

Air Implementation Pilot:

Information to the public



ETC/ACM Technical Paper 2013/6
July 2013

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The European Topic Centre on Air Pollution and Climate Change Mitigation (ETC/ACM) is a consortium of European institutes under contract of the European Environment Agency
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Front page picture:

Print screen of EEA's near real time maps at <http://www.eea.europa.eu/themes/air/air-quality/map/real-time-map>

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1. Introduction

One of the tasks of the Air Implementation Pilot is to examine how cities inform the public about the status of air quality (AQ), by identifying and compiling innovative ideas in communication. This task also investigated how to provide access to local information via EEA dissemination platforms.

This task intends to give answer, among other, to the following questions:

- a. How do cities communicate AQ status to the public?
- b. Is there any innovative idea especially well appreciated by citizens?
- c. Can these initiatives be applied to other cities?
- d. How can local information be accessed via EEA information platforms?
- e. In which areas is further guidance needed?
- f. What can one city learn from another?

A questionnaire (see Annex I) was prepared in 2012 and distributed to the 8 cities involved at that moment in the Air Implementation Pilot, to get some insight about their communications practices. The replies were summarized in the following sections.

With the extension of the project to four new cities at the end of 2012, the report was updated in 2013 to take into account the practices in these new cities. Conclusions remain mainly the same, though.

(All cities have replied to the questionnaire with the only exception of Malmö)

2. Information to the public according to the European legislation

Article 26 in Directive 2008/50/EC and article 7 in Directive 2004/107/EC establish the information that must be made available to the public. This information covers four areas:

- a. Ambient AQ (including up-to-date data and annual reports)
- b. Postponements/exemptions
- c. AQ plans
- d. Competent authorities designated for informing the public

Furthermore, Directive 2008/50/EC requires Member States to provide information to the public regarding exceedances of 'information thresholds'¹ or/and 'alert thresholds'² (art. 19); the content and implementation of short-term action plans (art. 24.3;) and exceedances of thresholds in relation to transboundary air pollution (art. 25).

3. Competent authorities

The competent authorities designated to inform the public on issues related to air quality in every city reflect the different structures of administrative organization and competencies in both cities and Member States.

In **Antwerp**, as everywhere in Flanders, the competent authority to inform the public is the regional one. In that way, the Flemish Environment Agency (VMM) is competent on ambient AQ and the Department for Environment, Nature and Energy on management activities (postponements, exemptions and AQ plans).

In **Berlin**, the competent authority is the one corresponding to the *Land* or city-state, the Senate Department for Urban Development and Environment.

In Ireland, in general terms the Environmental Protection Agency is the national competent authority for communicating on AQ matters. In many cases where they would directly operate the air monitoring network, it makes for a seamless system if they consequently deal with the public information process. In the case of **Dublin** City, Dublin City Council would be the lead competent authority for such matters, but would carry out communication initiatives in close collaboration with the Environmental Protection Agency.

In **Madrid**, the City Council is the competent authority for informing about ambient AQ and AQ plans and the national Ministry of Agriculture, Food and Environment for informing about any postponements or exemptions and the competent authorities designated.

¹ A level of pollutants posing a risk for particularly sensitive sections of the population. It is defined only for ozone, when this level has been reached, the Member State has to inform the population

² A level of pollutants posing a risk for the population in general, and for which immediate steps have to be taken. It is defined only for ozone, sulphur dioxide and nitrogen dioxide.

In Italy, the Regions (for **Milan**, Regione Lombardia) are responsible to implement air quality directives, information to public included. Regione Lombardia delegates ARPA Lombardia on some of the items required.

In **Paris**, and in the whole region of Île-de-France, the information is provided to the public by Airparif, an autonomous association under French law, whose administration board consists of representatives from the municipality of Paris (one of the key partners); other local authorities; the national government; industry; environment and consumer NGOs; and health and air pollutant experts. Airparif also manages the regional monitoring network and is in charge of the modelling activities and local authorities also play a role in communication activities.

In **Ploiesti**, the competence is under the Local Authority for environmental protection (EPA Prahova).

In **Plovdiv**, the national and regional authorities (Ministry of Environment and Waters, Environment Executive Agency and Regional Inspectorate for Environment and Waters –RIEW–) are the competent ones. Municipal authorities develop measures to be implemented in the event of exceedances of the alert thresholds in form of Operational Action Plans and are also responsible of communicating them to the public.

