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AWAIR

TRANSNATIONAL STRATEGY FOR COORDINATION OF URBAN PLANS AT FUA LEVEL

Deliverable D.T1.4.3

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Description of the aims:

The document introduces a series of potential policy instruments at FUA scale and a common path model for the involvement of different stakeholders.

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1. Introduction

The AWAIR project addresses the issue of air quality as common challenge for Central Europe (CE). Specifically, AWAIR deals with Severe Air Pollution Episodes (SAPEs), when a drastic increase of pollution concentration occurs for several consecutive days. It is the objective of AWAIR to improve environmental management capacity through the promotion and the adoption of measures and strategies within FUAs to cope with SAPEs.

Several potential measures to reduce air pollution in case of SAPEs that have already been fully or partly introduced by the FUAs of the AWAIR project have been collected in Deliverable D.T1.2.1_1.2.2

This document provides concrete suggestions suggestions for stakeholders in case of SAPEs with a focus on the two main sources of air pollution in cities plus public awareness. Due to the clear outline and structure they can be easily applied. The doument is closely linked to the deliverables D.T1.4.1 and D.T1.4.2

As stated in 2008/50/CE action plans should be drawn up indicating the measures to be taken in the short term where there is a risk of an exceedance of one or more alert thresholds in order to reduce that risk and to limit its duration. When the risk applies to one or more limit values or target values, member states may, where appropriate, draw up such short-term action plans.

In the event of exceedances of those limit values for which the attainment deadline is already expired, the air quality plans shall set out appropriate measures, so that the exceedance period can be kept as short as possible. The air quality plans may additionally include specific measures aiming at the protection of sensitive population groups, including children.

The sensitive groups are one of the main targets of the AWAIR project, including cardiovascular patients. The recent statement of the European Respiratory Society (ERS) and the American Thoracic Society (ATS) (1) recognizes the cardiovascular system as the first target organ of air pollution, in particular of particulate matter (PM2.5). (Forastiere, Updates on cardiovascular effects of air pollution 2019, 24-26 Jan. RespiraMI 3 Seminar,Milano)

2. Common strategy to manage SAPEs

The AWAIR strategy provides:

- Mitigation and adaptation pilot actions to be tested in each FUA, verifying the effectiveness;
- New tools to improve communication on SAPEs and reduction of people's exposure, in particular of the most vulnerable groups and a common support decision system (DSS) to guide administrators in the activation of targeted mitigation and adaptation actions;
- A collaboration model for administrators and the stakeholders within the FUAs to promote enhanced governance of air quality at greater territorial level.

2.1 Overview on potential measures

Within deliverable D.T1.2.1_1.2.2 a series of potential measures that are currently being used or introduced in the different FUAs were collected (Table 1). The measures are divided into "general", "long-term", "medium -term" and "short-term".

Measure	Country/FUA				
	Graz	Germany[a]	Zugló	Parma	Katowice
General					
Information of the public about the air quality	x		x	x	x
Long-term					
Sensible city planning and building	x	x	x	x	x
Promoting e-mobility	x	x	x	x	x
Promoting public transport	x	x	x	x	x
Clean air plans/programmes	x	x	x	x	x
Modernisation/equipment with dust-removal installations of stoves and fireplaces					x
Speed limits in parts of the city (30 and 40 km/h zones) and/or on motorways				x	X
Ban of leaf blowers/leaf vacs	x				
Medium term					
Stricter testing and controls of cars		x	x	x	x
Low emission zones		x	x	x	
Stricter tree replacing policy	x		x	x	
Short-term					
Driving ban on certain vehicles			x	x	
Decrease in heating for offices and houses				x	
Free public transport during SAPEs					x
Ban of secondary[b] heating systems (e.g. wood burning stoves)	x			x	
Speed limits on motorways	x			*	

[a] measures for all of Germany with a focus on Munich and Augsburg, as there is no FUA within this project in Germany
[b] heating systems that constitute an additional to the "normal" heating system
* currently under investigation, not yet implemented

Table 1: Overview on measures to reduce air pollution in the different FUAs of the AWAIR project

The short-term measures are those to be put in place in case of SAPEs, but it is more difficult to find new actions focus on these critical events. In chapter 5, advantages and disadvantages will be described.

In addition to the above mentioned examples, there are other potential measures that a Municipality can implement in order to improve air quality and to reduce SAPEs: in particular the long-term ones (relevant long term measures by FUA in attachment). Every core city should identify good practice lists in all intervention areas, even already implemented, to share with the other municipalities.

We can classify the potential measures for every municipality in 5 topics: air quality and transport, energy efficiency, agriculture, health, communication/capacity building

In the framework of reduction of the long-term exposure, mitigation strategies are generally considered more effective, since mitigation measures have a stronger impact on a longer time scale than adaptation measures, which in turn should be effective immediately in the reduction of adverse health effects.

The appendix gives a detailed overview of the different measures in the three FUAs.

