all three countries cooperate very closely together, as foreseen in this project. Slovakia (the Slovak Hydrometeorological Institute) together with the Ministry of Environment of the Czech Republic have joined the Polish LIFE integrated project Malopolska in a healthy atmosphere (LIFE14 IPE PL 021) aiming at the implementation of Air Quality Plan issued for Malopolska Voivodship and application of an updated air quality model that would allow to plan and assess joint set of measures to achieve favourable air quality in all three countries.

¹⁵ See form A1 for more information.

¹⁶<https://www.unece.org/info/media/news/environment/2018/national-roundtable-meeting-in-ukraine-to-encourage-ratification-of-the-key-unece-air-convention-protocols/doc.html>

The proposed IP will build on good practise and experience gained from the cooperation in this project (LIFE IP Malopolska) and support the dissemination and transfer of project results through cooperation and networking with other stakeholders and other neighbouring countries, including Ukraine, that could benefit from the projects experience and results.

Furthermore, we expect to collaborate very closely with the LIFE IPs which recently kicked off in Hungary¹⁷ (LIFE17 IPE/HU/000017) and Bulgaria¹⁸ (LIFE17 IPE/BG/000012) as well as in Italy¹⁹ (LIFE15 IPE/IT/000013). The more detailed list of the projects (ongoing or finalised), the outcomes of which will be used also in the context of our activities, is as follows:

- LIFE IP [MAŁOPOLSKA](#): for increasing the quality of air in the Malopolska region
- LIFE project [CLEAN HEAT](#): for a significant reduction of particulate matter caused by wood burning
- LIFE project [ATMOSYS](#)²⁰ (LIFE09 ENV/BE/000409) - Policy support system for atmospheric pollution hot spots.
- LIFE + [RESPIRA](#)²¹ (LIFE13 ENV/ES/000417): Its goal is to demonstrate that the urban air pollution intake by cyclists and pedestrians can be reduced by using new technologies and other options in urban planning, urban design and mobility management.
- [CLAIRO](#) - CLeAr AIR and Climate Adaptation in Ostrava and other cities (<https://www.uia-initiative.eu/en/uia-cities/ostrava>). Technical University, which is the associated beneficiary of this project, is implementing the CLAIRO project.
- [Clean Air](#) (LIFE11 ENV/DE/000495): For addressing the problem of continuing violations of air pollution limits by strengthening environmental governance and increasing access to justice, which helps to improve compliance with EU legislation.
- LIFE AIRUSE project (<http://airuse.eu/>): for the air quality mitigation measures.
- LIFE VAQUUMS (<https://vaquums.eu/about>): for determining the quality levels currently being attained by innovative measuring techniques for particulate matter, ozone and nitrogen dioxide.
- Pilot project of the European Parliament - Effect of residential solid waste burning ambient air quality in Europe and potential mitigation measures
- Interreg project [e-MOTICON](#): for the diffusion of electric mobility
- LIFE project [BrennerLEC](#): for the creation of a “Lower Emission Corridor” along the Brenner axis
- Horizon project [Clair City](#): for the reduction of air pollution in the cities
- LIFE+ project [Climate ChangE-R](#): for the identification and implementation of cultivation and breeding techniques with a lower production of CO2
- Interreg project [REFORM](#): for the implementation and deployment of Sustainable Urban Mobility Plans
- [CLIMAERA](#) project: for the development of planning tools in support of public policies related to air quality in the regions of ALCOTRA territory
- Interreg project [MITIMPACT](#): for the forecasting and evaluation of climate change and photochemical air pollution on transboundary vegetation
- Interreg Central Europe [AWAIR](#) project: for the improvement of the environmental management capacity in central Europe through the promotion and adoption of agreed measures and strategies on air pollution
- [FREVUE](#) project: for the development of innovative solutions related to electric vehicles operating “last mile” freight movements in urban centres

¹⁷http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=7008

¹⁸http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=7009

¹⁹<http://www.lifeprepare.eu/?lang=en>

²⁰http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=3758#PD

²¹http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=5080

- Interreg Med project [ENERJ](#): for enhancing and improving the coordination of SEAP's and other relevant energy Efficiency Plans, in order to reach Energy Saving and the National targets on public buildings' energy efficiency
- Interreg Med project [REMEDIO](#): for strengthening the cities ability to use low-carbon transport systems for their mobility plans
- Interreg Med project [GO SUMP](#): capitalisation and mainstreaming of projects' results and solutions for sustainable mobility in the Mediterranean at transnational level
- Horizon project [NeMo](#): for making electro mobility more attractive and facilitate its mass adoption in the road transport sector
- Interreg Central Europe project [FIRECE](#): for increasing capacities of regional operators to better manage energy plans particularly in terms of locally available financial resources
- Interreg Central Europe project [BOOSTEE-CE](#): for improving the governance of energy efficiency in existing public buildings and ultimately reduce energy consumption in different central European areas
- LIFE project [GYSTRA](#): for the improvement of the air quality of the cities by detecting vehicles whose emissions are higher than allowed
- Horizon project [iSCAPE](#): for integrating and advancing the control of air quality and carbon emissions in European cities
- LIFE project [ASPIRE](#): for a sustainable mobility of goods in urban areas
- H2020 Project [ICARUS](#): for integrated climate forcing and air pollution reduction in urban systems

The aim of the project is to support and reinforce the administrative structure and capacity to ensure effective implementation of AQMPs as well as to promote air quality measures and increase the public awareness about the importance of air quality and its improvement. It will support the horizontal and vertical coherence in air quality management structure as well as support synergies between different policies and air quality objectives, which was highlighted as crucial point for the achievement of improved air quality also during the Clean Air Dialogue held between the European Commission and Slovak authorities on 24 and 25 April 2018 in Bratislava²². The LIFE IP will therefore contribute to meeting national emission standards.

To this end, the "Shared conclusions of the Clean Air Dialogue between Slovakia and the European Commission, taking place in Bratislava on 24-25 April 2018²³" state the following:

"The Commission encourages Slovakia to make full use of the available EU funding mechanisms also to support the air quality and emission reduction objectives in national Air Quality Plans and the National Air Pollution Control Programme. Although the primary objectives might not be the reduction of air pollutions, the objectives of the Rural Development Programme, the Operational Programmes under the Structural Funds, the European Fund for Strategic Investments, the Connecting Europe Facility (CEF) for Transport, and more can also cover actions that benefit clean air. For future use of EU funding, Slovakia could consider priority axes and investment priorities that include air quality. Integrated Projects under the LIFE programme are relevant for the development of national or regional plans, programmes and strategies also in Slovakia."

Therefore, this LIFE IP directly answers the encouragement of the European Commission expressed in the Conclusions above.

Gap assessment

²²https://ec.europa.eu/info/news/clean-air-dialogue-between-commission-and-slovakia-promotes-actions-cleaner-air-2018-apr-26_en

²³<http://ec.europa.eu/environment/air/pdf/conclusions%20of%20Clean%20Air%20Dialogue%20between%20SK%20and%20EC%20final.pdf>

Several hurdles at local, regional and national level undermine the effective realisation of AQMPs. This LIFE IP aims to significantly remove them.

At the regional and local level, several problems hindering the promotion and implementation of air quality measures have been identified, such as weak competences and responsibilities of respective authorities, missing enforcement and control mechanism, insufficient coordination of air quality management among respective authorities at national, regional and local level, as well as lack of coherence between different policies and air quality objectives.

The above mentioned also relates to the problematic implementation of Air Quality Management Plans (AQMPs) and of individual measures included in those plans, which thereby remain ineffective and unable to achieve expected results (improved air quality).

In Slovakia, the authorities responsible for drafting AQMPs are the respective district offices in the seat of the regions (state administration authorities at the level of region, under the Ministry of Interior of the Slovakia).

In the preparation of AQMPs, the district offices in the seat of region as state level administration authorities under the Ministry of Interior SR shall cooperate with respective regional authorities (self-governing regions) and local authorities (municipalities²⁴), who should bear the responsibility for the implementation of individual measures to improve air quality falling under the scope of their specific competences and located at their territory. However, the level of enforcement of the AQMPs and achievements in air quality improvement is not sufficient and depends on limited capacities at regional and local level.

Strengthening the role of regional and local authorities in the air quality management structure is one of the key issues pointed out during discussions on the preparation of the Air Protection Strategy of the SR by 2030, which is currently being developed by the MoE SR²⁵ and which will include the National Programme to Reduce Emissions (NAPCP) as well as the Air Quality Strategy. In this regard, the Ministry of Environment of the SR is going to prepare amendments of current legislation in order to reinforce the binding nature of the AQMPs and their enforcement and to pass certain competences to self-governing authorities and municipalities. It is expected that the changes in legislation and in competences will bring new requirements for regional and local authorities. The IP is meant to contribute and underpin this process of improving the governance structure in air quality management in Slovakia.

The following main problems hindering effective air quality management at regional and local level can be listed: 1) Lack of personal capacities and financial sources of regional and local authorities; 2) Lack of competences and expertise; 3) Lack of knowledge on air quality development at regional/local level; 4) Lack of methodological guidance and coordination between national and regional/local level; 5) Low level of awareness and behavioural patterns of local residents

Geographical scope

The project activities relate to the AQMAs. However, it is expected that the project will have impact on the whole territory of Slovakia. Furthermore, the VSB will cover the whole territory of the Czech Republic.

²⁴ 40 municipalities signed up for Covenant of Mayors and committed to develop their Sustainable Energy (and Climate) Action Plans. The plans are in different stage of preparation, and none of them is published yet. During the project implementation, the Air Quality Managers are expected to ensure possible synergies among the Plans and project, particularly in the area of emission reduction of pollutants from household heating and energy efficiency in public buildings. City of Prešov and Trnava are both involved in LIFE IP as a stakeholder and committed to develop SECAP.

²⁵ <https://www.minzp.sk/strategia-ochrany-ovzdušia.html>

With regard to the air quality management system in Slovakia, the key activities will be implemented in:

a) 7 NUTS regions in Slovakia, which are territorial units including also AQMAs and have responsibilities in relation to air quality measures included in AQMPs at regional level; Project activities will be implemented in all 7 out of 8 NUTS regions: Banská Bystrica, Trenčín, Trnava, Žilina, Prešov, Košice, Bratislava, on which territory the air quality zones and agglomerations are located (see the map of the general location of the project area), including the Air Quality Management Areas (AQMAs). Nitra Region will be covered by the municipality of Nitra from the position of stakeholder (see below).

4 additional AQ managers were hired directly by MoE SR, what significantly helped to start cooperation with the city of Bratislava, currently developing its new integrated AQMP. Three AQ managers were assigned to the team preparing Integrated AQMP for Bratislava. In the second stage, self-governing region of Bratislava will also be included in the project. Assessment following ending of the first stage re-opened the discussion on including interested municipalities and NGOs such as CEPTA as beneficiary of the project. Both, the Bratislava Region and CEPTA, will be in a position of associated beneficiaries in the project from 2nd phase, 1.1.2022.

b) Selected municipalities (cities) in AQMA, which have responsibilities in relation to air quality measures included in AQMPs at local level: Bratislava, Košice, Banská Bystrica, Jelšava, Hnúšťa, Tisovec, Krompachy, Prešov, Prievidza, Nováky, Trenčín, Trnava, Nitra, Ružomberok, Žilina.

The project will also focus on all the regions in the Czech Republic, as Slovakia and the Czech Rep. both deal with many similar problems.

Why our Life IP falls under the IP definition?

The project will complement the EU interventions that support the implementation of actions specified in the AQMPs.

Complementary actions:

The implementation of IP project activities will induce complementary actions focused on the implementation of individual measures identified in the Air Quality Management Plans (AQMPs). It will facilitate the effective spending of available structural funds in the current programming period 2014 - 2020 and optimise the use of EU funds in the next programming period to achieve air quality objectives (European Structural and Investment Funds, including Rural Development Programme). Project partners recognise the fact that according to the European Union²⁶, the Air Quality aspects are among the key priorities. In this connection, the Air Quality topics will be adequately reflected in the future national operational programmes covering the period 2021-2027.

For the implementation of these measures, effective use of available funds to reduce emissions and improve air quality will be promoted, both from national and EU sources. The key objective of complementary actions will be the replacement of obsolete solid fuel boilers in households, other measures will aim at improving energy efficiency in buildings, promoting sustainable transport solutions and green measures which should have impact on the improvement of air quality (see more detail in section on Expected Complementary Actions under point 3). The implementation of complementary actions will correspond with measures to reduce emissions and improve the air quality and contribute to the achievement of objectives of the Air Protection Strategy in Slovakia.

Air Protection Strategy 2030 consists of two separate documents, one of which is NAPCP. This document is available at this link:

²⁶

https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/european-semester_en

https://www.minzp.sk/files/oblasti/ovzdušie/ochrana-ovzdušia/dokumenty/strategia-ochrany-ovzdušia/vlastny-material-narodny-program-znizovania-emisii-sr_final.pdf

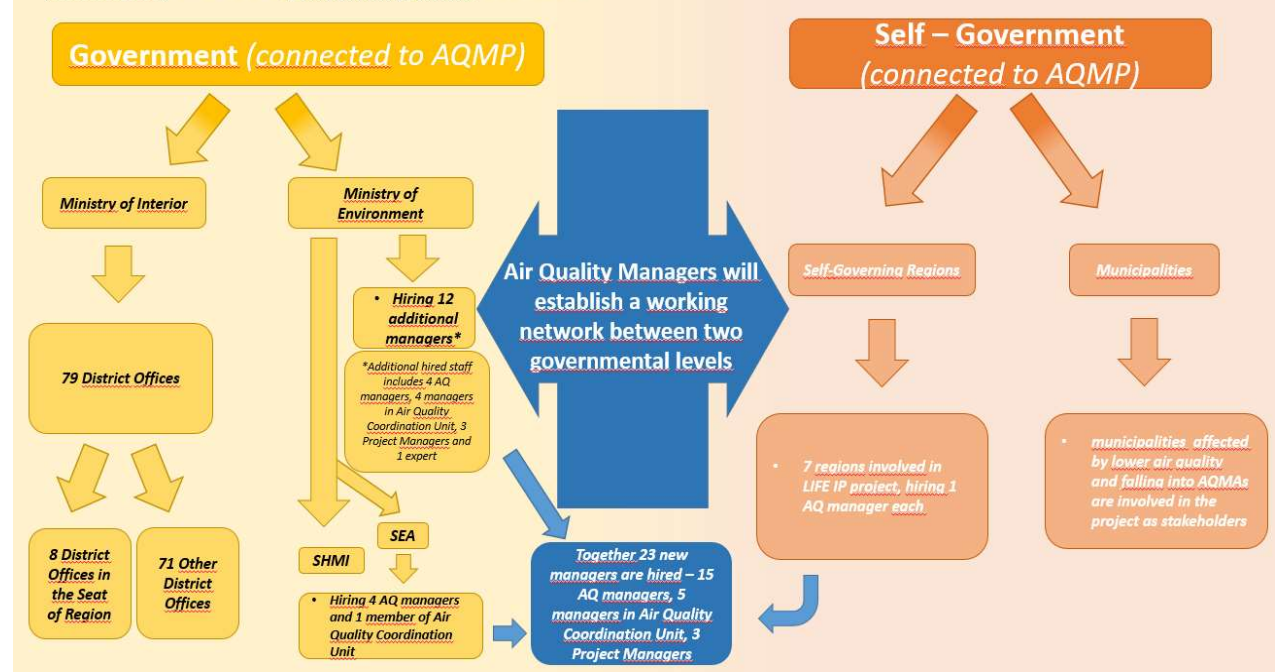
Second document of the Air Protection Strategy is Air Quality Strategy, which is being currently developed. In 2020, SHMI prepared a document under the name “Air Quality in Slovakia, an outline of the issue”, which will serve as a basis for the strategy. The document is available in Slovak language at this link https://www.minzp.sk/files/oblasti/ovzdušie/ochrana-ovzdušia/dokumenty/strategia-ochrany-ovzdušia/hodnotenie_pre_strategiu_podklady.pdf

During the implementation of LIFE IP, AQ managers will use all available relevant documents, learn from them and use the knowledge in order to apply appropriate and correct measures to targeted areas. Air Protection Strategy, consisting of two separate documents [National Air Pollution Control Programme and Air Quality Strategy], is designed to set future improvement in air quality in Slovakia. The Strategy will serve as the main pillar to actual regional implementation of measures, making it two-way operation: Air Protection Strategy being used at all governmental levels, and also AQ managers learning from it and teaching other managing authorities about its potential contributions to air quality. Air Protection Strategy and AQ managers will together help especially in AQMP preparation, as a part of Air Quality Strategy which will serve as a Guidance for AQMP preparation.

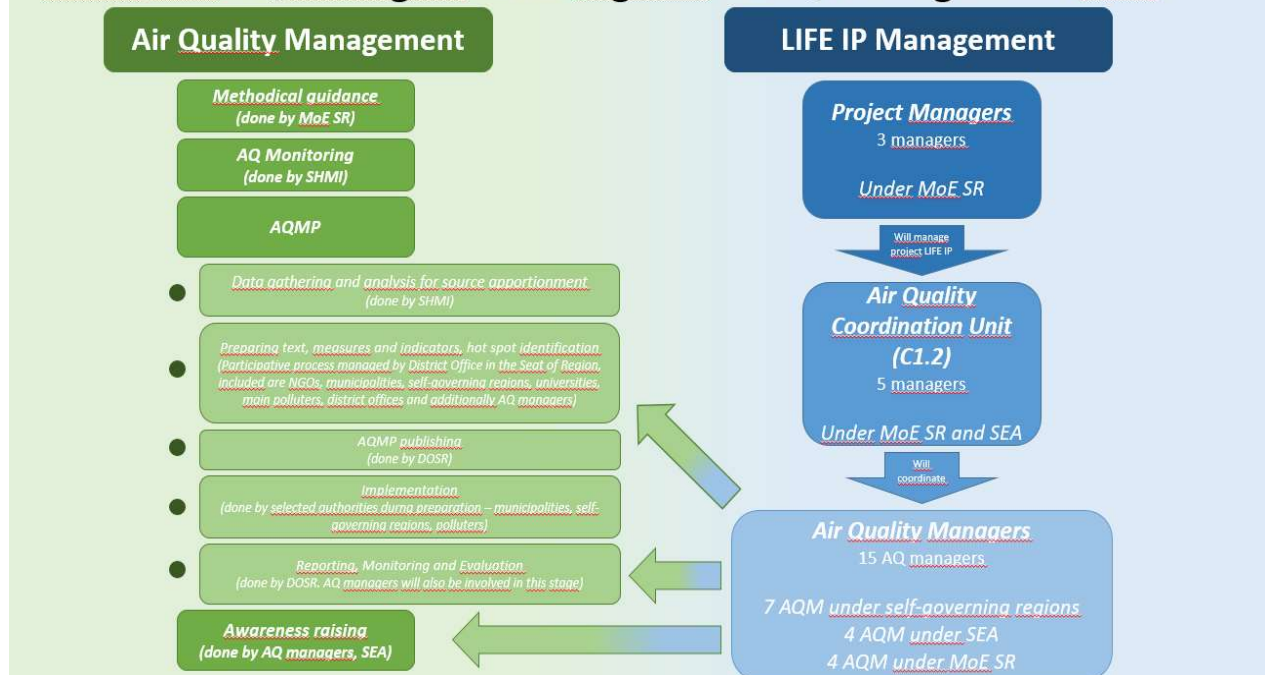
Preparation of AQMP is in competence of district offices in the seat of region, but they cooperate with affected municipalities, self-governing regions, NGOs, industries (operators), as well as other district offices involved. This process is set to be participative and set by the Air Act, making the process mandatory. All of the stakeholders are also responsible for implementation of measures directly connected to their competences (self-government) or their contribution to air pollution (industry). District offices in the seat of region monitor the implementation, collect data and re-evaluate AQMP. AQ managers will be also involved in evaluation, but not responsible for its execution.

Communication between district offices and self-governing regions, or municipalities is often rigid and slow. Proposed IP project will create a network of AQ managers providing a managing layer from above, allowing for quick and flexible cooperation. NAPCP is prepared and published by MoE SR. Once the document is approved by the Slovak Government, all of the involved ministries are required to implement measures stated in NAPCP. The implementation will be monitored by MoE SR. MoE SR will also collect data and evaluate and assess further changes. The position and the role of Air Quality Managers in this process is illustrated in the diagrams below.

Where do AQ managers fit in?



What will AQ managers do in regards of AQ Management Plan?



Municipalities will have the main role in implementing measures proposed by them (while preparing AQMP) or ordered to them by relevant District Office in the Seat of Region (DOSR) in AQMP. Responsibility for implementation of measures is ordered by Air Act. Each stakeholder implements measures specific for him. Polluters have to comply with measures related to the pollution produced by them, such as dust reduction, technology renovation, reconstruction, cleaning and general maintenance. Municipalities are responsible for measures directly related to their responsibilities, such as construction of new gas networks, greenification, road renovation, road sprinkling etc.

Additionally, municipalities have to:

- Participate in development of Air Quality Management Plans,
- Include measures taken in its urban planning documents.

Note: New legislation is currently under preparation that will oblige municipalities and self-governing regions to draw up plans of measures that include both long-term and short-term measures to improve air quality, if directed by DOSRs. These plans of measures aim to specify the measures identified in the Air Quality Management Plans.

Municipalities have, according to the Air Act competence to establish zones with restricted mobile air pollution sources and establish low emission zones by a generally binding regulation

The municipalities are responsible in particular for the measures resulting from the competences of municipalities under Act no. 369/1990 Coll. on municipal establishment, such as:

- Maintenance of municipal roads (IV. class roads)
- Public spaces and their use, planting of greenery
- Territorial planning within the municipality
- Public transport

2. Project objectives:

IP itself:

The main objective of the project is to support effective air quality management with the aim to improve the air quality and reduce the exposure of population to harmful impacts of air pollutants.

The project will strengthen and enhance the realization of AQMPs in AQMAs on the territory of the Slovak Republic.

Specific project objectives²⁷ are:

- ✓ Enhancing effective air quality management and implementation of AQMPs (C1.1 and C1.2)
- ✓ Promoting air quality measures and raising awareness of the importance of air quality (C2)
- ✓ Accelerating the implementation of measures to minimise negative impacts of household heating and transport on the air quality (C3)
- ✓ Support the exchange of heat sources (boilers) in households (C4.1 and C4.2)
- ✓ Improving air quality monitoring and reporting at regional and local level (D)

Complementary actions:

Complementary to the activities of the IP, focusing on the enhancement of governance structure in air quality management and AQMP implementation mechanisms, complementary actions will relate to the implementation of concrete (investment) measures included in the AQMPs (or measures to be included in updated AQMPs), such as the replacement of obsolete solid fuel boilers in households, improving energy efficiency in buildings, construction of cycling routes, promoting sustainable transport solutions and alternative transport means including electromobility, purchase of low-emission vehicles for public transport, purchase of cleaning mechanisms, revitalization of public space and other green measures which contribute to the improvement of air quality.

²⁷ Note: The objective: "Assessment of health and economic impacts incurred by air pollution", which was presented in the concept note is not part of this project because, in the meantime the Institute of Environmental Policy secured the funding to implement these activities in the context of other project. Therefore, in order to avoid double-funding, this activity is not part of this LIFE IP. However, we will build on the results of the other project.

3. Actions and means involved:

Actions financed by LIFE:

Establishment of Air Quality Managers & Air Quality Coordination Unit

This task will build capacities of regional and local authorities to strengthen air quality planning and management of authorities at regional and local level, which often lack competences, capacities and resources to perform all necessary tasks related to air protection and to the implementation of air quality measures. Within the project, **Air Quality Managers**, established in 7 self-governing regions and in selected municipalities located in the AQMAs, shall gain necessary competences, skills and know-how in order to:

- ✓ Help regional and local authorities with managing air quality issues,
- ✓ Report and monitor air quality at regional and local level,
- ✓ Promote air quality measures and raise the awareness in field of air protection and air quality.

The activity will also include specific trainings and workshops aimed at:

- ✓ Detailed requirements for elaboration of effective local Air Quality Plans,
- ✓ Analytical work on air quality & pollution development in municipalities, regions and districts,
- ✓ Providing information on funding possibilities from national and EU funds (ESIF) and helping with preparation of projects and grant applications for available funds aimed at air quality improvement,
- ✓ Providing technical advice to citizens operating small air pollution sources (boilers and heating devices),
- ✓ Effective communication of the air quality importance towards citizens,
- ✓ Sharing experience and good practice in the field of air quality management among experts, incl. experts from other countries.

Another part of the activity will be the establishment of an “**Air Quality Coordination Unit**”, which will provide for methodological guidance and tools to support and coordinate the work of AQ managers. The AQ Coordination Unit will also be responsible for the centralized monitoring of the progress in implementation of AQMPs.

Promoting air quality measures and raising awareness of the importance of air quality

The activity will aim at preparation and realization of information and awareness raising campaigns as well as educational programmes. Cooperation and networking with partners from the Czech Republic and other countries (see the list of projects under point 1 of this section) is foreseen.

Awareness rising campaigns

Awareness raising campaigns will focus on different target groups, such as general public (adults), teachers, school students/children and representatives of self-governing authorities (self-governing regions, municipalities).

The activity will focus on information about the current situation in air quality, its causes and consequences and on information about air quality measures. The activities will include elaboration and dissemination of information materials, publications and media presentations, including social media.

Educational programmes

The activity will include workshops and exchange of experience within Slovakia and also of other (mainly neighbouring) countries. The activity will include preparation and dissemination of information leaflets and study materials in order to:

- **Educate representatives of self-governing authorities aimed at the implementation of air quality measures, exchange of experience and solution:** The aim is to educate decision makers at regional and local level and to explain the importance of air quality improvement in terms of public interest, in particular in relation to public health.
- **Educate about the benefits of district heating for the improvement of local air quality:** The aim is to promote the use of district heating as an effective measure to reduce emissions from household heating (clean energy), improvements in heat supply planning. The activity will include workshops, preparation and dissemination of information leaflets and study materials.
- **Educate in the field of air protection:** the aim is to support the update and evaluation of air quality management programs.
- **Provide training on proper heating techniques and recommendations for cleaner heating:** The aim is to explain proper heating techniques and teach people to use them. Activities will be aimed at proper operation of boilers, preparation of fuel, explanation of negative impacts of air pollution, including the “indoor pollution” etc. (educational events, including demonstrations).
- **Provide training in the field of sustainable mobility:** The aim is to develop expert materials and educational programmes, to organize the trainings and to disseminate good practice examples in the field of Sustainable Mobility²⁸, etc.
- **Deliver educational and awareness activities and campaigns for teachers, students and school children:** The aim is to create and to implement selected educational and training activities focused on teachers, students and school children²⁹.

The information and awareness campaigns will build on the experience from on-going campaigns undertaken in Slovakia, Czech Republic and in other EU Member States with the aim to use all means available to promote a robust campaign addressing as many citizens as possible.

Accelerating the implementation of measures to minimise negative impacts of household heating and transport on air quality (C3 , C4.1, C4.2)

- Demonstration projects aimed at household heating

Under this activity, complex approach in implementing various air quality measures will be demonstrated in selected municipalities, including educational activities (motivation, proper burning techniques), concrete investment measures (replacement of old boilers) and monitoring of the progress in air quality improvement. The effectiveness of measures and their synergies will be assessed. The results shall be used by designing regional and local policies, as well as legislation to improve the effectiveness of air quality measures.

- Pilot Projects aimed at the development of feasibility study on transport solutions for the air quality improvement in selected cities

The key objective of this activity is to provide incentives to selected cities in AQMAs, where the main air quality problems are caused by traffic to provide for the elaboration of feasibility studies aimed at transport solutions to improve air quality, such as introduction of low-emission zones or introducing charged entrance to the cities etc. The results of these studies should be incorporated into the Sustainable Mobility Plans.

VSB will implement the following activities in the Czech Republic:

- ✓ Support the exchange of heat sources (boilers) in households (C4.1 and C4.2)

²⁸ This is complementary to the projects run by the IROP.

²⁹ One of the main objectives is to create new travelling habits based also for instance on the gaming elements.

Improving air quality monitoring and reporting at regional and local level

For proper and effective decision making and setting measures, availability of statistical data is indispensable. The aim of the activity is to improve the quality and availability of air quality data at local level.

- Local data collection and evaluation of emissions inventories

The main objective of the activity will be the creation of a detailed residential heating database, which is necessary for efficient targeting of measures as well as for the evaluation of their impacts in future using high resolution air quality modelling. The activity will be performed by the Slovak Hydrometeorological Institute.

- Air quality monitoring

Based on the detailed local emission inventories, air quality monitoring will be performed at regional and local level, as an analytical part of the AQMPs, including the assessment of impacts of various measures on the air quality improvement. The activity will be performed by the Slovak Hydrometeorological Institute.

Monitoring of the effects of implementation Air Quality Management Plans

The activity will mainly consist of the following tasks.

- Data collection and evaluation at regional level, estimation of emissions inventories focusing on specific parts of sources and regional distribution and evaluation of the possible effects of implemented measures
- Reporting on the emissions inventories

The emissions estimation will be prepared at the selected regional level focusing on specific parts of emissions sources/sectors. Pollutants of principal interest are PM_{2.5}, PM₁₀ and NO_x. The aim is to estimate targeted Slovak regions individually, starting with those heavily affected by air pollution and if possible extending the quantification to those without specifically information of air quality or with satisfactory air quality.

Activities will be carried out by the Slovak Hydrometeorological Institute³⁰.

Complementary actions:

One of the main objectives of LIFE IP is to mobilise financing for air quality protection. The main sources include OP Quality of Environment, IROP. All in all, nearly EUR 1,280 million will be spent on implementation of complementary measures, which include:

- Replacement of obsolete solid fuel boilers in households
- Replacement of old boilers in public buildings
- Support for the use of renewable energy sources (RES)
- Improvement of energy efficiency
- Renovation of public buildings (including insulations and modernisation of heating systems, use of district heating systems)
- State-aid scheme aimed at the protection of environment in energy sector
- Promoting electro mobility

³⁰ The appropriate budget was allocated to the subcontracting of this task.