In **Prague**, the Department of Environment of Prague City Hall informs about AQ plans and, together with the Ministry of Environment of Czech Republic, about postponements or exemptions and the competent authorities. On ambient AQ, the competences are under CHMI – Czech Hydrometeorological Institute

In **Vienna**, it is the Province / City of Vienna which informs about all the issues except postponements or exemptions, competence of the federal institutions.

In **Vilnius**, the competence is under various municipal departments (environment and energy, and health).

4. Web pages

The most obvious and common way of providing information to the public in all cities is via Internet. Most of the cities have their own dedicated AQ webpages, but some rely also on national institutional (Dublin, Ploiesti, Prague and Vienna) or regional (Antwerp, Airparif in the case of Paris) webpages.

However, air quality information is not always easily accessible in these pages, as sometimes the underpinning data are not accessible through the homepages or through direct links (sometimes this issue is due to the design of the pages). Most of the pages also provide their information in English, so it can be read by a wider international audience.

A list of the air quality webpages of the cities participating in the Air Implementation Pilot can be found in annex 2.



Figure 1 –Printscreen of some city air quality home webpages

5. Public information on ambient AQ

5.a) Communication means

AQ information can be made available to the public using different communication means. Communication means considered include billboard-style electronic displays, reports, mass media, new technologies, requests on demand and a generic “others”. A summary of their use can be found in Table 1.

5.a.1. Electronic displays

Antwerp, Madrid, Paris, Ploiesti and Plovdiv use billboard-style electronic displays placed at city center locations for informing the public about the AQ status. In Antwerp there are three dynamic displays, put in place and funded in cooperation with the regional administration. In Madrid and Paris, they are distributed all over the city. Ploiesti City is provided with two displays: one outdoor in the city center, and one indoor at the Environmental Protection Agency; and Plovdiv with one panel in front of the municipal administration building. Vienna put in place a project showing short clips with actual air-quality information on large screens available on many underground platforms in the town. It was well received by the public but discontinued because of high costs. In Milan and Prague electronic displays are not used anymore.

Finally, in Berlin and Dublin they are not used, though in the first town it can be considered in the future.

Table 1 – Communication means used to make air quality-related information available to the public in the cities participating in the Air Implementation Pilot

Cities	Electronic displays	Reports	Mass media			New technologies			On demand	Others
			TV	Radio	Press	Social media ³	Smartphone	Other		
Antwerp	X	X	X		X					X
Berlin		X	X	X	X		X			
Dublin		X							X	X
Madrid	X	X			X		X		X	X
Milan	X	X	X	X	X				X	
Paris	X	X	X	X	X	X	X		X	X
Ploiesti	X	X								
Plovdiv	X	X	X	X						
Prague		X	X	X	X		X		X	
Vienna	X	X	X	X	X		X	X	X	X
Vilnius		X							X	

³ Social media includes platforms like Twitter, Facebook...

5.a.2. Bulletins and reports

In all cities there are reports describing the AQ status, mainly available in the webpages. Most of them provide annual reports, but there are also bulletins with up-to-date data and daily and monthly reports.

In **Antwerp**, besides the yearly report published by the regional authority (VMM), also topic reports are published (about 15 a year)

In **Berlin**, there are available in the Air quality department webpage, monthly and annual reports of pollutants

(<http://www.stadtentwicklung.berlin.de/umwelt/luftqualitaet/de/messnetz/monat.shtml>), annual overviews

(<http://www.stadtentwicklung.berlin.de/umwelt/luftqualitaet/de/jahresuebersicht/>) and reports on long-term trends in air quality

(http://www.stadtentwicklung.berlin.de/umwelt/luftqualitaet/de/entwicklung/lang_so2.shtml)

. See Figure 2.



Figure 2 - Cover of a report showing the 2011 air quality measurement data in the city of Berlin

In **Dublin**, the Air Quality Monitoring and Noise Control Unit of Dublin City Council produces an annual report that provides a summary of all the Units activities including monitoring, enforcement and research. A summary of air quality for the previous year is also provided on a station by station and a pollutant by pollutant basis. These reports are available in the Dublin city AQ webpage:

<http://www.dublincity.ie/WaterWasteEnvironment/AirQualityMonitoringandNoiseControl/AirPollution/Pages/AnnualReports.aspx> (see Figure 3).



