

MITIGATION AND ADAPTATION ACTION PLAN, PILOT ACTIONS AND MONITORING PLAN TO VERIFY EFFECTIVENESS OF ACTIONS IN THE FUA OF ZUGLÓ

Joint deliverable D.T2.1.2 - D.T2.1.3 - D.T2.2.1

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1. Introduction

The OECD in collaboration with the EU (Eurostat and EC-DG Regio) has developed a harmonised definition of urban areas as “functional economic units”. This definition chooses as building blocks for the functional urban areas the smallest administrative units for which national commuting data are available (LAU2 in Eurostat terminology² and the smallest administrative units for which national commuting data are available in non-European countries).

In AWAIR project we follow the concepts of “mitigation” and “adaptation” defined by IPPC. In this approach *mitigation* comprises any action to reduce the causes of in our case air pollution its man-made effects, while *adaptation* involves actions taken to counteract new or changing environmental challenges and reduce the vulnerability of communities and ecosystems to the effects of air pollution.

Mitigation and adaptation are closely linked, some measures serve both. In the plan below we collected the most important interventions which can reduce air pollution and/or can help to avoid the negative consequences of pollution.

Zugló as a project partner initiated a Platform with the participation of municipalities in FUA and professional organisations and institutions. The aim of the Platform is to set up common goals for cleaner air in FUA by providing pilot projects, policy recommendations and an open forum for discussions and by lobbying.

Zugló in this plan would like to facilitate common actions in three levels:

1. FUA level
2. Budapest (capital) level
3. Zugló level

By the end of this project we would like to fulfil at least one action in each level.

Pilot actions

Each actions has outcomes with indicators that Zugló would like to achieve. We will make a monitoring plan on how to measure and communicate the actions.

1. Pilots on **technical level**, provide data and measures for better forecasting (5,6,)
2. Pilots on **administrative level**, provide policy recommendations to increase effectiveness (1, 2, 3, 4)
3. Pilots on **public level**, provide awareness raising and communication to increase knowledge (2, 7, 8)



2. MITIGATION Policy

2.1.1. SECAP and climate strategies and air quality management policies

Level: FUA
Action: lobby

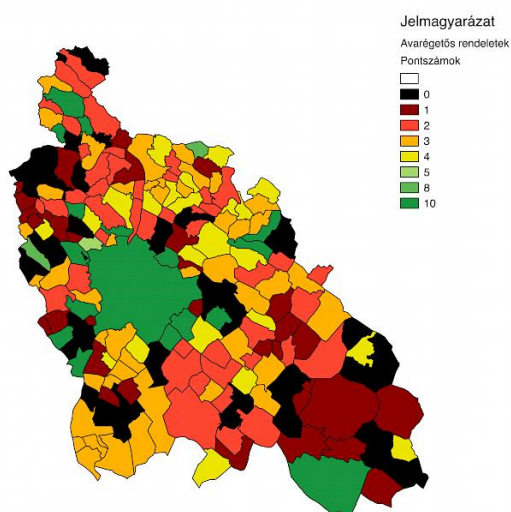
Several municipalities have prepared and accepted SECAP and/or a climate strategy, others are working on it. SECAP of Zugló is currently being developed. There are obviously great connections between climate policy and air quality control that's why our municipal platform performs a comparative analysis to collect the climatic and air quality objectives and tools of each FUA settlement while making recommendations to other settlements that has not yet started this process. As a result of the comparative work, the tools of synergies and common action are outlined.

2.1.2. Harmonization of local regulations about green waste burning

Level: FUA
Action: lobby

Outcome: Detailed research on present regulation in FUA settlements, lobby for common regulation, at least 2 settlements decide to renew local regulation or new law for green waste burning

In most of FUA's settlements there is regulation of outdoor combustion of garden waste. The Hungarian NGO Clean Air Action Group published an analysis some years ago of these local regulations and categorized their quality.



1. figure: Map of municipalities in Pest County, quality of regulation (Clean Air Action Group)

In many settlements there is adequate regulation (a definitive banning of combustion), elsewhere the local government permits the burning on designated days and there is no regulation in many other places. The aim is to enforce common and sufficiently rigid regulations in FUA settlements



until the end of the AWAIR program. Another approach would be to regulate local burning in higher law so local governments would have no right to regulate.

1) Pilot action:

Integrated and sufficiently rigorous regulation on litter incineration in FUA settlements

Aim:

In the area of FUA litter incineration is forbidden only in Budapest and some other settlements. The aim is to have an integrated and rigorous regulation everywhere in the area of the FUA.

Summary:

In a lot of settlements there are integrated regulations (which means it is forbidden), in other places the municipality allows litter incineration on particular dates while there are places that doesn't have a regulation at all. Our aim is to have an integrated and rigorous regulation in every FUA settlement until the end of AWAIR. Another approach could be to regulate litter incineration in higher law so the municipalities don't have the right to create other law contradicting it.

Rigorous regulations, a strong control from authorities and regular information to the public can seriously increase the air quality especially in autumn and winter months.

The aim of the pilot program is to increase the quality of local laws. We will reach out to municipalities where the regulations for litter incineration don't exist or the laws are not adequate. We will give them samples for a better regulation that they can propose to the city council.

In medium term we propose an integrated and higher regulation.

Prelude:

As autumn comes most of the emissions come from residential heating even in an urban environment. The condition of chimneys and combustion systems result in too much contamination in the air. This adds to the incineration of garden and street plants even if it is forbidden to do that. This bad "habit" can be tackled three ways by the leadership of the settlements:

- Appropriate and rigorous regulation by forbidding litter incineration
- Informing the residents on the connection between litter incineration and air quality
- Starting composting and green waste management and collection services.

This project focuses on the 1st of these three steps.

Research: The aim of the pilot program is to increase the quality of local regulations. Every settlement in the FUA must be examined so that we know if they have and if yes what kind of regulation on litter incineration.

Lobby: We will give samples for a better regulation that they can propose to the city council for municipalities where the regulations for litter incineration don't exist or the laws are not adequate. The problem of heating emission must be linked to its effect on health and we will inform them about the alternative usage possibilities of biologically degradable litter (good practices).



We must advise the government to propose a country-wide regulation on the severity of litter incineration.

Target group:

Municipalities in the FUA, government

Actions:

1. Research

Close examination of regulations in FUA settlements

Outcome: examination of 50 settlements

2. Proposal for local regulation

2.1 Information and proposal material for the mayors in the settlements.

Outcome: 50 information and proposal materials (minimum 4 pages)

2.2 Proposal for country-wide regulation

Outcome: 1 professional proposal regarding the contents of a country-wide regulation minimum 10 pages

3. Lobby

Press release about the project and its results.

50 e-mails to the mayors of the settlements on 2 occasions

Discussion with the 50 settlements via telephone on 3 occasions about the local regulations

1 press release 1 page

Schedule:

	2019											
	jan	feb	mar	apr	may	jun	jul	aug	sep	okt	nov	dec
Research												
Proposal												
Lobby												

Partners:

- Professional organizations,
- municipalities (members of FUA),
- Municipal Alliances (Alliance of Climate-Friendly Municipalities, TÖÖSZ),
- Civil organizations,
- concerned specialized companies,
- municipal public service providers



2.1.3. Setting up public system for announcement of illegal burning and reinforcing of official controls and sanctions

Level: FUA

Action: awareness raising in public level and cooperation between offices/authorities in FUA

Outcome: Detailed awareness raising research on present regulation in FUA settlements, Step-by-step information about what to do in case of reporting. At least 5 FUA settlements provide its media and officers to highlight this activity.

It is unclear to citizens today which authority is responsible for controlling air quality. At this moment it is not clear what the process is in case of illegal incinerations (eg. plastic, furniture etc). The aim is to provide a clear and an easy-to-follow report system for citizens where the competent authority can be alerted to activities that seriously harm the quality of air, whereby the authority can inspect and operate.

The staff and the opportunities of the authorities responsible for environmental protection are rather poor and they have weak efficiency in detecting and sanctioning illegal incineration. The FUA settlements have to work together to change this present approach. There is a need for a clearer procedure and a much better cooperation between individual authorities and agencies. It must be achieved that the authorities' action be effective and deterrent. Strong official control and regular public information can bring significant improvements to air quality, especially in the fall and winter months.