3.1 Communication tools and involvement of stakeholders in the urban plan process

As provided in the DT1.4.1 the platform made of the stakeholders should have the following tasks:

A. Involvement of stakeholders

- mapping out stakeholders (authorities, researchers, NGOs, municipalities)
- mapping out common projects, interests, actions etc.
- motivation and engagement of the stakeholders by showing the importance and benefits

B. Communication and coordination

Rules of communication

- regular, clear, short
- continuous
- online and personal
- clear goals and tasks
- share information and keep contact
- involve specialists and professional

Tasks of coordination

- planning and organization
- setting up a method on how the Platform is going to work
- ensuring place for modifications, discusses common decision making

- organizing regular meetings and and a clear and resourceful aware system
- clear roles and responsabilities
- engaging the menbers by “open to join”
- planning workflow and making it transparent
- creating online workspace (e.g. common editable documents, doodle pools, on line char room)
- sharing responsabilities, tasks and roles between the members
- empower the workflow

C. Setting up goals

- clear, ambitious but achievable goals
- able to copy-paste goals into local plans
- SMART- goals (specific, measureable, achievable, relevant, timely)

D. Implement actions

- Making detailed project plans
- First action should be easy to achieve to give positive feedback on the platform
- Choosing the pilot actions by considering the importance of the issue and the available competence and resources
- Implementing actions (policy and pilot) by involving the community

E. Evaluation

- setting up monitoring methodology before the actions setting up success criteria
- evaluation of the process and giving feedback
- implementation of necessary improvements
- spreading worst and best practices
- celebration

3.2 Coordination of the FUA Municipalities network

One of the relevant outputs is the increased coordination of environmental policies between core urban areas and their surrounding FUAs, raising awareness about the added value of acting at FUA’S level to manage air quality problems.

As provided by DT1.4.1 the local authorities have responsibility for air and health protection, promote and carry out campaigns and demonstration actions. It is therefore very relevant for the project to engage them.

Following the platform tasks above, the steps below are important:

1 – To organize first involvement meeting with a referent for every FUA's Municipality to explain project objectives and the importance of a platform on air quality topic;

2- Second engagement meeting to describe actions to put in place;

3 – Send a questionnaire or a table to every Municipality in order to know the existing measures and those they would implement;

4- To organize in the FUA Municipalities informative meeting on the project and on air quality topics, for all territory stakeholders and citizens.

Finally, the municipalities and the other stakeholders will sign the Memorandum of Understanding, a sort of "constitution" that articulates the basic principles of the collaboration process.

4.Outline

This document will put the loose collection of ideas and measures from deliverables D.T1.4.1 and D.T1.4.2 as well as the measures collected within deliverable D.T1.2.1_1.2.2 into concrete suggestion with a focus on certain topics such as traffic or home heating. Firstly, the problem/objective will be explained and several reduction measures introduced. Potential prerequisites, advantages and disadvantages, where applicable, are discussed. Finally, ways to measure the effectiveness of the measures will be listed briefly. The general structure is given in figure 1.

PLEASE NOTE: By holding the "Strg" key and clicking the left mouse button within the boxes the user will be directed straight to the chosen measure.