- Modernization of transport infrastructure including urban and improvement of sustainable urban transport
- Other transport measures
- Green infrastructure measures
- Other urban planning measures

Other complementary measures include several projects aimed at the air quality improvement, including replacement of old boilers by more efficient ones, improving energy efficiency in public buildings (including insulations), cleaning of roads and creating green infrastructure, promoting electro mobility etc. are supported on a yearly basis from the Environmental fund.

4. Expected results (main outputs and achievements, qualitative and quantitative):

Linked to Actions of LIFE IP (short and long term):

1. Enhanced capacities and competences (expertise) of self-governing regions and municipalities for effective implementation of tasks related to AQMPs measures by the creation of new working position of "Air Quality Manager". 7 AQ managers will be hired by self-governing regions. 4 AQ managers hired by SEA and 4 AQ managers hired by MoE SR. All of them will share the same competencies (expertise) and roles, creating stable network across governmental and self-governmental levels. This means that all of the AQ managers can be involved in revisions and improvement of existing AQMPs, as we expect that all of them will contribute to their implementation. Additional to 4 AQ managers at MoE we will hire 4 managers as Coordination Unit, 3 managers as Project Managers and 1 Expert, so altogether 12 additional people at MoE SR. This shall lead to improved management of regional and local air quality authorities and coordination from national level.
2. Increased awareness of decision makers (at the level of self-governing regions and municipalities) about the importance of measures to improve air quality, air quality planning and reporting.
3. Increased public awareness about the air quality and health impacts among citizens, behavioural changes of citizens with impacts on air quality (household heating, green transport).
4. Developing information materials and media outcomes on air quality, promoting air quality issues through information campaigns and education programmes (it is expected that campaigns will be implemented every year in each of the respective region).
5. Introduction of informative regional and local air quality monitoring and reporting.
6. Collection of statistical data at regional level related to household heating.
7. Air quality monitoring, and reporting at regional and local level (analytical part of the AQMPs), including the assessment of impacts of measures on the air quality.
8. Conducting a deep air quality analysis of local air pollution impacts directly linked to health effects and implied costs.
9. Update and revision of AQMPs.

Linked to complementary actions (short and long term):

1. Supporting replacement of obsolete solid-fuels boilers. Improving (lower) energy need for flat area (m²) of households after realization of the project by 10% (17.7 kWh/m²/year) in comparison with the starting point, increased energy efficiency, increased use of renewable energy sources,
2. Increased use of electro mobiles and alternative transport means,
3. Contribution to the improvement of transport systems and traffic situation in cities,
4. Increased use of public transport and sustainable (green) transport means (cycling routes etc.),
5. Reduce emissions of PM_{2.5} in households after realization of the project based on National Air Pollutants Inventory by 3,515 tons/year (25%) in comparison with the actual situation,
6. Increased amount of funds (both EU and national) allocated for air quality measures,
7. Development of new AQMPs.

Estimated quantification of expected results (e.g. estimated emission reductions of PM_{2.5}) is about 3,515 tons/year.

5. Expected contribution of the project to the implementation of the target plan/strategy

LIFE IP:

The activities of the project will significantly support the effectiveness of the implementation of AQMPs, which currently lack satisfactory level of enforcement. Substantial improvements and enhancement of the air quality management are needed. These needs are directly linked to necessary legislative changes, which will strengthen the competences as well as responsibilities of bodies involved in the management of air quality in Slovakia and Czech Republic, including the preparation and implementation of AQMPs.

The key objective of the project is to enhance the capacities and competences of regional and local authorities, which will have to take a much more active role both in development and implementation of individual AQMPs as well as measures included in these AQMPs.

This is expected to be achieved through the establishment of specialized working positions of AQ managers who will carry out the tasks necessary for an effective AQMPs preparation and implementation.

Complementary actions:

It is expected that available funds from EU and national sources will be allocated to support complementary actions focusing on measures included in AQMPs. Incentives motivating regional and local authorities to apply for these funds will be promoted.

Taking into account the current stage of preparation of the next programming period, it is not possible to identify the possibilities and available funds. However, based on the prioritization of air quality issues at the EU policy level, it is expected that the amount of funds available will substantially increase. Future subsidy schemes should be well prepared and better targeted to achieve the expected results especially in areas where the air quality issue is of major urgency.

6. Main stakeholders involved in the project:

Project partners and other stakeholders: See section A1 and B5.

7. Long term sustainability (including capacity building)

It is expected that the specialized working position of air quality manager will become an important element of air quality management at the level of regional and local authorities responsible for the implementation of AQMPs and will be maintained once the IP is finalised. It is believed that during the lifetime of the project, the working position of air quality manager will be considered beneficial as an effective tool to coordinate, promote and supervise the implementation of AQMPs, improve the communication and awareness of citizens and relevant stakeholders, and support the common understanding of the importance and impacts of air quality. This should result in giving higher priority to the air quality issues and support a serious approach to solving the problems.

Changes in behaviour and raising awareness are also crucial from the long-term point of view. The duration of the project might create a solid base for the introduction and use of effective practice in implementing air quality measures and improving the overall situation in this field. The sustainability of the project will be supported by the revision of national air protection legislation, which will strengthen the involvement, competences and obligations of regional and local authorities in air quality management.

Another significant contribution of the project, in a long term point of view, is the improvement in AQMPs development. It is expected that the project will also bring inputs for the preparation of new (updated) and more effective AQMPs of improved quality. Complementary actions will also be better identified and linked to available funds.

8. a) Is your project significantly climate related? Yes No

b) Is your project significantly biodiversity-related? Yes No

If you consider your project to be significantly climate or biodiversity-related (you marked 'yes'), please explain why:

Many of the measures included in AQMPs to reduce air polluting emissions at the same time contribute to the reduction of CO₂ emissions, such as the replacement of old boilers using solid fuels with new, low-emission and energy efficient boilers, modernization of combustion plants, reduction of heat losses, reconstruction of the distribution network, support of central heating, insulation of buildings, installation of solar panels, heat pumps and other renewable energy sources.

GENERAL DESCRIPTION OF THE AREA(S) TARGETED BY THE PROJECT**Name(s)/Definition of the project area(s):**

The project area is the entire territory of Slovakia (5.4 mil. inhabitants, 49,035 km²) and Czech Republic (10.6 mil. Inhabitants, 78,866 km²).

Comments:

With regard to the air quality management system in Slovakia, the key activities will be implemented in:

a) 7 NUTS regions in Slovakia, which are territorial units including also AQMAs and have responsibilities in relation to air quality measures included in AQMPs at regional level;

Project activities will be implemented in all 7 out of 8 NUTS regions: Banská Bystrica, Trenčín, Trnava, Žilina, Prešov, Košice, Bratislava on which territory the air quality zones and agglomerations are located (see the map of the general location of the project area), including the Air Quality Management Areas (AQMAs). Since phase 2 Bratislava Region will be a new project partner, therefore the activities there will be implemented directly by Bratislava Region. Nitra Region will be covered by the municipality of Nitra from the position of stakeholders (see below).

b) Selected municipalities (cities) in AQMA, which have responsibilities in relation to air quality measures included in AQMPs at local level: Bratislava, Košice, Banská Bystrica, Jelšava, Hnúšťa, Tisovec, Krompachy, Prešov, Prievidza, Nováky, Trenčín, Trnava, Nitra, Ružomberok, Žilina.

4 additional AQ managers will be hired directly by MoE SR, what will provide opportunity to start cooperation with the city of Bratislava, currently developing its new IAQMP. Some of these AQ managers (1-3) can be assigned to the team preparing IAQMP for Bratislava. In the second stage, self-governing region of Bratislava and Nitra may also be included in the project. Assessment following ending of the first stage re-opened the discussion on including interested municipalities and NGOs such as CEPTA as potential beneficiaries of the project. Both the Bratislava Region and CEPTA will be in a position of associated beneficiaries in the project from 2nd phase, 1.1.2022. Nitra Region has not yet shown interest to participate in the project.

40 municipalities signed up for Covenant of Mayors and committed to develop their Sustainable Energy (and Climate) Action Plans. The plans are in different stage of preparation, and none of them is published yet. During the project implementation, the Air Quality Managers are expected to ensure possible synergies among the Plans and project, particularly in the area of emission reduction of pollutants from household heating and energy efficiency in public buildings. City of Prešov and Trnava are both involved in LIFE IP as a stakeholder and committed to develop SECAP.

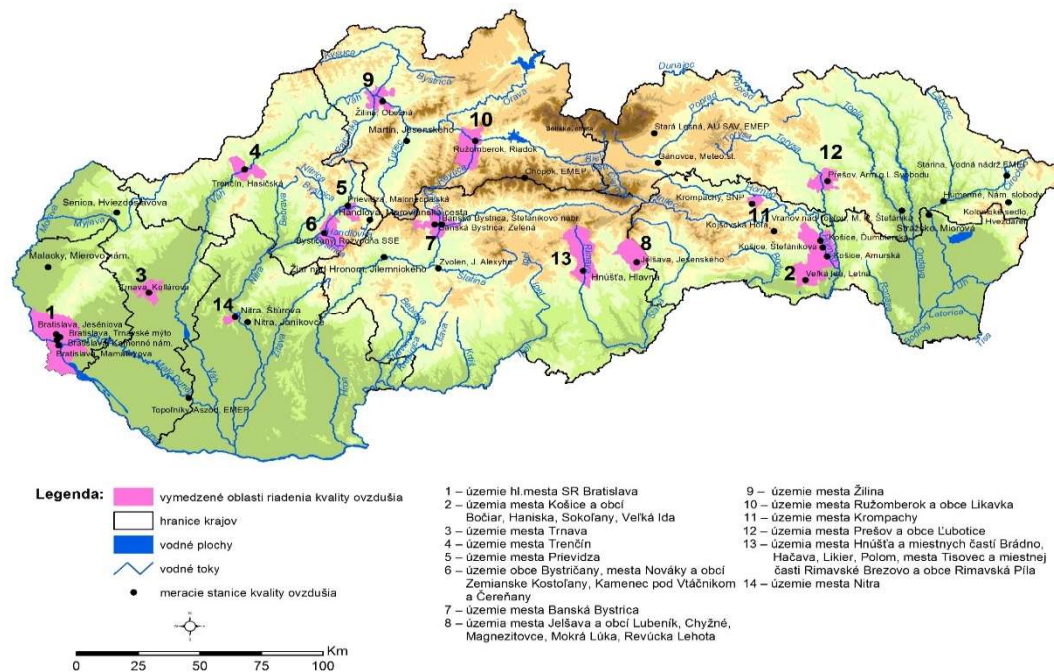
The project will also focus on all the regions in the Czech Republic.

Please refer also to the table presented in form A1.

MAPS OF THE GENERAL LOCATION OF THE PROJECT AREAS

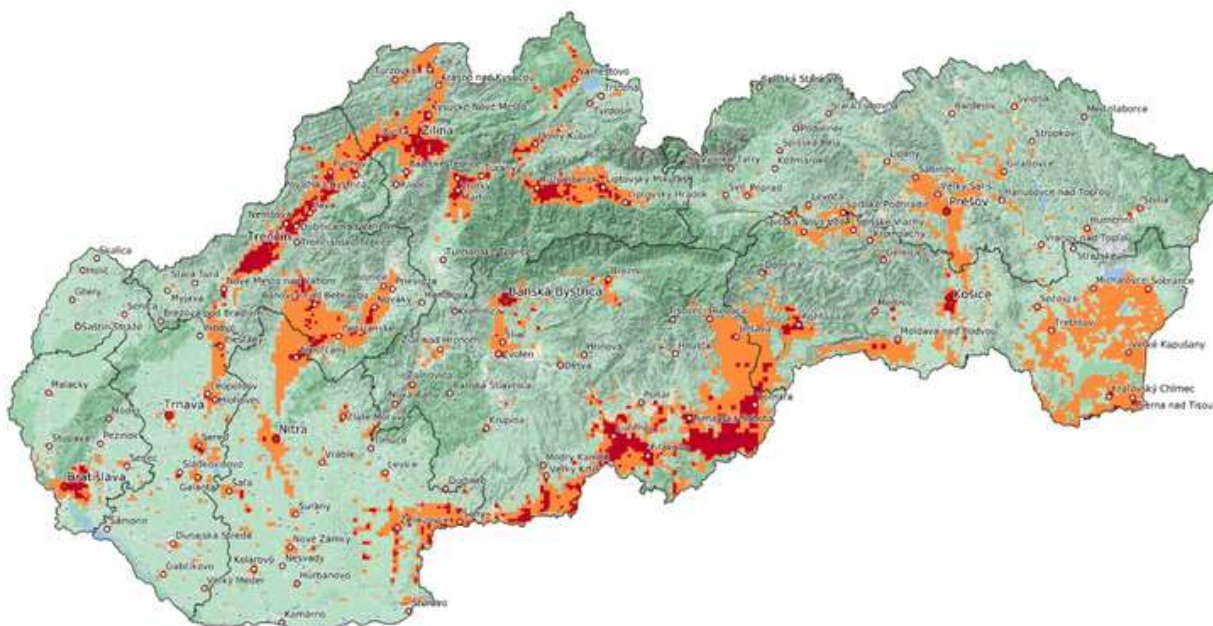
GENERAL OVERVIEW OF LOCATION(S) IN THE COUNTRY

Map 1: Air quality management areas in Slovakia (data valid in 2019)

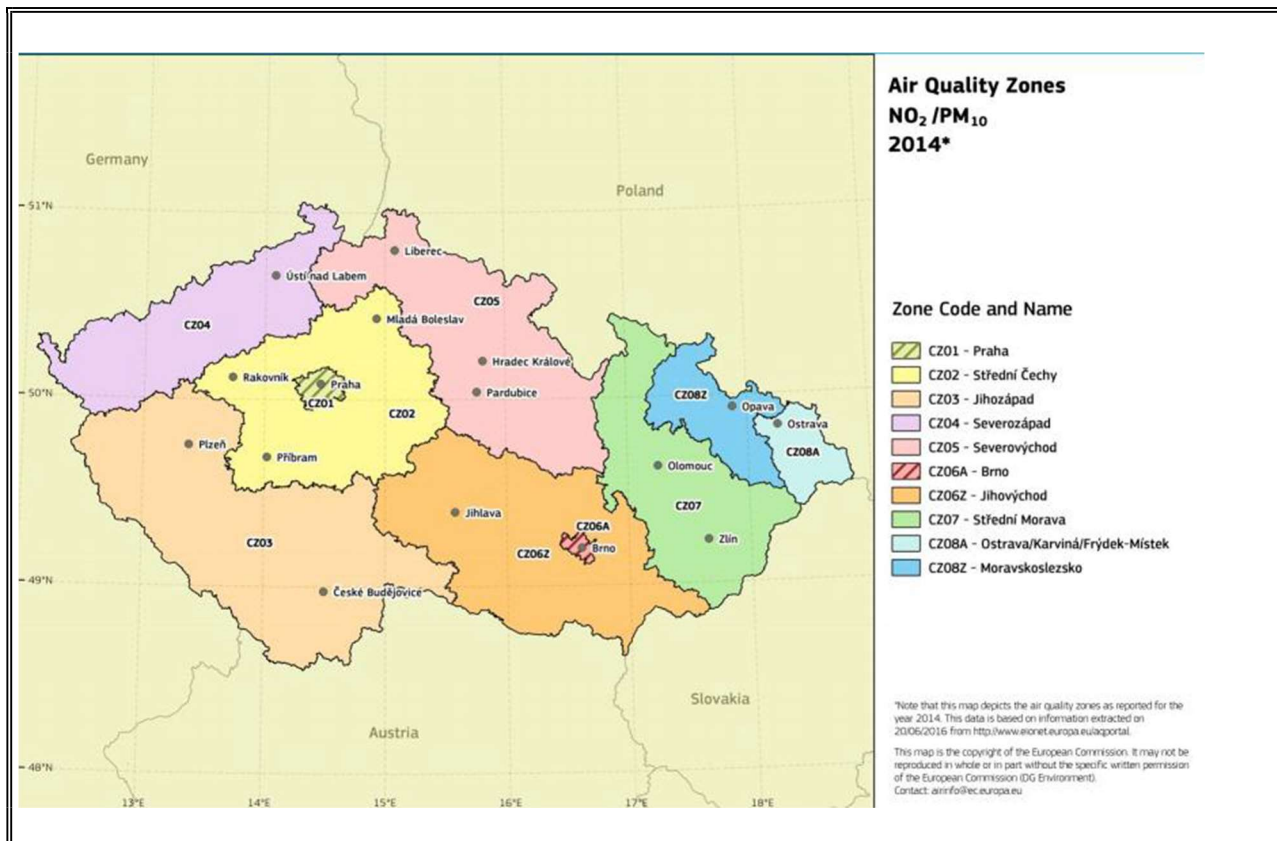


The territories of the 8 self-governing regions are defined by the black line. The AQMAs are labelled in pink colour.

Map 2: AQMA and risk areas (in orange and red) declared in 2021



Map 3: Air Quality zones and agglomerations in Czech Republic (data valid in 2019)



All maps must be provided in an A4 or A3 format

DESCRIPTION OF THE STRATEGY FOR THE IMPLEMENTATION OF THE OVERALL PLAN

Short term (at least first 2.5 years):

Within the project, Air Quality Managers shall gain necessary competences, skills and know-how in order to help regional and local authorities with managing air quality issues; reporting and monitoring air quality at regional and local level, promoting air quality measures and raising the awareness in the field of air protection and air quality. The Air Quality-Managers will cooperate with the Air Quality Coordination Unit, which will (in cooperation with respective national authorities, in particular with the MoE SR) provide for methodological guidance and tools to support and coordinate the work of Air Quality Managers. The AQ Coordination Unit will also be responsible for the centralized monitoring of the progress in implementation of AQMPs.

Long term (beyond 2.5 years):

Due to the scope of air protection measures in Slovakia, their implementation will exceed the time frame of 2.5 years. The continuation of measures initiated in the short term period will smoothly transform into long term perspective, as assumed in the AQMPs. However, the long-term measures will have to be periodically re-adjusted to reflect the changing conditions and the air quality. The AQMP updates will be coming every three years, but due to the new strategy under the preparation, some of them have not been updated in due time. This LIFE IP will also help to address the situation.

The strategy will also have to reflect expected new legal and/or financial tools, which will be enacted in the future. The scope of necessary legal changes, which should be introduced on the central level, will be provided by the MoE SR (air protection department). These changes are supposed to enable taking more effective air protection measures.

EU ADDED VALUE OF THE PROJECT AND ITS ACTIONS

Extent and quality of the contribution to the objectives of LIFE

The LIFE IP aims to contribute to the objectives of Air Quality Management plans and obligations imposed by Directive 2008/50/EC. The measurable results of specific project actions are set to provide direct connection with the Directive obligations and goals. This contribution will materialize by aiming at the elimination of important barriers for effective implementation of AQMP. There are three specific barriers:

1. Insufficient capacities and missing know-how in the selected municipalities that are obliged to implement the AQMP,
2. Lacking co-ordination between regional and local authorities and missing incentives to build cooperation between various authorities,
3. Limited awareness of air quality problem among regional and municipal policy makers, citizens in the selected municipalities and the general public.

The LIFE IP will tap the knowledge and best-practice experience from some selected projects (listed above). This knowledge transfer will support the decision-making processes and growth of know-how by the regional and local authorities.

Extent and quality of the mobilisation of other funds

The project will support effective mobilization of EU and domestic funds for air quality improvement (i.e. elimination of obsolete boilers, energy efficiency improvement, renewable energy sources and sustainable transport). Indicative allocations for actions related to air quality improvement amount to 1,280 million Euro until 2020³¹. These include:

1. Replacement of obsolete solid fuel boilers in households – MA for OP QE is in the process of preparing call for proposals. Pursuant to the indicative schedule, the announcement of this call is planned in late 2021 in the amount of 30 mil. EUR from CF. With the average amount of support and taking into account the expected expenditure on administration of such support, approximately 8,500 boilers in households will be replaced.
2. Replacement of old boilers in public building – MA for OP QE announced call No. 45 in October 2018 within the OP QE aimed at replacing outdated boilers in public buildings with low emission boilers (with the exception of RES). This call is launched in the form of an open call with the allocation 30 mil. EUR and therefore, if the call is not closed by the date of implementation of the LIFE IP project, it will be possible to implement this project complementary to that open call.
3. Support for the use of RES (national project Green for Households): the Slovak innovative and energy agency announced OP QE in December 2018 call for national project providing support to households for the installation of photovoltaic panels, wind turbines, solar collectors and heat pumps in family and residential buildings. The national project is contracted at 48 mil. EUR and vouchers for households are currently being issued (estimated 21,000 households in total). The project is planned to be implemented until December 2023 and therefore it is possible to identify the complementarity between the project and the LIFE IP project.
4. Improvement of energy efficiency including the increase of renewable energy sources use in enterprises: Under OP QE, the Slovak innovative and energy agency announced in September 2017 call for proposals No. 30 with the allocation of EU 40 mil. EUR. Applicants submitted projects in the sum of EU contribution over 40 mil. EUR, so the call was closed. In December 2018 call for proposals no. 46 had been announced with the allocation of 50 mil. EUR and

³¹ These were the latest data available at the time of the submission of the revised proposal.

applicants submitted projects in the sum over EU contribution 50 mil. EUR so far which are in the process of assessment or implementation.

5. Renovation of public buildings (including insulations and modernization of heating system, district heating: Under OP QE, the Slovak innovative and energy agency announced in December 2018 call for proposals No. 48 with the allocation of EU 50 mil. EUR. Applicants submitted projects in the sum of EU contribution over 50 mil. EUR, so the call was closed at the end of June 2019.
6. Under the specific IROP objective 4.1 Increasing the energy efficiency of multi-dwelling buildings, a financing agreement was concluded on 28 May 2015, and entered into force on 30 September 2015. Increasing the Energy Efficiency of Apartment Buildings totalling 223 mil. EUR. As a result of the IROP support under the specific objective 4.1 measures, the energy intensity of residential buildings will be reduced. According to the current state of implementation of financial instruments under the specific objective 4.1. the selection of a financial intermediary for the energy efficiency of residential buildings was completed in November 2018.
7. Urban transport improvement (traffic fluency, replacement of old buses, parking facilities, cycling roads etc.), under IROP, EU funds totalling 215.5 mil. EUR, granted 90.9 mil. EUR, to be requested 32.9 mil. EUR.
8. Green infrastructure measures, under IROP EU funds totalling almost 65 mil. EUR, granted 25.6 mil. EUR, to be requested 13.3 mil. EUR
9. Modernisation of public transport means and infrastructure, under OP II, amount of funding more than 219 mil. EUR, granted 77.89 mil. EUR (EU resources), to be granted 86.35 mil. EUR, calls to be launched by the end of 2021.
10. Modernisation and electrification of railways under OP II, amount of funding more than 57 mil. EUR, granted 1.9 mil. EUR (EU resources) call launched in October 2020.

There are following activities of IROP in the transport sector contributing to the improvement of air quality identified in two areas:

1. Public passenger transport, particular traffic fluency, replacement of old buses, parking facilities, transfer terminals, etc.
2. Bicycle transport, particular cycling roads, bike sharing, etc.

There is also Rural Development Program under Ministry of Agriculture, but currently there are no relevant calls and actions related to agriculture concerning air quality in this programming period 2014 - 2020. For the next period, the proposed Task Force will look for possible new synergies and propose new ones to be included in calls and actions of the new programming period, not only in IROP, but also in Rural Development Program. Our Ministry of Environment is preparing a Code of Good Practice for farmers, which will help farmers to reduce NH₃ emissions to reach desired NH₃ reduction for 2030.

Other available funds for mobilization include state-aid scheme aimed at the protection of environment in energy sector state budget subsidy scheme aimed at the reduction of GHG and air polluting emission, improvement of energy efficiency, use of RES, modernization of district heating systems, introduction of BAT etc. (allocation 100 mil. EUR).

During the lifetime of LIFE IP, assigned project managers, working directly under MoE SR and funded from this grant, will work on searching for relevant calls and synergies with other European funds, such as CEF or EFSI. Preparation of Sustainable Mobility Plans (SMPs) is done on municipal level and directly funded from IROP. Guidance for SMP preparation is developed by Ministry of Transport.

In order to effectively coordinate the project efforts with other ministries, the additional institute of the "Task Force" will be set up and included into the overall project management structure. The aim of this Task Force will be to establish close cooperation among all the relevant ministries managing complementary funds described in Form FP. We foresee that one representative from the relevant ministries will be appointed and act as the main contact point in the context of the Task Force.

The Project Coordinator will contact the Task Force members regularly in order to link to, create synergies, support and augment the activities they provide. The goal is to map the complementary funding provided as well as to avoid duplicating topics and filling the gaps.

Task force will work in parallel and following to the working group on synergies and complementarities established and managed by the Central Coordination Body (Ministry of Investments, Regional Development and Informatization of the Slovak Republic) which represents an active cooperation of Managing Authorities and other Authorities responsible for EU and Slovak financial instruments in the process of identification of synergies in drafted call for proposals. Each call for proposal under any OP is consulted and assessed at the preparation stage against synergies defined in the methodological document, which includes all synergies among the OPs defined at the beginning of the programming period 2014-2020.

Quality of multi-purpose mechanism, synergies and integration

The Life IP will allow integration of various policies on the local level that for the time being are not integrated. Integration of these strategies will allow simultaneous and effective realization of the objectives of the EU policies in the following fields:

- ✓ Reduction of GHG emissions (part of EC climate policy actions),
- ✓ Improvement of air quality (reaching air quality requirements set out in the EU air quality directives e.g., Directive 2008/50/EC on ambient air quality and cleaner air for Europe),
- ✓ Promotion of energy efficiency (Directive 2012/27/EU on energy efficiency),
- ✓ Renewable energy sources.

Thanks to the Air Quality Coordination Unit and training of Air Quality Managers, the local authorities will have full understanding of the multi-purpose delivery mechanism (this will help them to reach several objectives at the same time). The Air Quality Coordination Unit will also provide knowledge of other benefits ensuing from these strategies health benefits, stimulation of green growth and jobs, etc.

Replicability and transferability

The project's best practices (Air Quality Managers, awareness raising campaigns and training material) generated during the project for selected municipalities have significant potential for replicability and transferability to other municipalities in Slovakia and other regions (not only in Slovakia but also in Czech Republic especially, partly also in Poland, where it can complement the effects from the Malopolska project, and potentially also in Hungary and other East European countries). The project will result in ready-to-use guidance for other municipalities and regions. Therefore, detailed procedures for operation of Air Quality Managers in municipalities and regions have to be carved and practically implemented. These should include also recruitment, training, supervision, and evaluation procedures. Also, any experience and design of financial instruments for air quality improvement will be transferred. These can relate to programming principles, operational and funding principles, and detailed rules for provision of financing.

It can be expected that Air Quality Managers will be employed in other municipalities (such resources are necessary for meeting policy targets and legal obligations for air quality improvement). The coordinating and associated beneficiaries will share the project experiences with environmental departments of other cities in Slovakia.

Transnational, green procurement, uptake of research results:

The Life IP makes use of extensive uptake of results from other EU financed projects (both already financed and those that will emerge in the future). Some key identified projects are listed in the Section B1 and A7 above.

BEST PRACTICE / INNOVATION / DEMONSTRATION CHARACTER OF THE PROJECT**BEST PRACTICE:**

The Life IP project addresses multiple well-specified barriers that prohibit (among others) effective implementation of funding for air quality improvement measures, low public awareness of the air pollution problem and possible solutions to these problems. The project strategy is comprehensive: it tries to simultaneously eliminate several barriers to the same problem and by radically increasing the chances for more effective implementation of the air quality plan it constitutes a best practice approach.

Establishment of the Air Quality-Managers system (action C1.1 and C1.2) on the regional level promotes best available practices, as a lack of sufficient human and institutional capacities and know-how in regional offices and municipalities constitutes one of the key barriers for effective implementation of AQMP in these municipalities.

More specifically, the regional and municipal public authorities lack well-trained and qualified human resources. They also lack financial instruments and awareness raising tools to support air quality improvement measures. This problem is particularly visible in selected municipalities, where air quality is an important issue, but the local authorities were not equipped in any special way to fight with this problem. The regions and the municipalities should be at the forefront of the problem of tackling local air pollution, therefore developing a proper human resource base is of key importance for effective implementation of the AQMPs.

Shaping the regional air quality improvement measures is among the tasks of the Air Quality Managers. They should serve as the integrators of a number of strategic documents in the area of energy management and air protection and also foster decisive political steps at the regional and municipal level aimed at air quality improvement. The strategies will be especially focusing on smoke control areas and searching for the transport solutions. This will allow exploiting different synergies between energy management and air protection.

Systematic approach towards strategizing and planning therefore constitutes a best practice element. This approach calls for combination of sufficient human resource (Air Quality Managers) and financial capacities (complementary actions) to create the basic for implementation of integrated strategy in the real-life.

Furthermore, the establishment of an "Air Quality Coordination Unit" should be perceived as a best practice. The AQ Coordination Unit will also be responsible for the centralized monitoring of the progress in implementation of AQMPs. To enable exploiting different synergies between respective air quality improvement measures (e.g., heat source replacement / energy efficiency improvement / small renewable energy sources), it is needed to focus all the necessary knowledge resources in one hub – the Air Quality Coordination Unit. The Unit will also help to relay communication between regional authorities (responsible for air quality improvement and the air quality plan) and municipalities (which are obliged to implement respective measures specified in the air quality plan). The communication so far was limited, due to a lack of such a coordinating institute, which would provide municipalities with continued access to comprehensive know-how on air quality improvement measures.

Another best practice employed in the project is that it will activate and integrate a wide range of stakeholders. These will include (but are not limited to) decision makers of all levels, officials, opinion leaders (doctors, teachers, coaches, etc.), civil society (e.g. NGOs), universities and other higher education institutions, environmental inspectorates, funding institutions, industry associations, resource operators, etc. It is important to provide space for any crucial group or institution that can have impact on any aspect of air quality improvement measures.

These stakeholders will serve as a leverage for the actions taken and will make them sufficiently comprehensive. Detailed information on how each group of stakeholders is addressed in the project is available in the section on stakeholders.