2) Pilot action:

Increasing the effectiveness of official action and the effectiveness of residential application in case of litter incineration

Aim:

Increasing the effectiveness of official action and the effectiveness of residential application in case of litter incineration.

In the winter most of the emissions come from residential heating even in an urban environment. The condition of chimneys and combustion systems result in too much contamination in the air. Partly because of energy poverty and partly the lack of environmental culture a lot of people incinerate litter in the stoves, in multi-fuel boilers or outside.

People don't even know which authority is responsible for the control of air quality.

Actions:

The personnel and the tools of authorities responsible for environmental protection are really poor so they are not effective in exploring and sanctioning illegal litter incinerations. FUA settlements must act together to change this. A clearer procedure is needed as well as a better coordination between the authorities and the law enforcement agencies. We must reach a state where the official action is effective and deterrent. Rigorous regulations, a strong control from authorities



and regular information to the public can seriously increase the air quality especially in autumn and winter months.

We need to examine paralel legal procedures and give recommendation.

We need to give recommendation on how to build up efficient communication among citizens and Offices and Authorities.

We need to provide constant communication channels to engage Offices and Authorities, therefore we organise 2 workshop with the participation of the stakeholders.

We will develop together a policy recommendations that will serve as lobbi issue to promote efficient procedures.

Target group:

Authorities (district office, municipal police, police, public space surveillance)

Schedule:

	2019											
	jan	feb	mar	apr	may	jun	jul	aug	sep	okt	nov	dec
Official cooperation												
Policy recommendation												

Partners:

- Professional organizations,
- municipalities (members of FUA),
- Municipal Alliances (Alliance of Climate-Friendly Municipalities, TÖÖSZ),
- Civil organizations,
- concerned specialized companies,
- municipal public service providers,
- authorities responsible for air quality

2.2. Traffic

The regulation of road traffic, traffic calming and speed reduction, the protection of residential areas and the development of the parking system can seriously improve the quality of urban air. There are several interventions in the Zugló area that aim to do that:

2.2.1. P+R parking areas in Csömör and Rákosrendező

Level: Budapest
Action: lobby

In the far future, there are plans of development of two big P + R areas in the Eastern Sector in the capitol. Drivers from the eastern part of the FUA can leave their vehicles in Csömör and go on by public transport. Addition to this is the planned connection of Metro line 2 with HÉV line 9 (Suburban



Railway towards Csömör) which is one of the largest public transport development programs in the capital.

Similarly, a large P+R area is planned to be built the non-used MÁV (state owned railway company) area called Rákosrendező which will provide a good opportunity to change for those arriving on M3 highway to public transport. In the same time Metro line 1 must be extended by one stop and the train stop must be relocated.

2.2.2. Extending paid parking areas

Level: Zugló and Budapest

Action: lobby, regulation

The rates and discounts of parking fees are regulated by the municipality of Budapest, but the paid zones are designated by district governments. In Zugló there are two paid areas and in the close future there will be two other paid zones. Pay parking is undoubtedly changing the routes of traffic and has a major impact on traffic, but there is no evidence for reduction of emission on urban scale. For the locals, however, there is a huge advantage in reducing traffic and releasing parking spaces.



2. figure: Pay parking zones in Zugló (red and green: existing, framed area: planned)

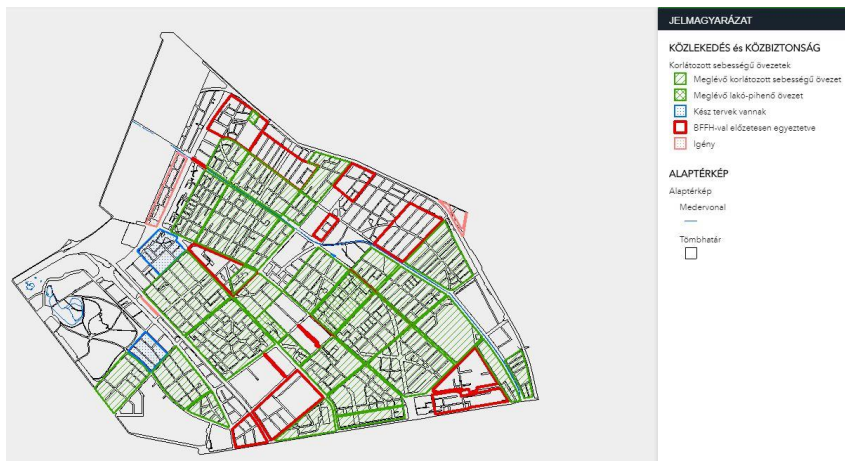
2.2.3. Speed limit zones and residential zones

Level: Zugló, FUA

Action: Negotiation between local authorities, citizens and institutions on how to point out areas for speed limit 30; the practice will be shared in FUA level

The extension of speed limit zones and residential zones significantly influences traffic and, consequently, air quality.

These traffic mitigators should be effectively used for reducing pollution. But there is a danger that low speed engines and frequent deceleration and acceleration due to speed bumps have a counterproductive effect.



3.figure: Speed-reduced zones and residential-rest zones in Zugló

2.2.4. Traffic jam charge zone in Budapest

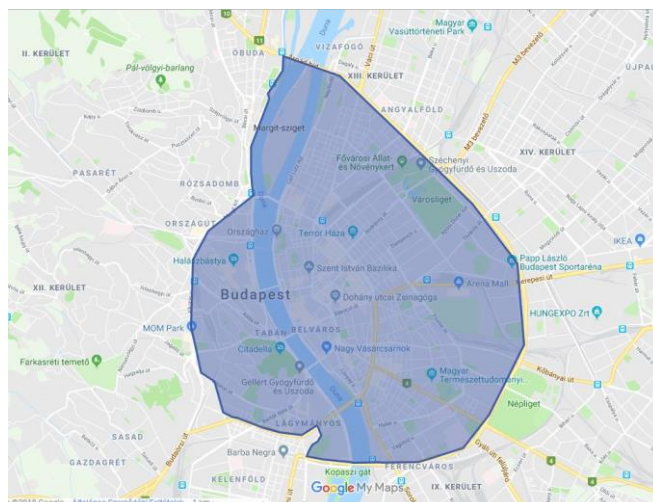
Level: Budapest

Action: lobby

In Budapest, the introduction of the traffic jam charge can seriously improve air quality. On the one hand, this fee dislodges traffic from the roads where the deterioration of noise, pollution or quality of life is high and on the other, the damages will be paid by those who actually use the road.

The European Union required that Budapest introduce this type of fee in exchange for support for Metro line 4, but it has not been done so far and even the preparation has stopped.

The FUA municipal platform re-issues the problem and develops a professional recommendation for decision makers in Budapest.



4. figure: Concept of congestion zone of Budapest (<https://xn--dugd-j-2sa4b.hu/terkep/>)

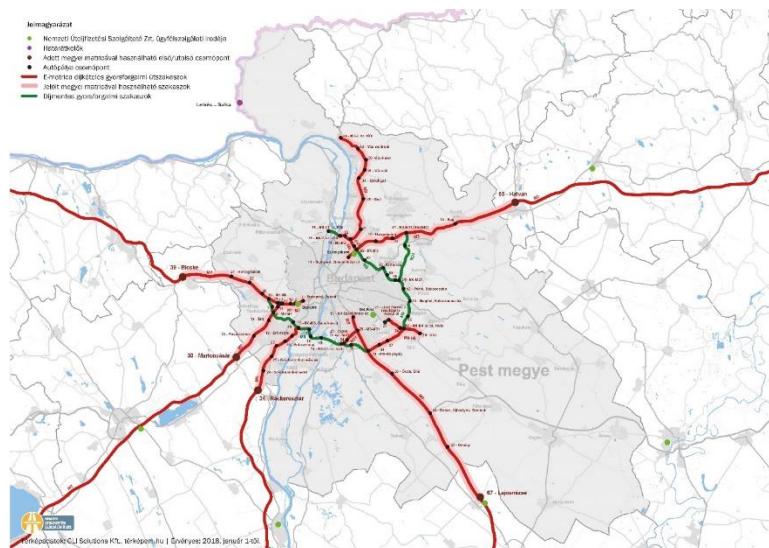
Note: There were many other concepts and maps for the traffic jam charge zone. The zone shown by the figure would be very dangerous for our district, because the charge of traffic in Zugló would be much higher.