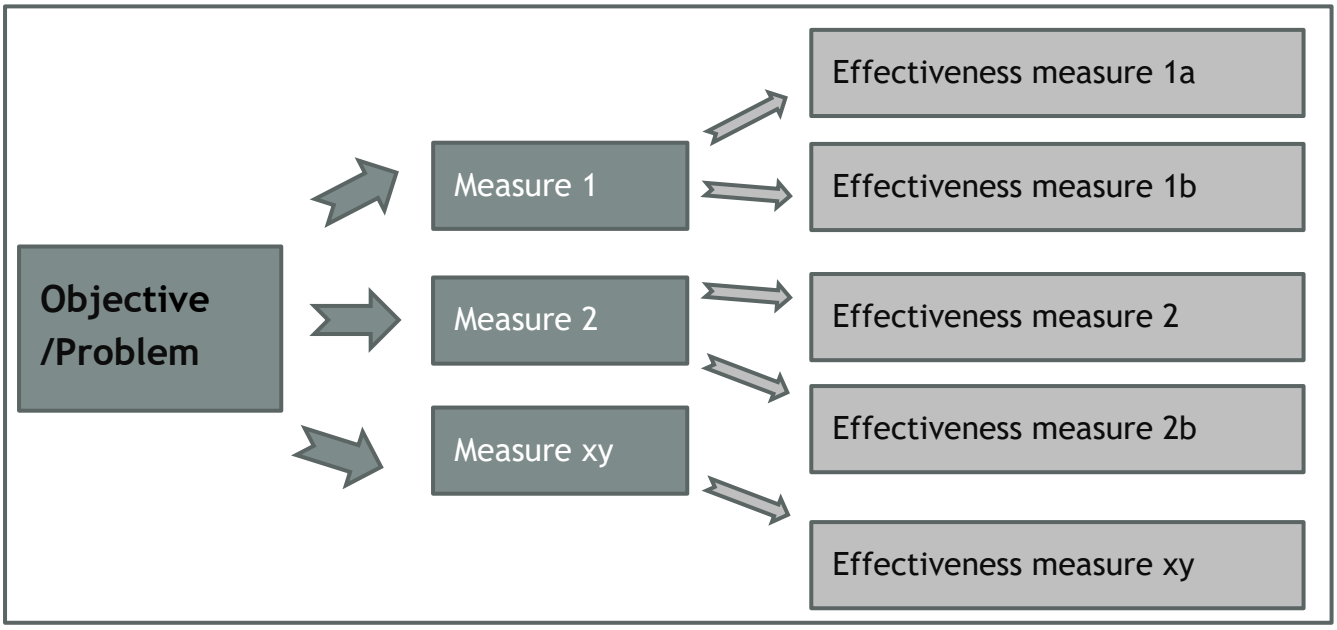

Figure 1: General outline regarding different problems and measures to address them

5.Problems to be tackled in case of SAPEs

The following document will focus on the most common problems in case of SAPES:

1) car and lorry traffic

2) use of small scale furnaces/household coal heating installations

3) public awareness and reduction of exposure.

Possible measures for each problem will be introduced as described above.

5.1 Traffic

Cars for private transport are still one of the largest sources of traffic emissions within a city. Traffic from motorised vehicles is especially problematic as its emissions are produced where people live and work, i.e. within the cities.

In case of SAPEs, reducing car traffic will lead to a reduction in overall air pollution (Figure 2).

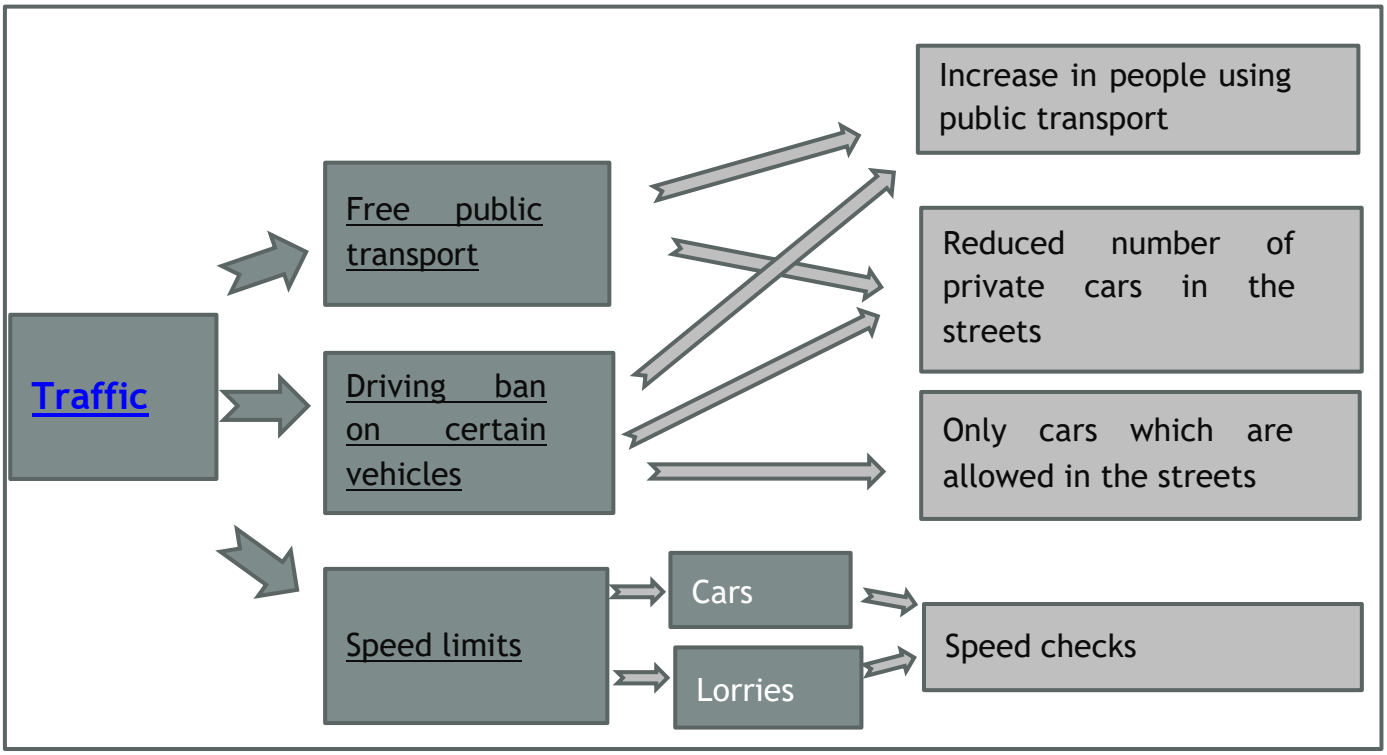

Figure 2: Measures for traffic reduction

5.1.1 Free public transport

Free public transport on days with (expected) high air pollution levels can be a quick and effective way of reducing motor traffic especially in the inner cities. Prerequisite is a functional public transport system that can cope with the expected additional travelers. Enough "park and ride" spaces need to be available to enable people to use public transport.