The framework will also provide homogenous basis for development of air quality plans within the selected AQMA. It should be noted, that the LIFE IP will constitute a special opportunity for bringing together authorities that are responsible for air protection and implementation of the CAFE Directive in the selected AQMA. Providing such a basis is crucial, because only extensive communication will help to make informed decisions by the policymakers.

DEMONSTRATION:

One of the goals of this LIFE IP is to develop a comprehensive system that will remove local and regional barriers to effective implementation of the AQMPs in Slovakia. Its goal is to target capacity building needs by constituting Air Quality Managers, to improve public awareness by educational activities and involvement of a number of important stakeholders. LIFE IP includes a list of complementary measures, which target the financial barriers. Project actions will allow for mobilising substantial funds from these complimentary measures for air quality improvement in the region. The system developed under the LIFE IP, if proven successful in reaching air quality improvement objectives, will be promoted also in the Czech Republic. In this sense the project comprises demonstration elements.

PILOT (INNOVATION):

The key objective of this activity is to provide incentives to selected cities in AQMAs, where the main air quality problems are caused by traffic to provide for the elaboration of feasibility studies aimed at transport solutions to improve air quality, such as introduction of low-emission zones or introducing charged entrance to the cities etc. The results of these studies should be incorporated into the Sustainable Mobility Plans. Experience from other LIFE projects will be used and built on. The activity will be carried out by selected municipalities (cities) in cooperation with an expert consortium, including Air Quality Coordination Unit, MoE SR and relevant experts in the area of transport (university) and air pollution.

Regarding the introduction of low emission zones, the project will also aim at sharing knowledge with CZ since some cities in CZ are already considering introduction of LEZ (Low Emission Zones) and have already prepared a feasibility study. This experience exchange may be valuable since the situation/structure of many CZ and SK cities is similar.

EFFORTS FOR REDUCING THE PROJECT'S "CARBON FOOTPRINT"

The activities provided for in the project are not carbon-intensive, as they focus on institutional capacity building in terms of staff, air quality modelling and awareness raising. However, the following efforts will be taken to reduce the carbon footprint of the activities envisaged in the project:

- ✓ Electronic means of communication will be used in all cases where direct meetings are not explicitly necessary to reduce the need of travel,
- ✓ Participants of meetings, workshops, conferences will be encouraged to use climate friendly means of transport. If cars are used, car-pooling among stakeholders will be promoted,
- ✓ Printing is limited to the necessary minimum. However, given that activities within the awareness raising campaign will require printed materials, recycled paper will be chosen for this purpose,
- ✓ In case of need to conduct the public procurement, the EU green public procurement criteria will be followed.

STAKEHOLDERS INVOLVED IN THE PROJECT

Project partners:

Stakeholders can be divided into those that are involved as associated beneficiaries and those that will be involved in a different manner.

Coordinating beneficiary

The Ministry of Environment of the SR plays a key role in preparing and implementing national air quality legislation and provides guidance for preparation and implementation of the AQMPs. Ministry of Interior of the SR is a body responsible for the development of the AQMP and further for coordination of its implementation. MoE SR will also employ 4 Air Quality Managers.

Associated beneficiaries

Associated beneficiaries include 7 self-governing (NUTS) regions, from which almost all of them are included in the AQMA, which means that they have to implement extensive actions aimed at air quality improvement. Thanks to the LIFE IP and complementary measures (i.e. funds that will be mobilised due to the LIFE IP for air protection) the main regional and local barriers hindering effective AQMP implementation will be removed: Fifteen Air Quality Managers will be created at the Regional level. They will be trained and responsible for overseeing the shaping and implementing of the local air protection measures and mobilising external funds in this area, thus implementing the AQMP on the local level. Moreover, these authorities will receive significant know-how support from the Air Quality Coordination Unit. Capacity building at the local level addresses one of the main barriers hindering effective AQMP implementation.

The Slovak Environment Agency (SEA) is a professional organization of the Ministry of Environment SR with a national scope, focusing on the environmental care and landscape planning in accordance with the principles of sustainable development. SEA provides expert and supporting documentation for draft strategies, concepts, programmes and legal regulations for the Ministry of Environment SR. Moreover, it coordinates activities, holds conferences, seminars, trainings, exhibitions and other events, compiles plans and assesses their fulfilment, prepares or procures projects, standpoints, expert opinions, information and documents, provides environmental education activities and school programmes, provides professional supervision over application of environmental legal regulations and expert activities focused on fulfilment of commitments of the Slovak Republic resulting from international conventions, provides the Ministry with expert assistance in harmonisation of environmental legislation of the Slovak Republic with regulations and procedures of the European Union and cooperates with concerned expert institutions in the Slovak Republic and abroad. SEA will lead educational programmes and dissemination and awareness raising activities of the LIFE IP. SEA will also employ 4 Air Quality Managers.

The Slovak Hydrometeorological Institute (SHMI) is a specialized organization providing hydrological and meteorological services at the national and international level. The SHMI's activities include the following: monitoring of quantitative and qualitative parameters of the air and water in Slovak territory; collecting, verifying, interpreting and archiving data and information on the condition and regime of air and water; describing developments in the atmosphere and hydrosphere; and issuing forecasts, warnings and other information regarding the atmosphere and hydrosphere. All the aforementioned data, information and other research are made available to the public. In this LIFE IP, SHMI will be responsible for inventories, emissions reporting and air quality monitoring activities.

PEDAL Consulting is an innovation and management consulting company that focuses its activities in: (i) The provision of business and innovation support services to public authorities,

entrepreneurs, start-ups and SMEs (more than 100 clients) and (ii) The design, management and implementation of European innovation support and research projects, support actions and policy studies in various sectors, including Environment, Agriculture, BioEconomy, Energy (including bio-energy), etc. and their related vertical and horizontal business networks and value chains. Since 2010, the company has participated in more than 35 successful research and innovation projects and studies as well as support actions funded by the EC (FP7, H2020, Erasmus Plus, COSME etc.), in some cases as Project Coordinator or Work Package Leader responsible for the project management and dissemination activities. Considering its track record, PEDAL will support mainly MoE SR and SEA in executing the project management, dissemination and public awareness activities, respectively.

VSB - Technical University of Ostrava draws on 170 years of research and academic excellence to provide world class education in 7 Faculties offering Bachelor's, Master's, PhD, and exchange programmes to students from six continents. State of the art research facilities, cooperation with leading companies, and partnerships with universities and research institutions the world over provide excellent opportunities for student, teachers, and researchers alike.

Centre for sustainable alternatives, civic association (CEPTA) - CEPTA was established in 2005 as an association of people with a need to develop activities to protect the environment, nature, promote civic participation, a healthy lifestyle and sustainable alternatives to the current consumer lifestyle. Main activities and campaigns include (except others): development of waste prevention and creation of a sustainable economic environment for the separation, recycling and recovery of waste; air quality protection, soot removal from urban environment; elimination of negative impacts of intensive biofuel production; development of cultural and educational activities and leisure activities for young people with a focus on CEPTA priorities; promoting a sustainable economy in the back of nuclear energy.

Other stakeholders

Stakeholder	Original description stated in proposal	Additional LIFE-related description
Selected municipalities: Bratislava, Košice, Banská Bystrica, Jelšava, Hnúšťa, Tisovec, Krompachy, Prešov, Prievidza, Nováky, Trenčín, Trnava, Nitra, Ružomberok, Žilina.	They are covering all the AQMA for which the AQMPs were prepared. The cost of Air Quality Managers who will be operating in these municipalities will be covered from the project allocated to SEA. One Air Quality Manager at Regional Level will be covered from the budget allocated to MoE SR.	Municipalities will cooperate with Air Quality Manager, participating on AQMP preparation, approval, implementation and actualization
Ministry of Interior SR	Legal authority for the district offices in the seat of the region – state administration at regional level, responsible for the development of the AQMPs	AQMP publication, preparation and monitoring implementation
Ministry of Transport and Construction SR	Central state administrative authority for transport and construction, managing authority of the OP Integrated Infrastructure	They will be involved in potential transport solutions required for obtaining good air quality in cities. Approving authority for OP II and Housing Development State Fund (including Household Insulation programme)

Ministry of Agriculture and Rural Development SR	Central state administrative authority for agriculture and rural development, managing authority of the Rural Development Programme, Regional Operational Programme and Cross border programmes	Approving authority for aforementioned programmes (e.g., supporting Plans of Sustainable Mobility preparation)
Ministry of Health SR	Central state administrative authority	If available, providing data on citizens' health. Raising public awareness of air pollution impact on health
Ministry of Economy SR	Central state administrative authority in area of economy	
Slovak Environmental Inspectorate	State administration authority carrying out state surveillance and control of fulfilling the obligations of operators of air polluting sources	
Environmental Fund	Organisation established by law to provide state support for environmental protection, managing authority of this organisation is MoE SR.	Potential donor for various activities connected to air quality
Statistical Office of the Slovak Republic	Central body of state administration of the Slovak Republic for the branch of statistics, including surveys and data collection	Participating in the survey on heating modes and operations in households, and on air quality improvement
Universities (e.g., University of Zilina – expertise in the field of Transport, partner of the AIR TRITIA project implemented under the Interreg Central Europe Programme)		Possible cooperation on feasibility studies in the area of transport solutions in cities (e.g., LEZ)
Opinion-forming circles on regional and local levels	In order to raise public awareness of the air pollution problem, it is necessary to involve such groups as, teachers and local businessman. Activation of this group of stakeholders will be done mainly through action C2 that includes local information and education campaigns, regional campaign, experience sharing and project promotion.	Raise public awareness in the area air quality
Local, regional and national media	Due to the necessity to increase public awareness on air pollution and possible air protection measures. Their involvement in the project will also bring the benefit of rising journalists' awareness about the	Raise public awareness on air quality and current state of air quality of possible ways of funding in this area as well

	problem of air pollution, its causes, its effects, solutions	
Local, regional and national NGOs	Their involvement should translate directly to activation of local communities with respect to air quality improvement and increasing general public awareness of the air pollution problem in certain areas in Slovakia	NGO revising AQMP preparation, transparency, suggesting new politics and measures
Civic initiative "For the Clean Air"	They expressed interest to participate with the MoE SR, especially in the context of the preparation of the "Plan of the air quality measures in Bratislava". Since this document will be the first of its kind, the guidance and methodology will be tested with them.	
Wood Stove Builders Guild (http://www.cechkachliarov.sk/)		Preparing manual on correct household heating in wood stoves, training new owners, possibly sharing information and data with AQ managers
Construction Chamber of the Slovak Republic: (https://www.stavebnakomora.sk/?page_id=552)		Proposing new air quality improving measures in urban development (e.g., green buildings, green public spaces)
Slovak Chamber of Architects (https://www.komarch.sk/en/)		Proposing new air quality improving measures in urban development (e.g., green buildings, green public spaces)
Civic Organisation "cyklokoalicia" (https://cyklokoalicia.sk/)		Proposing bike-friendly solutions in city transport, cooperation with AQ manager in this matter
Slovak Public Health Association (https://eupha.org/savez-slovak-public-healthassociation)		If available, providing data on citizens' health. Raising public awareness of air pollution impact on health

<p>Slovak Green Building Council (http://skgbc.eu/portal/)</p>		<p>Proposing new air quality improving measures in urban development (e.g. green buildings, green public spaces)</p>
<p>Additional potential "Other stakeholder":</p> <p>Slovak Chamber of Chimney Sweeps (https://www.kks-sr.sk/)</p>		<p>Preparing manual on correct household heating, training new owners, possibly sharing information and data with AQ managers</p>

LIFE Integrated Projects 2018 – B6

EXPECTED CONSTRAINTS AND RISKS RELATED TO THE PROJECT IMPLEMENTATION AND MITIGATION STRATEGY

This section describes main identified risks that may have a negative impact on the implementation of the project in case no remedial measures are taken. More detailed information is presented in descriptions of respective activities.

Managing the LIFE IP will constitute a major challenge, due to the scale of the planned activities and a large number of partners and stakeholders involved in the project. This is why the Steering Committee will comprise of people with experience in implementation of projects with many partners and cooperation with regions and municipalities. Building on these experiences significantly increases the chances that the project is effectively and efficiently managed and that its objectives are fulfilled. Moreover, the project includes a number of communication solutions, fostering swift communication.

A number of risks are connected with the operation of the Air Quality-Managers system, i.e. one of the main measures under the IP. For each of these risks, however, preventive or remedial actions are specified. There is a risk that Air Quality Managers are not properly empowered within the municipal office structure or that people selected for this position are not properly qualified. There is also a possibility that Air Quality Managers will have low motivation and that their communication with stakeholders is ineffective. In order to prevent these situations, the Steering Committee will prepare guidelines on proper location of Air Quality Managers within the regional structures and will assess concrete proposals made in this respect by all municipalities. In periodic reports Air Quality Managers will have to provide information about effectiveness and results of their cooperation with municipal offices. The MoE SR will also prepare guidelines on necessary qualifications of Air Quality Managers. Any gaps in this respect will be filled by training organised by the Air Quality Coordination Unit. The MoE SR will be also responsible for formulating general guidelines and proposal for preventive/remedial actions regarding motivation of Air Quality Managers. It will also prepare guidelines on cooperation/communication with stakeholders and the Air Quality Coordination Unit will provide extensive support for Air Quality Managers on conducting local information and education campaigns. All aspects of Air Quality Managers work will be monitored through a system of periodic reporting to the Steering Committee, which will allow for assessing Air Quality Managers work, the outcomes of their activities and identifying problems.

As for local information and education campaigns, the main risk is associated with low activity of Air Quality Managers in terms of direct contact with residents and opinion-forming groups. In order to prevent this, Air Quality Managers will have to provide internal reports on the information measures taken. Moreover, their actions will be assessed in surveys filled by residents that use Air Quality Managers services. By the end of each year, a report assessing local education and information campaigns will be prepared.

During the first phase of the project implementation, unprecedented risk has emerged in a form of a global pandemic. COVID-19 pandemic and the measures taken to slow down the spread of the virus has affected the project implementation process. Some activities have been implemented with a slight delayed and others were postponed. Where it was possible, the activities took place on online platforms.

The following table presents some other (initially) identified critical implementation risks and related contingency plans.

Description of risk	Probability	Probability (P) / Impact & Proposed mitigation measures
Difficulties in attracting relevant	Medium	The partners of the consortium are already cooperating with a large number of regional and local stakeholders within their

stakeholders		regions and are part of several networks and clusters. The existing network of contacts will be solidly enriched and widened through implementation activities.
Little or lack of cooperation among participant regions	Medium	The approach of the project with the direct participation of the regions will help identifying potential synergies among them. The coordination between Air Quality Managers and the Air Quality Coordinating Unit will enable the exchange of experiences and mutual support.
Dissemination and Communications is insufficient	Low	Dissemination leader has an extensive experience in leading these activities. SEA will be supported by a pool of expert organisations in communication. A solid strategy for D&C will be delivered within Action E.
Partner leaving the consortium	Medium	The consortium is highly qualified and would assume tasks from a partner leaving the project. Otherwise the partners would find within their large networks the best organisation for assuming the role lost.
Quality, scope and delay of partners work	Medium	A compulsory Work plan is established with operative plan to be prepared by Activity leaders to avoid low quality, loss of direction or too overload actions. In case this is detected, Coordinating Beneficiary will enter in contact with the Activity leader to revise.
Poor communication flow between partners	Medium	An open and dialectic approach will be applied in all the consortium meetings and correspondence and communication will be promoted and ensured by the well-experienced project coordinator, supported by PEDAL.
Problems between partners (internal disagreement, IPR...)	Medium	The project handbook will include all the procedures already accepted in the Consortium Agreement. A democratic and dialectic approach will be applied in all the consortium meetings and correspondence. IPR issues will be discussed and established within a common CA.
Lack of financial resources	Medium	Solvency of project partners has been assessed, ensuring their financial resources during the project execution. Most of the partners have already participated in national or EU projects, having a wide experience and history, which reduces this risk.
Error in the estimation of the tasks duration	Low	Steering of the project will be frequent. Milestones and deliverables have been placed for control. Under delays detection PC will encourage a review of task procedure and partners to place extra effort.
Municipalities will not act in accordance with the appropriate air quality measures	Low	At this point in time, a new Air Act is being formed and planned to be proposed to our government in 2021/2022. This new Act, in case of its approval, will add competences to both self-governing regions and municipalities to oblige to draw up plans of measures that include both long-term and short-term measures to improve air quality, if directed by DOSRs. These plans of measures intend to specify the measures identified in the Air Quality Management Plans. More information on this subject is available in C1.1
Long term capacity building within the public administrations is challenged due to frequent personnel fluctuations	Medium	The procedures that will be put in place throughout the whole life-cycle of the project (C1.1, C1.2, C2, C3, C4.1, C4.2, D, E) and backed up by the effective project management structure (F), will guarantee that more experts are simultaneously and continuously trained within the organisations concerned. This will significantly reduce the risk related to the loss of capacities and relevant skills. It is expected that the Air Quality Managers positions and the operation of the Coordination Unit will be active even after the end of the project.

Complementary measures

Lack of obligatory emission standards for household appliances and lack of legal possibility to introduce smoke control areas in Slovakia may hinder successful implementation of key tasks envisaged in AQMP i.e. replacement of inefficient solid fuel boilers in houses and mitigation of road traffic. The replacement is voluntary and therefore there is significant risk that inhabitants will not be willing to replace boilers in their houses (even in the presence of subsidies for households). Currently public awareness raising campaign is the only tool available to mitigate this risk (before Slovak legislation is amended to allow the mandatory establishment of smoke control areas).

Lack of coal standards and low enforcement mechanisms. This risk will be mitigated only partially i.e. by controlling fuel use in those households that benefited from subsidy schemes.

Low enforcement mechanisms of illegal burning of garbage in solid fuel boilers. This risk will be addressed through development of the model enforcement mechanism in cooperation with municipal authorities, police, environmental inspectorate and city police.

**CONTINUATION / VALORISATION AND LONG TERM SUSTAINIBILITY
AFTER THE END OF THE PROJECT**

- How will you ensure the long term implementation of the plan and beyond?

Regional authorities (DOSR) are obliged by law to prepare an air quality plan for zones where limit and target values for respective air pollutants are exceeded. Pursuant to Slovak legislation, these plans have to be updated once every three years until binding air quality standards are achieved. This should help ensuring the choice of proper air protection measures. Moreover, air quality plans constitute acts of local law, which means that they are universally binding within areas that they refer to. Due to this, regions are obliged to implement concrete measures specified in the AQMP. If necessary, municipalities will develop local air quality plans. Therefore, Slovak legislation ensures that the plan targeted by the LIFE IP, i.e. the AQMP, will be implemented also after the end of the project, as long as air pollutant concentrations continue beyond the limit and target values.

The measures specified for implementation by regions and municipalities in the AQMP fall within the scope of competence of local governments (as defined in national legislation). Municipalities are responsible among other things for heat supply and local public transport, while mayors also manage local road systems. The Air Act also provides for control of how AQMPs are implemented.

Cooperation between key institutions responsible for implementation and financing of AQMP measures, common understanding of the long-term aim and the necessity of taking necessary action are essential for effective and efficient implementation of the AQMP. Implementation of the LIFE IP will allow for strengthening cooperation in the area of air protection between local and regional administration. Knowledge and competence potential will be developed, which will translate into better understanding of the problem between municipal staff, decision-makers and residents.

This whole set of legal tools and, even more importantly, cooperation on the local and regional level between key institutions and partners as well as development of the knowledge potential in regional administrative units guarantees that after the end of the LIFE IP, long term implementation of the AQMP is ensured and that it is effective and efficient.

Focus on reduction of greenhouse gases and protection of air quality will be subject of support also in the next programming period 2021 - 2027. Currently new proposal of general regulation for programming period 2021 – 2027 is in preparation.

- Which actions will have to be carried out or continued after the end of the project?

Action C1.1

The Air Quality Managers will provide direct assistance in implementation of municipal air protection tasks. Their employment will bring a number of benefits. Regions will have a coherent and integrated air protection and energy management strategy. The Air Quality Managers will help in ensuring and effectively managing external funds for investment or education measures in such areas as air protection, energy efficiency improvement and RES deployment. Air Quality Managers will be useful also for residents, providing expert assistance and help with finding suitable funding options. Investments carried out with the help of Air Quality Managers will improve the standard of buildings and reduce maintenance costs. Given all the benefits that municipalities and regions may derive from the work of Air Quality-Managers, it is assumed that their employment will continue after the end of the LIFE IP.

Cooperation between municipalities and regions and exchange of experiences from implementation of air protection measures, initiated under the LIFE IP, will be continued also after

the end of the project. Municipalities will be able to cooperate among other things under subsequent projects or investment measures.

Action C1.2

The Air Quality Coordination Unit will remain operational. Within the LIFE IP, the Coordination Unit will gain expert knowledge, develop contacts with experts, institutions and foreign partners and increase cooperation with regions and municipalities. Thanks to all this the Coordination Unit will continue playing a key role in supporting and integrating air protection measures taken in the region.

Action C2

Measures connected with education of residents with respect to air protection have to be systematic and will be continued within municipal measures and in schools also after the end of the project.

Action D

Structured distribution of small combustion sources, which will be created under this action will continue to be updated in order to enable efficient targeting of measures as well as the evaluation of their impacts in future.

Furthermore, monitoring of the implementation of the AQMPs and preparation of analyses for their updates will remain within the scope of responsibilities of the MoE SR. In addition to this, after the end of the LIFE IP, the AQMPs will serve as a basis for regular reports presenting progress in implementation of measures aimed at air protection, inventorying of air pollutant emissions. The aim is to identify areas where there is a threat of exceeding limit and target values for air pollutants as defined in the CAFE Directive.

- How will this be achieved? What resources will be necessary to carry out these actions and how will those capacities be ensured?

In order to ensure that the key project actions are continued after its implementation it is necessary to highlight the positive effects of these actions. This requires ensuring that the project is properly managed and that the persons involved in its implementation possess necessary skills and knowledge and are sufficiently motivated. It will be crucial that the positive results and impacts of the project are clearly communicated to the decision-makers and public opinion. This will contribute to proper assessment of the usefulness of continuing project measures after the project ends. Positive public reception of measures at the municipal and regional levels will be essential for continuation of project activities. Financing for the continuation of project measures will come from the Ministry of Environment, resources of regions and from external sources.

- Will the staff recruited/trained during the project continue to work on the implementation of the plan?

As the Air Quality Managers will be useful in implementing municipal tasks that result from the AQMPs as well as tasks related to energy planning, energy saving and RES deployment, a large part of them will continue their work (in a similar extent) after the end of the project. It is expected that at least 2/3 of them will continue working in municipal and regional offices, where the scope of tasks and challenges related to energy management will remain wide despite significant air quality improvement.

For example, the transport policy will likely remain a challenge. In this respect it will be especially useful to continue employment of staff that within the IP will gain know-how and experience in conducting analyses on the impact of traffic changes on air quality in the city.

- How, where and by whom will the equipment acquired be used after the end of the project? (if relevant)

Computers and office equipment purchased under the project will be used for implementation of local and regional government tasks connected with environmental protection after the end of the LIFE IP. Due to the fast pace of technological development, it is difficult to state how long this equipment will be useful.

- To what extent will the results and lessons of the project be actively disseminated after the end of the project to those persons and/or organisations that could best make use of them (please identify these persons/organisations)?

The most important recipients of the LIFE IP results are local and regional governments in Slovakia and Czech Republic but also other EU Member States. The problem of air pollution with particulate matter and benzo[a]pyrene occurs in the Czech Republic, Poland, Romania and Bulgaria. As the main source of air pollution remains the same (solid fuel burning), experiences gained in the project will be valuable for other areas. Project results at the end of the LIFE IP will be actively promoted by its beneficiaries. Effects of AQMP implementation achieved thanks to the LIFE IP will be promoted during joint meetings, projects and events. Municipalities, acting as other stakeholders in the project, also develop cooperation with other local governments within various associations and initiatives. This will constitute an opportunity for presenting air protection effects and experiences from project implementation.

Air Quality Coordination Unit in cooperation with the Department of Air Protection at the Ministry of the Environment will disseminate the best practices from the project to other regions and municipalities. This will be done through different workshops, conferences and meetings after the end of the project, organised either by the Ministry itself or by other relevant organisations. MoE SR plans to adjust competences and responsibilities of municipalities via amendment of Air Protection Act. The extended competences will allow the municipalities more flexibility in implementing measures to ensure improvement of air quality management based on the LIFE project results.

If proven useful, after the project the MoE SR will seek to continue the practice of supporting other municipalities to utilize AQ manager potential. Original AQ managers will be then considered also as trainers, supporting selection of new managers in involved areas and training them thereafter. To secure projects sustainability we will also introduce a voluntary personal re-assessment of AQ managers if they need one, so we can always account for their qualification and productivity during the project. Throughout the project, the key role of AQ manager will also be developing functioning network between governmental institutions and self-government. Expected network will generate confidence in system and support for any new municipalities interested in improving their own local air quality, also via measures proposed by either original, or newly hired and trained AQ manager. Municipalities will be addressed by each AQ manager during the project life-time in activities such as raising awareness, or local workshops. This information will also be available at to-be developed AQ portal, self-governing regions websites and AQ managers will provide a newsletter for addressed municipalities.

The project's website will be managed also after the end of the project. This will ensure that all interested parties will have continuous access to the knowledge base, reports, analyses presenting the project effects.



LIFE Integrated Projects 2018

Stage 2 – Full proposal

TECHNICAL APPLICATION FORMS

Part C – detailed technical description of the proposed actions

Important notes:

- All calculations and detailed cost breakdowns necessary to justify the cost of each action should be included in the financial forms F. In order to avoid repeating the financial information (with the risk of introducing incoherencies), Part C should only contain financial information not contained in the financial forms (e.g. details explaining how the cost of an action has been estimated).
- All forms in this section may be duplicated, so as to include all essential information.
- Each action described should have a clear indication of its physical target (e.g., action 1 will take place in area "X" and/or will target species "Y"). Whenever this is relevant, the location of these actions should also be identified on one or several maps which must be provided in annex.
- Any action that is sub-contracted should be just as clearly described as an action that will be directly carried out by the beneficiaries.

DETAILS OF PROPOSED ACTIONS

A. Preparatory actions (elaboration of management/action plans, obtaining licences and permits, trainings, etc.)

The following preparatory actions are foreseen during the implementation phase of the LIFE IP.

1. Development of a detailed concept of the system of the Air Quality Managers and the Air Quality Coordination Unit, which will define among other things responsibilities and necessary qualifications of Air Quality Managers, their desired position in the municipality, the scope of their tasks, the reporting and assessment scheme. A detailed description of the Air Quality Coordination Unit will contain its structure, operational rules, the functions it should fulfil and the services it should provide.
2. Production of a plan for the national and regional media campaign, defining the main messages to be communicated, the media to be used and the time of respective campaign rounds. The media plan will be prepared by SEA in cooperation with PEDAL and other project partners.
3. Elaboration of a plan for local education and information campaigns, specifying the means to be applied, the main stakeholders and target groups. The plan will be prepared by SEA, in cooperation with PEDAL and other associated beneficiaries.
4. The project handbook will be an internal document that will set the basis for the governance structure, the communication channels and methods, as well as the periodicity of the reporting to the Action Leaders, the Project Coordinator and the EC. It will also establish the conflict solving methods. This will be a living document that may change depending on the project needs during its whole lifecycle. Action F will contribute to the handbook by creating next contents: quality requirements for the project, organisational structure, general measures and actions taken, planning and control (including a contingency plan in case of deviation), conflict handling and IPR (according to the CA), risk management, files and archives. This document will be prepared by PEDAL in coordination with MoE SR.

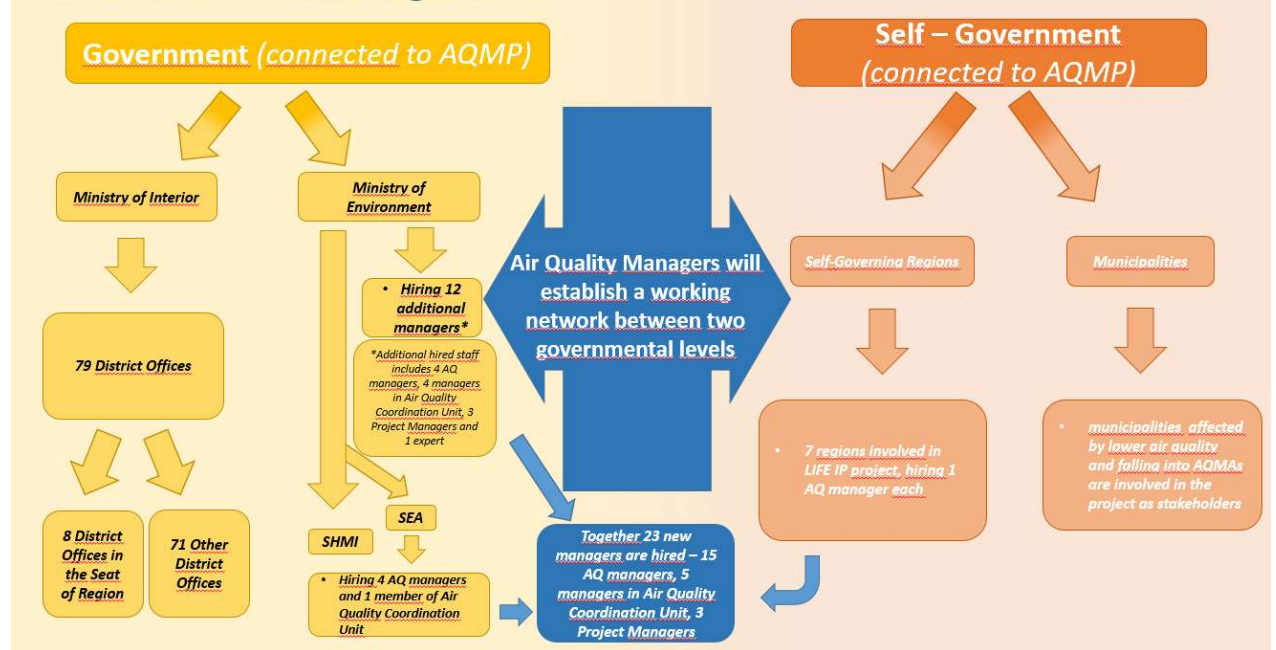
There are no permits necessary for the implementation of the project.