2.2.5. Decreasing transit traffic, closing the Ring

Level: Budapest, government
Action: lobby

The ring road around the capital is not completed on the northwest, so the east-west transit route is not properly built. Vehicles need to avoid it if they do not want to go through the city, and have to pay for some parts of the passage. The bypass road protects the downtown from the transit charge if cars can get around the capital quickly and freely.



5. figure: Paid roads (red) around the capital

Transforming the whole ring free of toll can be a short-term task for the FUA platform, but closing the ring is a much more difficult task, because the geographical and ecological features of the northwest section would be very expensive and serious nature conservation compromises would have to be faced.

2.2.6. Intelligent traffic light systems

Level: Budapest
Action: lobby

Zuglo and the Platform has no authority to effect this action, indirectly can support the theme Emission of traffic on the roads managed by the capital can be significantly reduced by the traffic-dependent control of the signal lights, the display of the ideal speeds and the prioritization of public transport. In recent years there have been many good initiatives in the capital which should be continued.

2.3. Public transportation

Level: Budapest
Action: lobby

In the metropolitan area, the well designed and managed public transport can influence greatly the air quality. Due the developed public transport network most of the traffic can be transferred

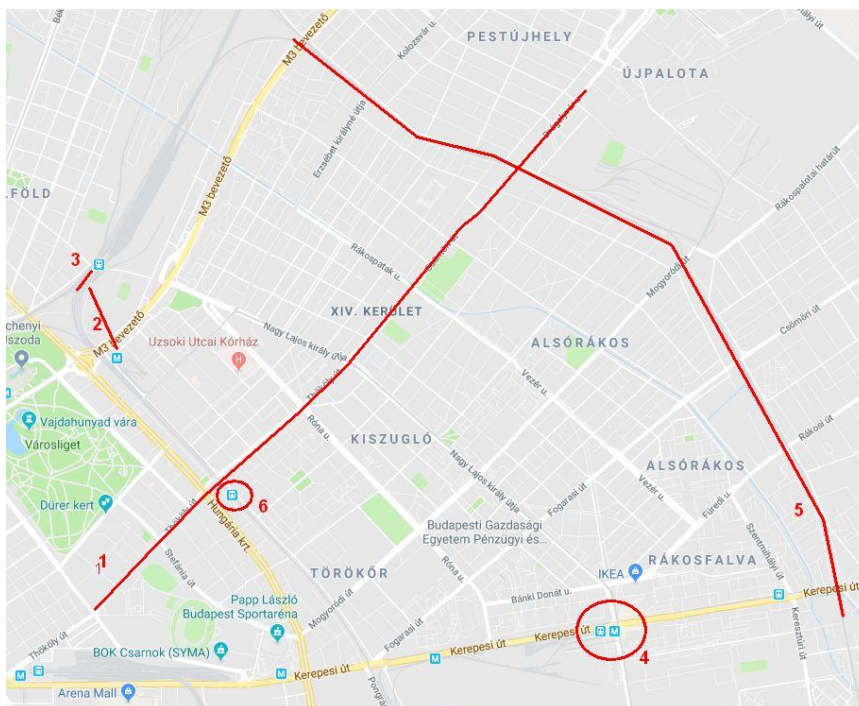


to the metro, buses, trams and even trains. Convenient and affordable public transport is the best solution for reducing traffic and reducing emissions.

Zugló is one of the districts and has only a little influence on public transport, only the municipality of the capital can organise it. The trolley buses running in the inner parts of our district - with community planning - should be revised and tailored to the needs of passengers.

In Budapest, lately there have been many investments that could affect Zugló's traffic and hence air quality in a positive direction:

1. Thököly street tram or bus;
2. elonging Metro line 1;
3. relocation of Rákosrendező train station;
4. connection of Metro line 2 and HÉV;
5. reopening of railways (Szuglói körvasút) for the public;
6. restoration of Zugló train station.



6. figure: Planned public transportation projects In Zugló

Although the BKV (public transportation company of Budapest) has expanded its fleet with several more environmental friendly vehicles, much of the vehicles are still outdated and cause serious emissions. Renewal of the bus park is essential if we want to create a comfortable and environment friendly public transport system.

A few years ago, after a long hesitation, the MÁV-Volán-BKV (three companies for trains, long distance buses and public transportation) common tariff system was created, which had a serious positive impact on the use of public transport. However, the tariff system of the capital is quite obsolete, the zone tariff system should be introduced as in most European cities.



2.4. Bicycle infrastructure

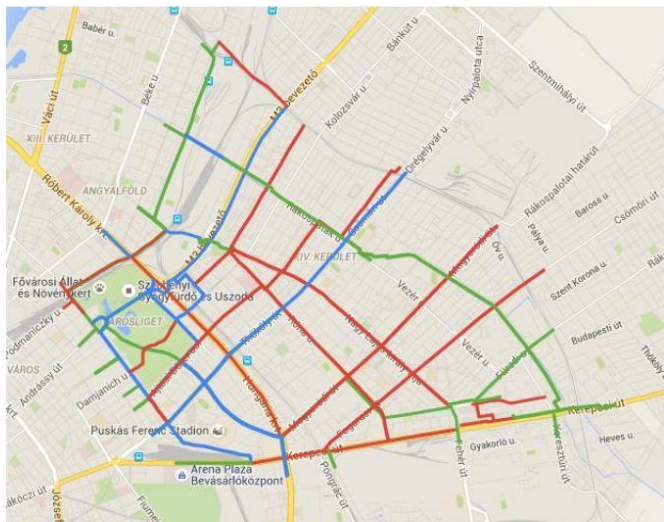
Level: Budapest

Action: lobby

Much area of the capital can be made fit for cycling and there has been a lot of progress in this area in recent years. If the road network and the related infrastructure are attractive to people, they will be massively shifted from four wheels to two wheels and the environmental benefits of this progress will be greater than anything else.

Zugló has developed a bike-friendly transport strategy and recently an action plan is being prepared. The strategy details the creation of cycle paths, bicycle storage, community bicycle stations and other transport development issues.

Rákos stream runs through several districts to the Danube, making it one of the most significant green corridors on the Pest side. The capital is organizing a cycling route along the stream, which has a great importance itself, but it would be even more important for the cycle path to be suitable for everyday use (biking to work and school).



25. ábra: Zugló kerékpárfogalmi főhálózata
(Jelmagyarázat: zöld vonal - meglévő főhálózati elem,
kék vonal - tervezés / kivitelezés alatt álló főhálózati elem,
piros vonal - nem folyik tervezés / tanulmányterv készült, de szükséges a főhálózati elem kialakítása)

7. figure: Bicycle routes in Zugló.
(Green line: existing; blue line: under construction; red line: planned)

Several community urban planning program is running in Zugló and the development of cycling and the enhancement of the safety of cyclists is an integral part of them.

Budapest's public transportation system should also be developed for cyclists. There is already one tram line where bicycle can be transported but other lines and Metro line 4 must be opened for cyclists.

The Mol-Bubi Bicycle Rental System has been in operation for some years now and was evaluated recently. If the system operates well, it should be extended to the outer districts (it is available



currently only at the edge of Zugló, in the Városliget and Heroes' Square), and it should be suitable for everyday bikers as well, not only for tourists.

2.5. Electrification

Level: Budapest

Action: lobby

In order to reduce transport emissions the electrification of transport should be promoted. This is mainly a state task and responsibility.

There are still few electric cars in Hungary, but as the price of electric cars fall they will be increasingly widespread. The vehicles in the public sector should be gradually replaced and the buses running in public transport should be converted to electric ones wherever possible.

The purchase of e-cars is somewhat supported by the state but this is not enough for a massive transition.

The network of charger stations has to be built up now, state-funded programs are needed and the electricity tariffs should be converted so that vehicles can be loaded at favorable prices. There are some charging stations in Zugló, but many more is needed.