This measure needs to be made public via the news and can be even more effective in combination with measure 5.1.2 "Driving ban on certain vehicles".

The effectiveness can be measured via the number of people using public transport and/or by the number of cars in the streets.

5.1.2 Driving ban on certain vehicles

There are several ways of a short-term reduction of traffic emissions by driving bans as shown in table 2.

Driving ban on…	advantage	disadvantage
…old cars with high emissions	cars with most emissions will be kept out of the cities/city centers	The burden is mostly on people who cannot afford new, cleaner cars, and don't have good public transport connections
…odd/even number plates for certain days	affects all car owners equally;	The ban will be both on modern and old cars, hard to control and execute law.
…all cars in certain areas	affects all car owners equally;	- traffic will increase outside the no-area traffic, it might not result in an overall traffic reduction; - exemptions for delivery vans and people living in the area of the traffic ban needed (hard to control)
…all non-electric cars in certain area	Affects all non-electric cars equally	The burden is mostly on people who cannot afford electrical cars, and don't have good public transport connections.

Table 2: advantages and disadvantages of different kinds of driving bans

Prerequisite for a driving ban in general is a well-functioning surveillance system. For option 1 (old cars vs. newer cars) a labelling system needs to be in place to differentiate between allowed/not allowed.

Free public transport during these days might enhance the acceptance of this measure in the population.

The effectiveness can be measured the number and kind of cars in the streets and/or increased number of public transport passengers.

5.1.3 Speed limits

Reduced speed leads to a reduction of emissions as well as of the dust from tyre and break wear and raised dust. Reduction in speed is especially positive if it leads to improved traffic flow. Less acceleration and braking reduces fuel usage and emissions in addition to reduced wear and dust.

If adjustable speed limit indicators are not available, a general speed limit can be issued for certain street types (e.g. 100 km/h on all motorways, 30km/h within the city etc.).

The speed limits can also be limited to lorries and coupled with overtaking bans.

Prerequisite: adjustable speed limits indicators

The effectiveness can be measured by speed checks.

5.2 Use of small scale furnaces

The use of small scale furnaces contributes significantly to air pollution, especially in residential areas. Some people burn coal, wood or pellets in small scale furnaces as additional cheap way of heating, if the central heating has not been turned on yet. Sometimes it is the primary heating source due lack of district heating or a gas line. The pollution is even worse if waste and garbage are burnt rather than wood or pellets. Garbage burning not only leads to the "normal" products of burning. Due to the uncontrolled burning of garbage which can contain all kinds of materials such as plastic a large number of harmful substances will be released into the air. Figure 3 shows possible ways of reducing pollution from small scale furnaces in case of SAPEs.

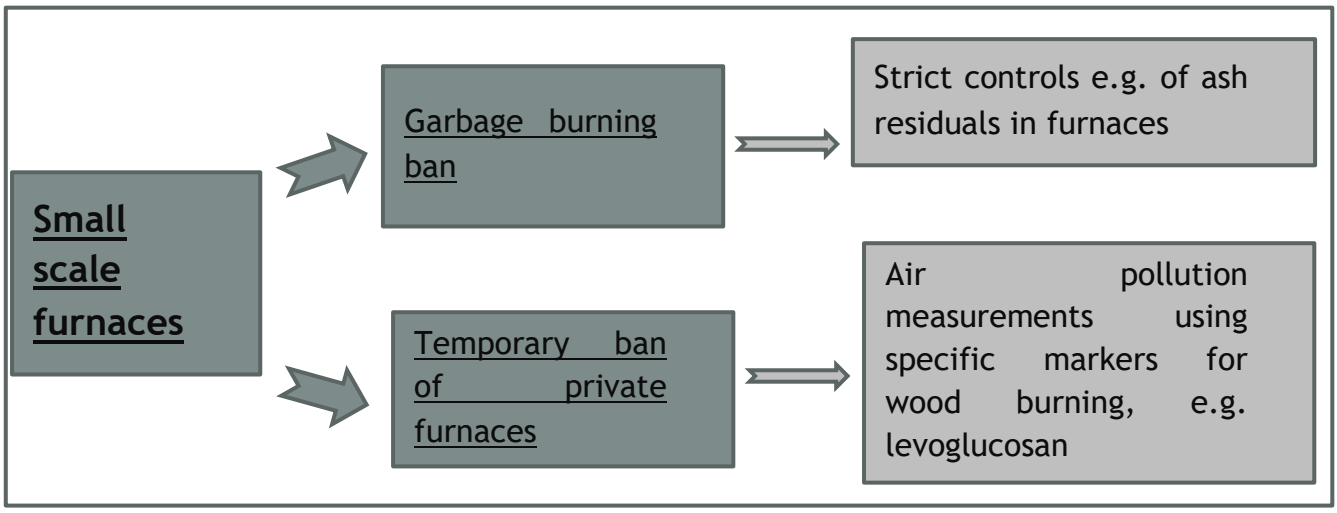

Figure 3: Measures for reducing exhaust from small scale furnaces

5.2.1 Garbage burning ban

To reduce private garbage burning, strict controls with considerable fines need to be implemented in case of SAPEs. The public should be informed about this measure beforehand.