During the proposal-writing phase, MoE SR organized several meetings with the majority of Associated Beneficiaries. A dedicated meeting was organized with the representatives of all 8 Slovak Self-governing regions. Similarly, the MoE SR met with their counterparts from the Czech Republic in order to agree on the type and scope of their activities. These preparatory meetings constituted the first step in building a strong coalition for AQMP implementation.

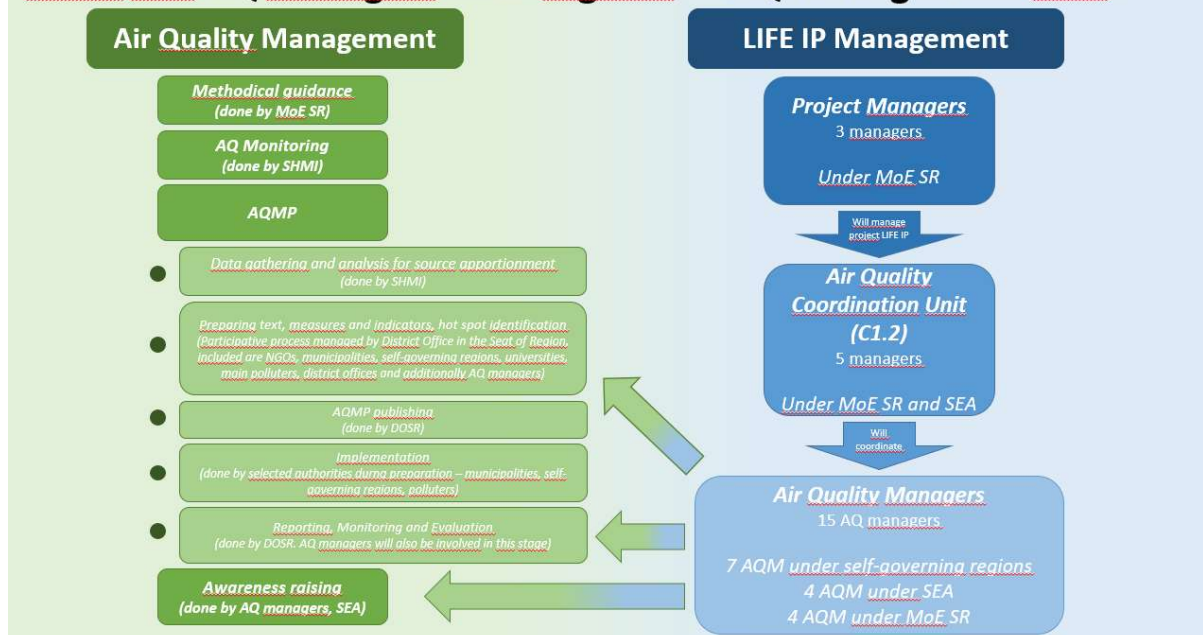
C. Concrete (conservation/implementation) actions

Action C1.1 Air Quality Managers
Beneficiary responsible for implementation:
The main responsibility is taken by the MoE SR. Involved: Banská Bystrica, Bratislava, Košice, Prešov, Slovak Environment Agency, Trnava, Trenčín, Žilina
Description (what, how, where and when):
<p><u>Action C1.1 Air Quality Managers</u></p> <p>The main objective of this activity is to support the performance of air quality management through specialized working positions of “Air Quality Managers” in self-governing regions and in selected municipalities located in the AQMAs. Within the project, Air Quality Managers shall gain necessary competences, skills and know-how in order to help regional and local authorities with managing air quality issues; reporting and monitoring air quality at regional and local level, promoting air quality measures and raising the awareness in field of air protection and air quality. The project will build on experience and good practice from the LIFE IP Malopolska (“Eco managers”) and other good examples.</p> <p>Air Quality Managers will be part of a team at respective municipalities/administrations which will, based on best practices, apply possible measures to improve air quality. They will be responsible, together with SHMI, for analysing source apportionment of air pollution allowing for better targeting and identification of measures. They will also assist by providing ideas and possible options for funding of measures and propose a schedule for individual steps of measure implementation. Through discussion within the team of all Air Quality Managers, they ensure that cross-cutting and cross-regional measures are properly considered, plans are more harmonised, and variation in quality is acceptable.</p> <p>7 AQ managers will be hired by 7 self-governing regions. 4 AQ managers hired by SEA and 4 AQ managers hired by MoE SR. All of them will share the same competencies and roles, creating stable network across governmental and self-governmental levels. This means that all of the AQ managers can be involved in revisions and improvement of existing AQMPs, as we expect that all of them will contribute to their implementation.</p> <p>Additionally, 1 Expert employed by the MoE SR will be working together with the SHMI on air quality modelling at regional and local level. These models will then be used in preparation of the AQMPs.</p>

Where do AQ managers fit in?



What will AQ managers do in regards of AQ Management Plan?



As shown in diagrams above, there are two authorities that ensure the functioning of state and public administration at the regional level: self-governing region and district office in the seat of region (DOSR).

If we focus on self-governing regions, their competences in AQMP preparation are on participative basis and relation to municipalities is limited at this point in time, as new Air Act is being formed and planned to be proposed to our government in 2021/2022. This new Air Act will add competences to both self-governing regions and municipalities to oblige to draw up plans of measures that include

both long-term and short-term measures to improve air quality, if directed by DOSRs. These plans of measures intend to specify the measures identified in the Air Quality Management Plans.

Currently, based on the competencies of Act No. 302/2001 Coll., self-governing regions will, in particular, address measures concerning:

- Territorial planning activities of the self-governing region
- Creation and protection of the environment
- Maintenance of minor highways and primary streets (II. and III. class roads)
- Cooperation with municipalities in the development of social and economic development programs

These competencies are already binding self-governing regions to improve environment, air quality included. The new Air Act will widen these competencies and responsibilities. At this stage, self-governing region has no legal power over municipalities to comply with AQMP, but both have to participate in AQMP preparation and implementation. This was recognised as a possible risk with low probability and a corresponding mitigation measure was added to the table in Form B6.

DOSR on the other hand is directly responsible for AQMP preparation, reporting and evaluation. This means they can order both municipalities and self-governing regions to comply.

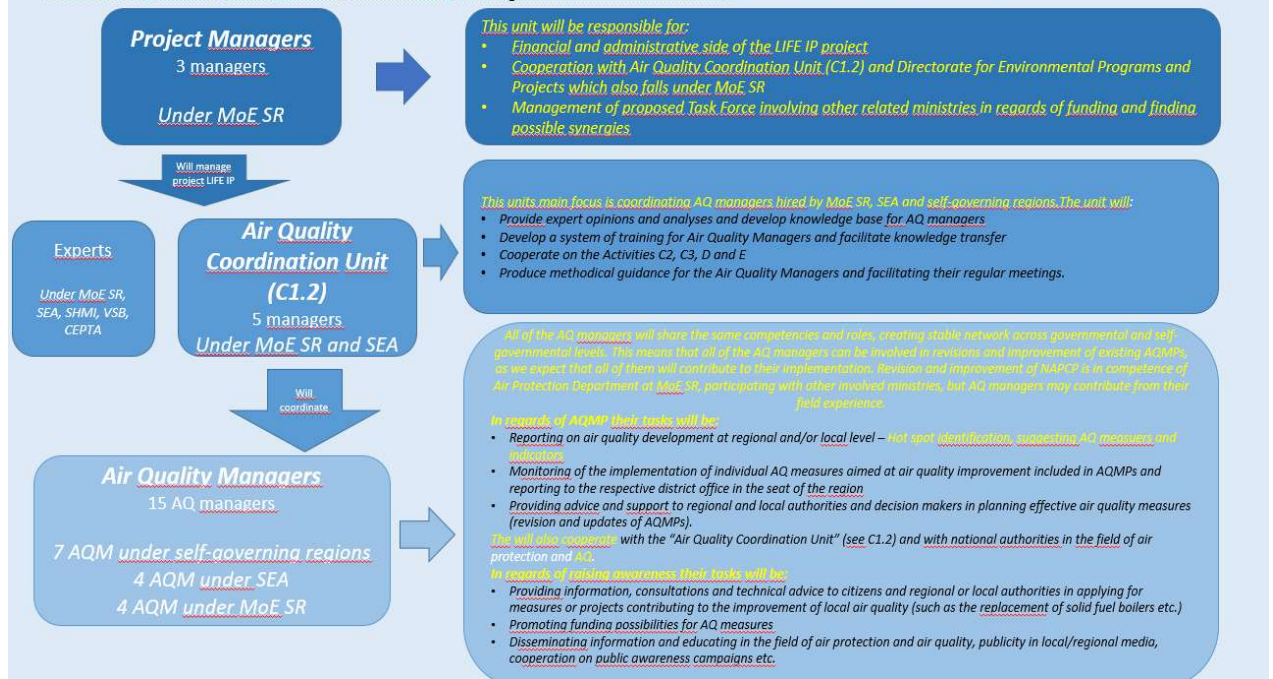
Also, to elaborate on already existing competencies of DOSR, they are as follows:

- Make information on air quality available to the public, annually publish information on air quality and contributions of individual sources to air pollution for its territorial area – (according to the Air act § 13 - 1)
- Declare and identify areas requiring special air protection (AQMA)
- Have responsibility for making Air Quality Management Plans (according to the Air act § 10). This means that DOSRs:
 - Draw up draft plans, consult with municipalities and other public bodies on measures and issue plans for implementation
 - Conduct a public consultation on the program proposal Evaluates the implementation of measures from the program
 - Review air quality programs every three years and update measures if necessary
- Draw up and publish action plans by a generally binding decree (according to the Air act § 11),
- Declare the initiation and termination of the application of the action plans and communicate electronically to the affected entities
- In the event of a risk of exceeding the alert threshold, limit value or target value, it may, in accordance with the action plan, limit or stop the operation of the air pollution source for the necessary time.

The competencies of the Air Quality Managers

The MoE SR, as the project coordinator, will develop a standard set of mandatory requirements and a set of recommended requirements to be followed by local authorities when employing Air Quality Managers. The criteria will include among other things specialist qualifications (education, expertise) as well as the minimum level of experience and additional skills (including soft skills) of potential candidates (taking into account the scope of responsibility assigned to the position). The requirements will be adjusted to the current situation on the labour market.

What will be the main responsibilities of LIFE IP team?



Recruitment of the Air Quality Managers

The recruitment process will be carried out independently by individual associated beneficiaries, taking into account the criteria specified at the regional level, some of which may have to be further detailed at the municipal level.

The candidates' qualifications and experience will be taken into consideration. They have to be sufficiently empowered to be able to develop integrated air protection strategies and take decisions concerning the implementation of low-carbon economy at the local level.

The roles and tasks of the Air Quality Managers

Main tasks of Air Quality Managers are:

- ✓ Reporting on air quality development at regional and/or local level
- ✓ Monitoring of the implementation of individual AQ measures aimed at air quality improvement included in AQMPs and reporting to the respective district office in the seat of the region
- ✓ Providing information, consultations and technical advice to citizens and regional or local authorities in applying for measures or projects contributing to the improvement of local air quality (such as the replacement of solid fuel boilers etc.)
- ✓ Promoting funding possibilities for AQ measures
- ✓ Disseminating information and educating in the field of air protection and air quality, publicity in local/regional media, co-operation on public awareness campaigns etc.
- ✓ Cooperation with the "Air Quality Coordination Unit" (see C1.2) and with national authorities in the field of air protection and air quality. The Air Quality Coordination Unit will be established directly under MoE SR.
- ✓ Providing advice and support to regional and local authorities and decision makers in planning effective air quality measures (revision and updates of AQMPs).

It is expected, that the project activity will help boost new perception of the importance of prioritizing the air quality management and the funding through the project will facilitate the creation of specialized working position. It will also help to integrate AQ objectives and improve synergies with other policies and plans related to sustainable mobility, energy efficiency, climate plans, noise and urban planning.

Cooperation with other entities

In order to carry out their tasks properly, the Air Quality Managers will have to cooperate with a number of entities at various levels. First of all, they will cooperate with local authorities and municipal officials from all organisational units, assisting the mayor/chairman of the city council/head of the local authority in pursuing an effective air quality improvement policy. Within the municipal framework, the Air Quality Managers will cooperate with members of local communities, entrepreneurs and opinion makers (local media, NGOs, local leaders (teachers, doctors)). The Air Quality Managers will also cooperate with project partners and other administrative bodies at the regional and national level.

Training system for the Air Quality Managers

The success of the project depends fundamentally on providing qualified human resources to deal with the development and implementation of integrated strategies for air protection at the municipal level. A system of professional support, training and knowledge transfer will be created as a part of the Air Quality Coordination Unit (C1.2), which will enable the achievement of the above-mentioned objective. It is equally important to act towards raising awareness and building relevant skills among key opinion leaders who can have a significant impact on the successful implementation of air protection strategies, which will be done under the action E and C2. For more information, related to the training system, please refer to Action C1.2.

Performance and motivation assessment

The Air Quality Managers will report on a quarterly basis to the Air Quality Coordination Unit, whose representatives will be equipped with appropriate software tools to monitor and evaluate their' performance (action C1.2.). Meetings and training sessions will be held regularly in order to ensure central coordination (at the regional level) of activities carried out by the Air Quality Managers.

Their performance will be also evaluated on the basis of the results of satisfaction surveys conducted among their "clients" (local residents), competency tests or by assigned supervisor. The Air Quality Managers are expected to participate in study visits organised in order to share good practices and experience on the implementation of air quality measures.

Ensuring continuity of action

Information and knowledge provided to the Air Quality Managers will be made available to the employees of other municipalities and to independent parties via the Air Quality Coordination Unit. A pool of potential employees with qualifications and knowledge corresponding to those of the Air Quality Managers will thus be monitored on the labour market, which will ensure continuity in cases of long-term absence of an employee (sickness, maternity/paternity leave) or in cases where a given employee is dismissed due to inadequate performance.

As Air Quality Managers should bring multiple benefits to municipalities (integrated, effective air quality improvement strategies, external funding for air protection measures, etc.), it is assumed that 2/3 of Air Quality Managers will continue working after the project completion.

Reasons why this action is necessary

One of the main barriers to effective implementation of the AQMP at the local level is the lack of human resources and organisational skills as well as insufficient knowledge and experience within municipal units. There are no specialists who could deal with comprehensive implementation of air quality protection tasks. As municipalities are responsible for implementation of measures specified in the AQMPs, this low human capacity translates into limited implementation of the AQMP. Moreover, at the municipal level, basic strategic documents have not been drawn up at all (low-carbon economy plan, low-stack emission abatement programmes, the guidelines for heat, gas fuels and electricity supply plans), or they are inconsistent with one another and fail to implement the air protection strategy set out in the AQMPs. Due to the fact that local authorities are not actively

involved in air protection, public awareness of the problem, one of the critical factors affecting successful implementation of all kinds of air quality initiatives, is limited.

Hiring an employee to handle tasks associated with the implementation of the AQMP will considerably increase the involvement of municipal bodies in this area. The Air Quality Managers will not only be responsible for recommendation of external financing for air protection projects, but also for encouraging local residents to use the available instruments enabling them to replace the old heating boilers or conduct thermal modernisation of a building.

The Air Quality Managers will help with shaping the local air protection policy (integrating different documents, such as low-carbon economy plan, low-stack emission abatement programmes, the guidelines for heat, gas fuels and electricity supply plans) and oversee its effective implementation in order to ensure the effectiveness and sustainability of the activities pursued.

Constraints and assumptions

There is a risk that Air Quality Managers will not be sufficiently empowered within the municipal structure to effectively pursue their tasks. The Air Quality Coordination Unit will prepare guidelines on the empowerment of the Air Quality Managers. The AQCUC will also evaluate municipal offices' proposals in this respect. The Air Quality Managers will report to the AQCUC on their cooperation with other organisational units of the municipality in periodic reports (every quarter).

There is a risk that the position of an Air Quality Manager is entrusted to an incompetent person. The AQCUC will prepare guidelines specifying basic competences of the Air Quality Managers. Once competence gaps are identified, they will be addressed by the trainings prepared by the AQCUC or by the external experts (focused on expertise as well as soft skills and other necessary trainings).

Project partners will have to monitor the progress of the Air Quality Managers' competency development and submit the findings to the SC. There is a risk that the objectives assigned to Air Quality Managers are unattainable. The AQCUC will formulate guidelines on how to define objectives, implement them and deal with encountered barriers. Strategic and operational objectives will be defined at regional level and progress in their implementation will be monitored and communicated to the SC.

There is a risk that cooperation and communication with stakeholders is ineffective. The Air Quality Coordination Unit will provide targeted training in this area. Guidelines on effective communication will be prepared. The Air Quality Managers will receive substantial support in developing local information campaigns. They will have to report on these issues in periodic reports.

Expected results:

- 1) 7 AQ managers will be hired by self-governing regions. 4 AQ managers hired by SEA and 4 AQ managers hired by MoE SR.
- 2) In targeted municipalities participating in the LIFE project (mostly AQMA), there will be stronger support (mostly by sharing information with the public about these options) for replacement of boilers compared to other municipalities.
- 3) Regions employing Air Quality Managers have sufficient capacities to effectively carry out the tasks envisaged in the AQMP.
- 4) All regions will be supported when planning and introducing an integrated system for air quality management and energy consumption planning.
- 5) By the end of the LIFE IP, local residents become more aware and more engaged in air protection and green behaviour the increase in the awareness level will be monitored by means of quantitative research.
- 6) Annual reports produced each year on the tasks and activities implemented by Air Quality Managers, including evaluation of their work and progress towards their objectives.
- 7) Implementation of the AQMP is assessed on an annual basis in a special report, outlining among other things the activities implemented by Air Quality Managers.

Cost estimation:

Personnel costs:

SEA	C1.1	Additional	4 x Air Quality Manager	915,090.00
MoE SR	C1.1	Additional	4 AQ managers hired to work on C1.1	1,148,160.00
Banská B.	C1.1	Additional	Air Quality Manager	174,934.00
Banská B.	C1.1	Permanent	Project Manager – Supervisor (part-time)	44,352.00
Trenčín	C1.1	Additional	Air Quality Manager	204,368.00
Trenčín	C1.1	Permanent	Project Manager - Supervisor (part-time)	51,092.00
Trnava	C1.1	Additional	Air Quality Manager	208,000.00
Trnava	C1.1	Permanent	Project Manager - Supervisor (part-time)	35,524.00
Žilina	C1.1	Additional	Air Quality Manager	157,696.00
Žilina	C1.1	Additional	Project Manager - Supervisor (part-time)	35,200.00
Prešov	C1.1	Additional	Air Quality Manager	211,500.00
Prešov	C1.1	Permanent	Project Manager - Supervisor (part-time)	54,144.00
Košice	C1.1	Additional	Air Quality Manager	177,541.00
Košice	C1.1	Permanent	Project Manager - Supervisor (part-time)	72,419.00
Bratislava	C1.1	Additional	Air Quality Manager	203,820.00
Bratislava	C1.1	Permanent	Project Manager - Supervisor (part-time)	50,880.00

Equipment:

SEA	C1.1	Laptop, mobile and office software for 4 Air Quality Managers	14,400.00
Banská B.	C1.1	Laptop, mobile	3,500.00
Trenčín	C1.1	Laptop and office software for the Air Quality Manager	5,400.00
Trnava	C1.1	Laptop, mobile and software	5,000.00
Žilina	C1.1	Laptop, mobile	6,528.00
Prešov	C1.1	Laptop, mobile	4,362.00
Košice	C1.1, E F	Laptop with accessories (headphones with micro, keyboard, mouse etc.) for LIFE IP team (AQM, supervisor) – 3x during the project duration	6,500.00

Bratislava	C1.1	Laptop and office software for the Air Quality Manager	1,500.00
External assistance costs			
SEA	C1.1	Budget for 4 quality managers for the organization of meetings	66,000.00
Other costs			
SEA	C1.1	Renting the office space for the 4 Air Quality Managers to be employed by SEA	60,000.00
Deliverable products			
<ol style="list-style-type: none"> 1) Guidelines specifying necessary education, qualifications and experience to be possessed by Air Quality Managers employed including the Terms of Reference and methodical instructions for the first year 29/2/2020. 2) Annual AQMP Report (individual review of measurements implemented) – by the end of January of the following year 			
Milestones			
<ol style="list-style-type: none"> 1) Development of draft employment criteria for Air Quality Managers (obligatory and recommended) by 29/2/2020 2) Employment of Air Quality Managers by 30/8/2020 at latest 3) AQMPs are published by the end of Q2 2022 and updated every three years with the help of Air Quality Managers until 2027 			

Action C1.2. Air Quality Coordination Unit

Beneficiary responsible for implementation

The main responsibility is taken by the MoE SR in cooperation with SEA

Description (what, how, where and when)

Another part of the activity will be the establishment of an "Air Quality Coordination Unit", which will (in cooperation with respective national authorities, in particular with the MoE SR) provide for methodological guidance and tools to support and coordinate the work of the Air Quality Managers. The Air Quality Coordination Unit will also be responsible for the centralized monitoring of the progress in implementation of AQMPs. The Air Quality Coordination Unit will be established directly under MoE SR and will closely cooperate with one representative from SEA which will be a part of AQCUC.

The main role of the Air Quality Coordination Unit is to support the implementation of the AQMPs by providing highly qualified human resources responsible for shaping local air quality improvement strategies and implementing air protection initiatives at the municipal level (the Air Quality Managers). The Air Quality Coordination Unit will also be involved in developing the competencies of other key entities dealing with air protection, i.e. regional and municipal authorities from the whole Slovakia, opinion-makers, etc. The Air Quality Coordination Unit will also support the process of updating the AQMP. It will carry out its duties in accordance with the annual work plans drawn up by the Coordinator, who will be a part of the Project's Steering Committee.

The Air Quality Coordination Unit will:

- ✓ Provide expert opinions and analyses and develop knowledge base
- ✓ Develop a system of training for Air Quality Managers and facilitate knowledge transfer
- ✓ Provide support and consultancy to municipalities.
- ✓ Cooperate on the Activities C2, C3, D and E
- ✓ Produce methodical guidance for the Air Quality Managers and facilitating their regular meetings

The coordination unit will be established under the Ministry of Environment of the Slovak Republic with a membership of one representative from SEA in order to secure a close cooperation on other activities in responsibility of SEA.

Expert opinions, analyses, knowledge base

Preparation of methodology and implementation of an effective Air Quality Management Plan at the regional and local level requires continued support in the form of analyses and expert assistance, as well as active experience sharing with domestic and international institutions involved in air protection. Such support will be necessary during all phases of the project. Experience sharing with international institutions will be ensured under action E, aimed at establishing a network for knowledge and experience sharing with other projects.

During the first two years of project implementation the following analyses and studies will be carried out:

1) An overview of experience gained by all project partners in the area of air protection. It will present the main lines of action and air protection strategies pursued by Slovakia, Czech Republic and Poland. Differences in legal frameworks and mechanisms for financing actions taken to improve air quality will be discussed.

2) Monitoring of compliance with regulations on the combustion of solid fuels in domestic and industrial boilers (e.g., in smoke control areas but also illegal burning of waste in domestic stoves and boilers, which is common in Slovakia). This area remains neglected and requires sufficient improvement. Development of a method for improving the monitoring system will involve analysing

institutional and legal frameworks, as well as procedures and technical options for carrying out the monitoring activities (e.g., taking and analysing dust samples from domestic furnaces, etc.). Extensive consultations will have to be held with representatives of local authorities, municipal guards, police forces, Slovak Environmental Inspectorate, chimney sweep guilds, etc.

3) Enhancing skills and competences of Air Quality Managers in the field of air quality. Trainings and guidance will be provided for Air Quality Managers as well as public administration employees aimed at improving the expertise, know-how, skills and competences in the field of air protection and air quality management.

This activity will also include specific trainings and workshops aimed at:

- ✓ Detailed requirements for elaboration of effective Air Quality Plans
- ✓ Analytical work on air quality & pollution development in municipalities, regions and districts
- ✓ Providing information on funding possibilities from national and EU funds (ESIF)
- ✓ Providing technical advice to citizens operating small air pollution sources (boilers and heating devices),
- ✓ Effective communication of the air quality importance towards citizens
- ✓ Sharing experience and good practice in the field of air quality management among experts, incl. experts from other countries,
- ✓ Trainings on performing inspections of domestic boilers and their operation

The framework and content of trainings will be provided at national level by the MoE SR in cooperation with the AQ Coordination Unit as well as other state level authorities (e.g. district offices in the seat of region, Slovak Environmental Inspectorate).

The training sessions and the materials will be available for all regions and municipalities, to ensure maximum support in their implementation of AQMP tasks. Training and advice will be provided on: pollution, monitoring and forecasting air quality; air quality and energy planning legislation; air protection and low-carbon growth strategies; energy efficiency of buildings; air protection financing; financial engineering and new financing model, conducting awareness-raising campaigns, communication with stakeholders, etc.

Reasons why this action is necessary

The main reason for establishing the Air Quality Coordination Unit is to provide a counselling and training base for the Air Quality Managers, which are a crucial success factor in the project. The Unit will ensure that high-quality knowledge is transferred to the Air Quality Managers and other target groups (decision makers, NGOs, opinion leaders).

Proper functioning of the system of the Air Quality Managers depends on the training and counselling base provided by the Air Quality Coordination Unit. Without this base it will not be possible to ensure an adequate supply of human resources required at the municipal level, which is one of the main barriers to effective AQMP implementation at local level.

Another reason for establishing the Air Quality Coordination Unit is to support the implementation of the AQMP at the regional level. Analyses and external studies need to be conducted in order to solve the problems (knowledge/information deficits) identified in the course of AQMP implementation.

It is also crucial that the neighbouring countries share their experiences and approaches in the area of air quality improvement, as the lessons learnt by one country can be usefully applied in other countries. To date, experience sharing in the neighbouring countries has been rather limited. The activities in this respect that are foreseen under the Air Quality Coordination Unit will be coordinated with the activities under action E.

Constraints and assumptions

The activities described above are subject to a relatively low risk. The risk of wrong adjustment of the training offer to the needs of the Air Quality Managers and decision-makers is low, as the Air Quality Coordination Unit and the interested parties will remain in regular contact. The Air Quality Managers and local administration will provide feedback to the Air Quality Coordination Unit on the services that they receive. The training programme will be adjusted to the current needs of the Air Quality Managers and other interested parties.

Expected results

- ✓ Entities dealing with air quality are more competent and qualified to perform their duties (the Air Quality Managers in particular), while good practices are transferred to the municipal level. In terms of quantity, 15 Air Quality Managers have in-depth knowledge of air protection issues.
- ✓ Experience sharing between the Air Quality Managers is enhanced by means of a forum.
- ✓ Consultancy services are provided in the area of energy management and air protection.
- ✓ The knowledge base is developed and made available to a number of other entities (not only to the Air Quality Managers) including mayors, municipal councillors, control bodies, etc.
- ✓ A website presenting all the materials is launched.
- ✓ AQMP updating process is more effective as it will rely on the results of additional analyses.
- ✓ Practical assistance to competent bodies in taking decisions on air quality improvement and energy planning is provided by the Air Quality Coordination Unit.
- ✓ Neighbouring countries are able to mutually benefit from others' experiences in air quality improvement.

Cost estimation

Personnel

MoE SR	C1.2	Additional	Communication Manager (1) - previously one of "3 managers for the coordination unit"	374,400.00
MoE SR	C1.2	Additional	Coordination Unit Leader (1) - previously as "action manager C1.2"	374,400.00
MoE SR	C1.2	Additional	Coordination Unit Senior (1) - previously one of "3 managers for the coordination unit"	328,640.00
MoE SR	C1.2	Additional	Coordination Unit Junior (1) - previously one of "3 managers for the coordination unit"	287,040.00

Deliverable products

- 1) Training materials and a manual for the Air Quality Managers – by 30/4/2020
- 2) A report analysing different scenarios for low-stack emission abatement and energy efficiency improvement in the selected regions by 2030, based on the results of survey carried out within the national project implemented by the Slovak Environment Agency – by 31/12/2021
- 3) A review of Slovak, Czech and Polish experiences in the implementation of air quality plans within the area covered by the project (published in electronic version only) – by 31/12/2021
- 4) A report analysing the possibilities for increasing the effectiveness of the control system over atmospheric pollutant emissions in Slovakia (published in electronic version only) – by 31/12/2021
- 5) Annual reports summarising the implementation of AQMP produced each year on the tasks and activities implemented by Air Quality Coordination Unit, including evaluation of their work

and progress towards their objectives by 31/1/2021 and in subsequent years by corresponding dates.

- 6) Indicators related to AQMs performance (to be defined each year based on actual situation and competences) - by the end of the year, yearly
- 7) Education and training plan for AQMs – end of January, yearly

Milestones related to C1.2

- 1) Establishment of Air Quality Coordination Unit by 31/3/2020
- 2) First training materials for the Air Quality Managers are prepared – by 30/4/2020
- 3) Trainings for Air Quality Managers begin – by 31/8/2020

Action C.2 Educational programmes and public information

Beneficiaries responsible for implementation:

Slovak Environment Agency, CEPTA, MoE SR, Slovak Hydrometeorological Institute, Banská Bystrica, Bratislava, Košice, Prešov, Trnava, Trenčín, Žilina

Description (what, how, where and when):

This activity will aim at preparation and implementation of educational programmes and information activities. The aim of the action is, on the one hand, to increase awareness of local officials and public of the air pollution problem, its causes and effects; and, on the other, to promote air quality initiatives, encourage public involvement and provide information on the support instruments offered.

Within the activity CEPTA will carry out monitoring activities of pollution caused by ultrafine particles, the results of which will be used for educational and information activities. The results (several analysis and studies, published at: <https://cepta.sk/projekty/aktualne-projekty/preovzdušiesk/>) of another project carried out by CEPTA – PreOvzdušieSK, will be used and further developed. Awareness raising activities will include presentation of measures focused on lowering the ultrafine particles from traffic and residential heating and the impact of air pollution on human health.