The parking fee exemption for the e-cars is already given (capital city authority) but local governments may also consider the weight tax discounts.

2.6. Heating

Level: FUA and beyond

Action: policy recommendation

During winter, the volume of emissions from heating is comparable to traffic emissions. Most of the buildings are poorly insulated, the heating system is outdated, and in many cases even the fuel quality is not acceptable. Such houses can be heated by using more energy sources and higher heating emissions.

The energy modernization was the main point of view during the renovation of several public institutions in Zugló. The heating and insulation and the replacement of doors and windows of a few kindergartens and nurseries can be solved, but there is still a lot of things to do in this area.

For the renovation of residential buildings (mainly residential blocks of flats) there were state funds, but they were slipped away and even the EU's donations for this purpose were rearranged by the government elsewhere.

Zugló has large districts of heated estates where the heating emissions are not typical. In case of these building it is necessary to concentrate on insulation and replacement of doors and windows. This would require state programs but the local government can also help with free energy auditing, consulting, loan schemes etc.



There are many condominiums that have their own heating system, especially fuelled by natural gas. In these areas in addition to insulation the housing communities need to be assisted in heating modernization.

Regardless of the inspection of boilers, stoves and chimneys, there has been a serious backlog in recent years which has resulted in a deterioration of air quality.

Unfortunately, in Hungary energy poverty is becoming more and more common. Not only in the countryside but in Zugló, wood heating and even combustion with waste, have a critical impact on air quality.

The municipality has a social firewood donation program that is used annually by several families. Our effort is to allocate dry firewood to everyone who need it. The official control over the inappropriate fire must be intensified.

The energetic characteristics of local government rents could be amended if the tenants could deduct the costs of the renovation from the rent.

Emission attenuation should also be enforced in building regulations and standards. We need to demand low-emission heating systems and the best available technology for new buildings and public buildings.

Connection to district heating systems must be supported and a mandatory feasibility study of using renewable energy must be made in planning processes.

2.7. Reducing dust

Level: FUA and beyond

Action: policy recommendation

Vehicles regularly stir up the dust of the roads which mainly will soon sink back again, while some part will remain in the air in aerosol form.

To prevent this, the roads and tramlines should be regularly cleaned and watered, especially in summertime. Continuous pothole repair is also important for preventing dusting. Breakstone materials used for preventing slips must be collected in spring.

To bind the dust, bushes must be planted between the roads and the pavement, thus increasing the intensity of the green surface.

In authorization process of construction or demolition, it is necessary to regulate the avoidance of dusting. Transported bulky building materials must be moistened to reduce dust.

2.8. Increasing green intensity

Level: FUA ad beyond

Action: policy recommendation

According to the regulation of Zugló municipality, 50% of the newly built flat roofs larger than 100 m² should be renovated into green roof. Similar measures should be taken to increase the green areas in order to have as many carbon dioxide and dust binding capacity in the city as possible.



In Zugló, approx. 80 thousand trees live in allies and parks. Their continuous maintenance and replacement is a priority task.



8. figure: Green areas and allies in Zugló

Green surfaces can be raised vertically by running firewalls with suitable plants.

Instead of costly maintained lawns, perennial bushy areas have to be built to increase the green surface intensity.



3. ADAPTATION

3.1. Collaboration and exchange of experiences among FUA settlements

Level: FUA and beyond

Action: knowledge sharing

Outcome: Zugló and the Platform members can share best practices and participate in peer-to-peer events and trainings

The Municipality of Zugló has established a platform to improve air quality, which has invited the environmental operators and experts of all FUA settlements.

The goal is to have at least one staff in each settlement who will work together with the platform being responsible for flow of information on air quality. He or she will play an important role in SAPE situations where air quality communication is needed several times a day.

In the first round we conduct a questionnaire survey on the environmental issues of settlements, local regulations and strategic goals.

Another important initiative of the platform is to gather good practices aimed at improving air quality in settlements.

Zugló will facilitate peer-to-peer activities to visit and consult about best practices, programs and initiatives.

This will also be a base for the AWAIR project training activities.

3) Pilot action:

Cooperation and exchange of experience about increasing air quality between FUA settlements

Aim:

To gather the good practices of municipalities, exchange of experiences and to help implementing them as stated in the Action Plan accepted by FUA.

Prelude:

The Municipality of Zugló established a platform as a part of AWAIR program to increase air quality and they invited every environmental authority of every big FUA settlement. The platform comes together every three months and examines with the involvement of professional organizations how to increase air quality and what adaptation possibilities are there.

Proposal: Questionnaire survey about the problems regarding the air quality in the settlements, programs, actions, regulations and law-making practices are gathered together. The participating settlement can also suggest good practices that they want to share with the members of the Platform.

Personal criteria: The aim is to have a co-worker or a part-time worker in every FUA municipality that is a contact person with the Platform and responsible for the information exchange regarding



air quality and the actions taken by the municipality. We will propose the requirements for such worker.

Good practices: The description of good practices suggested during the proposal period will be created (8). Some of these will be processed by peer-to-peer method which means study trips and personal overseeing. The implementation of these good practices is strongly suggested by the Platform.

Continuous presence: The continuous representation of air quality means its communication, participation on study trips and in the Platform and helping the implementation of good practices.

The task of this project is to give professional and organizational frames that motivate the professional working at the municipalities to join the Platform.

Target group:

Professionals and decision makers at FUA municipalities

Actions:

1. Questionnaire survey

Questionnaire survey about the environmental problems of FUA settlements, the local regulations and the strategic goals. We will ask in the survey:

- who is responsible for the air quality at the municipality;
- do they have a regulation protecting air quality;
- is there an informational or attitude-changing program regarding air quality.

Outcome:

- 1 10-minute questionnaire with 8-10 questions, google form, online spread

Indicator:

- 10 answers, 1 summary, 1 page
- how the municipality informs residents, sensitive groups (seniors, sick, children) and institutes about poor air quality etc.

2. Gathering of good practices

Another important initiative of the Platform is to gather good practices regarding the increase of air quality in the settlements. Some settlements and districts in Budapest already have programs, projects and regulations that has some relevancy to air quality.

Summarized interpretation of 8 municipal good practices regarding increasement of air quality.

Good practices come from: local regulations (e.g. regulation of litter incineration), programs helping residents (e.g. health development services, composting services, planting programs, community gardens, community transportation, energetic development etc.). The summary will be based on public data and data given by the municipalities.



Contents of best practice summary:

- Location
- What happened
- How does the program add to increasing air quality/to adaptation
- Detailed description of the program
- Partners, other included actors
- Investment and yearly operating costs
- Number/ratio of reached/involved residents

Length: 1,5-3 pages

Outcome: 8 papers (1,5-3 pages long): descriptions of good practices

Indicator: Presented at the FUA Platform (4 events)

3. Peer-to-Peer

The organization of study trips for professionals at the municipalities to present and evaluate projects, investments and local programs. In cooperation with the Green Office of Budapest's XII. district (KÖ-ZÖLD).

The operation of the Platform is needed during the whole AWAIR program and we plan to keep it going afterwards.

Outcome: 4 study trips in FUA, minimum 5 people/trip, cc. 4-hour long trips.

Indicator: 4 half-page summery and photo documentation.

Schedule:

	2019											
	jan	feb	mar	apr	may	jun	jul	aug	sep	okt	nov	dec
Survey												
Best practice gathering												
Peer-to-Peer												

Partners:

- Professional organizations,
- municipalities (members of FUA),
- Municipal Alliances (Alliance of Climate-Friendly Municipalities, TÖÖSZ),
- Civil organizations,
- concerned specialized companies,
- municipal public service providers



3.2. Revision of SAPE regulation of Budapest and FUA

Level: FUA and beyond

Action: policy recommendation

Outcome: Zuglo and the Platform members make policy recommendations on how to change present SMOG alarm system

The regulation of Smog Alert Plan in Budapest was adopted in November 2008 and some modifications have been introduced in 2011.

The smog alert, its degree and the measures of the given degree are ordered and terminated by the city mayor.