The effectiveness can be measured by the number of controls and the number of issued fines when garbage burning is detected.

5.2.2 Temporary ban of private furnaces

Similar to 4.2.1 burning of wood and pellets can temporarily be banned in case of SAPEs. The public needs to be informed about this measure and strict controls need to be implemented.

The effectiveness can be measured by controls as well as air pollution measurements using specific markers for wood burning e.g. levoglucosan (Ref).

In the long run, outdated heating facilities need to be replaced by modern ones that create less air pollution or by connecting buildings to district heating network.

5.3 Public awareness

Public awareness plays an important role in all the measures presented above. Local authorities need to inform the public about the current level of air pollution within the city and the health effects that might ensue if the values are too high. Especially in case of expected SAPEs the public needs to be pre-warned. Education on how each single member of the community can contribute to a reduction in air pollution – long-term but especially in case of SAPEs - is necessary. Only if people understand why certain measures are taken, and that they are meant to protect everyone's health, they are widely accepted and can successfully be implemented. Figure 4 shows ways of informing the public about SAPEs.

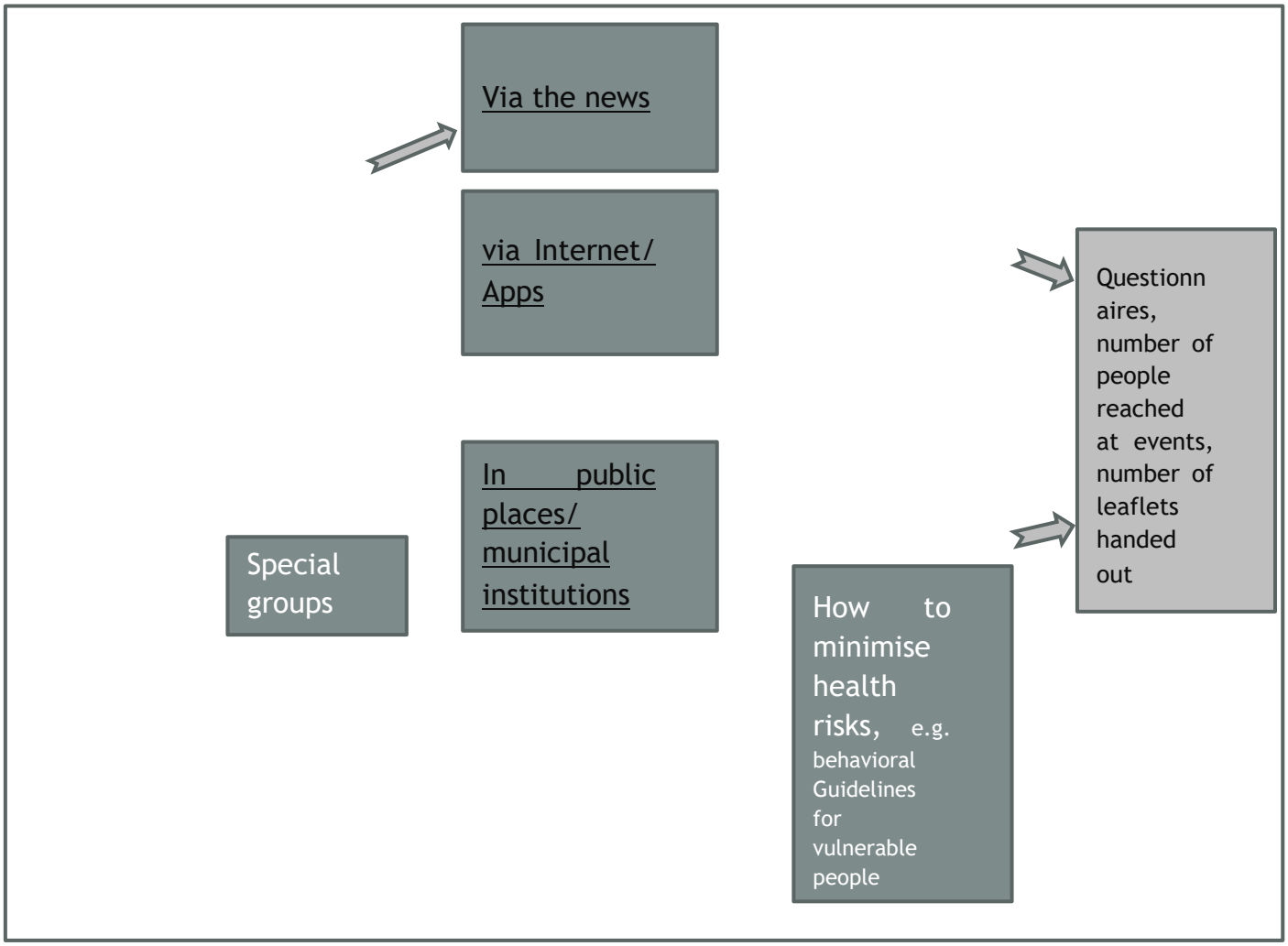

Figure 4: ways of informing the public

5.3.1 Information via the news

Information about the risk of a SAPE should be distributed via the news (newspaper, television, radio, social media). It needs to contain information on the expected level and duration of air pollution, potential risks and instructions how to behave. It needs differentiate between susceptible people and the healthy population. Also, appeals to the population how to contribute actively to a reduction in air pollution should be included and if any special measures by the local authorities, such as e.g. free transport, modernization of heating installation, speed limits are planned.

Suggestions for text:

> Due to the current meteorological conditions according to [name of institution providing the information about air quality] the level of [air pollutant, e.g. $PM_{2.5}$] is expected to be [add value] during the next [how many] days, thus exceeding the [information/alert level].