Figure 3 - Webpage with the air quality annual reports for Dublin

Madrid provides bulletins with the up-to-date automated data of the last hour in all stations (http://www.mambiente.munimadrid.es/opencms/opencms/calair/consulta/Gases_y_particulas/informegaseshorarios.html?_locale=es); Excel files with hourly data of the last 10 days in all stations; hourly data for specific site and day, and annual reports (http://www.mambiente.munimadrid.es/opencms/opencms/calair/contenidos/descargas/0_memoria_2011.html); and several reports on hourly data, and annual summaries under “Informes” in <http://www.mambiente.munimadrid.es/svca/index.php>

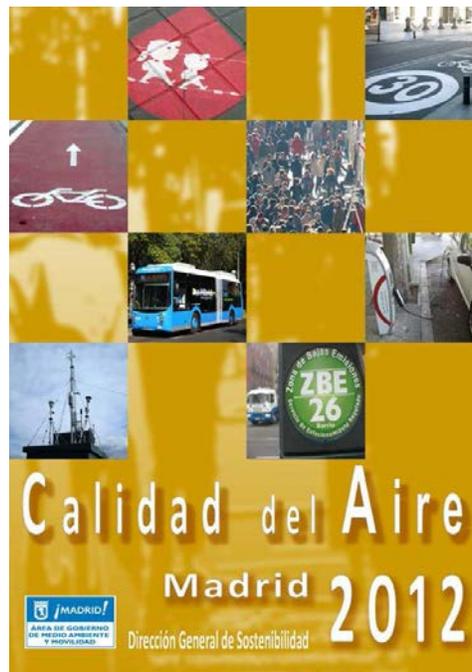


Figure 4 - Cover of a report with status of the Air Quality in Madrid, 2012

Milan offers daily and yearly reports.

In **Paris**, Airparif releases an annual report, a daily update of the exceedances of the daily limit values and a forecast of the daily air pollution and possible episodes of pollution twice a day. Besides that, the City of Paris releases every year, on its own initiative, an environmental report. It recounts the main actions led to improve air quality (among other environmental actions for climate, biodiversity, protection of environment and resources, development of all human beings, social cohesion and solidarity, responsible modes of production and consumption).

In **Ploiesti**, the Environmental Protection Agency publishes the daily bulletins on their own website (http://apmph.anpm.ro/articole/buletine_calitate_aer-163) where air quality is presented as a general index, with values between 1 and 6. The general index is established for each of the air quality monitoring stations, as the highest of the indices corresponding for specific pollutants monitored.

In **Plovdiv**, the municipal administration prepares reports on ambient air quality status on a six-month basis. The aim is to make an assessment of the recorded levels of major air pollutants (particulate matter, both PM₁ and PM_{2.5}; and ozone) in the summer and winter period, exceedances of limit values and any change trends.

In **Prague** citizens can find: hourly non validated monitoring data on the CHMI's webpage and in PREMIS⁴ ; statistics on these two webpages and also in GEOPORTAL⁵ (URM); and the publications Prague City yearbook on Environment, and CHMI yearbook on AQ.

In **Vienna** the website <https://www.wien.gv.at/ma22-lgb/luftgi.htm> gives hourly data, daily summaries ("Tagesberichte"), actual exceedances of alert and information thresholds (updated twice an hour), extensive monthly and annual reports, reports investigating the causes of exceedance situations including proposed measures to reduce emissions.

Finally, in **Vilnius**, apart from the annual reports issued by the municipal authorities, there are some other, seasonal, under the national authorities.

⁴ www.premis.cz/atlaszp/En_default.htm

⁵ www.geoportalpraha.cz/en/main

5.a.3. Mass media

Mass media are not used in all cities and, where they are, mainly in cases of alerts due to specific episodes of high pollution. The exceptions are Milan, where all the reports are sent to TV, radio and press; and Paris, which provides, via Airparif, information on forecasted air pollution and episodes at least twice a day on the regional TV and two free daily newspapers. It also provides, via press releases, exceedances of alert and information thresholds.

For the rest of cities, Berlin automatically disseminates information on the (predicted) excess of the ozone information and/or alert thresholds to more than 25 TV and radio stations and to newspapers; Madrid uses the press in high pollution episodes; Prague uses radio, press and TV in the case of alert thresholds exceedance; and in Vilnius the use of mass media happens at the national level.

In Vienna all the following media are immediately informed by the environmental department of the City of Vienna, responsible for monitoring air quality, when alert/information thresholds are exceeded.