The municipal regulation on smog alarm must be reviewed in 2019 and AWAIR's FUA platform is going to take part in this process. We are going to evaluate the effectiveness of the current regulation, collect the suggestions of stakeholders and make recommendations in detail to the new regulation.

Not only the municipal regulation but also the higher regulations need to be revised and it is very important to redefine the scope of the individual actors and operators in the SAPE situations. In this process we have to consider the regulation of other FUA settlements.

4) Pilot action:

Proposal for the creation of a new air pollution information and alert system in the whole area of FUA

Aim:

Process that presents the tasks of residential information and the municipal and official tasks in an integrated, responsible and transparent way.

Prelude:

Right now, there is no integrated regulation regarding the information of the public about air quality in the area of FUA. Municipalities/settlements are part of several authorities and professional organizations that use different regulations (e.g. regulation of litter incineration in gardens). Smog alert only exists in Budapest, other bigger settlements or the agglomeration of Budapest don't use it. This situation is always subject to criticism.

The regulation in Budapest: If based on the data of the concerned environmental authority at least one air polluting material's concentration exceeds the informational or alert threshold in a period of time that is set by a ministerial regulation (4/2011. (I. 14.) VM regulation appendix number 3) than a smog alert must be ordered. To order or stop the informational and alert degree regarding the dust (PM10) in the air the weather forecast of the Hungarian Meteorological Service (Országos Meteorológiai Szolgálat - OMSZ) is also needed.

Degrees of smog alert:

a) informational degree where the degree of air pollution means short term danger for the sensitive groups (children, seniors, sick). When ordered the necessary information must be provided. Prior



information must be given in the case of dust (PM10) in the air about the possibility of the restrictions until 18.00 hours on the previous day.

b) alert degree where the degree of air pollution means short term danger to every resident. When ordered immediate action must be taken.

Problems: The capital city regulation on smog alert must be reviewed in 2019. But this is not enough in itself because the rules for smog alerts are also regulated in ministerial decrees and laws. The FUA Platform of AWAIR wants to help in reviewing the relevant laws.

Right now, the mayor can announce any level of smog alert only at places where a permanent emission measure station is present. Outside of the capital only a few FUA settlement has that: Vác, Tököl, Érd and Százhalombatta. It is obvious though that in a SAPE situation smaller settlements also need intervention.

We will take special care of jurisdiction and the decision supporting system. Right now, it is not clear that on what principles and by what organizations' proposal helps the decision of the mayor. Also, it is not necessarily a good practice to have only one person to decide basically on a political level.

Alert communication: The communication of periods that are under the smog alert level but have measurably bad air quality also leaves much to be desired. Residents have very little knowledge about what to do to have less pollutant in the air or to avoid health effects. Right now, communication is performed by several organizations based on different protocols and with different professional approach.

Unifying this will be crucial. We will propose that every organization that has a relevant role in the communication of SAPE situations use the Air Quality Index and its colors developed by EEA.

It would be important to have communication a few days before the smog alert is ordered by the authorities when it is possible that the air quality will deteriorate. This will be crucial in SAPE situations when the vulnerable groups need information on air quality more than once a day. The result of the pilot action includes the schematics of communication tasks and channels and the description of automation options that can be changed by every municipality to their own practice.

Actions

Workshop: We will gather opinions and remarks from the active and professionally relevant organizations (NNK, OMSZ, Capital, Clean Air Action Group) and based on them we will propose our suggestion on the method for this topic.

The planned themes of the workshops:

1. Creation and approval of methods, value inventory
2. Problem map
3. Actors and tasks: authorities, municipalities, legislative bodies
4. Process and professional decision makers
5. Unification of communication



6. Limit values, measurement data, forecast, transparency
7. The range of subjects
8. Legislative regulatory system
9. Proposal: discussion and finalization

Number of occasions: 9, number of participants: 5-15

Proposal drafting: The method based on the workshop will be on two levels: firstly, it will contain previous data gathering and desk research to see the present situation, secondly the drafting of the decisions, processes and values etc. during the workshop. For the proposal drafting and the transparency of processes and duties there will be two documents: one detailed and one summary that only contains flowcharts.

Two documents: 1 20-page and 1 5-page

Lobby: After creating the proposal, the Platform must start bilateral lobbying on the governmental, capital and local level and in the publicity of media.

Sending the proposal to the authorities, government etc. cc. 60

Media: The publication of the proposal should be connected to the Budapest conference of AWAIR or the signage of MOU if possible.

1 press conference, 1 press release, 1 infographic, 1 video

Schedule:

	2019												2020							
	jan	feb	mar	apr	may	jun	jul	aug	sep	okt	nov	dec	jan	feb	mar	apr	may	jun	jul	aug
Preparation																				
Workshop																				
Lobby, media																				
Follow-up																				

Partners:

- National Public Health Centre (NNK),
- District Office of Érd,
- Hungarian Meteorological Service,
- Capital administration,
- Clean Air Action Group



3.3. Immission

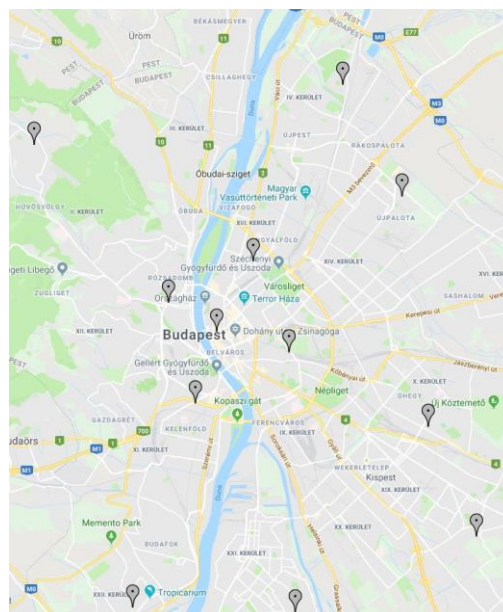
Level: Zugló

Action: local monitoring

Outcome: Data of one month long period in Winter in two temporary stations. Zugló can share the methodology and practice and other authorities can applicate

In Hungary, the air quality measurement and evaluation are performed by the Hungarian Air Quality Network (OLM). It provides current and historical air quality monitoring data nationwide. The network consists of two major parts: automatic monitoring network with continuous measure of wide range of air pollutants in ambient air, and manual monitoring network with sampling points and consecutive laboratory analysis.

Their web page (<http://www.levegominoseg.hu/>) contains data from automatic network within one/some hours (historical data back to 2004). Data from manual system are updated at least every quarter years (historical data back to 2002). There are also annual assessment reports for both systems as well as for particulate matter (PM₁₀) components.



9. figure: Standard air quality sensors in Budapest

The professional management of the network belongs to the Ministry of Agriculture, the operational control of the system's professional management and the tasks of quality management are performed by the Air Quality Reference Centre (LRK) which belongs to the Hungarian Meteorological Service (OMSZ). The operation of measuring stations and points is the task of county government agencies (formerly: environmental and nature protection inspectorates).

The Air Quality Measurement Network of the metropolitan area consists of 12 automatic metering stations. Measured components: SO₂, NO₂, NO, NO_x, O₃, CO, benzol, PM₁₀, PM_{2,5}

There is no sensor in Zugló. As part of the AWAIR program, we want to set up two temporary monitoring points where we are going to measure air quality during winter using the same technology as the metropolitan monitoring network. The data of the standard stations will be comparable to the data of the temporary station, and we'll definitely have a much better view of the air quality in the area.

5) Pilot action:
Temporary air quality measure station in Zugló

Aim:

Better knowledge of air quality during the winter in Zugló



Description of the project

The Hungarian Air Quality Monitoring Network (Országos Légszennyezettségi Mérőhálózat - OLM) doesn't have a permanent measure station in Zugló. As a part of AWAIR program we will establish two temporary measure station for 2+2 weeks to measure air quality during the winter months with the technology used by the capital as well.

The data from the permanent measure stations will be comparable in every level with those coming from the temporary ones thus giving us a clearer picture on air quality in the area.

The measured components beside the weather parameters: SO₂, NO₂, NO, NO_x, O₃, CO, benzol PM₁₀, PM_{2,5}

We will order analytical examinations from the air dust with the focus on origins that can show us where the pollutants come from (transport, residential heating or other).