>
> Susceptible populations such as [children/elderly/people with chronic diseases] are advised to [avoid outdoor exercise/avoid going outside/use inhalers more often].
>
> The public is asked to [avoid unnecessary trips by car/use public transport/refrain from using small scale private furnaces]
>
> Local authorities have implemented [free public transport for the [dates] for everyone/speed reductions [in the city/on motorways] of [xy km/h] until further notice.

5.3.2 Information in public places/municipal institutions

Public places such as town halls, schools, kindergartens and other administrative buildings could provide the about stated information, e.g. on screens.

5.3.3 Information of schools/day care centers/old people's homes

Schools, day care centers and old people's homes need to be informed if any measures need to be taken as children and the elderly are especially susceptible groups. Concrete instructions need to be given:

> Due to the current meteorological conditions the level of according to [name of institution providing the information about air quality] [air pollutant, e.g. $PM_{2.5}$] is expected to be [add value] during the next [how many] days, thus exceeding the [information/alert level].
>
> As children and the elderly are considered especially susceptible to the adverse effects of air pollution we recommend the following measures:
>
> - Avoid outdoor exercise/avoid going outside
> - Open the windows only early in the morning and in the evenings, keep them shut during the day
> - Keep emergency medication at hand for people with lung- or cardiovascular diseases
> - Local authorities have implemented [free public transport for the [dates] for everyone/speed reductions [in the city/on motorways] of [xy km/h] until further notice.

Details will be provided within DT2.2.5 "AWAIR decision support systems"

5.3.4 Information via Internet/Apps

The citizens themselves need to be provided with a simple way of checking the current air pollution level and reacting accordingly. An internet page or an APP for mobile devices giving the current air pollution level, issuing warnings, in case of SAPEs and giving detailed instructions how to protect oneself from the adverse health effects is needed. An APP including the above mentioned information is currently being developed within O.T2.3 of this project.