SEA activities:

1. Web-application on ambient air quality for the public information

Description:

- Information on announcement smog alerts, about cancellation smog alerts, reasons of announcement smog alerts, what is necessary to do in these cases, what measures were adopted for improving situations
- Information on current air quality assessed through the National Air Quality Index (NAQI)
- Information on daily exceedances of limit or target values for pollutants (data 1 – day) with short interpretation to public, what it means
- Historical air quality data about annual and daily exceedances of limit or target values with short interpretation to public, what it means
- Information on measures taken in the air quality management plans and evaluation of their state
- Information on impact of air pollution on human health and ecosystems and how to protect against deteriorating air quality
- Information on possibilities of ordinary citizens how to contribute to the improvement of air quality
- Options for financing measures (summary of calls, links to financial mechanisms sites)
- Information on important stationary and mobile air pollution sources

Reasons why this action is necessary:

- Support of the public interest in achieving good air quality,
- Engagement of the public in implementing air quality management and process of developing air quality management plans,
- Involving the public in the implementation of measures defined in the air quality management plans and in the control of implemented measures.

Milestones:

- 2020, content expansion, updates and service web application continuously during whole project period

Deliverable product/Outputs:

- Web application
- Mobile application expansion of web application www.dnesdycham.sk to mobile devices (partner responsible: MoE SR, in a cooperation with SEA)

- Slovak Air Quality Index - development of national air quality index for web application purposes, new ways of use and publicity will be explored, e.g., electronic signs and digital display boards (partners responsible: MoE SR, SEA, SHMI).

2. Education of representatives of self-governing authorities aimed at the implementation of air quality measures, exchange of experience and solutions

The aim is to educate decision makers at regional and local level and to explain the importance of air quality improvement in terms of public interest, in particular in relation to public health. Building awareness about the possible solutions based on positive experiences with their implementation in other air quality management areas or abroad. The activity will include workshops and exchange of experience within Slovakia and also of other (mainly neighbouring) countries.

Workshops on Air Quality for Representatives of Self-Governing Authorities

Description:

Workshops will be thematically focused on:

- The process of creating Air Quality Management Plans and the role of self-government
- Examples of good practice - implementing measures to improve air quality
- Interconnection between documents of local and regional planning and air quality management documents
- Municipal financial sources and other sources of funding for the implementation of measures to improve air quality

Reasons why this action is necessary:

- Emphasize the responsibility of local and regional policy makers for the creation and implementation of measures to achieve good air quality

Milestones: 2021/2024

- 3 x in 1 year (West, Middle and East of Slovakia, 1 workshop = participants from 6 AQMAs, up to 60 people), 2 x during project duration, i.e. a total of 6 workshops during the project duration

Expected results/ Outputs:

- 6x1 day workshop for mayors, their deputies, professional staff from self-governing authorities falling within the area of air quality management, specialists, number of participants max. 60/1 workshop

3. Education on the benefits of district heating for the improvement of local air quality

The aim is to promote the use of district heating as an effective measure to reduce emissions from household heating (clean energy), improvements in heat supply planning. The activity will include workshops, preparation and dissemination of information leaflets and study materials.

Workshops on the importance of central heat supply (CHS) in terms of improving air quality

Description:

Workshop, thematically focused on:

- CHS in the context of planning the supply of heat to the population in the municipality
- CHS - Effective action to reduce emissions to air and others
- Solution of co-operation between heat generators for district heating plants and municipalities.
- Modernization of CHS
- Deciding on self-government when authorizing local heating sources
- Information on the benefits of CHS for cleaner air in cities

Reasons why this action is necessary:

- Support the implementation of measures to reduce emissions from local heating

Milestones: 2022/2025

- 3 times in 1 year (West, Middle and East Slovakia, 1 workshop maximum 60 people), 2 times during the project duration

Expected results/ Outputs:

- 6x1 day workshop for mayors, their deputies, local self-government employers, community owners, housing co-operatives, number of participants max. 60

4. Education on proper heating techniques and recommendations for cleaner heating

The aim is to explain proper heating techniques and teach people to use them. Activities will be aimed at proper operation of boilers, preparation of fuel, explanation of negative impacts of air pollution, including the “indoor pollution” etc. (educational events, including demonstrations). The creation and dissemination of this educational program will likely be coordinated with partner from CZ (possibly also with PL) since improper local heating affects the air quality in both countries and is also believed to contribute to transboundary air pollution.

Workshops on actions to reduce emissions from domestic heating

Description:

Workshop, thematic focused on:

- Government efficiency awareness for cleaner air in the heating in households
- Permitting and controlling the operation of small sources of air pollution – households
- Measures to reduce emissions from solid fuel heating in households
- Subsidy schemes to support the reduction of emissions from domestic heating

Reasons why this action is necessary:

- Support the implementation of measures to reduce emissions from local heating

These workshops will be held in 2021, 2023, 2025 and 2027

Expected results/ Outputs:

- 4x1-day workshop for mayors, their deputies, local self-government employers, number of participants max. 150 / workshop

5. Education in the field of air protection

Description:

- 1.5-day seminar for state administration bodies - education in the field of air protection and quality.

Number of participants: max. 100/seminar

Reasons why this action is necessary:

- a seminar will take place in connection with the obligation to evaluate and update the Air Quality Management Plans, which should be updated every three years as necessary. The evaluation requires the necessary training and deepening of knowledge and experience.

The event will take place in 2024, alternatively in 2025.

Expected results:

- 1.5-day seminar for about 100 participants

6. Education in the field of sustainable mobility

The aim is to develop expert materials and educational programmes, to organize the trainings to prepare and implement Sustainable Mobility Plans and measures in connection with elements of green infrastructure, etc. The activity will include educational events, trainings, exchange of experience.

6.1 Methodological manual “Sustainable mobility”

Description: At the two-year intervals, a methodical thematic manual will be developed, its graphical processing, printing, and distribution to the participants of the planned events, publication of the electronic version on the web page www.populair.sk.

The methodical manual will focus on various guidelines, sketches and examples of good practice in the planning and implementation of measures to promote sustainable mobility, considering the possibility of interconnection with elements of green infrastructure.

Reasons why this action is necessary:

These methodological manuals will serve as supporting materials for education and public awareness in the theme of sustainable urban mobility.

The manuals will be developed in November 2020; November 2022, November 2024 and November 2026.

Expected results:

- Expert background for education and public awareness in the topic of sustainable mobility
- About 500 copies per year, i.e. 2,000 copies of this methodical manual during the whole 8 years of project duration
- Free access to an electronic version of this manual

6.2 Expert workshops “Sustainable Mobility – Guidelines, Ideas and Examples of Good Practice”

Description: Implementation of expert workshops focusing on the planning and implementation of measures for promoting the sustainable mobility in each Slovak self-governing regions with a focus on sustainable mobility, considering the possibility of interconnection with elements of green infrastructure. The workshop will be intended mainly for representatives of self-governing regions, municipalities, including deputies of municipalities and the professional public. Every year, 4 workshops will be held, 2 of them online on a specific topic. A total of 32 workshops will take place throughout the project period.

Reasons why this action is necessary:

The reason for including this activity in the context of the project is to involve politicians and representatives of each Slovak self-governing region, municipalities in addressing measures to improve air quality. Moreover, to introduce opportunities to prepare and implement strategic plans/measures to promote sustainable urban mobility, also to inform how to raise finance for their implementation, examples of good practice, etc.

Expected results:

- 4 workshops per year
- 25 participants per 1 seminar organized in person, 60 participants per 1 seminar organized online.

6.3 Study journey for examples of good practice in theme of sustainable mobility

Description: A realization of 2-3 days study journey for max. 25 persons. The aim of this activity will be the exchange of experience and examples of good practice on sustainable mobility in Slovakia or in selected EU countries. This study journey will be attended by selected representatives of Slovak

municipalities, especially those who were active in the national campaign European Mobility Week of previous years. Study journey will be planned by SEA in collaboration with the foreign local mobility subject. Participants will have a secure transport to the selected venue, accommodation and meals in part.

Reasons why this action is necessary:

These study journeys will aim to raise education and public awareness in the theme of sustainable mobility potentially in connection with green infrastructure elements and exchange of experience and examples of good practice on sustainable mobility.

Within the project duration (during 2020 – 2027), each year in the 2nd or 3rd quarter of the year, one study journey will take place in a selected EU country or in selected representative municipalities/regions in Slovakia (depending on the COVID-19 restrictions).

Expected results:

- Max. 25 participants of 1 study journey; i.e. 175 participants during 8 years of the project duration
- 7 study journeys implemented

6.4 Promotional material

Description: The purpose of this activity is to procure promotional items - metal pens, lined notebooks in A5 size and roll-ups in size W 100 x H 200 cm. Pens and notebooks will be distributed to the participants during workshops and study journey and will contain necessary project elements/logos. Roll-ups with necessary elements/logos will be updated regularly in its graphics and text parts every year and used for each activity (workshops/study journeys/school visits).

Reasons why this action is necessary:

The reason for this activity is to support the implementation of the activities within the theme of sustainable mobility.

Timing: regularly over the project duration (during 2020 – 2027)

Expected results:

- Metal pens: 1 year = 200 pcs pens with printed necessary project elements/logos; 8 years = 1,600 pcs
- Lined notebooks in A5 size: 1 year = 200 pcs notebooks with printed necessary project elements/logos; 8 years = 1,600 pcs
- Roll-ups: size W 100 x H 200 cm; 8 years = 24 pieces

6.5 Sustainable mobility - promotion in the media

Description: The purpose of this activity is to ensure production of spots and educational videos (once a year with a length of 1-3 minutes), promoting the theme and focusing on the educational activities and public awareness activities of this project on the sustainable mobility, as well as the possible purchase of space in media (electronic media – populair.sk, dnesdycham.sk, youtube, etc). During the 1st phase, project focused on production and promotion of spots through the TV and radio. However, this requires strong financial support with uncertain impact on target group. For the rest of the project duration, we decided to focus on less financial demanding solution – promotion within the online media with a stronger orientation on quality production – value for money.

Reasons why this action is necessary:

These video spots will promote education and public awareness in the theme of sustainable urban mobility in a potential link to green infrastructure elements.

Expected results:

- The output will be the promotion of topics focusing on sustainable mobility with a potential link to green infrastructure elements.

7. Educational and awareness activities and campaigns for teachers, students and school children

The aim is to create and to implement selected educational and training activities focused on teachers, students and school children.

7.1 Education programme

Description:

The aim of the Education programme will be to increase the interest of children, pupils and students in air quality of the environment around them. The programme will have a character of Citizen Science Project with next activities: Its main activity will be: (a) monitoring of the air quality by lichens (based on insole morphology of lichens study for illustration of long-term effects of air pollution on biota), (b) air quality measurement by (portable) equipment (in order to analyse the source of air pollution, the main pollutants presented in the air, what are the places with really good air, and where is air the worst), (c) study of meteorological factors affecting the air quality (to understand the factors influencing distribution of pollutants in space) d) sustainable mobility. As part of the program, the dnesdycham.sk web application will be expanded with content, providing information on air quality monitoring, and will be used to collect data from schools involved in monitoring. Manuals with the methodology for both the monitoring and the evaluation of the results collected will be prepared. Accompanying activities will be implemented. The presentation of the program will take place using methodological days and by different events for teachers, the environmental education coordinators of environmental training, and the University students. Information materials on the programme (worksheets, posters, leaflets, mapping methodology) will be developed and distributed to participating schools by post or during training days.

Target group: students of the primary schools, high schools, the universities, public

Reasons why this action is necessary:

Promoting a main target group of the project - teachers, pupils and students in terms of building their awareness of air quality, its links to biota and to the health of the population.

Timing 2023 – 2027

- Creating a space for information at www.dnesdycham.sk – where the data collected by individual schools involved in the programme will be presented, including other information related to air quality relevant for students and children
- monitoring equipment with sensors for pollutants and other relevant information, with trained staff (SEA and AQMs) in order to meet the needs of schools that are interested in this type of activity
- Training days for teachers - a maximum of 4 times a year for a period of 3 years - together 12 days
Training manual for teachers: lichens bio indicator – approx. 3,000 pcs
Training manual for teachers Air quality monitoring by mobile equipment - approx. 3,000 pcs
Worksheets for pupils and students - approx. 5,000 pcs
Information leaflet - approx. 10,000 pcs
Identification keys with methodology: lichens bio indicator - approx. 10,000 pcs
Identification keys with methodology: meteorological factors - approx. 10,000 pcs
Matching game - approx. 5,000 pcs
Information posters - approx. 3,000 pcs
Final programme report (preferably online version)
Gift items: e. g., 3,000 paper notebooks with pens, 1,200 pcs of magnifying glass, 3,000 T-shirts with project logo prints,

Prizes for participating schools (for 3 years): e.g., green vertical wall, excursion for 40 pupils, air purifier.

7.2 ŠIŠKA environmental education festival

Description:

The mission of the Festival is to bring new ideas, knowledge, information from the field of environmental education. It provides space for active exchange of experience and opens the door to all environmental education enthusiasts. Within the framework of the project, two years will focus on the issues of Air.

Target group: teachers, coordinators and experts in environmental education, NGOs

Reasons why this action is necessary:

Promoting a main target group of the project - teachers, pupils and students in terms of building their awareness of air quality, negative impacts in case of deteriorated quality, and possibilities of measures to improve the unfavourable state.

Timing: 2024/2027

Expected results:

- 2 festivals involving 100 participants each year

Raising public awareness of the impact of low-stack emissions on air pollution and the related negative health effects is crucial for promoting the elimination of its sources in the affected cities. Without effective educational campaigns householders may not be too willing to switch to cleaner heating solutions.

Conducting education (and dissemination activities, which are further elaborated under Action E) combined with the media campaign is one of the fundamental tasks entrusted to Air Quality Managers. If local residents are to become involved in air protection, first they need to be aware of the problem of air pollution, identify it with their own municipality, understand its causes and effects and know about the available instruments to support air quality initiatives (grants, consultancy, etc.).

It is essential to reach the group of opinion leaders and multipliers who will contribute to reinforcing the message promoted by Air Quality Managers. This is why special reference materials will be developed for public, NGOs and teachers.

Direct contact between Air Quality Managers and local residents is highly important. This is why various events will be held to raise public awareness of the problem, Air Quality Managers will also take part in public events organised by municipal authorities.

7.3 Safe Routes to School

Description:

Elaboration of methodological material "Safe Routes to School Mapping", which will follow the manual prepared in 2021. It is a methodology for identifying barriers which prevent children and parents from using bicycles, walking or other forms of sustainable mobility for commuting to school.

Parents often drive their children to school by car for fear of their safety in connection with traffic or the danger of public spaces.

Safe routes mapping carried out directly by children which helps to identify problem points in the immediate but also wider surroundings of the school. This knowledge, with the help of responsible adults, will be interpreted to local governments and interested institutions and will require adequate solutions to promote sustainable mobility on the way to school - thus the introduction of specific

measures to improve air quality around the school. The added value of this activity is raising awareness of the importance of forms of sustainable mobility among young people.

- elaboration of the methodological material - "Safe Routes to School Mapping",
- involvement of 8 schools every 2 years in the project Safe Routes to School Mapping - implementation of mapping: 8 schools (one in each region) (total: 24 schools in the course of 6 years),
- children with a trained responsible adult (AQM) will map the surroundings of the school from the point of view of safe commuting to school - identification of obstacles and dangerous sections and identification of potential possibilities of solving critical places from the point of view of safe commuting to school,
- processing of outputs into a "report for local governments" - marking in the map, processing of presentations with proposed solutions,
- pupil conference: presentation of mapping outputs (representatives of schools and local governments, traffic and city police) 8 schools every 2 years,
- conferences should be held in the premises of local governments (possibly – a nationwide pupil conference with the involvement of all schools and local governments in the premises of Slovak Environment Agency),
- creation and distribution of an information poster for schools / a leaflet for parents,
- promotion of outputs (print, online space),
- elaboration of pilot architectural studies on the basis of the outputs.

Timing:

2022 - 2026 – every 2nd year another school in the region, 8 schools every 2 years (24 schools in total)

Expected results:

- on-line methodological material for safe routes mapping and removing obstacles for safe movement of children in public space
- every 2nd year a student conference involving 8 schools
- promotional materials leaflet / posters
- pilot architectural studies
- 24 schools that will prepare a basis for local governments (their founders), which can be used for the elaboration of studies for the implementation of transport solutions to support sustainable mobility.

CEPTA activity:

8. Awareness raising activities based on measurements of ultrafine particulate pollutants from transport and residential heating

Ultrafine particles (PM0.1) are particles with a diameter of less than 0.1 micrometres (μm), i.e. less than 100 nanometres (nm). They are measured (counted) in numbers; often in number of particles per cm^3 . Ultrafine particles pass into the fine parts of the lungs and into the blood where they are believed to cause serious damage. They are known to be key pollutants in indoor air as well. Ultrafine particles can cause heart and cardiovascular diseases, strokes, respiratory diseases, cancer, diabetes, infection diseases, even damage to reproductive system etc. Therefore, these pollutants deserve the attention of the public and information campaign to raise public awareness of this problem is necessary.

Monitoring activities will include:

- measurement of pollution caused by ultrafine particles from traffic and comparison between old and new diesel vehicles,
- measurement of ultrafine particles dispersion on different height levels near arterial roads;

- measurement of outdoor pollution caused by ultrafine particles from residential burning especially during autumn and winter inversions,
- measurement of indoor pollution caused by ultrafine particles.

CEPTA will carry out the measurements of ultrafine particles during the course of the project implementation, share knowledge and take part in awareness raising activities (C2, E) conducted by SEA, focusing on air quality measures lowering pollution from transport and residential heating as well as health effects of air pollution.

A Report summarizing the findings on ultrafine particles pollution will bring the overview on individual pollution sources (mostly focused on traffic, residential heating and indoor pollution), which could be replicable also to other comparable EU regions and together with the recommendations to ultrafine pollution reduction could become one of the sources for further reduction actions across EU.

MoE SR activity:

9. Demonstration projects - Informative air quality monitoring

Informative monitoring activities will be carried out with the use of close to reference monitoring sensors and unarmed aerial vehicle - UAV (monitoring with utilization of UAV) in predetermined locations. UAV based informative monitoring is based on the experience from LIFE IP Malopolska project with the aim to indicate waste incineration.

Demonstration projects will start with a methodology development for both monitoring types and after the monitoring, individual report from each monitoring will be provided for stakeholders. Methodology will be updated based on the results of evaluation.

The results of informative air quality monitoring can be used for further decision-making, for example in the process of replacing obsolete heating equipment (boilers, fireplaces, furnaces, stoves) in the areas of air quality management.

Web application will utilise data collected from the National Monitoring Stations network across Slovak Republic and through the National Air Quality Index will inform on actual air quality situation on individual monitoring station. The history of collected data on individual pollution particles will be available for export. Additionally, multilevel layer of the web app will prepare the environment for the data collection from the other sources (air quality sensors).

Self-governing Regions activity (ŽSK, KSK, BBSK, PSK):

10. Green infrastructure

With their ecological and environmental impacts on the surrounding environment, trees, among other roles, have a positive effect on improving the air quality. The possibility to plant trees on the land of self-governing regions, municipalities, cities or private owners on the basis of a long-term lease agreement will positively affect the landscape image, contribute to increasing ecological stability and citizens' awareness of the LIFE IP project - Improving Air Quality.

Based on many researches and scientific experiments, we can state that trees have a very positive impact on the environment, including air quality, and their ecosystem function contributes to the reduction of pollutants, specifically of O₃, PM, NO_x and CO₂. Trees can reduce hydrocarbon emissions from fuels evaporating from worn-out exhausts and fuel tanks by shielding asphalt surfaces and parked vehicles.

In the first phase, the selected self-governing regions and the involved municipalities would select suitable localities for trees planting.

In the next phase, after preliminary feasibility analyses and consultations with the traffic inspectorate and the owners of neighbouring lands, the project documentation would be prepared.

At public meetings in the affected municipalities, the vision of the project and one of the tools to positively influence air quality - tree planting - would be presented.

SHMI or another relevant institution would perform the measurement before the planting, and then at an interval of 2 years, until the end of the project. If measurements will be impossible, a mathematical calculation of impacts based on validated studies will be used.

Subsequently, the measured values would be processed and continuously presented to the public after the analyses.

Expected load per tree also with anchoring, protection against bites and post-planting care for 3 years - with a trunk circumference of 14 - 16 cm – is 150 €.

Planting trees is a tangible result of the project with positive impact on the air quality but also on the awareness of the citizens, since they will be directly involved into this activity (community tree planting activity). Best practices from this activity will be shared with the public.

Some of the possible results from this activity could be a change in the technical norms in regard with architectonical studies (for ex. tree planting among the traffic corridors); cooperation on the arboricultural standard of green maintenance in the vicinity of engineering networks; participation in negotiations between the Ministry of the Environment and the Ministry of Agriculture regarding the elements of green infrastructure in the country; cooperation with the academic sector on the methodology of medium forest cultivation.

Constraints and assumptions

Education and information actions are to be carried out by Slovak Environment Agency in close cooperation with Air Quality Managers, so the main risk is associated with their insufficient engagement in establishing contact with local communities, opinion leaders and multipliers. To mitigate that risk, Air Quality Managers and SEA will be submitting detailed reports on all education and information measures taken. They will also be required to hold a certain number of meetings with opinion leaders and community events.

When implementing awareness-raising activities through the planting of elements of green infrastructure, there may be problems in obtaining permits and statements from the entities concerned (network administrators, traffic inspectorate). The advantageous negotiating position of the authorities of self-governing regions, as the owner of the land in question, can largely eliminate this threat. An important activity in obtaining permits and the implementation of planting will be participatory meetings with citizens in the affected localities. Based on the excellent relations of air quality managers from the involved self-governing regions with representatives of local governments and pre-negotiation of planting plans, we can expect a positive adoption of these measures to improve air quality. Close cooperation between all LIFE IP partners will bring excellent sharing of experiences, contacts and the establishment of important partnerships in the regions. For the actual implementation and sustainability of the activity, the planting itself is planned with the involvement of local schools, NGOs, associations and social enterprises.

Expected results

- Raising public awareness of air quality issues by distributing a set of reference materials in the municipalities taking part in the project: materials focusing on local residents and opinion leaders.
- Education activities targeting teachers, students and pupils.

The following materials will be produced and disseminated:

- Training manuals Sustainable mobility on the topics of planning and implementation of measures to promote sustainable mobility, considering the possibility of connection to elements of green infrastructure
- Training manual for teachers
- Worksheets for pupils and students
- Information leaflet
- Identification keys with methodology
- Matching game
- Methodological material - "Safe Routes to School Mapping"

Cost estimation

Personnel

SEA	C2, E	Additional	Action manager 1 (more employees in one position - working on C2 and E)	151,200.00
SEA	C2, E	Additional	Expert 1 (more employees in one position, working on C2 and E)	189,210.00
SEA	C2, E	Additional	Expert 2 - specialist - air quality 1 (working on C2 and E)	123,200.00
SEA	C2, E	Additional	Expert 3 - project manager, specialist - air quality 2 (working on C2 and E)	134,355.00
SEA	C2, E	Additional	Expert 4 - specialist - air quality 3 (working on C2 and E)	127,764.00
CEPTA	C2	Additional	Expert (2)	75,600.00
CEPTA	C2	Additional	Project manager	45,000.00

Slovak Environment Agency (SEA) will participate in the implementation of the following actions: C1, C2, E and F. Activities will be provided by the project team composed of the project manager, financial manager, 4 Air Quality Managers and experts. Experts will have different roles and responsibilities to ensure defined activities. Given the nature of the activities, experts must have a different focus and experience. Different workloads as well as different levels of responsibility are the reason for the different rates used in the budget.

Travel costs

49 workshops and 2 educational festivals are scheduled to be organized during C 2 activity (Educational programmes and public information). The locations of workshops will vary across Slovakia. The locations are not exactly defined yet. Depending on the venue, the cost will also vary. It will also depend on the number of staff of SEA involved in workshops as needed.

Durable goods: Equipment costs

MoE SR	C2, C3	Measuring instruments (termocameras, wood moisture measuring sensors, close to reference monitoring stations, compact mobile appliance, passive monitoring stations)	82,890.00
MoE SR	C2	Drone used for air quality monitoring including training for 4 AQM	20,000.00
MoE SR	C2	Flying lab to be put on the drone	18,000.00
Trenčín	C2	Measuring instruments (close to reference monitoring equipment)	37,979.00
Trnava	C2	Measuring instruments (close to reference monitoring equipment)	64,315.00

Banská Bystrica	C2	Measuring instruments (close to reference monitoring equipment)	25,653.00
Žilina	C2	Measuring instruments (close to reference monitoring equipment), including service	52,000.00
Košice	C2	Informative sensors - measuring instruments 10x (on solar power), access to cloud Envitech or similar	92,500.00
Prešov	C2	Measuring instruments (close to reference monitoring equipment)	54,504.00
SEA	C2	Education programme (monitoring tools with sensors for pollutants and other relevant information)	45,000.00
CEPTA	C2	Laptop and office software for experts	1,500.00

Other costs

Trenčín	C2	installation of close to reference monitoring stations (including the reposition of sensors to other places)	11,000.00
Trenčín	C2	electricity bill for close to reference monitoring stations	12,000.00
Trnava	C2	installation of close to reference monitoring stations (including the reposition of sensors to other places)	11,000.00
Trnava	C2	electricity bill for close to reference monitoring stations	12,000.00
Žilina	C2	costs of installation and operation of sensors	8,000.00
Žilina	C2	costs associated with lecturers in the implementation of events	4,000.00
MoE SR	C2	travel costs including accommodation for external experts presenting on workshops, conferences..	5,000.00
CEPTA	C2	Office rent	14,400.00

External assistance costs

SEA	C2	Web-application on ambient air quality in Air Quality Management Areas for public information (design, development and maintenance)	0.00
SEA	C2	Methodological manual "Sustainable mobility" (500 printed copies)	6,000.00
SEA	C2	Contractors	1,650.00
SEA	C2	Study visits of good examples of good practise in theme of sustainable urban mobility (appx. 7 visits – 25 participants each year) and contractor	49,130.00
SEA	C2	Sustainable urban mobility - promotion in the media (TV and Radio) (1 st phase)	33,750.00
SEA	C2	Spots and educational videos on sustainable mobility (rest of the project)	90,000.00
SEA	C2	Metal pens, Lined notebooks in A5 size, Roll-ups	7,318.00
SEA	C2	Workshops on Air Quality for representatives of Self-Governing Authorities (lunch, 2x coffee break, venue, technical equipment and assistance, contractors). 6 workshops, max. 60 participants each	15,280.00

SEA	C2	Workshops on actions to reduce emissions from domestic heating (lunch, 2x coffee break, venue, technical equipment and assistance, accommodation, contractors). 4 workshops, max. 150 participants each	49,800.00
SEA	C2	Workshops on the importance of central heat supply (CHS) in terms of improving air quality, (lunch, 2x coffee break, venue, technical equipment and assistance, contractors), 6 workshops, max. 60 participants each	20,000.00
SEA	C2	Education in the field of air protection - 1 and a half day (accommodation for 100 participants, 2x lunch, 1x dinner, 3x coffee break, venue, technical equipment and assistance)	18,000.00
SEA	C2	Expert workshops "Sustainable Mobility – Guidelines, Ideas and Examples of Good Practice (lunch, coffee break, venue, technical equipment and assistance, contractors) 32 half-day workshops (some of them online)	38,400.00
SEA	C2	Education programme (gift items)	33,000.00
SEA	C2	Education programme (Prizes for participating schools)	27,600.00
SEA	C2	Education programme (printing of educational materials)	22,500.00
SEA	C2	Education programme (methodological days)	2,160.00
SEA	C2	Education programme (Contractor)	10,000.00
SEA	C2	ŠIŠKA environmental education festival	50,000.00
SEA	C2	Safe Routes to School (all activities associated with new activity)	30,000.00
SEA	C2	Safe Routes to School (promotional items)	2,500.00
MoE SR	C2	Promotional materials (manufacturing, printing)	21,825.00
MoE SR	C2	Mobile application for iOS and Android on air quality	72,000.00
MoE SR	C2	Methodology for informative air quality monitoring	5,000.00
MoE SR	C2	Programming of Slovak Air Quality Index (development and adjustment)	2,000.00
Trenčín	C2	Promotional materials	7,700.00
Trnava	C2	Information and promotional materials, translations	9,700.00
Banská Bystrica	C2	Events organization (conferences, competitions)	8,500.00
Banská Bystrica	C2	Promotional materials	14,500.00
Banská Bystrica	C2	Green measures – project documentation and analysis	20,000.00
Banská Bystrica	C2	Green measures – planting and after planting care (approx. 400 trees)	90,000.00
Žilina	C2	Events organization (conferences, competitions, information campaigns)	8,500.00

Žilina	C2	Promotional materials	36,115.00
Žilina	C2	Green measures – project documentation and analysis	23,000.00
Žilina	C2	Green measures – planting and after planting care (approx. 330 trees)	50,000.00
Košice	C2	Green measures – analysis, survey, planting plan	5,000.00
Košice	C2	Green measures – planting greenery (approx. 220 trees)	33,779.00
Prešov	C2	Green measures	6,020.00
Prešov	C2	Events (participation in conferences – participation fees, competitions, organization of few conferences/events)	13,109.00
Prešov	C2	Promotional materials	15,000.00
Bratislava	C2	Promotional materials and promo related costs	15,060.00
CEPTA	C2	Expert work including travel costs	52,200.00

Deliverable products:

- Web application
- Mobile application (MoE SR)
- 6x1 day workshop for mayors, their deputies, professional staff from self-governing authorities falling within the area of air quality management, specialists, number of participants max. 60/1 workshop
- 6x1 day workshop on the importance of central heat supply for mayors, their deputies, local self-government employers, community owners, housing co-operatives, number of participants max. 60/1 workshop
- 4x1-day workshop for mayors, their deputies, local self-government employers on actions to reduce emissions from domestic heating, number of participants max. 150 / 1 workshop
- 1 x 1.5-day seminar for state administration bodies to evaluate and update air quality plans, number of participants max. 100
- Methodological manual “Sustainable urban mobility”
- 32x expert workshop on the topics of planning and implementation of measures to promote sustainable mobility taking into account the possibility of connecting to elements of green infrastructure
- 7x Study journey for examples of good practice in theme of sustainable urban mobility max 175 participants
- Safe routes to school mapping methodology and follow-up activities (posters, presentations, student conference, etc.)
- Promotional goods (metal pens: 1 year = 200 pcs pens with printed necessary project elements/logos 8 years = 1,600 pcs , lined notebooks in A5 size: 1 year = 200 pcs notebooks with printed necessary project elements/logos, 8 years = 1,600 pcs, roll-ups: 8 years = 24 pcs)
 - the sub-level at dnesdycham.sk – schools involved in the programme of biomonitoring (approx. 150 schools), and general public using information from the portal.
 - Training days - 4 times a year for 3 years - together 12 days
 - Training manual for teachers - approx. 3,000 pcs
 - Worksheets for pupils and students - approx. 3,000 pcs
 - Information leaflet - approx. 10,000 pcs
 - Identification keys with methodology - approx. 10,000 pcs
 - Matching game - approx. 2,000 pcs
 - Poster – approx. 3,000 pcs
 - Final programme report (preferable online version)

- Gift items: e.g., 3,000 notebooks with pens, 3,000 pcs of t-shirts with print, 1,200 pcs of magnifying glass
- Prizes for participating schools (for 3 years): e.g., green vertical wall, excursion for 40 pupils, air purifier

Deliverable products – CEPTA:

- 1) A report summarizing the findings on ultrafine particles pollution from traffic, residential heating and indoor pollution – 12/2023, 12/2025, 12/2027
- 2) Recommendations to ultrafine pollution reduction from traffic and residential heating (in close cooperation with SEA and VSB) - at the final conference of the project

Deliverable products - MoE SR:

- 1) Methodology of the informative monitoring of air quality – by 31/12/2022
- 2) Informative AQ monitoring reports – close to reference stations – by 31/12/2027
- 3) Informative AQ monitoring reports – UAV – by 31/12/2027
- 4) Slovak Air Quality Index – by 31/12/2021

Deliverable products – self-governing regions:

- 1) Analysis and reports from the greenery planting – before the planting and every 2 years afterwards until the end of the project

Milestones

- Phase 1: Educational programmes and public information accomplished (31/12/2021)
- Phase 2: Educational programmes and public information accomplished (31/12/2023)
- Phase 3: Educational programmes and public information accomplished (31/12/2025)
- Phase 4: Educational programmes and public information accomplished (31/12/2027)

CEPTA:

- 1) Analysis of ultrafine particles from traffic, residential heating including indoor pollution and their impact on air quality – 12/2026

Action C.3 Accelerating the implementation of measures to minimise negative impacts of household heating and transport on air quality

Beneficiary responsible for implementation:

MoE SR

Description (what, how, where and when):

Demonstration projects aimed at household heating

Under this activity, complex approach in implementing various air quality measures will be demonstrated in selected municipalities, including educational activities (motivation, proper burning techniques), concrete investment measures (replacement of old boilers) and monitoring of the progress in air quality improvement. The effectiveness of measures and their synergies will be assessed. The results shall be used by designing regional and local policies, as well as legislation to improve the effectiveness of air quality measures.