Not every parameter is relevant during the winter, for example in the case of SO₂ and CO it is rare to have limit value emission but the moving measure units measure these components nonetheless without any additional cost.

We will get the data every 15 minutes. On our website we will show the graphs based on the data every 15 minutes and we will have charts from the daily averages compared to the limit values.

Target group:

Municipality of Zugló, FUA Platform, residents

Actions:

Sampling and analysis

Outcome:

- at least two emission databases
- summarized analysis

Schedule:

	2019											
	jan	feb	mar	apr	may	jun	jul	aug	sep	okt	nov	dec
Measurement												
Summarized Analysis												

Partner:

1. Hungarian Meteorological Service (OMSZ)



3.4. Estimation of emission

Level: FUA and beyond

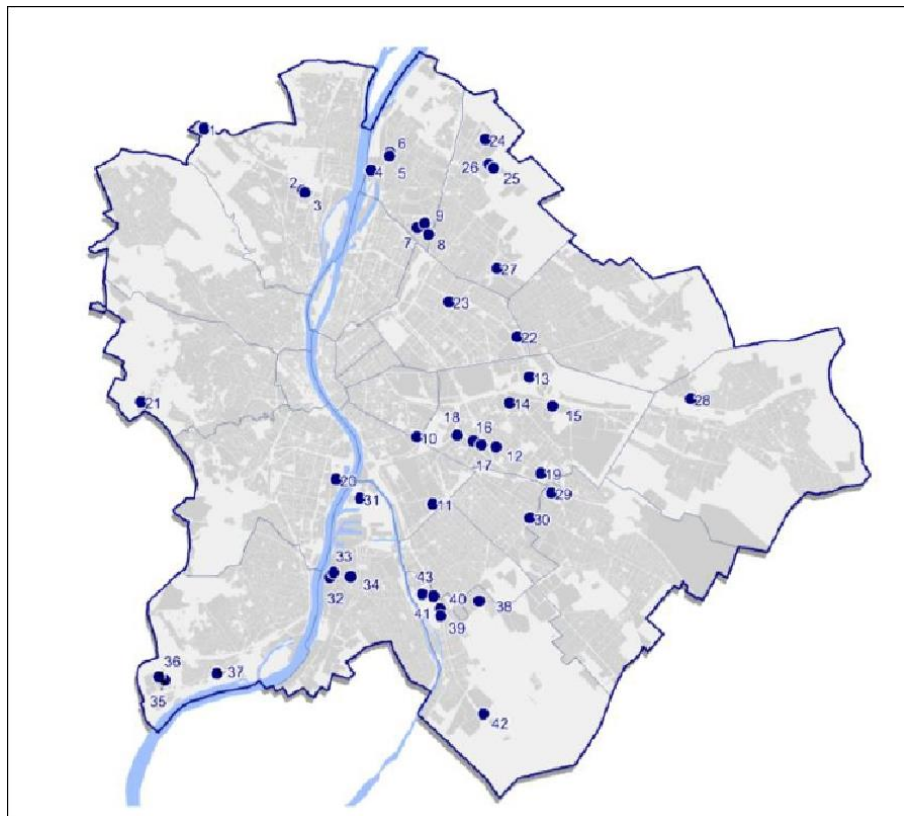
Action: data collection

Outcome: Detailed and accurate emission database of line, point and diffuse sources. Zuglo can share the methodology and practice and other authorities can apply

Urban emissions have basically three main sources:

1. point sources (eg. factories or power plants),
2. line sources (typically the traffic) and
3. diffuse sources (mainly residential heating).

About the first the Hungarian Central Statistical Office (KSH) and the environmental authorities have database. Companies which have a certain boiler size have to present total yearly emission data in self-declaration.



10. figure: Point sources in Budapest

In case of line sources we have estimations from traffic counts and traffic simulations.

We don't have exact information about the diffuse sources but according to the experts' unanimous opinion the domestic emission has the greatest effect on air quality during winter.

The emission database definitely needs improvement, especially in the second and third categories.



Emission of traffic can be estimated from the strategic noise map which is based on traffic counts and the emission can probably be calculated from the traffic data of Waze or Google Maps.



11. figure: Noise conflict map of Zugló, based on traffic model

A more detailed and accurate emission database can be the basis for a much more accurate forecasting model.

6) Pilot action:
Gathering and summary of emission data, emission estimation based on the data in the FUA and in Zugló

Aim:

For the set-up of the air pollution model: description of existing emission inventories, their unification and the creation of a database. Emission estimation based on the data in the area of FUA.

Description of the project

Description of existing emission inventories and their identification in FUA; creation of a database that can help with creating a unified forecasting model.

Emission from transport can be estimated based on the traffic model of the strategic noise map and there is an innovative alternative to try and use the data of Waze or Google Maps to estimate the emission.

The effect on air quality of residential heating is even harder to estimate. The GIS of the municipality could help because it shows where the district-heating areas, the gas boilers or the unique heating systems are. The chimney sweep company of the capital could also have a database the can help in estimating residential heating.

The definition of both emission factors needs meticulous research but a detailed and exact emission database could be the basis for a better forecasting system.

We need to make the emission (point, line and diffuse sources) databases of the Budapest Functional Urban Area and especially Zugló more accurate and prepare a database for the air pollution model.



Target group:

Municipalities and residents in FUA

Actions:

- 1.) General introduction of emission inventories.
- 2.) Summary of the available point source data regarding FUA settlements. Collection of annual total emissions based on admittance for the more important air pollutants and putting them in a database for the air pollution model; analysis of data.
- 3.) Estimation of line source emissions. Description of possible databases and putting it in the model.
- 4.) Description and estimation of diffuse source emissions (residential heating) in FUA based on the available data (based on the number of residents and the typical form of heating).
- 5.) Description of the temporal dynamics of emission databases (annual and daily).

Outcome:

- at least 25-page description
- at least 2 emission databases (excel, for FUA settlements) for the air pollution model

Schedule:

	2019											
	jan	feb	mar	apr	may	jun	jul	aug	sep	okt	nov	dec
Study												

Partners:

- Hungarian Meteorological Service (OMSZ),
- Centre for Budapest Transport (BKK),
- Route Authorization

3.5. Forecasting

Level: FUA and beyond

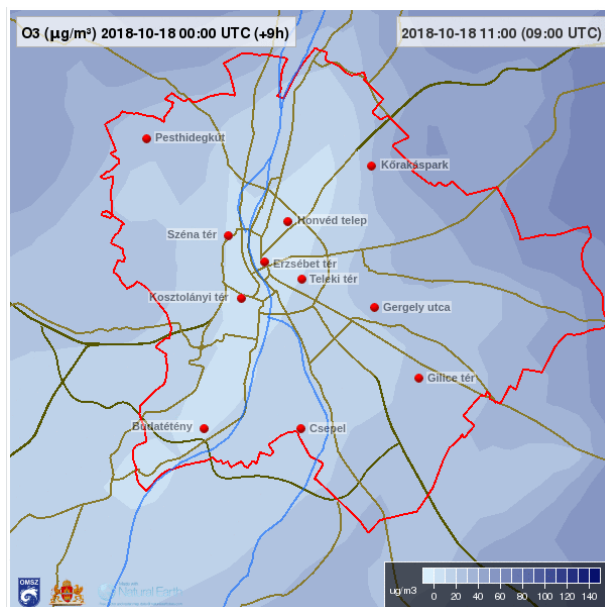
Action: Forecasting

Outcome: Forecasting to new points of Zugló in the recent model, new - higher resolution - forecasting model based on more detailed emission database. Zuglo can share the methodology and practice and other authorities can applicate

The Hungarian Meteorological Service forecasts the air quality of the capital daily. The Chimere model is used which calculation starts at 0:00 every day and publishes forecast at 6:00 am for the



next 36 hours with 1 hour resolution. The model is emission-based and calculates with yearly total emission data for each grid point factored to the current date and hour.



12. figure: Output of Chimere model in a certain time

The operating model is capable to calculate the air quality in other points of the city, so we are ordering forecast to different points of Zugló from the Hungarian Meteorological Service.