Appendix 1
Parma long-term measures

TOPIC	MEASURES	IMPLEMENTING INSTRUMENT	IMPLEMENTATION LEVEL	RESPONSIBLE FOR THE ACTION	DEPARTMENT/S INVOLVED	ACTIONS	MITIGATION/ADAPTATION	TARGET
AIR QUALITY AND TRANSPORT	Reduce emissions from vehicles used for private transport.	Pums - Urban plan for the Sustainability of the Mobility	Single Municipality	Parma Municipality (Mobility department)		Harmonization of the rules of access and stop in the LTZ	Mitigation	General public
	Reduce emissions from vehicles used for private transport.	Pums - Urban plan for the Sustainability of the Mobility	Intercommunal	Parma Municipality (Mobility department)		Promotion of electric mobility with new recharge points	Mitigation	General public
	Reduce emissions from vehicles used for private transport.	Pums - Urban plan for the Sustainability of the Mobility	Intercommunal	Parma Municipality (Mobility department)		Promotion of cycle mobility (extension of cycle lanes)	Mitigation	General public
	Reduction of emissions from commercial vehicles	PUMS (Urban plan for the sustainability of the Mobility)	Single Municipality	Parma Municipality (Mobility department)	Parma Municipality (Trade department)	Cycle-logistics promotion (goods transport by bike/electric mobility)	Mitigation	Interest Group inclusing NGO
	Reduction of emissions from commercial vehicles	PUMS (Urban plan for the sustainability of the Mobility)	Intercommunal	Parma Municipality (Mobility department)	Parma Municipality (Trade department)	Promotion of projects for the distribution of goods in the last kilometers and in the LTZ with vehicles with low environmental impact	Mitigation	Interest Group inclusing NGO
	Reduction of emissions from commercial vehicles	PUMS (Urban plan for the sustainability of the Mobility)	Intercommunal	Parma Municipality (Mobility department)	Parma Municipality (Trade department)	Logistic Rationalization	Mitigation	Interest Group inclusing NGO
AIR QUALITY ENERGY EFFICIENCY	Reduction emissions from domestic heating	Integrated Air Plan of the Emilia-Romagna Region	Intercommunal	Region	Parma Municipality (mobility and energy department)	Ban use of biomass for domestic heating of energy efficiency class < 1 star	Mitigation	General public
	Reduction emissions from domestic heating	Integrated Air Plan of the Emilia-Romagna Region	Intercommunal	Region	Parma Municipality (mobility and energy department)	Ban of installation biomass heating < 3 stars and substitution of obsolete plants	Mitigation	General public
	Reduction emissions from residential buidings	Loan agreements with bank	Intercommunal	Parma Municipality (mobility and energy department)		Promotion of sustainable apartment buildings (boiler substitution, thermal coat, fixtures substitution)	Mitigation	General public
	Zero emission building	SECAP	Intercommunal	Region	Parma Municipality (mobility and energy department)	Training on the subject	Mitigation	Interest Group inclusing NGO
AIR QUALITY AND HEALTH	vulnerable group awareness	communication campaign	Intercommunal	AUSL, ARPAE (Environmental Protection Agency Emilia - Romagna Region)	Parma Municipality (Environmental Department)	Behavioral guidelines	Adaptation	General public (vulnerable groups)
AIR QUALITY AND AGRICULTURE	Reduction ammonia emissions from slurry landspreading		Intercommunal	ARPAE (Environmental Protection Agency Emilia - Romagna Region)		modification of animal diet, application best available practice landspreading	Mitigation	General public
	Reduction ammonia from fertilizers		Intercommunal	ARPAE (Environmental Protection Agency Emilia - Romagna Region)			Mitigation	General public
COMMUNICATION AND CAPACITY	Educational courses in schools on the air quality		Intercommunal		educational department		Adaptation	Education (other than Higher)

Appendix 2
Zuglo long-term measures

TOPIC	MEASURES	IMPLEMENTING INSTRUMENT	IMPLEMENTATION LEVEL	RESPONSIBLE FOR THE ACTION	DEPARTMENT/S INVOLVED	ACTIONS	MITIGATION/ADAPTATION	TARGET
AIR QUALITY AND TRANSPORT	Measure to increase Park and Ride areas	Park and Ride areas 2 places in Budapest	Main city	Budpest capital	BKK Budapesti Közlekedési Központ - Budapest Transport	lobby activity	Mitigation	General public
	Extending payed parking areas	regulation defining new areas	Main city	Zugló, Budapest		lobby activity	Mitigation	General public
	Extention speed limit zones	dealing, regulation	Main city	Zugló		sharing best practice	Mitigation	General public
	Limited traffic zone		FUA	budapest		lobby activity	Mitigation	General public
	Ring extension	regulation	FUA	Budapest, FUA, Government		lobby activity	Mitigation	General public
	Implement intelligent traffic light system	regulation	FUA	Budapest, FUA, Government		lobby activity	Mitigation	General public
	Improve public transport services	implementation, investment	FUA	Budapest	BKK Budapesti Közlekedési Központ - Budapest Transport	lobby activity	Mitigation	General public
	Bycicle infrastructure implementation	implementation, investment	FUA	Budapest	BKK Budapesti Közlekedési Központ - Budapest Transport	lobby activity	Mitigation	General public
	Support enlargement electrification by making small investments and introducing tax reduce	regulation, investment	FUA	Budapest		lobby activity	Mitigation	General public
AIR QUALITY ENERGY EFFICIENCY	Support energy efficiecy measures	policy recommendation	FUA	Budapest		sharing best practice	Mitigation	General public
	Reducing dust	policy recommendation	FUA	Budapest		sharing best practice	Mitigation	General public
AIR QUALITY AND HEALTH	Harmonisation of local regulation about green waste burning	detailed research, policy recommendation	FUA	Zugló		research, and lobby activity	Mitigation	General public
	Controll illegal waste burning	controll and actions rules, and regulations	FUA	Zugló		awareness raising in public level	Mitigation	General public
	Incrase green intensity	policy recommendation	FUA	Budapest		sharing best practice	Mitigation	General public
	Revision of SAPE regulation of FUA	policy recommendation	FUA	Budapest, FUA		lobby activity	Adaptation	General public
	Awareness raising campaign on health effects	public education program	FUA	FUA		best practice campaign methodology	Adaptation	General public
AIR QUALITY AND AGRICULTURE								
COMMUNICATION AND CAPACITY BUILDING	Develop Sustainable Energy and Climate Action Plan	SECAP	FUA	FUA		lobby activity	Mitigation	
	Imission meter in Zuglo, local monitoring	imission metering	Main city	Zugló		imission test, best practice,	Adaptation	General public
	Knowledge sharing	peer-to-peerevents and trainnings	FUA	FUA		sharing best practice	Adaptation	
	Estimation of emission	local emission research	FUA	FUA		sharing best practice	Adaptation	
	Raising awareness	research, events, comperative report	FUA	FUA		awareness raising campaign	Adaptation	General public
	Train carrers of vulnerable groups	training, comm actions,	Main city	Zugló		research, training, comm. actions	Adaptation	General public