Activities will build on experience and knowledge sharing from other countries and projects (PL – LIFE IP Malopolska, DE - LIFE project Clean Heat etc.) and cooperation with the Czech Republic is also anticipated. The activity will be managed by MoE SR in cooperation with the Air Quality Coordination Unit, selected municipalities and Air Quality Managers.

Under this action, expert support will be offered to the inhabitants of selected regions. The action will include organisation of energy consultancy. The Air Quality Managers - will work in different locations in Slovakia; some will have permanent offices, some will organise information points in public places and will also arrange meetings with local residents at their houses. They will actively seek contact with the residents.

The main role of will be to provide information and assistance in the following areas:

- ✓ Replacement of the heating source from coal and other solid fuels to eco-friendlier solutions: advisors will provide expert assistance and will help in choosing the best solution;
- ✓ Obtaining a subsidy to heating source replacement (basic information on obtaining a subsidy);
- ✓ Improvement of energy efficiency: advisors will provide more technical information,
- ✓ Conduct analysis with infrared cameras and wood moisture meters, advise on which energy efficiency measures are the most urgent and where to apply for financial assistance for conducting these measures;
- ✓ Deployment of small RES in households;
- ✓ Reasons and health effects of air pollution in selected areas.

One of the important tasks in this context of the Air Quality Managers is to mobilise citizens to heat source replacement and energy efficiency improvement as well as other measures that can contribute to air quality improvement in their area.

The activities related to the replacement of boilers will be funded and realized within OP QE through following calls:

- Replacement of obsolete solid fuel boilers in households – expected subsidy 30 mil. EUR, support of more than 8,500 households is expected with aim to replace solid fuel boilers by gas boilers - Boiler Exchange Incentive will be launched in 2022 (complementary funding, implemented by SEA), with the promotion support of the Air Quality Managers. The first stage of the Incentive will cover the gas boilers exchange for private individuals with expected 8,500 pieces of boilers installed.
- Replacement of old boilers in public building – open call is already launched with allocation 30 mil. EUR, focused on installation of low-emission boilers (except of RES), technological and technical measures to reduce air pollutant emissions from air pollution sources, in particular to meet the requirements of the National Emission Ceilings Directive and / or the Air Quality and Cleaner Air Directive in Europe are eligible, reduction of emissions due to

replacement of old boilers by new low-emissions boilers represent measurable indicator for all supported projects (NH₃, NO_x, PM₁₀, SO₂, VOC).

As far as technical requirements are concerned, energy efficiency of supported installations (new boilers) has to be in line with Annex II of the Commission Regulation (EU) No 813/2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to eco-design requirements for space heaters and combination heaters.

Old boilers will be disposed in line with national legislation and in line with available funding schemes.

As stated, air quality will remain one of the priorities to be supported in following programming period 2021-2027, AQ managers will ensure that they are updated in activity C.3, supported also by Coordination Unit and Task Force. One of the initiation roles of MoE SR will be to set up the Task Force, determine the status, organizational order of the Task Force, prepare its Code of Conduct (deliverable 21), related activities, who will be the member, who will lead it, how the group will work, the frequency of meetings, etc. This will ensure continuation of the project goals among other ministries and sustainability of the information flow. The task will be completed by the end of 2021.

Coordination with the managing authorities of individual OPs in relation to the OP 2021-2027 / 2028-2034 will be set upfront by the Task Force as described in B3, defined by the Code of Conduct – deliverable 21. Proposed new task is a workshop including AQ managers, Coordination Unit, LIFE Project Managers and Task Force, done every two years, presenting best practices from the field, informing on general attitude towards calls, actions and subsidies proposed by managing authorities. These workshops will be mutually beneficial, as Task Force will learn first-hand about their work, potentially motivating them to improve and AQ managers will learn more about future financial plans and schemes.

Pilot Projects aimed at the development of feasibility study on transport solutions for the air quality improvement in selected cities

The key objective of this activity is to provide incentives to selected cities in AQMAs, where the main air quality problems are caused by traffic to provide for the elaboration of feasibility studies aimed at transport solutions to improve air quality, such as introduction of low-emission zones or introducing charged entrance to the cities etc. The results of these studies should be incorporated into the Sustainable Mobility Plans. Experience from other LIFE projects will be used and build on. The activity will be carried out for selected municipalities (cities) in cooperation with an expert consortium, including Air Quality Coordination Unit, MoE SR and relevant experts in the area of transport (university) and air pollution.

Regarding the introduction of low emission zones the project will also aim at sharing knowledge with CZ since some cities in CZ are already considering introduction of LEZ and have already prepared a feasibility study. This experience exchange may be valuable since the situation/structure of many CZ and SK cities is similar.

The feasibility study is to examine which transport measures have the potential to reduce air pollution and their cost-effectiveness. Main topics can include: city transport analysis, suitable zone selection, evaluation of urban planning documentation related to LEZ, LEZ demarcation, transport re-organization, traffic sign planning, analysis of selected areas for LEZ, impact assessment based on traffic modelling and dispersion studies, cost effectiveness. The conclusions of the feasibility study will show whether the proposed measure is feasible at a reasonable cost and whether such a measure can be included in the Sustainable Mobility Plans. Programme period of 2014-2020 is just ending and new period of 2021-2027 is being formed, we do not know exactly when and which funds will be mobilized in this matter, nevertheless we are certain we will opt for any complementary funds available to this area.

Reasons why this action is necessary

In order to accelerate the implementation of measures to minimise negative impacts of household heating and transport on air quality, it is necessary to develop a system of advisors, who will provide more technical knowledge and assistance to the citizens.

They will also play an important role in increasing public awareness on the reasons of air pollution and its health effects, which is crucial for mobilising the citizens to replace heat sources with eco-friendlier solutions. The knowledge on the possibilities to improve energy efficiency of houses or to deploy small RES installations is limited. Therefore, it is crucial that such information is promoted among people that may benefit from such solutions.

Constraints and assumptions

This activity foresees close cooperation especially with Action C2 and E. MoE SR and the Air Quality Managers will therefore collaborate with SEA and PEDAL in order to ensure efficient and effective flow of information among these three types of activities.

Expected results

- ✓ The LIFE-IP will contribute to increasing the number of replaced solid fuel furnaces in Slovakia due to the improved effectiveness and availability of local subsidies;
- ✓ Administrative procedures for subsidy award are streamlined in order to make sure that all the interested parties receive their subsidies in the shortest possible time;
- ✓ Air Quality Managers - provide their advice to residents in apartments and houses in regard to demonstration projects, in order to analyse possibilities for energy efficiency improvement;
- ✓ Increased awareness of residents with regard to the needs and possibilities of energy efficiency improvement in their houses.

Cost estimation

External assistance costs

MoE SR	C3	Feasibility studies (transport solutions, local heating)	50,000.00
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Deliverable products:

- 1) Recommendations, published every two years, and input material to design regional and local policies, as well as legislation to improve the effectiveness of air quality measures by 31/12/2021, 31/12/2023, 31/12/2025, 31/12/2027
- 2) Two feasibility studies aimed at transport solutions to improve air quality in selected cities by 31/12/2027

Action C.4 Support the exchange of heat sources (boilers) in households – an information campaign aimed at the operators of stationary combustion sources for solid fuel + diagnostics of real emission parameters

Beneficiary responsible for implementation:

Energy Research Center, VSB - Technical University of Ostrava

Description (what, how, where and when):

C.4-1 Nationwide campaign throughout the Czech Republic and Slovakia.

i) Interactive information campaign - Smokeman acts

An extension of the traditional **educational show "Smokeman acts"** is proposed, which is known in the Czech Republic and Slovakia (see web site: <https://vec.vsb.cz/cs/smokeman-zasahuje/>). The aim of the show is to bring to public the principles of proper combustion in local combustion devices. Smokeman will present his show at two biggest exhibitions targeted on thermal technologies in the Czech Republic with his mobile boiler room and will show practical examples of widespread mistakes and how to combust properly. For example, the public can learn how they can determine at home how effective their combustion units are, how much they influence what comes out from their chimneys, what are the basic types of combustion devices, what are their basic characteristics and how to operate and take care of boilers, stoves and fireplaces properly. Smokeman's shows are also focused on children who learn about energy use and good combustion practices in an amusing way.

According to our experience, the best target group for education in the field of heating is visitors of professional exhibitions with the theme of TZB. These people are actively looking for answers to their specific questions. Often, however, they receive very one-sided answers and offers from individual manufacturers. Therefore, it is difficult for them to critically form an opinion. Smokeman does not sell anything, so its position is "only" educational and can focus on the basic principles and systems of TZB. As part of performances at given exhibitions, we will present individual types of heating and discuss with visitors about their specific situations and look for optimal solutions according to their priority. We expect to participate in nine professional exhibitions (primarily in the Czech Republic, but alternatively in Slovakia). Priority will be given to these presentations in full-time form, but in the case of an unfavourable epidemiological situation, they will take place online. Suitably adapted educational show *Smokeman acts* will be used also as road show in cooperation with municipalities, especially in the coal regions (Moravian-Silesian Region, Usti region). The show will be held in public spaces (town squares etc.) and will concentrate on proper heating and common mistakes that lead to higher emissions. It is expected to organize at least 4 road shows per year.

An important part of these performances will be the participation of children from local schools. Priority will be given to these presentations in person, but in the case of an unfavorable epidemiological situation, they will be conducted online.

The extension of the Smokeman show will be prepared and realized by current staff of the VSB.

ii) Campaign on proper combustion in households

The aim of this activity will be to create eleven video spots (1-3 minutes long) and texts about the proper heating practice, which will be further popularized on Internet, including the use of social networks.

The key parameter for creating the videos will be creating a script. It will be an entertaining storyline representing ten rules of proper heating, which will be presented by Smokeman's figure (a guide, animation/acting, comics) and a plot should be both entertaining and educational. The screenplay will appeal to elderly spectators who are the direct target group of the message, as well as the

young ones who will become soon. An amusing (viral) content will be part of it as well as serious facts explaining why the observed phenomenon is important for the environment.

The first episode will be an introduction to the fact that we can influence what is emitted from the chimneys, and the next ten episodes will concentrate on the ten rules of proper heating. Video spots will form a complete block, so they will be made during the first 2 years of the project. Video spots will be accompanied by a dedicated web and social media page with more detailed information on different aspects of the solid-fuel use for heating. The campaign will also provide households with information on the possible action for lowering emissions from the heating by means of fuel shift, boiler replacement and energy efficiency measures together with the information on the possible public financial support for realization of such activities.

iii) Ecoheating course: educational program

The educational program will be about how to heat households better. This course is intended for government officials involved in air protection and for the primary and secondary school students. The educational program will always be adapted to specific group of participants. The basic message is the same, but the form and order of priorities of the message will be individual (different) for each individual group.

There will be a guided tour at the testing laboratory in the Energy Research Center which focuses for nearly 20 years on an issue of solid fuel heating in households. Smokeman's interactive presentation will be part of the course that will discuss the following topics, for example: i) certification of boilers and stoves, ii) differences between old and new combustion units, iii) what can be checked in households, including the sampling of ash etc., iv) how to heat in a better way. For the presentation real combustion equipment, functional models and physical and chemical experiments that are available at the Energy Research Center will be used. Participants of the course will be able to practice it. Ecoheating course will run continuously throughout the project

The dates and content of individual courses will be adapted to the number, focus and needs of participants. To increase the motivation of the participation of officials, the course will be accredited to be included in the educational system of employees in administration of the Czech Republic. Priority will be given to the courses in full-time form, but in the event of an unfavourable epidemiological situation, they will be conducted online. The minimum number of trained participants will be 200 people. Participants will receive teaching materials that will be prepared within the solution of this project. Participation of applicants from Slovakia is possible without the right to financial compensation (accommodation allowance, etc.).

The awareness raising campaign in the Czech Republic is based on raising awareness of the impact of local heating in obsolete boilers or using low quality fuels (including waste). This awareness raising campaign is directly linked to the air quality plans - measure DB1 that aim at removing obsolete boilers using OP Environment (see below) or via private/other financial sources and measure EC1 that aim at informing public about air quality issues, including the health risks connected with local heating with solid fuels. These measures are included in all air quality plans that were issued for all zones and agglomeration in 2016.

The awareness raising campaign will bring operators closer to the problems caused by the use of unsuitable heating sources, inform them about the appropriate operation of their sources and the appropriate fuel and its storage. The knowledge of the legislative requirements put on the operators of small-scale combustion installations will also increase, strengthening the impact especially of the regular inspection of boilers by a certified technician (required once in 3 years). At the same time, the educational campaigns will demonstrate to the audience what illegal waste combustion or combustion of unsuitable fuels look like in real life. The campaigns will certainly motivate operators to switch to environmentally friendly heating sources and help to fulfil measure DB1 of the air quality plans. Eradicating obsolete boilers is crucial for improving the air quality in the CZ since this air pollution source has the most serious impact on the air quality. Video spots

focusing on proper heating techniques will be used to better spread the campaign among the population.

At present, a subsidy program (so-called "boiler subsidies") is in place at the Czech Republic, this program falls under the Operational Program Environment, which is financed via European funds. The program offers subsidies to replace an old, in 3 years non-compliant solid fuel boiler with a new gas or biomass boiler and heat pump that meets the eco-design requirements. About 50 thousand exchanges have already taken place in the Czech Republic and further financing is envisaged in the draft Operational Program Environment for the period 2021-2027. Further financing opportunities are in place for replacement of solid fuel heaters from the program New Green Savings (Nová zelená úsporám). The long-term aim is to replace all 80,000 (in 2011) of households that use solid fuel heaters (without water heating system) to heat their flats and houses as is indicated in the draft National Emission Reduction Plan (NAPCP) of the Czech Republic.

C.4-2 Monitoring of real parameters on combustion devices in households

A great unknown, which influence the emissions and the emission inventory from domestic heating, is the behaviour of the operators (of an average user of a solid fuel boiler). This activity will focus on answering following questions: i) What are the real impacts of the replacement of old boilers by new one (emissions, efficiency)? ii) What is the daily performance of the boiler output during the heating season? (iii) What is the average capacity of a combustion unit for solid fuels? iv) How many operating hours is a boiler operated at nominal output and at reduced output?

Long-term measurements of thermal and technical parameters of solid fuel boilers will be carried out directly at operators' houses (maximum in 10 households). During the long-term measurements the heat demand in households (with respect to a heating season) will be monitored. Emission measurements of the pollutants will be carried out. The measurements will be performed on the same combustion devices repeatedly during the heating season. Attention will be paid to factors affecting the operation of devices, such as the anticipated heat consumption during the heating season, the quality of fuels used and the maintenance of the devices.

The design and verification of a measurement equipment for measuring the operating parameters, will be carried out. The monitored parameters will be designed, individual measuring systems will be selected and verified (sensors, evaluation systems, data transmission). The monitoring system will be validated on a real facility in the accredited testing laboratory of the Energy Research Center of VSB and subsequently applied at real households.

Results will be used for information campaigns as well as for better assessment of the impacts of the boiler replacement.

The aim is also to create a tool that provides information for an evaluation of operational and emission parameters of the heating devices in a time scale of a heating season. Further objective is to determine and to reduce the differences between "labelled" and real operating values of emissions and efficiency of the solid fuel combustion units in households.

The obtained data will be used as an input for the update of the methods of national emission inventories from domestic solid fuel heating. The outputs will be useful also in the Slovak Republic, as well as in other countries of the EU.

A device for the collection and analysis of flue gas samples will be purchased. It is a flue gas analyser of O₂, CO₂, CO, NO, SO₂ and TOC, which will be used for monitoring of real emissions of pollutants from households within this project. The CO₂, CO, and SO₂ components will be measured based on the NDIR principle, the O₂ component will be measured paramagnetically, the NO component will be measured by chemiluminescence, and the TOC component will be measured by a flame ionization detector (FID).

The equipment will also include a collection apparatus that will serve to transport the gaseous sample of flue gas to the analyser. The collection apparatus will include at least a sampling probe with a heated particulate filter and a heated sample line from the sampling point to the flue gas analyser. The apparatus will further include a sample preparation that will contain at least a flue gas cooler to remove moisture from the flue gas sample (prior to entering the analyser), a safety filtration system, and a system for the sample delivery and distribution to the analyser.

Estimated ranges for particular compounds of flue gas analysers:

- O₂: 0 – 25 vol %
- CO: 0 – 5000 ppm
- CO₂: 0 – 30 vol %
- NO: 0 – 2500 ppm
- SO₂: 0 – 3000 ppm
- TOC: 0 – 10000 ppm

This activity will be provided by the current staff of VSB.

Reasons why this action is necessary

Due to the high influence of local heating on air quality in the Czech Republic, it is very important to focus on this area. According to the emission inventories, emissions from household heating are responsible for up to 70 % of PM_{2.5} emissions and for 98 % of all benzo(a)pyrene emissions (in 2016) in the Czech Republic.

We see opportunities for public awareness and involvement in the replacement of boilers and proper heating practice.

The reason for this project activity is the fact that a relatively small number of solid fuel heated households in the Czech Republic (about 15% of all households) produces more than 90% of some air pollutants (e.g., benzo(a)pyrene). For efficient and ecological heating with solid fuels, the following four parameters have to be improved: i) type of combustion unit including the chimney, ii) type and quality of fuel, iii) influence of combustion unit operation, iv) maintenance and installation. It is not enough to have a low emission combustion device. Correct fuel has to be combusted as well, the boiler has to be operated and set up properly and the care of the boiler and the chimney has to be carried out. "Kotlíkové dotace" (English translation: "Boiler subsidies") in combination with the legislative requirements of the Air Protection Act are able to solve only the first parameter. With improved quality of the solid fuel boilers used in CZ, the quality of the maintenance of the other combustion installations such as solid fuel heaters, will have increasing share on the overall emissions from the domestic heating sector. For the improvement of these factors, it is important to have a properly informed public. Planned nationwide information campaigns and campaigns at most relevant fairs and exhibitions, video spots, educational courses, will focus on the other important parameters. Education about proper heating techniques and the role of the quality of fuel will bring better information and awareness to users and operators of combustion devices. This will have a positive impact on reduction of emissions from combustion of solid fuels in the Czech Republic.

The reason for the focus on monitoring of real parameters of domestic solid fuel combustion units (mainly heat output) is to obtain the information for estimating real household consumption during a heating season, to determine real emissions of pollutants, thus estimating the impact of the "Boiler subsidies" on pollutant emissions and to ascertain the impact of awareness on behaviour of operators of domestic combustion units for solid fuels. Currently established emission factors for the solid fuel combustion in the small-scale installations are composed of the emissions measured at reduced and nominal heat output, as these numbers significantly differ, the overall emissions are influenced by the real heat output throughout the year. Information on the further factors like intensity of fuel stoking frequency and quality of the fuel will also be established.

Constraints and assumptions

C.4-1 Nationwide campaign throughout the Czech Republic and Slovakia

i) Interactive information campaign – Smokeman show

- Cancellation of Aquatherm and Infotherma exhibitions (real risk, real impact). Elimination of the risk: possibility of another exhibition or trade fair, for example, International Engineering Fair, Země Živitelka, extension of the campaign to Slovakia and distance form of presentation.
- Accident of mobile boiler room and loss of functional models (minimal risk, minimal impact). Elimination of the risk: Replacement of devices and models.
- The information campaign is not appropriately targeted (minimal risk, significant impact). Prerequisite: Intended fairs and exhibitions are focused on interested people for right ways of heating.
- Insufficient cooperation with municipalities, they will not provide for suitable public space, no interest in organizing the show (minimal risk, significant impact). Elimination of the risk – Targeting on municipalities with air quality problems caused by local heating.

ii) Campaign for proper combustion in households

Not finding a suitable subcontractor for video production (low risk, medium impact). Elimination of the risk: Quality selection process of the supplier, previous market survey, qualifications and references of a supplier.

iii) Ecoheating course: educational program

Interest of officials (medium risk, medium impact). Elimination of the risk: A wider targeting of the educational program on primary and secondary school students. Accreditation of an educational program for long-term education of civil servants.

C.4-2 Monitoring of real parameters on combustion devices in households

- This activity is conditional by co-operation of authorities and operators, because the measurements will be made mainly at real households. We assume that one-time measurements will be carried out together with regular inspections of the “Boiler subsidies” (small risk, significant impact). Elimination of the risk: Possibility to provide the operators of small combustion units without co-operation with authorities.
- Application of the automatic monitoring system requires repeated accesses to combustion units (medium risk, significant impact). Elimination of the risk: The risk and impact will be minimized by offering of testing fuel for the operators of the combustion units.

Expected results

- Trained visitors of exhibitions, information leaflets and brochures about proper heating;
- 11 video spots (1-3 minutes);
- Training materials for the Ecoheating educational program;
- Trained government officials involved in air protection;
- Trained secondary and elementary school students;
- Measurement reports from individual households;
- Automatic system for the monitoring of operating parameters of small combustion devices (wireless data transmission);
- Evaluation of measured operating and emission parameters of real heating sources in a time scale of individual heating seasons.

Cost estimation

	C.4-1 Nationwide campaign throughout the Czech Republic and Slovakia		EUR
VŠB	Personnel costs	Personnel costs of employees participating in interactive information campaigns such as: Smokeman roadshow in towns and villages and also in exhibitions in the field of domestic heating, campaign on proper heating, ecological heating course and creation of information materials including videos.	170,794.00
VŠB	Travel and subsistence costs	Travel expenses of staff involved in the implementation of information campaigns, accommodation, meals, etc. Conferences and professional seminars, training, management committee and research meetings.	7,700.00
VŠB	Durable goods: Equipment costs	Equipment and tools for the implementation of information campaigns, such as functional models, props, models of combustion equipment, tables for road shows, transport boxes for transporting models, equipment needed to equip the studio for recording instructional videos, exercise bikes, peltier cell, demonstration stoves including flue gas routes, demonstration and teaching items, steam engine, flue gas temperature measuring system, dry ice thermobox, dewar vessel, portable boards, storage media, computer technology.	21,243.00
VŠB	Other costs	Rental and fees associated with information campaigns such as: rental of a tent, plot. Conference and training fees. Rental of a transport vehicle for the transport of material for the implementation of information campaigns.	46,875.00
VŠB	External assistance costs	Campaign on proper combustion in households: audio-visual equipment rental costs, animation, dubbing, video spot production, graphic services, subtitles, translations	51,563.00
VŠB	External assistance costs	Ecoheating course education program, catering and accommodation service for participants.	21,000.00
VŠB	Consumables	Consumables for the implementation of information campaigns such as: propane butane, hydrogen, batteries, flint and steel, packaging, dry ice, balloons, fuel, liquid alcohol, writing accessories, information materials, rewards, varnish, sprays, burners, strings, magnets, bubble blower, lighters, heat - resistant paints, thermometers, straps, portable lights, tools, tablecloths, personal protective equipment, markers, promotional clothing, printing of educational materials.	28,533.00

VŠB	Consumables	Information campaign (equipment and tools for the implementation of information campaigns - props, tables for road shows, transport boxes for transporting models, equipment needed to equip the studio for recording instructional videos, peltier cell, demonstration and teaching items, flue gas temperature measuring system, dry ice thermobox, dewar vessel, portable boards, storage media, computer technology)	23,300.00
Trenčín	Consumables	Consumables for "Slovak Smokeman" needed for educational activities on correct heating techniques (gases, fuel, props)	23,500.00
Trnava	Consumables	Consumables for "Slovak Smokeman" needed for educational activities on correct heating techniques (gases, fuel, props)	22,200.00
C4-2 Monitoring of real parameters of combustion equipment in households			EUR
VŠB	Personnel costs	Personnel costs related to the implementation of monitoring the actual parameters of combustion equipment in households	111,033.00
VŠB	Travel and subsistence costs	Travel costs of employees involved in the implementation of monitoring the actual parameters of combustion equipment in households (accommodation, meals, etc.)	5,600.00
VŠB	Durable goods: Equipment costs	Storage media, computer technology, measuring modules, sensors, hand tools (such as drill, grinder, cutter, saw). Power sources voltage, backup sources. Converters, computer technology, heated sampling lines, controllers, temperature sensors and evaluation units, compensation lines, routers.	3,835.00
VŠB	Durable goods: Equipment costs	Flue gas treatment and analysis equipment (analyzer), auxiliary equipment (compressor, heated pump for sample transport to analyzers, etc.)	85,200.00
VŠB	External assistance costs	Preparation of sampling and measuring points for monitoring in households. Data services. Validation, calibration of measuring devices. Maintenance and service of measuring equipment. Rental of a transport vehicle for the transport of measuring equipment. Services of a professionally qualified person for the inspection of boilers.	19,591.00
VŠB	Consumables	Fuel for combustion tests (e.g., wood, coal, briquettes, pellets). Consumables for monitoring, such as wires, sensors, connectors, transducers, connecting material, tools. Material for 3D printing. Fuel for a power plant.	8,305.00
VŠB	Consumables	Storage media, computer technology, measuring modules, sensors, hand tools (such as drill, grinder, cutter, saw), backup sources, converters, computer technology, heated sampling lines, controllers, temperature sensors	5,300.00

		and evaluation units, compensation lines, routers.	
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Deliverable products

- 11 video spots (1-3 min) – 12/2021
- Information and training materials for Ecoheating – educational program – 12/2022
- Repeated one-time emission measurement and efficiency measurement at operators of combustion devices in households – 12/2026
- Automatic monitoring system for measurement of operating parameters of small combustion devices (wireless data transmission) – 12/2021
- Evaluation of measured operating and emission parameters of real heating sources in the time scale of individual heating seasons – 12/2026

Milestones

- 12/2021 - educational materials for information campaign (comics, colouring books, educational leaflets, information boards, guide to proper heating)
- 12/2021 - Finalization of 11 video spots on proper combustion in households
- 12/2021 - Automatic monitoring system for measurement of operating parameters of small combustion devices (wireless data transmission)
- 12/2021 - partial evaluation of the first phase of long-term measured operating parameters and one-time emission measurements on real boiler installations in households
- 12/2023 - partial evaluation of the second phase of long-term measured operating parameters and one-time emission measurements on real boiler installations in households
- 12/2025 - partial evaluation of the third phase of long-term measured operating parameters and one-time emission measurements on real boiler installations in households
- 12/2027 - final evaluation of long-term measured operating parameters and one-time emission measurements on real boiler installations in households
- 12/2027 - realization of 24 road show
- 12/2027 - realization of Smokeman show at nine exhibitions focused on TZB
- 12/2027 - training of min. 200 participants in proper heating courses

D. Monitoring of the impact of the project actions (obligatory)

<p>Action D. <i>Monitoring of the effects of implementation of Air Quality Management Plans</i></p>
<p>Beneficiary responsible for implementation: Slovak Hydrometeorological Institute</p>
<p>Description (what, how, where and when):</p> <p>Data collection and evaluation at regional level, estimation of emissions inventories focusing on specific parts of sources and regional distribution and evaluation of the possible effects of implemented measures.</p> <p>Currently, emissions inventories are prepared and reported at national level. Emissions inventory in residential heating sector is based on statistical surveys realised by the SHMI and Statistical Office of the Slovak Republic focused on households heating. Results were published and contained more complex data on residential heating habits and composition of heating bodies and media (fuels). Results for fuels and emissions balance were reported also to EUROSTAT for 2019. The results and indications show that there are considerable regional differences in the composition and quality of fuels and boilers used for individual residential heating and also in buildings characteristics.</p> <p>Supporting the actions of this project, further statistical surveys will be necessary for monitoring of effects of implemented measures. Questionnaire used for surveys relating to the emission inventory will be proposed by the SHMI These surveys would be requested in the middle of project and the end of the project. In addition, to fulfil conditions of this type of project, 3 years after the end of the project, the final survey will be needed.</p> <p>The close cooperation with the Statistical Office of the Slovak Republic is essential during this project. This will ensure reliability of obtained data. The emissions estimation will be prepared at the selected regional level focusing on specific parts of emissions sources/sectors. Pollutants of principal interest are PM_{2.5}, PM₁₀ and NO_x. The aim is to estimate targeted Slovak regions individually, starting with those heavily affected by air pollution and if possible, extending the quantification to those without specific information on air quality or with satisfactory air quality.</p> <p>One of the values added of this activity could be special emission inventories of pollutants in a targeted regions interconnected with additional air quality monitoring using mobile automated monitoring stations in selected areas. Measurement campaigns will be carried out at the beginning and at the end of the project by mobile automated monitoring stations (12 selected localities will be monitored in the years 2020-2022 and repeatedly in 2026-2028; in the years 2023-2025, at least another 2 selected localities will be monitored every year). These data will subsequently serve as a base for AQ modelling in abovementioned areas. This allows to focus special policies and measures to the selected regions.</p> <p>The 14 new monitoring stations are part of National Air Quality Monitoring Network funded by OP QE this year. Financial resources are already allocated for its set-up and the supplier have been selected. First valid monitoring data from new stations are expected by the 1Q 2020.</p> <p>Data from the entire National Air Quality Monitoring Network (38 AMS), which will be supplemented by 14 new stationary AMSs in 2021, will be used for the modelling and assessment of impacts on air quality.</p> <p>As of 21.07.2021, 7 new stations have been set up, that means 45 stations were to the date active. Data from the national monitoring network are available here:</p>

http://www.shmu.sk/sk/?page=1&id=oko_imis

<http://dnesdycham.populair.sk/>

Reporting on the implementation progress

A reporting tool will be commissioned by the MoE SR in order to establish a database of progress reports on the implementation of air quality measures (envisaged in the AQMP) by individual municipalities. The tool will be used by all municipalities in the region, as they are expected to report to the MoE SR on the air protection measures taken by them. This software solution will facilitate and consolidate the process of collecting data on the measures taken at the municipal level, thus ensuring prompt and reliable assessment of progress made in implementing the AQMP. An annual summary report will be drawn up, setting out the scope of measures taken in the previous year, including their estimated effects in terms of pollutant emissions reduction.