In the second phase, we are going to order calculations in higher resolution if the meteorological database and the new emission database (described above) allow.

We will provide this database as input for the application developed in AWAIR project.

3.6. Health

Level: FUA and beyond

Action: awareness raising campaign

Zugló has recently opened the Health Promotion Office (ZEFI), which deals with prevention and early detection of chronic diseases, health monitoring, lifestyle counseling and community health promotion programs for the population. Prior to this, the municipality has run diabetes and hypertension prevention programs. The AWAIR program and ZEFI will cooperate in awareness-raising of chronic respiratory illnesses caused by air pollution.

With the involvement of the National Public Health and Medical Officer Service and the Clean Air Action Group, in the application we will provide a daily assessment of the current quality of the air and in the SAPE situations provide advice on particularly vulnerable groups of air pollution (asthmatic, allergic people, the elderly and infants).

Awareness of heating and its consequences should be raised by public education programs. We are going to join to an important initiative of the Agricultural Ministry: *Heat Wisely!* program. The Energy Advisory Office of Zugló (ZETI) also performs this type of awareness-raising activity.



3.7. Public awareness

Level: FUA

Action: research and monitoring

Outcome: 2 research and 1 comparative report, number of visitors (website and events)

Zuglo makes a research (questionnaire) to gather information about the public awareness about air quality issues. Zuglo will also make another research one year later - after the project actions and pilots especially communication campaigns are already run out - and examine the change on knowledge and awareness.

Communication campaigns will be organised (see also actions Adaptation 5, 7) with four public event.

7) Pilot action:

Writing daily messages in the app being developed especially for the vulnerable target groups

Aim:

Increasing the knowledge of the residents on chronic respiratory diseases and raising awareness. The writing of the messages in the AWAIR application in case of SAPE.

Prelude:

Part of the international AWAIR program is to create an application that gives daily information when needed on air quality to the vulnerable groups. With the involvement of the National Public Health Centre and the Clean Air Action Group, the application currently in development will give a daily rating on the current state of air environment and, especially in SAPE situations, will give advice for the vulnerable groups (people with asthma or allergies, seniors, babies).

Campaign

Mobile APP

As part of the AWAIR program we are developing a mobile app that has an alert function to warn the user in case of poor air quality (SAPE). The task is to write articulate messages in Hungarian. The application will be promoted via social media and through the municipalities' media platforms.

Know-how guide

Our aim is to create an informational know-how that guides residents in how to act, how to prove the detected incineration and which authority to turn to. The finished material must be promoted to the residents.

On the other hand, a platform should be established where residents can alert the concerned authorities about activities that harm air quality to help authorities to check out these activities and take the necessary actions. The resident who made the alert should be notified about the actions taken. This would mean a procedure where the communication between authorities is



transparent and articulate. The steps that authorities can take must be clear and a more effective procedure and sanctioning is needed.

Target group:

Municipalities and residents in FUA

Actions:

1. Application

Development of the application with Zugló and the writing of articulate, Hungarian messages then its promotion.

Outcome:

- Professional and linguistic proofreading of articulate Hungarian messages (max. 1000 character)
- FB campaign - 3 months, 1000 active reach, 10000 passive reach
- 1 promotion letter for FUA settlements about the application
- 1 promotion letter for the health centers of FUA settlements
- 1 promotion letter for other institutions, civil organizations and offices of FUA settlements

2. Residential alert know-how guidebook

An easy-to-understand guidebook that helps people in case they experience residential litter incineration. The guide must at least include these elements

- procedure (infographic)
- information letter sample to the incinerator to let them know that their action is harmful
- application sample for the authorities
- manual for the online application service information brochure about the procedures, the action that authorities can take, the downloadable materials, the environment friendly heating and the correct treatment of litter (with references e.g. to Heat smart! or other campaigns)

3. Campaign in social media

- promoting the guidebook in the area of FUA on social media sites
- appearance on the website and print of FUA municipalities

Outcome: 1 infographic, 1 brochure, 2 letter sample

Indicator: 1-month Facebook campaign, active reach of 1.000 people, passive reach of 5.000 people, 5 appearances in municipal print and/or website, 1 press release, at least 5 covers, 1 summary in Hungarian (1 page) about the results of the campaign

4. Development of official cooperation and communication in FUA

The development of cooperation between authorities (district office, municipal police, police, public space surveillance), the clearance of procedures and sanctions. Administration of incoming complaints, creation of transparent procedures, discussion to increase effectiveness and creation of communication system.



Outcome: 4 discussion conferences involving the concerned authorities. Number of participants: 3

Indicator: 4 half-page summary and photo documentation. 1 summary about the development plan of official effectiveness and communication. Notifying at least 40 FUA mayors about the increasement of effectiveness.

Schedule:

	2019												2020							
	jan	feb	mar	apr	may	jun	jul	aug	sep	okt	nov	dec	jan	feb	mar	apr	may	jun	jul	aug
Application																				
Guidebook																				

Partners:

- Professional organizations,
- municipalities (members of FUA),
- Municipal Alliances (Alliance of Climate-Friendly Municipalities, TÖÖSZ),
- Civil organizations,
- concerned specialized companies,
- municipal public service providers,
- ZEFI

8) pilot action:
Information for the residents about the good ways of heating, the consequences of litter incineration, educational lectures and written materials in the local media about chronic respiratory diseases and the health risks

Aim:

Increasing the knowledge of the residents and raising awareness in the topic of residential litter incineration and the health risks

Prelude:

In the winter most of the emissions come from residential heating even in an urban environment. The condition of chimneys and combustion systems result in too much contamination in the air. Partly because of energy poverty and partly the lack of environmental culture a lot of people incinerate litter in the stoves or in multi-fuel boilers.

In the autumn and spring people incinerate the garden and street litter sometimes against clear prohibition.



In the recent years Zugló opened a health promotion office (ZEFI), that can help in prevention, screening and consultation while it starts health promotion programs for groups. We will start an informative, awareness raising program series with the help of AWAIR program and ZEFI.

The program series will teach with creative communication techniques about air quality, about the causes of poor air quality situations, about what to do in case of smog alert and especially about chronic respiratory diseases.

Campaign: We need serious awareness raising programs to increase residential knowledge about respiratory diseases and about prevention and harm reduction methods. It is important to inform them not only about the outside air quality but also the inside air quality. Right now, there are several campaigns and programs about air quality. We need to gather them and the good practices and promote them in an articulate way. We need to start a residential campaign in the area of FUA to inform and raise awareness. We need to aim at the local media, local health institutions and the concerned organizations as well as social media pages.

By the adaption of these we will start a residential campaign in the area of FUA to inform and raise awareness.

We will connect the problems of heating emission with its effect on health while teaching about the alternative utilization of biodegradable waste.

Actions:

1. Analysis and planning

Gathering and analyzing the communication aspects of awareness raising programs by futsokosankampany.hu, the National Public Health Centre (NNK), the Clean Air Action Group and organizations. Creation of a communication campaign plan (containing content and results).

Outcome: 1 2-page analysis, 1 3-page communication campaign plan

Information about the air quality in Zugló on the website of the district.

Target group:

Municipalities and resident in FUA, residents of Zugló

2. Heat smart! residential campaign

Sharing the content of futsokosan.hu with the residents in FUA via social media. Promotion of these material on social media in the area of FUA

Outcome: 1000 active reach on Facebook in 3 months, 10000 passive reach

3. Appearance in the website and media platforms of FUA municipalities

Sharing the content of futsokosan.hu in the area of FUA in the print and other media outlets of municipalities, alliances and other organizations.

10 appearances in municipal media and/or website.

Outcome: 3-month campaign, at least 40 media appearances

4. Evaluation of air quality data on the website of Zugló



The Hungarian Weather Service will measure air quality with mobile measure stations in Zugló during the winter of early 2019. The data must be shared in a commonly understandable way on charts with short explanations on a subsite of zuglo.hu.