- TV: Austrian television broadcasters are required by law to inform the public in case of ozone alert/information threshold exceedances several times a day. Via “teletext” air quality data is constantly provided to the public (a facsimile of these pages is available at <http://teletext.orf.at/>), see pages 621 and 622.
- Radio: Austrian television and radio broadcasters are required by law to inform the public in case of ozone alert/information threshold exceedances several times a day.
- Press: not required to inform the public, but they frequently do.

5.a.4. New technologies

New technologies, other than Webpages, are starting to be used and this will be the field where more experience could be exchanged in terms of innovative ideas.

Paris is the only city where social media websites are used, both twitter and facebook.

Nevertheless, in Milan the possibility of using social websites is being evaluated and Vienna reports they are used but “not officially”. Antwerp also reports a lot of interest to communicate via mobile phones and develop appropriate applications.

Regarding smartphone applications, Berlin has filed an application for funding the development of a Berlin-specific platform “obsAIRve4Berlin” in the framework of the obsAIRve service (<http://www.obsairve.eu>), which is part of the GMES (Global Monitoring for Environment and Security) program. All air quality data disseminated by obsAIRve are derived mainly from participating cities as well as from the relevant GMES projects. Milan is also working on them, but we can at the moment account mainly on four different examples:

1. “El Aire de Madrid”, the application of AQ in Madrid available for iPhone (<http://itunes.apple.com/es/app/el-aire-de-madrid/id397584007?alreadyRedirected=1&mt=8>), Android (https://play.google.com/store/apps/details?id=com.phonegap.airemadrid&feature=search_result) and Blackberry (<http://appworld.blackberry.com/webstore/content/91184/?lang=es>).
2. The use of “votre air”⁶, “citeair”⁷ and “airparif”⁸ applications in the case of Paris.
3. AQ for smartphones⁹ and GPS, in Prague
4. In Vienna, an app for ozone is provided by the Environment Agency Austria (“Umweltbundesamt”), echonet and open3.at (see <http://www.echonet.at/de/produkte/mobile-life/apps/242/ozonsonar1mobi>), this app seems to be well regarded by the public (see <https://play.google.com/store/apps/details?id=com.echonet.ozonsonar>).

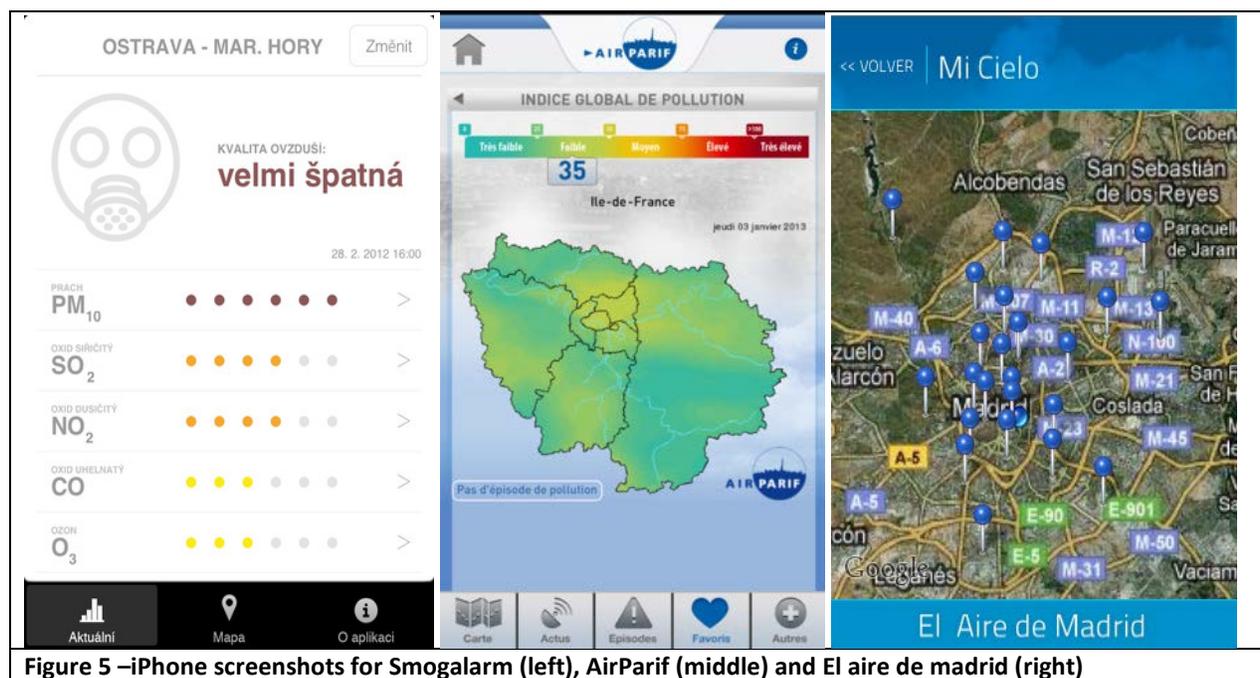


Figure 5 –iPhone screenshots for Smogalarm (left), AirParif (middle) and El aire de madrid (right)