Appendix 3
Katowice long-term measures

TOPIC	MEASURES	IMPLEMENTING INSTRUMENT	IMPLEMENTATION LEVEL	RESPONSIBLE FOR THE ACTION	DEPARTMENT/S INVOLVED	ACTIONS	MITIGATION/ADAPTATION	TARGET
AIR QUALITY AND TRANSPORT	Measures to reduce emissons from private cars by announcing free transport	Air protection programme for Silesia Province. Document avaible at: katowice.energiaisrodowisko.pl (only in polish)	Region	Transport department, Metropolitan Transport Administrator	Enviroment department	Increased number of exhaust controls in private cars and free public transport for everyoneduring SAPE	Adaptation	General public
	Measures to reduce emissons from transport	Low carbon economy plan for Katowice. Document avaible at: katowice.energiaisrodowiska.pl (only in polish)	Main city	Transport department, Investment department	-	Creating A limited-weight zone, and limited+speed zones in the city	Mitigation	General public
	Measures to reduce emissons from public transport including	Low carbon economy plan for Katowice. Document avaible at: katowice.energiaisrodowiska.pl (only in polish)	FUA	Transport department	Enviroment department	Purchase of low-emission means of transport 135 buses (including 20 buses with electric drives)	Adaptation	General public
	Measures to reduce emissons from transport from construction works	not specified	Main city	Transport department	Enviroment department	Increased number of controls on the construction sites and trucks in terms of reduction dust emission from construction works, and material transportation,	Adaptation	General public
AIR QUALITY ENERGY EFFICIENCY	Measures to reduce usage of energy, heat and water including building renovation and modernization of heating system	Low carbon economy plan for Katowice. Document avaible at: katowice.energiaisrodowiska.pl (only in polish)	Main city	Investment department	Enviroment department	Renovation of 45 public buildings to improve thermal performance, reduce low-stack emmision	Mitigation	General public
	Measures to reduce usage of energy, heat and water including energy management databaze	Low carbon economy plan for Katowice. Document avaible at: katowice.energiaisrodowiska.pl (only in polish)	Single Municipality	Enviroment department	-	Purchase and implementation of the energy and water accounting system serviced by 32 building administrators. Database includes 365 buildings	Mitigation	General public
	Measures to reduce usage of energy, heat and water including building management system	Low carbon economy plan for Katowice. Document avaible at: katowice.energiaisrodowiska.pl (only in polish)	Main city	Enviroment department	-	Purchase and implementation of the "Energy sources and water monitoring system, including reconstruction of the sources of thermal energy with regard to automatic thermostat adjustment for heating time and weather conditions	Mitigation	General public
	Measures to reduce pollution from detatched houses and block of flats including modernization of heating system	Low carbon economy plan for Katowice. Document avaible at: katowice.energiaisrodowiska.pl (only in polish)	Main city	Enviroment department	-	Subsidies with the top level of PLN 10,000, but not more than 80% of eligible costs for citizens that will decide to switch from coal to more ecological source of heating	Mitigation	General public
AIR QUALITY AND HEALTH	Measures to increase the avareness about the air quality	Low carbon economy plan for Katowice. Document avaible at: katowice.energiaisrodowiska.pl (only in polish)	Single Municipality	Enviroment department	Communication department	Creating City Energy Centre - first in Poland municipal institution dedicated for increasing avareness about clean technologies, air quality, subsidies and donation systems	Adaptation	General public
	Measures to increase the range of people informed about the air quality	Short-time action plan: document avaible at: katowice.energiaisrodowisko.pl (only in polish)	FUA	Enviroment department	Communication department	The list of actions comprises notification through the following information channels: the city website and fb page, text messages to people that are signed in KISS system, informations in local media	Adaptation	General public (vulnerable groups)
AIR QUALITY AND AGRICULTURE	Measures to reduce emissons by increasing green areas in city	not specified	Main city	Enviroment department	Urban Green Area Maintance Institution	Creating new green areas in city, renovating the existing ones	Mitigation	General public
	Measures to reduce emissons by preserving and protecting the existing green areas in the city	not specified	Main city	Enviroment department	Urban Green Area Maintance Institution, Forestry Management institution	Renovating and preserving the existing forrest areas in the city	Adaptation	General public
COMMUNICATION AND CAPACITY BUILDING								