Outcome: Follow-up of one month's measurement data and creation of explanatory texts (cc. 8 expert day/week +graphics+writing)

Schedule:

	2019												2020											
	sep	oct	nov	dec	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	jan	feb	mar	apr	may	jun	jul	aug
Analysis, plan																								
Campaign																								
Media																								
Air quality info																								

Partners:

- Professional organizations,
- municipalities (members of FUA),
- Municipal Alliances (Alliance of Climate-Friendly Municipalities, TÖÖSZ),
- Civil organizations,
- concerned specialized companies,
- municipal public service providers

3.8. Train kindergardens and nurseries about air quality and actions needed in SAPE

Level: Zugló

Action: training and communication activities

Outcome: 2 training, 1 training material, communication actions (poster, display, app)

Zuglo has 24 kindergarden and 20 nursery schools where training will be held. The themes will be about air quality, respiratory tract diseases, inner air quality, communication actions and what to do in case of severe air episodes.

9) Pilot action:
Informing the vulnerable groups in case of poor air quality with the involvement of kindergardens and nurseries in Zugló

Aim:

Informing and harm reduction in case of poor air quality with 25 kindergardens and 13 nurseries in Zugló.



Prelude:

As part of the AWAIR program, the Municipality of Zugló gives special attention to the respiratory diseases caused by poor air quality and its most vulnerable group: children. In order to prevent children in kindergartens to be affected by poor air quality, Zugló will provide support for the institutions in three areas within the AWAIR program.

Questionnaire: With the help of a questionnaire, the workers of these institutions present how they get informed about the poor air quality periods, what actions they take, what risks they know about etc.

Information: The workers of these institutions get information in three topics related to air quality:

1. internal air quality and its improvement
2. external air quality, its health effects and actions to take in case of poor air quality
3. utilization of informing and alert communication devices (application)

Alert communication: It would be important to have communication a few days before the smog alert is ordered by the authorities when it is possible that the air quality will deteriorate. This will be crucial in SAPE situations when parents need information on air quality more than once a day. Institutions will get tools (poster, application, display) to help them informing parents as soon as possible in the most effective way about the dos and don'ts in case of poor air quality.

Tool purchase: For the communication of air quality we need to purchase the tools to help the improvement of internal air quality (e.g. display, alert tool, plants, poster). We also plan to procure air quality measuring gadgets, that will help on aware raising activities.

Actions:

1. Questionnaire survey

The survey will show the current actions, knowledge and needs of the institutions regarding air quality/air pollution and adaptation/harm reduction. We will ask if they take any action in case of poor air quality in the institution and who orders it the institution has some kind of informational or awareness raising communication regarding air quality the institution informs the parents and how they need more information regarding air quality.

Outcome: 1 10-minute questionnaire in google form, online promotion

Indicator: 30 answers, 1 summary, 1 page

2. Information

The lectures are for the leaders of the institution and for kindergartners and nurses. In an open day they will get informational materials and will participate in lectures. The curriculum of the lecture: -General information about air quality, - internal air quality and tools to improve it, how to act, - external air quality and its health effects, - alert in case of poor air quality and actions to be taken, -utilization of communication devices and channels in case of poor air quality. The lecture will be held by involving NNK and ZEFI.

Informational material: 3 -5 pages



Outcome: 4 lectures, max. 1.5 hours long

Documentation: record of attendances, photos

3. Tools

The municipality gives communication devices (display, board, poster, flyers) and tools to improve internal air quality (measuring device, plants) to the institutions.

Tools: Communication materials (poster, display, flyers), Internal air quality improving tools (plants, measuring device).

Outcome: At least one of the communication materials appears in all of the institutions (32). Tools regarding internal air quality appear in at least 10 institution.

Indicator: half page summary and photo documentation (4).

4. Follow-up

Follow-up of the project will be via questionnaires and personal interviews. We will speak with at least 5 leaders about the effects of the lectures, the success of the communication and the utilization of the application and other channels.

Outcome: we will send out 32 questionnaire and will have at least 15 answers; its 1-page summary; 1-page summary of the personal interviews (5).

Schedule:

	2019												2020							
	jan	feb	mar	apr	may	jun	jul	aug	sep	okt	nov	dec	jan	feb	mar	apr	may	jun	jul	aug
Questionnaire	■																			
Information			■	■	■	■	■	■												
Tools								■	■	■	■	■								
Follow-up														■	■	■				

Partners:

- National Public Health Centre (NNK),
- Zugló Health Promotion Office (ZEFI)

	MEASURES	IMPLEMENTING INSTRUMENT	RESPONSIBLE FOR THE ACTION	ACTION PLAN/Pilot	ACTIONS	MITIGATION ADAPTATION	TARGET1	TARGET 2	INDICATORS	quantity	deadline
2.1.1	Develop Sustainable Energy and Climate Action Plan	SECAP	FUA municipalities	action	lobbi	Mitigation		municipalities	new SECAP	2	2020
2.1.2	Harmonisation of local regulation about green waste burning	detailed research, policy recommendation	Zugló	pilot	research, and lobbi	Mitigation	General public	municipalities	new regulation	2 municipalities	2020
2.1.3	Control illegal waste burning	control and actions rules, and regulations	Zugló	pilot	awareness raising in public level	Mitigation	General public	municipalities	policy paper	5 municipalities renew their regulation	2020
2.2.1	Measure to increase P+R areas	P+R area 2 places in Budapest	Budapest	AP	lobbi	Mitigation	General public	Budapest	lobbi	1	2020
2.2.2	Extending payed parking areas	regulation defining new areas	Zugló, Budapest	AP	lobbi	Mitigation	General public	Budapest	lobbi	1	2020
2.2.3	Extention speed limit zones	negotiation, regulation	Zugló	pilot (not awair)	share best practice	Mitigation	General public	Zugló	1 new zone in Zugló	1	2019
2.2.4	Traffic jam charge zones	regulation defining new areas	Budapest	AP	lobbi	Mitigation	General public	Budapest	lobbi	1	2020



2.2.5	Ring extension	regulation	Budapest, FUA, Government	AP	lobbi	Mitigation	General public	Budapest	lobbi	1	2020
2.2.6	Implement intelligent traffic light system	regulation	Budapest, FUA, Government	AP	lobbi	Mitigation	General public	Budapest	lobbi	1	2020
2.3	Improve public transport services	implementation, investment	FUA municipalities, government	AP	lobbi	Mitigation	General public	Budapest	lobbi	1	2020
2.4	Bycicle infrastructure implementation	implementation, investment	FUA municipalities	AP	lobbi	Mitigation	General public	municipalities	best practices, peer-to-peer	1	2020
2.5	Support enlargement electrification by make small investments and introduce tax reduce	regulation, investment	FUA municipalities	AP	lobbi	Mitigation	General public	Budapest	lobbi	1	2020
2.6	Support energy efficiency measures	policy recommendation	FUA municipalities	pilot	share best practice	Mitigation	General public	municipalities	lobbi, best practices	1	2019
2.7	Reducing dust	policy recommendation	FUA municipalities	pilot	share best practice	Mitigation	General public	municipalities	lobbi, best practices	1	2019
2.8	Increase green intensity	policy recommendation	Zugló	pilot	share best practice	Mitigation	General public	municipalities	best practices	2	2019



3.1	Knowledge sharing	peer-to-peerevents and trainings	Zugló	pilot	share best practice	Adaptation		municipalities	peer-to-peer	5	2020
3.2	Revision of SAPE regulation of FUA	policy recommendation	Zugló	pilot	lobbi	Adaptation	General public	municipalities	policy paper	1	2020
3.3	Imission tests in Zuglo	imission metering	Zugló	pilot	imission test, best practice,	Adaptation	General public	municipalities	measures, communication , outreach	1	2019
3.4	Estimationof emission	local emission research	Zugló	pilot	share best practice	Adaptation		municipalities	study	1	2019
3.6	Awareness raising campaign on health effects	public education program	Zugló	pilot	best practice campaign methodology	Adaptation	General public		articles	1000 reached	2020
3.7	Raising awareness	research, events, comperative report	Zugló	pilot	awareness raising campaign	Adaptation	General public		articles, outreach	1M	2020
3.8	Train carrers of vulnerable groups	training, comm actions,	Zugló	pilot	research, training, comm. actions	Adaptation	General public	institutions	4 training	4	2020