Reasons why this action is necessary

Development of the reporting tool will enable efficient and swift information sharing and comprehensive analysis of the obtained data. Thanks to this tool it will be easy to compare measures across different time periods as well as respective municipalities and juxtapose them with the initial objectives.

The aim of the action is to assess the effectiveness of measures taken by analysing collected information. It will help determine which measures are effective and which of them should be modified or intensified.

Additional measurements of air quality in selected municipalities will make it possible to verify the effectiveness of implemented initiatives and, if necessary, to take additional action. It will contribute to supplementing already existing information on the state of air quality in the region, which will be valuable also in the context of AQMP update.

Constraints and assumptions

Obtaining a reliable and comprehensive inventory on the regional level to a large extent will depend on the quality of data available at the municipal level in this respect. These data can be used in order to prepare input data on the regional level. However, not all the data will be available, therefore, it will be necessary to take into account some estimates and relevant indicators.

Application of air quality measurement data for assessing the results of implemented actions bears the risk of distortion by meteorological conditions in a given year (cold vs. warm winter, windy vs. calm weather, many vs. few days with inversion conditions). It may turn out that the results of emission reduction measures are not fully visible due to unfavourable weather conditions.

Expected results

- ✓ An application to collect reports on municipal-level activities is prepared and used by municipalities as well as the MoE SR.
- ✓ Quantitative and qualitative information is obtained on air quality improvement measures carried out in the region.
- ✓ Annual reports on the implementation of air quality improvement measures are prepared. Feedback is provided to beneficiaries on the effectiveness of measures taken.
- ✓ Thanks to quantitative differences between the inventories prepared for respective periods it is possible to verify whether the number of low-stack emission sources has decreased.
- ✓ Additional air quality improvement measurements are conducted and relevant reports are prepared.

Cost estimation

Personnel

SHMI	D	Permanent	Expert 1	151,898.00
SHMI	D	Additional	Expert 2	182,320.00

SHMI: Expert 1 - person responsible for the professional oversight and performance of the statistical survey and the evaluation of the results. It will be a person who will ensure the creation of a questionnaire (correctness in terms of content), communication with the Statistical Office of the Slovak Republic and the resulting professional evaluation of the statistical survey. In addition, expert 1 will be preparing emission inventories at a specific regional level and in the targeted sectors of air pollution sources (households, transport, etc.).

Expert 2 – work related to mobile monitoring (transport and care of the monitoring stations, regular inspection, and maintenance). Employee responsible for the technical aspects of mobile monitoring - from the provision of electrical connections, through the transport and installation of the mobile station to the maintenance of the equipment itself.

External assistance costs

Cooperation in the processes of creating questionnaires, training for interviewers, performing statistical surveys in households in selected regions, processing of statistical questionnaire and evaluation. The Statistical Office SR of the Slovak Republic will be the external body, conducting survey on several thousand respondents across the country.

SHMI	D	Monitoring of the indicator related to the emissions reductions (two surveys)	300,000.00 (150 thousand each)
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Other

- Electricity bill – contains cooling or heating of mobile container to laboratory conditions and operation of monitoring devices
- The transport and installation of the mobile monitoring station – transport costs (fuel), calibration of monitoring devices before measurement, regular inspection of the equipment, calibration fuels, technical gases, administrative fees, revision of electrical connections, tapes, filters, data transfer, and validation

SHMI	D	Electricity bill (1,000 EUR per month per station).	72,000.00
SHMI	D	Costs associated with the transport and installation of the mobile monitoring station	60,137.00

Deliverable products

- 1) Emission inventory for the selected regions available by 31/12/2021, 31/12/2025, 31/12/2027
- 2) Regional air quality assessment report and data base by 31/12/2023 and 31/12/2027
- 3) Structured distribution of small combustion sources by 31/12/2023 and 31/12/2027

Milestones

- 1) The first residential emission inventory for selected regions available by 31/12/2021
- 2) Comparison of regional air quality assessments and rate of air quality improvement by 31/12/2027

Integrated Projects 2018 - C1d

E. Public awareness and dissemination of results (obligatory)

Name of the action: E. Public awareness, dissemination and exploitation actions
Beneficiary responsible for implementation: Slovak Environment Agency Ministry of Environment of the Slovak Republic PEDAL Consulting
Action description (what, how, where and when): This action will aim to disseminate the project's results widely and beyond the borders of the LIFE project, by involving other networks and projects. It draws information from the other actions giving it shape and providing the global coherence and structure required for appropriate dissemination activities. Objectives of the campaign: <ul style="list-style-type: none">✓ Raising the awareness among local communities of the fact that the problem of air pollution affects their town/village as well.✓ Raising the awareness among local communities of the fact that air pollution contributes to a number of negative health, economic (e.g., a drop in earnings from tourism) and social impacts (e.g., negative health impacts).✓ Promoting the available instruments to support air quality initiatives (with particular reference to the elimination of low-stack emission sources): assistance offered by Air Quality Managers, subsidies for the replacement of obsolete heating systems with eco-friendly ones, support for householders to improve the energy efficiency of their homes if such instrument is created.✓ Encouraging local communities to take advantage of the abovementioned complimentary instruments. Awareness raising campaigns will focus on different target groups, such as general public (adults), teachers, school students/children and representatives of self-governing authorities (self-governing regions, municipalities). <u>TASK1: Strategic Dissemination and Communication plan</u> The dissemination and communication strategy will be devised with one main goal in mind: achieving the greatest possible impact within the allocated budget envelope, amongst the target groups identified. The plan will comprise the following stages: Stage 1 – Strategy The importance of situational analysis of the project will determine the definition of a coherent, consistent campaign. The brand strategy phase includes the creation at a holistic dimension of the project entire brand. For this, it is necessary to find, based on the goals and analysis performed in the previous stage, the answers and content for the central elements that will be the founders of all experiences and actions to be generated by the brand: values, attributes (how we want the brand to be perceived), positioning and brand language.

Stage 2 – Action plan

The Action Plan includes the detailed planning of all communication activities for LIFE IP SK and CZ campaign in a systematic manner. This involves:

- ✓ Creation of actions: creative definition of the communication action as well as the briefing of how this will be put into practice.
- ✓ Definition of Objectives: contextualization of the action in terms of how each action/message will be adapted to suit any particular target audience.
- ✓ Definition of and assignment to of the responsible party to carry out each action.
- ✓ Timing: definition of the time period of the action based on prior coordination with the other Actions
- ✓ Materials: definition of the communication materials to be created.

The dissemination and communication plan will be developed by PEDAL in close coordination with the SEA.

TASK 2: Dissemination and communication activities

Task 2.1 Development of the dissemination material

Based on the definition of the project's communication strategy, this task will be responsible for the creation of the visual identity and brand framework of the project including: Project logo; Standards manual; Keynote/Prezi; templates: Letterhead, Word, PowerPoint, email signature; Identifier hashtag for social networks; Brochure/leaflet model to be translated into each national language.

The information and awareness campaigns will build on the experience from on-going campaigns undertaken in Slovakia, Czech Republic and in other EU Member States with the aim to use all means available to promote a robust campaign addressing as many citizens as possible. Providing information on funding possibilities will be included as well.

Spots and educational videos	Production of spots and educational videos (approx. 6 videos with a length of 1-3 minutes) promoting the topic of air quality. Distribution through project and partner websites, social networks, project partners, local authorities, selected e-media and possibly through television. During the 1 st phase, project focused on production and promotion of spots through the TV (60 seconds videos in 2020 and 2021 – 2 videos altogether). However, this requires strong financial support with uncertain impact on target group. For the rest of the project duration, we decided to focus on less financial demanding solution – promotion within the online media with a stronger orientation on quality production – value for money.
Miniboards, posters, leaflets	Using outdoor media helps strengthen the message and make it better remembered. Miniboards and posters will be used in some strategic locations (shopping centres, supermarkets, near the churches, community centres, means of public transport etc.). The aim of miniboards and posters is:

	<ul style="list-style-type: none"> - Support of public interesting for achieving good air quality - Engagement of public to implementation of air quality management and to process of making air quality management plans - Attendance of public to implementation measures from air quality management plans and to control implemented measures from these plans <p>Leaflets and brochures will support project activities and will be designed and distributed to address local level.</p>
<p>Notice boards, with the LIFE logo, describing the project.</p>	<p>They will be displayed during the whole duration of the project permanently at strategic places, including the main entrances to the buildings of the coordinating beneficiary and all associated beneficiaries (public bodies). Furthermore, these notice boards will be also located temporarily at the venues of all project events (workshops, trainings, conferences, meetings, etc.). Finally, the notice boards will be placed at the entry halls of the working stations of all Air Quality Managers. It is proposed that the description of such notice board will include the following information: "LIFE18 IPE/SK/000010: Enhancing the implementation of Air Quality Management Plans in Slovakia by strengthening capacities and competencies of regional and local authorities and promoting air quality measures</p>
<p>National and local radio stations</p>	<p>Radio discussions – approx. 16 radio discussions regarding information about air quality mainly in air quality management areas, about causes and consequences of air pollution, measures for improving air quality, implementation of these measures and their effects etc. will be given by two/three expert participants.</p> <p>During the 1st phase, project focused on production and promotion of radio spots through radio stations (60 second radio spots in 2020 and 2021 – together 2 radio spots). However, this requires strong financial support with uncertain impact on target group. For the rest of the project duration, we decided to focus on less financial demanding solution – promotion within the online media with a stronger orientation on quality production – value for money.</p> <p>According to our experience, there already are radio formats focused on environmental topics and respective target groups. In addition, some AQMs were directly approached by radios to inform about the project and their work in the field of air quality and protection.</p>
<p>Press</p>	<p>Press campaign contributes to awareness raising, this is also where more information can</p>

	be published for people to take time to read about the details of the action. Native ads will be placed both in the most widely read regional newspapers and in small local weekly magazines that will reach readers from selected municipalities. Additionally, some ads will be placed on local press web pages.
Online communication	Online communication and targeted campaigns on social media will address public in air quality management areas and hotspots, offering tools and educational materials and information to improve local air quality.
Transit advertising (public transport and private buses), shopping centres, unaddressed direct mail, sampling of press materials at newsstands, advertising in cinemas	Most forms of outdoor advertising will be implemented in selected municipalities and in locations, where it is well-grounded will be used (outside large agglomerations such campaigns are much more difficult to implement). At the same time, when selecting the advertising media special attention will be paid to their information capacity and visibility. Additionally, among the selected forms of advertising will be those allowing for precise targeting (e.g. unaddressed materials delivered by mail to houses from selected districts or areas of a given town such as those where old housing stock prevails, not to flats)
Mural painting	Bringing attention to the topic of air pollution using a special kind of colors in a visible spot in the AQMA and at the same time beautifying the public space.
Digital information boards	Sharing information on air quality on digital information boards. The allocated budget for this activity varies depending on the amount and type of the boards purchased by beneficiaries.

Campaigns will be managed and carried out by the Slovak Environment Agency, having extensive experience in field of public information and awareness raising campaigns. Cooperation with partner from the Czech Republic is planned, as well as involvement of communication experts (PEDAL).

Task 2.2: Launch and maintenance of project website

The project website will constantly be updated with information of the project's ongoing activities and results. Among other, the public section of this website will also contain a dedicated:

- ✓ Section of news and events related to the project,
- ✓ General awareness section, to be updated with developments.

The project's website will be permanently linked to and publicised on other relevant websites and portals for children and teachers and the arrangement will be reciprocal to ensure maximum exposure.

SEA will be primarily responsible for this task.

Task 2.3 Dissemination in web and social networks

Use of social networks (SNS) will be an ongoing activity from the start of the project. It will reinforce the capacity of networking and visibility of the project during the whole period. Monthly editorial plans will be developed to ensure regular posting of content.

Consequently, the official website of LIFE SK, websites of project partners and blogs, social media such as LinkedIn, Facebook, Twitter, Instagram and YouTube will thus be used for promoting the project results.

Project newsletter will be published twice a year to inform LIFE IP SK team and stakeholders on project activities, events and outputs available. Newsletter for subscribers will also be published regularly to inform public on air pollution health effects and measures to reduce air pollution.

Press releases and articles will be published in different media in order to introduce the issues of air quality to a wider audience.

SEA will be primarily responsible for this task.

Task 2.4 Events, conferences and workshops.

During the first phase of the project the SEA will organize:

International Conference for relevant stakeholders including self-governing regions and selected municipalities

Description:

Conference will be focused on:

1. Information about LIFE project
2. Sharing experience in the field of air quality management at local and regional level
3. Good practices – measures for improving air quality
4. Financial mechanism for implementation of improving air quality measures

Reasons why this action is necessary:

- Support of disseminations of experience in air quality management at local and regional level

Milestones: 2021/2027

Expected results/Outputs:

- 2 x 2 days' international conference number of participants: 120

Furthermore, there are numerous opportunities for participation in national and international events related to air quality. Project partners will set up and maintain the list of third-party events and investigate the opportunities to present there the objectives and / or findings of the LIFE IP.

SEA will be primarily responsible for this task, supported by other partners.

Task 2.5 Development and maintenance of the LIFE IP SK contact list

Technical infrastructure to maintain the project contact list will be created. The contact list will be created and maintained using a privacy enhancing contact management software that enables potential contacts to opt in and opt out of the LIFE IP SK project list, thereby respecting privacy principles and good practices in meeting data protection requirements.

The contact list will be populated with the project partner contacts in the air quality domain, and will be built upon via networking initiatives, dissemination activities and via searching public records online in order to target stakeholder categories identified. Specific emphasis will be made to ensure adequate attention is given to a well-rounded sex/gender split to ensure that both male and female stakeholders are engaged with throughout the project.

TASK 3: Liaison with existing networks and initiatives

An important component of the LIFE IP SK project is to identify and liaise with existing networks and projects (Horizon 2020, FP7, Life, Norway Grants etc.) working towards encouraging higher local authorities' involvement in and commitment to cleaner air, increasing energy efficiency or innovative solutions in transport, enhancing their capacities of developing local/regional clean air initiatives. It involves contributing partners drawing on their own insights in combination with desk-based research to identify the various initiatives that currently exist in Europe. Subsequently, partners will develop a plan for how to leverage these networks will work towards establishing relations with those networks, building synergies and contributing to effective network building.

TASK 4: Exploitation and Sustainability Strategy

The aim of this task is to explore the exploitability and sustainability of the Procedures, Tools and Results of LIFE IP SK in order to achieve lasting impact on the enhanced capacities of target local authorities in improving air quality.

Ministry of Environment will produce a report (intermediate and final) with the support of all the partners. The Strategy will collect all the Procedures, Tools and other results from all the partners and will set the targets, indicators and milestones for ensuring the project results' life after the completion of project. It will also specify the guidelines for exploitation and transfer of project results outside the original project network and duration.

The main objective is to give value to the results achieved by the project for their sustainability & exploitation. Exploitation is mostly related to the idea of convincing the key actors (local authorities and intermediary organisations) to use the main Procedures, Tools and other results of a project. Exploitation Strategy will ensure that the results of the project will be used and possibly transferred to other contexts (e.g. other localities, other areas and other sectors).

For instance, the feasibility study on LEZ developed by C3 may be a direct part of NAPCP analysis of newly proposed measures. In current version of NAPCP, LEZ is considered as "Other potential measure". Once the feasibility study is conducted, its results may be published in NAPCP and considered as a primary measure for further emission reduction, if proven effective. By the published Guidance on SMP preparation by Ministry of Transport, Construction and Regional Development, the SMP is obliged to take into consideration already developed relevant strategic documents as well as requests of urban development plans. LEZ feasibility study is a helpful document, which ought to be stated and considered while preparing SMP.

TASK 5: Mechanism to involve other municipalities and regions.

Air Quality Coordination Unit in cooperation with the Department of Air Protection at the Ministry of the Environment will disseminate the best practices from the project to other regions and municipalities. This will be done through different workshops, conferences and meetings after the end of the project, organised either by the Ministry itself or by other relevant organisations. MoE SR plans to adjust competences and responsibilities of municipalities via amendment of Air Protection Act. The extended competences will allow the municipalities more flexibility in implementing measures to ensure improvement of air quality management based on the LIFE project results.

If proven useful, after the project the MoE SR will seek to continue the practice of supporting other municipalities to utilize AQ manager potential. Original AQ managers will be then considered also as trainers, supporting selection of new managers in involved areas and training them thereafter. *To secure projects sustainability we will also introduce a voluntary personal re-assessment of AQ managers if they need one, so we can always account for their qualification and productivity during the project.* Throughout the project, the key role of AQ manager will also be developing functioning network between governmental institutions and self-government. Expected network will generate confidence in system and support for any new municipalities interested in improving their own local air quality, also via measures proposed by either original, or newly hired and trained AQ manager. Municipalities will be addressed by each AQ manager during the project life-time in activities such as raising awareness, or local workshops. This information will also be available at to-be developed AQ portal, self-governing regions websites and AQ managers will provide a newsletter for addressed municipalities.

TASK 6: Mutual learning workshops related to the OP 2021-2027 / 2028-2034 (partner responsible: MoE SR)

Coordination with the managing authorities of individual OPs in relation to the OP 2021-2027 / 2028-2034 will be set upfront by the Task Force as described in B3, defined by the Code of Conduct – deliverable 21. Under this task, MoE SR will organize a mutual learning workshop gathering AQ managers, Coordination Unit, LIFE Project Managers and Task Force, done every two years, presenting best practices from the field, informing on general attitude towards calls, actions and subsidies proposed by managing authorities. These workshops will be mutually beneficial, as Task Force will learn first-hand about their work, potentially motivating them to improve and AQ managers will learn more about future financial plans and schemes.

Reasons why this action is necessary

Low level of public awareness of problems connected with air quality, its reasons/causes and impacts on health and environment has been identified as one of the key problems hindering the local air quality improvement and implementation of air quality measures. Without changing behavioural patterns and mind-set of citizens, significant changes are hardly to be achieved. Systematic and well-organized long-term awareness raising campaigns and effective use of communication tools should bring expected results in a long-term perspective.

Constraints and assumptions

The main risk associated with the action does not refer to its implementation as such (for which the co-beneficiary takes full responsibility), but rather to the relevance of the message promoted during the campaign. Improperly selected messages may reduce effectiveness of the campaign. In order to minimise this risk, regions and municipalities, as well as additional stakeholders involved in the project will be invited to any public events organised by the LIFE IP.

Expected results

- Campaigns prepared and conducted in the territory of Slovakia will be employed, with focus on selected municipalities. It includes: video spots, minibboards, posters, leaflets, press advertising, advertorials, internet advertisements, internet mailing, Google and Facebook ads, ads on public transport vehicles in the municipalities.
- Residents will become more aware of air pollution its causes and health impacts, which will be quantitatively assessed on the basis of the results of public opinion surveys referred to in action D.
- Campaign materials (spots and educational videos, miniboard and poster creations, press advertising, advertorials, internet ads, other ads).

- During the 1st phase, project focused on production and promotion of spots through the TV and radio (60 seconds videos in 2020 and 2021 – 2 videos altogether)
- Spots and educational videos with a length of 1-3 minutes (6 different versions over a period of years 2022-2027) – promotion within online media
- Approx. 16 radio discussions – 2 radio discussions a year 2020-2027
- Leaflets on air quality management in air quality management areas (around 350 printed leaflets per each of the 8 slovak regions)
- Miniboards and posters 2020-2027
- Notice boards
- A Layman's report will be produced in paper and electronic format at the end of the project. The aim is to present the main effects of project implementation in a simple and clear way. The report will be presented in English and Slovak language. It will be 5 to 10 pages long and present the project, its objectives, its actions and its results to a general public. The production of this deliverable will be lead by the coordinating beneficiary.
- Conference for self-governing regions and selected municipalities and other stakeholders from Slovakia and Czech Republic – 2 conferences 2021/2027.

Cost estimation

Personnel costs

SEA	E, C2	Additional	Action Manager 1 (more employees in one position - working on C2 and E)	100,800.00
SEA	E, C2	Additional	Expert 1 (more employees in one position, working on C2 and E)	81,090.00
SEA	E, C2	Additional	Expert 2 - specialist - air quality 1 (working on C2 and E)	123,200.00
SEA	E, C2	Additional	Expert 3 - project manager, specialist - air quality 2 (working on C2 and E)	134,355.00
SEA	E, C2	Additional	Expert 4 - specialist - air quality 3 (working on C2 and E)	54,756.00
PEDAL	E	Permanent	Dissemination & Communication Manager	410,554.00

Slovak Environment Agency (SEA) will participate in the implementation of the following actions: C1, C2, E and F. Activities will be provided by the project team composed of the project manager, financial manager, 4 Air Quality Managers and other experts. Experts will have different roles and responsibilities to ensure defined activities. Given the nature of the activities, experts must have a different focus and experience. Different workloads as well as different levels of responsibility are the reason for the different rates used in the budget.

External assistance costs

SEA	E	Information panels and leaflets (advertisement cost and production of posters) (rest of the project)	251,847.00
SEA	E	Broadcast and TV shots for improving air quality in air quality management areas (advertisement cost) (1 st phase)	69,390.00
SEA	E	Spots and educational video on air quality (rest of the project)	90,000.00
SEA	E	Broadcast (TV, online) (rest of the project)	60,000.00

SEA	E	Leaflets on air quality management in air quality management areas (around 350 printed leaflets per each of the 8 Slovak regions) (1 st phase)	12,620.00
SEA	E	Press campaign, e-mail marketing, google (advertisement cost)	174,000.00
SEA	E	Interpretation of events, translation, printing of documents and graphic design (1 st phase)	16,673.00
SEA	E	Interpretation of events, translation (rest of the project)	24,000.00

SEA	E	Conference for self-governing regions and selected municipalities and other stakeholders from Slovakia and Czech Republic (accommodation for appx. 160 participants, 2x lunch, 1x dinner, 3x coffee break, venue, technical equipment and assistance, contractor) – 2 conferences planned during the project	37,080.00
Trenčín	E	Mural painting painted by special colours with a positive impact on air quality	6,600.00
Prešov	E	Mural painting painted by special colours with a positive impact on air quality	7,600.00
Prešov	E	Digital boards - renting of digital information outdoor screen	18,000.00

Equipment

MoE SR	E	Digital information outdoor screen on air quality (1)	5,000.00
Trenčín	E	Digital information outdoor screen on air quality (2)	11,000.00
Trnava	E	Digital information outdoor screen on air quality (2)	11,000.00
Žilina	E	Digital information outdoor screen on air quality (1)	5,000.00

Deliverable products

- 1) Dissemination & communication Plan by 30/4/2020
- 2) Annual reports on dissemination activities starting by 31/12/2020
- 3) Notice boards with LIFE logo by 31/3/2020
- 4) A layman's report in Slovak and English language by 31/12/2027
- 5) Report on mutual learning workshops related to the OP 2021–2027 / 2028–2034 by 31/12/2027
- 6) Mechanism to involve other municipalities and regions by 31/12/2027

Milestones

- 1) Dissemination & communication Plan prepared by 30/4/2020
- 2) All dissemination KPIs achieved by 30/4/2027

F. Project Management and monitoring of project progress (obligatory)

<p><i>F.1 Name of the action: Project Management Activities</i></p>
<p><i>Beneficiary responsible for implementation:</i> <i>Ministry of Environment SR, supported by PEDAL Consulting</i></p>
<p><i>Action description (what, how, where and when):</i></p> <p><u>TASK 1: Overall Project Management</u></p> <p>MOE SR will act as the main contact with the EC, arranging meetings with the officer in charge of the project when required. MOE SR will distribute the funds among partners according to the Grant Agreement (GA) and the Consortium Agreement (CA). As a rule, the pre-financing will not be distributed until the CA is signed. Consortium agreement is signed between the coordinating beneficiary and each of the associated beneficiary respectively.</p> <p>MOE SR will be in charge of commissioning and applying effectively the designed governance structure and the communication flows and methods. These will be presented in the Kick-Off Meeting and gathered in the Project handbook (management and quality plan) deliverable for common understanding and follow-up.</p> <p>The project handbook will be an internal document that will set the basis for the governance structure, the communication channels and methods, as well as the periodicity of the reporting to the task and Action leaders, the Project Coordinator and the EC. It will also establish the conflict solving methods. This will be a living document that may change depending on the project needs during its whole lifecycle. This task will contribute to the handbook by creating next contents: quality requirements for the project, organisational structure, general measures and actions taken, planning and control (including a contingency plan in case of deviation), conflict handling and IPR (according to the CA), risk management, files and archives.</p> <p>LIFE IP will make use of a number of management tools, specially designed for European integrated projects. To this end, a user guide will be available for the partners. Moreover, MoE SR will acquire the licenses for an intranet system to support the coordination tasks and monitoring of the project progress. The intranet will be integrated in the public website of the project, which will be developed in Action E as a dissemination tool. Nevertheless, the intranet aim is to provide to LIFE IP consortium a collaborative working space for developing and coordinating the project activities internally. In addition, MoE SR will also acquire a license for a software enabling organization of teleconferences, online meetings and online collaboration (preferably MS Teams) for the exclusive use of the consortium members, so as to save costs from travels and improve the internal communication of the project.</p> <p>Finally, this task will also include the promotion of specific actions and control over gender issues along the project, including them, annually, in the reporting period's reports. Actions that would be undertaken to promote gender equality will also consider: 1) when contracting additional staff, special emphasis will be given to attract qualified female applications; 2) including women as much as possible in the performance of the different actions and tasks of the project; 3) promoting visibility in publication and citation of articles and activities.</p> <p><u>TASK 2: Progress monitoring and reporting</u></p> <p>MoE SR will track the progress of the project using the intranet and with regular meetings between the members of the Steering Committee (SC). The SC, as execution body of the project will meet physically or online at least twice a year. In order to maximize the efficiency</p>

of the available resources, these meetings will be held back-to-back with workshops and other meetings organized under other Actions of the project. In addition, there will be arranged teleconference meetings with the SC, at least every three months so as to update the state of the tasks. In the meetings, the technical and financial progress of the project will be reported. The technical and financial reports describing the progress of the project will be sent to the EC in accordance to the periods established in the GA.

At the beginning of the project, MoE SR will present a set of key performance indicators (KPI) in line with those included at proposal level above responding to the text of the project proposal to come up with a way to measure the project results. These documents of KPIs targets will be reviewed during the first 6 months of the project later on will be utilised to monitor the achievement of project outcomes and strategic objectives over its duration. All partners will be responsible of updating the information to the Action leaders, while Action leaders, together with the project coordinator, will be in charge of project reporting.

TASK 3: Quality Assurance

Quality management counts with this specific task due to its relevance and importance within the project. In the beginning of the project, MoE SR will provide to all the partners, and specifically to the Action leaders, the guidelines and instructions to ensure the quality of the works and, in general, the quality of the project. These procedures will be integrated in the corresponding deliverable, based on the following concepts: quality requirements of the project; planning and control; organizational structure; quality control of regular deliverables; quality control of key deliverables (key DLV); quality control of communication materials; quality control of the project.

Assurance of quality of the deliverables is a crucial issue. For that purpose, specific instructions will be included in the Project Handbook. Regular deliverables will undergo a simpler preparation and review process, including DLV responsible, task participants, Action leader and PC in a step-by-step review process. Key DLVs, due to their high impact, will be object of a different review process. Technical partners and Project Coordinator, member with high expertise in DLV creation, will participate in the review process. MOE SR, as responsible of communication, will monitor the first stage of key DLVs scoping.

