

OUTPUT FACT SHEET

Pilot actions (including investment, if applicable)

Version 3

Project index number and acronym	CE1226 AWAIR
Output number and title	O.T2.1. Pilot actions for mitigation and adaptation to SAPEs
Investment number and title (if applicable)	I1 - Pilot investment in Parma
Responsible partner (PP name and number)	Arpae - Regional Agency for Prevention, Environment and Energy of Emilia-Romagna (LP)
Project website	https://www.interreg-central.eu/Content.Node/AWAIR/AWAIR.html
Delivery date	02/2021

Summary description of the pilot action (including investment, if applicable) explaining its experimental nature, demonstration character and transnational added value

The reduction of the adverse effects on the population due to the exposure to air pollutants relies on the definition of suitable mitigation and adaptation strategies at different spatial and temporal scales. The benefits of implemented strategies depend on their timeline. Mitigation measures are issued to determine a decrease of air pollutant concentrations to reduce the adverse effects. On the other hand, adaptation measures aim at protecting people's health, and especially with respect to the most vulnerable part of the population, regardless of the eventual decrease of ambient pollutant concentrations. Increasing people knowledge and awareness to encourage proper behaviors is an example of this type of actions.

The pilot actions implemented in Parma FUA during AWAIR project covered both aspects. Different measures were activated, both related to the severe air pollution episodes (called SAPEs) and to the whole winter period. These measures included traffic restrictions in all working days as well as on some Sundays, reduction of indoor temperatures and restrictions related to the use of biomass for domestic heating and to the spreading of zoo-technical slurry. One of the pilot actions in Parma was committed to the monitoring in two sites of some cutting-edge traffic related pollutants (black carbon and ultra fine particles) not yet included in the UE list of pollutants to be monitored. Another pilot action was related to the performance assessment of air quality sensors. These instruments may become an essential way to increase the spatial and temporal resolution of the standard monitoring networks given that the performance of sensor-based instruments is assessed during field campaign as it is one of the goal of the pilot actions. The monitoring of children exposure to air pollutants inside school buildings was another important pilot action. Subsequently, this pilot action became a joint pilot action to be carried out in all the FUAs involved in the AWAIR Project. Different ventilation protocols related to door and window opening were applied and their effectiveness in terms of reducing the pollutant concentrations measured. Another example in the framework of adaptation activities which deserve a mention was the constitution of an expert panel to discuss and draft guidelines for vulnerable people in case of forecasted SAPEs.

NUTS region(s) concerned by the pilot action (relevant NUTS level)

The concerned NUTS regions involve the Parma FUA (NUTS3 ITH52).

Investment costs (EUR), if applicable

Upgrade of 4 AQMESH pods (Environmental Instruments Ltd., UK) to monitor NO_x and O₃. These pods were already available at Arpae Emilia-Romagna.

Total cost: € 12 029,20.

Purchase of 4 AQMESH pods (Environmental Instruments Ltd., UK) to monitor PM_x, CO₂ and NO₂.

Total cost: € 40 260,00.

Total: 52 289,20.

Expected impact and benefits of the pilot action for the concerned territory and target groups and leverage of additional funds (if applicable)

The first impact associated with any mitigation measures is the reduction of main pollutant concentrations in winter, when SAPEs are more frequent. In addition to this, an increase of knowledge related to air quality conditions in Parma is expected, with a focus on traffic related pollutants which is the first target against which mobility restrictions are implemented. The intensive monitoring of traffic related pollutants will potentially give information about the effectiveness of the traffic restrictions.

Another important benefit to be achieved is the increase of knowledge related to sensor-based instruments for the monitoring of air quality. These instruments will potentially afford to carry out more detailed analysis related to air quality, also in areas without any standard monitoring stations.

The monitoring in the school buildings is an example of a strategy which may effectively reduce the exposure of vulnerable people with a quantitative assessment of the effectiveness of the strategy. Also the panel of experts may lead to a fruitful discussion in order to develop strategies and tips for a better quality of life for the vulnerable people.

Sustainability of the pilot action results and transferability to other territories and stakeholders

The sustainability of the pilot actions is related to both monitoring equipment purchased with the AWAIR budget and to the human resources which implemented the activities and the data analysis. In fact, the use of sensor-based instruments would be a clear economic advantage and their portability is essential to develop monitoring in areas not covered by reference monitors. The transferability of the pilot actions to other territories is straightforward after a positive inter-comparison with reference monitors.

The experience acquired in the monitoring of the cutting-edge pollutants (black carbon and ultrafine particles) will be used in the future to increase information on air quality parameters relevant for human health but not yet included in the regulatory list.

As for the indoor monitoring inside school buildings, it will be possible to use the purchased instruments and the AWAIR expertise in school buildings and other potential settings involving vulnerable. The discussion among students, teachers, experts and associations of vulnerable people are still underway and will continue in the future.

Sustainability and transferability of the pilot action findings are also related to the assessment of effectiveness of mitigation strategies and traffic restrictions in particular. In this respect, the results of the pilot actions showed that traffic restrictions are effective in reducing the mix of traffic related pollutants, but much less in reducing PM_x concentrations. Another issue is related to the importance of collecting reliable data of traffic fluxes which turn out to be essential to assess the effect of traffic restrictions. A specific plan in this sense has been set up together with the municipality of Parma.

If applicable, contribution to/ compliance with:

- relevant regulatory requirements
- sustainable development - environmental effects. In case of risk of negative effects, mitigation measures introduced
- horizontal principles such as equal opportunities and non-discrimination

The data collected in the “standard” monitoring stations have been used as a reference for the data collected by the sensor based equipment. The planned mitigation actions in Parma FUA were implemented on the basis of the regulatory limits of air pollutant concentrations and were conceived in close accordance with the principles of sustainable development. As for the monitoring inside school buildings, there are not regulatory standards for pollutant concentrations in the indoor environment.

There is no risk that the pilot actions implemented in Parma FUA have negative environmental effect since they essentially deal with air quality monitoring. Equal opportunities and non-discrimination are not applicable in this framework.

References to relevant deliverables (e.g. pilot action report, studies), investment factsheet and web-links

If applicable, additional documentation, pictures or images to be provided as annex

Web-link: <https://www.interreg-central.eu/Content.Node/AWAIR/AWAIR.html>

The relevant reference deliverables are:

- Joint Deliverable D.T2.1.2-D.T2.1.3-D.T2.2.1 “Mitigation and adaptation action plan, pilot actions and monitoring plan to verify effectiveness of actions in the FUA of Parma”.
- Joint Deliverable D.T2.2.2-D.T2-2-3 “Pilot tests - Parma FUA” with annexes describing administrative and technological tests.
- Deliverable D.T2.2.6 “Assessing the effectiveness of mitigation and adaptation actions/measures at Parma FUA”.
- Deliverable D.T2.2.8 “Joint pilot action in a pool of schools - FUA of Parma”.

Image 1: monitoring station