TASK 4: Ethical and data management

All key elements dealing with identifying and carefully follow Ethical and data management high standard procedures will be considered in this task. The ethics issues are related to methods planned to be used in the studies that may require personal data collection. In the case of the LIFE IP project, it is an instrumental issue as many activities are subject to exchange of data and experiences, as a core of the overall project. Therefore, all the personal data to be collected during interview, brainstorming, questionnaire or workshops, will be carefully analysed and treated with the highest quality standards. In overall, the following elements will be developed: how to identify/recruit research participants, the way to carry out the informed consent procedures that will be implemented for the participation of humans and in regard to data processing. To this end, templates of the informed consent forms and information sheets covering the voluntary participation and data protection issues (in language and terms intelligible to the participants) will be developed and kept on file (to be specified in the grant agreement). On the other hand, following elements will be detailed studied and integrated in the management system: General Data Protection Regulation 2016/679 (GDPR) a detailed data protection policy for the project, how all of the data the LIFE IP intends to process is relevant and limited to the purposes of the research project, to safeguard the rights and freedoms of the data subjects/research participants, potential (If it is the case in the LIFE IP) personal data are transferred from the EU to a non-EU country or international organisation and how it is in accordance with Chapter V of the General Data Protection Regulation 2016/679.

TASK 5: Establishment of the Task Force

In order to effectively coordinate the project efforts with other ministries, the additional institute of the "Task Force" will be set up and included into the overall project management structure. The aim of this Task Force will be to establish close cooperation among all the relevant ministries managing complementary funds described in Form FP. We foresee that one representative from each ministry will be appointed and act as the main contact point for in the context of the Task Force.

The Project Coordinator will contact the Task Force members regularly in order to link to, create synergies, support and augment the activities they provide. The goal is to map the complementary funding provided as well as to avoid duplicating topics and filling the gaps.

Task force of the IP will work in parallel and following to the working group on synergies and complementarities established and managed by the Central Coordination Body (Office of the Deputy Prime Minister of SR for Investments and Informatization) which represents an active cooperation of Managing Authorities and other Authorities responsible for EU and Slovak financial instruments in the process of identification of synergies in drafted call for proposals. Each call for proposal under any OP is consulted and assessed at the preparation stage against synergies defined in the methodological document, which includes all synergies among the OPs defined at the beginning of the programming period 2014-2020.

Project team will prepare different cross-sectoral concepts taking into consideration actual situation and needs, opportunities and learning from best practices from Czech Republic, Poland and Hungary in order to overcome the activities of individual authorities in the Slovak Republic with the aim to contribute to the unique solutions for the air quality improvement (replacement of old boilers with the utilisation of the database, preparation/ selection/ financing of measurements within AQMPs, etc). These concepts will be communicated during preparation with relevant actors and final versions will be provided for relevant stakeholders during Task Force meetings.

Reasons why this action is necessary

Proper execution of project management activities should ensure appropriate implementation of actions provided for under the project as well as its coordination, management and supervision. To implement the project, it is necessary to define its objectives and then to monitor and assess the degree of their fulfilment. It is essential that effects of respective project phases are objectively assessed so that necessary modifications are identified and next phases are planned accordingly.

Constraints and assumptions

The management of the LIFE IP implementation will be challenging due to the scale of actions planned and a significant number of partners and institutions involved. Therefore, the managerial staff should consist of persons experienced in project implementation and cooperation with municipal governments.

In order to address this challenge adequately, project partners decided to involve the experts from PEDAL Consulting as the associated beneficiary. PEDAL has the long and proven track-record in implementing successfully EU funded projects of the similar type and scope.

PEDAL will work closely in tandem with the MoE SR in order to address appropriately the tasks listed in Action F1.

Expected results

- 1) Effective management of the project with the participation of 13 partners and about 20 other stakeholders. The project will contribute to broadening the knowledge and

experience of the MoE SR and to the implementation of other valuable projects in the future.

- 2) Project implementation in accordance with the assumed deadlines and fulfilment of the project objectives. Deliverables and milestones delivered in line with the time plan.
- 3) Reports (Annual progress report, annual dissemination report, annual report on AQMs progress, as well as Interim reports and Final report) from each phase of project implementation are prepared by the MoE SR with the input of all partners.
- 4) An independent assessment report and financial audit are prepared by external companies after each phase of project implementation.

Cost estimation

Personnel

MoE SR	F	Additional	Project Coordinator (1)	465,920.00
MoE SR	F	Additional	Project Manager senior (1) - previously one of "2 additional persons as project managers"	374,400.00
MoE SR	F	Additional	Project Manager Administrator (1) - previously one of "2 additional persons as project managers"	287,040.00
MoE SR	C1.2, C3, D, F	Additional	Experts (4) - previously as "action manager (2xC3)", action manager (D), action manager (C1.1)"	210,036.00
PEDAL	F	Additional	Project Manager	450,640.00
PEDAL	F	Additional	Project Manager	450,640.00

Travel

MoE SR	C1.1, C1.2, C2, C3, D, E, F	Inside SR		154,000.00
MoE SR	C1.1, C1.2, C2, C3, D, E, F	Within Europe		77,200.00
MoE SR	C1.1, C1.2, C2, C3, D, E, F	Outside Europe		3,600.00
SEA	C1.1, C1.2, C2, E, F	Inside SR		135,200.00
SEA	C1.1, C1.2, C2, E, F	Within Europe		4,800.00
Banská Bystrica	C1.1, F	Inside SR		10,600.00
Banská Bystrica	C1.1, F	Within Europe		11,700.00
Trenčín	C1.1, F	Inside SR		22,300.00
Trenčín	C1.1, F	Within Europe		

			5,400.00
Trenčín	C1.1, F	Outside Europe	5,400.00
Trnava	C1.1, F	Inside SR	14,000.00
Trnava	C1.1, F	Within Europe	11,000.00
Zilina	C1.1, F	Inside SR	7,000.00
Žilina	C1.1, F	Within Europe	10,700.00
Prešov	C1.1, F	Inside SR	11,000.00
Prešov	C1.1, F	Within Europe	6,000.00
Prešov	C1.1, F	Outside Europe	2,500.00
Košice	C1.1, F	Inside SR	9,000.00
Košice	C1.1, F	Within Europe	5,000.00
Košice	C1.1, F	Outside Europe (neighbouring region – Ukraine)	2,000.00
Bratislava	C1.1, F	Inside SR	20,000.00
Bratislava	C1.1, F	Within Europe	10,000.00
PEDAL	F	Within Europe	5,348.00
CEPTA	C2, F	Inside SR	14,400.00

External assistance costs

MoE SR	C1.1, C1.2, C2, C3, F	Organization of meetings	90,135.00
MoE SR	C1.1, C1.2, C2, C3, F	Webinar fees, exhibition fees (tent rent, catering)	10,300.00

Equipment

MoE SR	C1.1, C1.2, D, F	Laptop and office software for the LIFE IP team under MoE SR (12)	26,990.00
MoE SR	C1.1	IT storage place	2,400.00
MoE SR	C1.1, C1.2, D, F	Software licenses	5,000.00

Other

MoE SR	F	Financial audits	18,000.00
MoE SR	F	Renting the office space for the LIFE IP team under MoE SR	176,000.00

Deliverable products

- 1) 8 regular annual progress reports on project activities starting by 31/1/2021 - report prepared by the end of January each subsequent year
- 2) Code of conduct for operating LIFE IP Task Force by 31/3/2020
- 3) Concept for creating synergies among different actors with the utilisation of financial mechanisms by 31/12/2027

Milestones

- 1) A kick-off meeting initiating the project is organised – by 31/1/2020
- 2) Financial audit covering Phase 1 of the project is prepared – by 31/3/2022
- 3) Financial audit covering Phase 2 of the project is prepared – by 31/3/2024
- 4) Financial audit covering Phase 3 of the project is prepared – by 31/3/2026
- 5) Financial audit covering Phase 4 of the project is prepared – by 31/3/2028

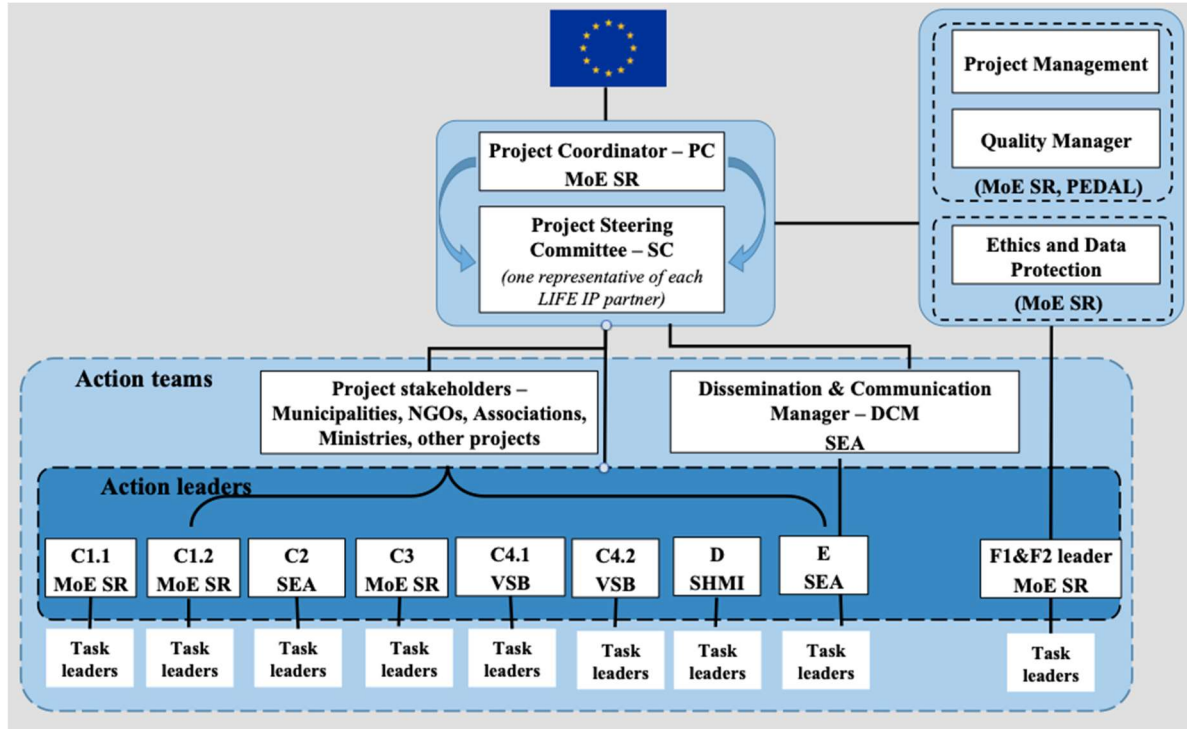
F.2 Name of the action: Project Management Structure and Decision Making Mechanism

Beneficiary responsible for implementation:
Ministry of Environment SR

Action description (what, how, where and when):

TASK 1: Project Management structure

The diagram below depicts the project management structure.



The various management levels, roles and responsibilities are briefly explained below.

Project Coordinator (PC)

Project Coordinator (MoE SR) is responsible for the coordination of project activities. The PC coordinates and manages those items that affect the contractual terms with the EC (which will be fixed at the outset of the project), as well as the technical and scientific activities of the consortium. The mandate of the PC is outlined (but not limited to) the following: (i) Accomplishment of project objectives within time schedule & budget constraints; (ii) Overall project planning and scheduling and chairing the Project Steering Committee; (iii) Coordination of partners and organisation of project meetings; (iv) Internal (among the consortium partners) and external (to the EC) reporting, documentation and financial management (all of them through the Project Steering Committee); (v) Representation of the LIFE IP project and partnership to external stakeholders and initiatives; and (vi) Communication with the EC.

Steering Committee (SC)

Mrs. Gabriela Fischerova (MoE SR), serves as the chair for the Steering Committee (central decision maker of the project). The Steering Committee (SC) consists of one representative per partner and is the formal decision-making body of the consortium dealing with all key

strategic decisions. Individually, SC members are responsible for the on-time delivery of results on behalf of the partner they represent, assure the quality of the work executed, monitor budgetary and technical results, and gather input for internal and external reporting and documentation. Finally, the SC also coordinates and manages items affecting the contractual terms with the EC.

Ethics and Data Protection

As the project involves data and user involvement, a data protection and ethics protocol will be developed for the consortium to agree upon and follow. MoE SR will be responsible for ensuring an efficient and effective implementation of the project's Ethical requirements and Data Management, by tracking and ensuring that the relevant rules are understood and not contravened (Action E, Task 4). An "Ethics Manager" will be appointed by the SC at the kick-off meeting, who will monitor the partners activities to ensure that any unforeseen ethical issues will be handled in the appropriate manner. Data collected during interviews, surveys or any other activity will only be made public with the consent of participants. Additionally, the Ethics Manager together with the SC will ensure that all necessary approvals (if any required) will be obtained from Data Protection authorities in due time.

Dissemination Manager (DM)

The Dissemination Manager will be responsible for the design and implementation of the "Dissemination and communication strategy", lead the partners' effort to increase awareness on the scope and activities of the LIFE IP, coordinate the dissemination and sharing of ideas with external stakeholders, and ensure the widest possible diffusion of LIFE IP' outcomes to its main target groups.

The Action Leader (AL)

The Action Leader (AL) will be responsible for the coordination of the partners collaborating under the specific Action to ensure the quality of the executed work as well as the accomplishment of the relevant project objectives and targets. The ALs will also be responsible for: (a) resolving day-to-day administrative, technical and resource problems within his/ her Action, (b) disseminating information relating to all aspects of the work to the other Actions ensuring smooth coordination of Action activities and (c) reporting to the upper levels of project management (PC, SC).

The selected management structure offers a good balance of the various elements that affect management design and operation (i.e. simplicity, flexibility, effectiveness, etc.). It is easily comprehended by every member of the LIFE IP team as it incorporates specific and clear roles.

TASK 2: Decision making mechanisms and procedures

Project Management Tools for planning, monitoring and reporting

The PC and PMO will utilize on-line Project Management Tools that facilitate project planning, monitoring, and information collection and reporting thus, ensuring that project information is always up-to-date, and can be reported in a timely and consistent manner. The respective tools will also feed the Periodic Reporting to the EC.

Information flow means and mechanisms

Project information flow will be channelled through: (i) mainstream electronic communication (e.g., emails, phone, online collaboration tool, internal web-site, etc.); (ii) bi-annually scheduled, and if necessary, ad-hoc SC meetings (online); (iii) ad-hoc virtual or physical technical meetings; (iv) internal semester progress reporting (from partners to PC); (iv) the

project workshops and other events; and (v) within the preparation context for the official reporting to the EC.

Consortium meetings

Apart from the Kick-off meeting, sixteen (16) consortium meetings are scheduled. These meetings will constitute major milestones for planning, exchanging information among partners, assessing project progress and success (financial and technical) and for taking major decisions about project execution. Minutes of all meetings will be kept and circulated to all partners, including relevant Action Lists. Project partners will have a week upon receipt of the minutes to comment on them, otherwise they will be considered as approved and form part of the project's implementation plan.

Management and Quality Plan (MQP)

A Management and Quality Plan (MQP) tailored to project's size, complexity and particularities will be developed at the beginning of the project. The MQP will operate as a tool for monitoring activities and measuring progress, reassuring both project smooth implementation and quality of deliverables.

Consortium Agreement (CA)

A Consortium Agreement (CA) between the coordinating beneficiary and each of the associated beneficiary respectively will be signed before any partner commences work on the project. By entering to the CA, LIFE IP partners will further regulate specific rights, obligations and operational aspects that are not explicitly defined in the EC contract. The CA will be based in line to LIFE rules, set specific decision mechanisms and procedures and clarify all financial, dissemination, administrative, knowledge management, IPR, and other issues that may arise in the project.

Risk management

An initial identification of risks and related contingency plans can be found in B6. Critical Risks for implementation and contingency plans. A more comprehensive list will be included in the Management and Quality Plan (MQP), accompanied with the relevant contingency plans. The MQP will also include the specific procedure to be followed (i.e. the exact steps and documentation for reporting the risk, analysing it, establishing and putting in place the contingency actions and verifying their efficiency and effectiveness etc.), together with the respective responsibilities, whenever a new risk is identified or an already identified risk occurs. The list of risks will be updated on ad hoc basis (whenever new risks are identified). For every new major risk identified (e.g., identification of potential hazards in relation to work, time scheduling and/or budget constraints, etc.), a contingency plan will be prepared to safeguard the proper implementation of project activities, the quality of project results and deliverables and the on-time execution of events. Contingency plans will be incorporated to the overall organizational work plan of the project and will be further specified on particularities. Risks will be assessed separately and will be reported at least on a semester basis in the project internal reports.

Resolving conflict and controlling changes

The SC members and the ALs will immediately notify the PC of any events or circumstance that may significantly affect the performance of the work executed (e.g., suggestions for considerable improvements and modifications – changes in the methodology, timetable and task allocation, potential delays, disputes among partners, etc.). The PC will be responsible for and will try to resolve any raised issue by consulting the responsible APL and any partner(s) directly involved. The PC will try to reach a compromise between conflicting parties based on consensus and taking also into account the conformity/ compliance to project

objectives and work plan. In the event of an unsuccessful mediation by the PC, he will then forward the conflict to the SC for the final decision to be taken. The SC will try to respond to changes or settle conflicts by achieving consensus among all parties. If consensus cannot be achieved or/ and conflicts remain unsolved, the SC will decide on the matter through vote. Further details with respect to the decision-making, conflict resolution as well as the management of internal administrative – financial issues will be incorporated in the Consortium Agreement of the project, which will be prepared and signed by all partners at the launch of the project.

Reasons why this action is necessary:

The above-mentioned decision-making procedures and mechanisms enable the consortium to effectively manage LIFE IP, retain full control over its resources, schedule and activities, and continuously assess progress so as to respond to changes and risks that may stem from the internal and external environment. Consequently, LIFE IP consortium becomes fully equipped to ensure consistency among its activities and objectives, seek for high quality and ambitious outcomes, and thus, safeguard overall project success.

Constraints and assumptions

The management of the LIFE IP implementation will be challenging due to the scale of actions planned and a significant number of partners and institutions involved. Therefore, the managerial staff should consist of persons experienced in project implementation and cooperation with municipal governments.

Expected results

The Project Management Structure and Decision-Making Mechanism successfully adopted and implemented.

Cost estimation

The relevant cost items related are already covered by F1.

Deliverable products

- 1) Partnership Agreements by 30/6/2020
- 2) Amendment to the Partnership Agreements with original partners signed by 30/03/2022
- 3) Partnership Agreements with new project partners signed by 30/03/2022
- 4) Interim report and request for payment for Phase 1 and Plan for Phase 2 (Deadline: 31/3/2022)
- 5) Interim report and request for payment for Phase 2 and Plan for Phase 3 (Deadline: 31/3/2024)
- 6) Interim report and request for payment for Phase 3 and Plan for Phase 4 (Deadline: 31/3/2026)
- 7) Final Report (Deadline: 31/3/2028)

Milestones

- 1) All 16 Steering committee meetings implemented
- 2) All project KPIs are achieved

DELIVERABLE, MILESTONES AND REPORTING SCHEDULE**MAIN DELIVERABLE PRODUCTS OF THE PROJECT**

Name of the Deliverable	Code of the associated action	Deadline
1) Guidelines specifying necessary education, qualifications and experience for Air Quality Managers to be selected, including Terms of Reference and methodological instructions for the first year	C1.1	29/2/2020
2) Annual AQMP report (individual review of measurements implemented)	C1.1	31/1/2022 31/1/2023 31/1/2024 31/1/2025 31/1/2026 31/1/2027 31/1/2028
3) 8 annual reports produced by Air Quality Coordination Unit each year on the tasks and activities implemented, covering: <ul style="list-style-type: none"> a. Evaluation of their work and progress towards their objectives b. Reduction of per capita emissions of pollutants originating from home heating (PM10, PM2.5, benzo(a)pyrene) in targeted municipalities participating in the LIFE project c. Assessment of capacities Quality Managers to of regions employing Air effectively carry out the tasks envisaged in the AQMP. d. The status of all regions in terms of introducing an integrated system for air quality management and energy consumption planning. e. The degree of increased awareness and engagement of local residents in air protection and green behaviour 	C1.2	31/1/2021 31/1/2022 31/1/2023 31/1/2024 31/1/2025 31/1/2026 31/1/2027 31/1/2028
4) Training materials, a forum and a manual for the Air Quality Managers ensuring that entities dealing with air quality are more competent and qualified to perform their duties (the Air Quality Managers in particular)	C1.2	30/4/2020
5) A report analysing different scenarios for low-stack emission abatement and energy efficiency improvement in the selected regions by 2030	C1.2	31/12/202
6) The knowledge base, website, good practices and services aimed at more effective AQMP updating process and more impactful practical assistance to mayors, municipal councillors, control bodies, neighbouring countries and other stakeholders.	C1.2	30/6/2020
7) A review of Slovak, Czech and Polish experience in the implementation of air quality plans	C1.2	31/12/2021
8) A report analysing the possibilities for increasing the effectiveness of the control system over atmospheric pollutant emissions in Slovakia	C1.2	31/12/2021

9) Indicators related to AQMs performance	C1.2	31/12/2021 31/12/2022 31/12/2023 31/12/2024 31/12/2025 31/12/2026 31/12/2027
10) Education and training plan for AQMs	C1.2	31/1/2022 31/1/2023 31/1/2024 31/1/2025 31/1/2026 31/1/2027
11) Web-application on ambient air quality in Air Quality Management Areas for the public information	C2	30/6/2020
12) Mobile application (MoE SR)	C2	31/12/2022
13) Training material for teachers and schools including: - Training manual for teachers - Worksheets for pupils and students - Information leaflet - Identification keys with methodology - Matching game - Poster - Safe routes to school mapping methodology	C2	30/11/2023
14) Methodological manual - "Sustainable mobility"	C2	30/11/2020 30/11/2022 30/11/2024 30/11/2026
15) A report summarizing the findings on the ultrafine particles' pollution from traffic, residential heating and indoor pollution	C2	31/12/2023 31/12/2025 31/12/2027
16) Recommendations to ultrafine pollution reduction from traffic and residential heating	C2	31/12/2027
17) Methodology of the informative monitoring of air quality	C2	31/12/2022
18) Informative AQ monitoring reports – close to reference stations	C2	31/12/2027
19) Informative AQ monitoring reports – UAV	C2	31/12/2027
20) Slovak Air Quality Index	C2	31/12/2021
21) Analysis and reports from the greenery planting	C2	31/12/2027
22) 2 feasibility studies for transport solutions to improve air quality in selected cities	C3	31/12/2027
23) Recommendations, published every two years, and input material to design regional and local policies, as well as legislation to improve the effectiveness of air quality measures. The reports will take into consideration: a. The number of replaced solid fuel boilers in Slovakia b. The level of streamlined administrative procedures for subsidy award in order to make sure that all the interested parties receive their subsidies in the same year in which they file applications. c. The number of engaged households, who had received support and/or advice from the Air Quality Managers.	C3	31/12/2021 31/12/2023 31/12/2025 31/12/2027

<p>d. Increased awareness of residents with regard to the needs and possibilities of energy efficiency improvement in their apartments and houses.</p>		
<p>24) Information and training materials for Ecoheating – educational program including:</p> <ul style="list-style-type: none"> • Information leaflets and brochures about proper heating; • 11 video spots (1-3 minutes) • Training materials for the Ecoheating educational program; • Training for the government officials involved in air protection; • Training of the secondary and elementary school students; 	C4	31/12/2022
<p>25) Repeated one-time emission measurement and efficiency measurement at operators of combustion devices in households</p>	C4	31/12/2026
<p>26) Automatic monitoring system for measurement of operating parameters of small combustion devices (wireless data transmission)</p>	C4	31/12/2021
<p>27) Evaluation of measured operating and emission parameters of real heating sources in the time scale of individual heating seasons</p> <p>The aim of this part of the project is to measure the operating parameters of boilers (performance, operating temperatures, etc.) in real households, which will be carried out during the long term and with repeated measurements of emission parameters (CO, NOx, CO2 or O2, dust) in frequently repeated operating conditions. Current emission balances consider the heat loss of house basically only depending on the age of construction, but the reality is that each household has a different daily cycle of heat demand. This implies that the boilers are actually operated in different hours and in different modes.</p> <p>The aim is to determine the emission parameters of the actually operated boilers in their typical operating conditions, to evaluate which operating conditions of the boilers are the most common and also to evaluate which part of the season the boiler is operated at nominal output and which part is operated at reduced output.</p> <p>The deliverable will be the quantification of differences between label and real pollutant emissions, including the evaluation of which part of the heating season the emission parameters of the boilers are significantly worse. E.g. when the boilers are operated at minimum output at the start and end of the heating season, or when operating at nominal output during cold days of the heating season.</p> <p>The deliverable will also be the information obtained by the long-term measurement of operating parameters and the repeated measurement of emission parameters. This information will be processed into a research report that will be used to update emission balances.</p> <p>The emission balance works with emission factors at nominal and reduced boiler output. The question still remains for what part of the heating season the boilers are operated at the reduced output and what part of the heating season at the nominal output.</p> <p>The obtained information will also be communicated (presented) during the project as part of the educational actions outlined in Section C.4-1, in order to teach people to heat properly or possibly</p>	C4	31/12/2026

explain to public to which inadequate operating modes they should avoid to minimize differences in emission parameters set at the certification and in the real operation.		
28) Emissions inventory at the selected regional level Emissions inventory represents the official submission of annual national emission data of 27 air pollutants under the United Nations Economic Commission for Europe (UNECE) Convention on Long-term Transboundary Air Pollution (LRTAP Convention) and 5 air pollutants under Directive 2016/2284 / EU (NEC Directive). Emission inventories are required to monitor progress towards compliance with emission ceilings and reduction commitments of member states EU. Emissions inventories are annually prepared according to the legislative requirements and EMEP/EEA Guidelines considering rules of transparency, consistency, comparability, completeness and accuracy. Reporting is performed in the common structure by categories NFR (Nomenclature for Reporting) that covers particular sectors the economy (energy, combustion in industry, fugitive emissions, households, transport, industrial processes, solvents, agriculture, waste management).	D	31/12/2021 31/12/2025 31/12/2027
29) Regional air quality assessment report and data base	D	31/12/2023 31/12/2027
30) Structured distribution of small combustion sources	D	31/12/2023 31/12/2027
31) Dissemination & Communication Plan	E	30/4/2020
32) Annual reports on Dissemination Activities including: a. Campaigns prepared and conducted in the territory of Slovakia (including spots, educational videos, miniboads, posters, leaflets, press advertising, advertorials, internet advertisements, internet mailing, Google and Facebook ads, ads on public transport vehicles in the municipalities). b. Campaign materials (spots, educational videos, radio spots, billboard, miniboard and poster creations, press advertising, advertorials, internet ads, other ads). c. Radio discussions d. Leaflets on air quality management in air quality management areas (around 350 printed leaflets per each of the 8 Slovak regions) e. Miniboards and posters 2020-2027	E	31/1/2021 31/1/2022 31/1/2023 31/1/2024 31/1/2025 31/1/2026 31/1/2027 31/1/2028
33) Notice boards, with the LIFE logo	E	31/3/2020
34) A Layman's report in Slovak and English language	E	31/12/2027
35) Report on Mutual learning workshops related to the OP 2021-2027 / 2028-2034	E	31/12/2027
36) Mechanism to involve other municipalities and regions	E	31/12/2027
37) Annual progress reports on project activities	F	31/1/2021 31/1/2022 31/1/2023 31/1/2024 31/1/2025 31/1/2026 31/1/2027

		31/1/2028
38) Code of conduct for operating LIFE IP Task Force	F	31/3/2020
39) Concept for creating synergies among different actors with utilisation of financial mechanisms	F	31/12/2027
40) Amendment to the Partnership Agreement with original partners	F	30/03/2022
41) The Partnership Agreement with new project partners	F	30/03/2022

MAIN MILESTONES OF THE PROJECT

Name of the Milestone	Code of the associated action	Deadline
1) Development of draft employment criteria for Air Quality Managers (obligatory and recommended)	C1.1	29/2/2020
2) Employment of Air Quality Managers	C1.1	30/4/2020
3) AQMPs are published by the end of Q2 2022 and updated every three years with the help of Air Quality Managers until 2027	C1.1	31/12/2022 31/12/2025
4) Establishment of Air Quality Coordination Unit	C1.2	31/3/2020
5) First training materials for the Air Quality Managers	C1.2	30/4/2020
6) Trainings for Air Quality Managers begin	C1.2	31/8/2020
7) Training material for teachers and schools	C2	30/11/2023
8) Educational programmes and public information accomplished	C2	31/12/2021 31/12/2023 31/12/2025 31/12/2027
9) Analysis of ultrafine particles from traffic and residential heating including indoor pollution	C2	31/12/2026
10) C4.1 campaigns finalised	C4.1	31/12/2026
11) Emission inventory for the selected regions available	D	31/12/2027
12) Comparison of regional air quality assessments and rate of air quality improvement	D	31/12/2027
13) Dissemination and communication plan prepared	E	30/4/2020
14) All dissemination KPIs are achieved	E	30/4/2027
15) A kick-off meeting initiating the project is organised	F	31/1/2020
16) Financial audit covering Phase 1 of the project is prepared	F	31/3/2022
17) Financial audit covering Phase 2 of the project is prepared	F	31/3/2024
18) Financial audit covering Phase 3 of the project is prepared	F	31/3/2026
19) Financial audit covering Phase 4 of the project is prepared	F	31/3/2028
20) All project KPIs are achieved	F	31/12/2027
21) All 16 meetings of Steering Committee are implemented	F	31/12/2027

ACTIVITY REPORTS FORESEEN

Type of report	Deadline
Interim report and request for payment for Phase 1	31/3/2022

Interim report and request for payment for Phase 2	31/3/2024
Interim report and request for payment for Phase 3	31/3/2026
Final Report	31/3/2028