⁶ votreair.airparif.fr

⁷ www.airqualitynow.eu/fr/

⁸ www.airparif.asso.fr/actualite/detail/id/73

⁹ www.smogalarm.cz

5.a.5. Request on demand

Several cities have implemented systems to receive specific demands of information. Madrid has an e-mail address, a call center and a phone for environmental information and management. In Milan, whoever asks information can receive the daily reports by mail, can also have information from their press office (ufficiostampa@arpalombardia.it) and from the office for the public (info@arpalombardia.it). In Prague information is provided by email and phones to the kindergartens and sensitive population groups. And in Vienna, there is the phone information service "Ozonix" (Tel.: +43 1 4000-8820); and it is also possible to get information via direct contact (mail, phone) to the Vienna department of environmental protection

5.a.6. Other

As part of other innovative initiatives, Madrid and Vienna has both alert systems. In Madrid, there is an alert SMS system

(<http://www.mambiente.munimadrid.es/svca/index.php?menu=servicios&smenu=sms&lang=es>)

and in Vienna, one of the most popular Austrian radio stations, "Ö3", in cooperation with the federal controlled "Umweltbundesamt" provides a SMS-Service, informing all registered users about ozone alert/information threshold exceedances. It is available through the federal institution Umweltbundesamt (see

http://www.umweltbundesamt.at/aktuell/presse/lastnews/newsarchiv_2009/news090514/).

Antwerp and Paris issue newsletters. In the case of the first city, the regional Agency issues a newsletter 4 times a year and a widely distributed magazine twice a year.

On the other hand, as part of its commitment to e-government, Dublin City Council provides live webcasts of all Council and Strategic Policy Committee meetings

(<http://www.dublincity.public-i.tv/core/>). These are also available as archived podcasts. These are a very powerful communication tool as they provide a platform for any citizen to ask a question or have a motion lodged through their Councillor, and to be able to view in real time, (and to an archived record) the response of City Council officials to their concerns.

Finally, in Paris "La Maison de l'Air" (The House of Air) is part of the network set up by the city of Paris for mobilizing citizens, stimulating a change of behavior in favor of environment and promoting eco-citizenship. This network also includes "La Maison des Acteurs du Paris Durable" (The House of the Stakeholders of Sustainable Paris), "La Maison du Jardinage" (The House of Gardening) and "La maison de la Nature" (The House of Nature) and "La ferme de Paris" (The farm of Paris).

The aim of "La Maison de l'Air" is to increase awareness among the public, particularly through training, and to help changing their way of life by perpetuating the actions for a better air quality. It includes a space for a permanent exhibition, teaching about the air, the atmosphere,

its relationship with the fauna and flora, specific urban phenomena, urban pollution (its origins, its effects, the relationship with our behavior). It develops since 2010 a program of project supports and trainings, aimed at territorial stakeholders (municipal officers, associations, nurses' schools, trainee teachers and education professionals, corporate employees...).

5.b) Update of data

Most of the cities update the information for each pollutant on an hourly basis. Also non automatic measurements data are updated on regular intervals (for instance, every three months in the cases of Antwerp and Paris)

In Berlin and Milan, on the website and by daily reports, the information is updated daily for the previous seven days and previous 24 hours, respectively.

Table 2 – Frequency of update of data, ways of presenting data and use of models in the cities participating in the Air Implementation Pilot.

	Frequency	Data			Historical data	Models	
		Raw	Statistics	Indices		Assessment	Forecast
Antwerp	Hourly	X	X	X	On request	Regional	Yes
Berlin	Hourly, daily	X	X		For annual statistics	Yes	Yes
Dublin	Hourly	X			On request	No	
Madrid	Hourly	X	X	X	Web/On demand	No	
Milan	Daily	X	X	X	Web	Yes	Yes
Paris	15 min – 8 h	X	X	X	Web	Yes	Yes
Ploiesti	Hourly	X	X	X	Web/On demand	No	
Plovdiv	Daily	-	-	-	Web	Yes	
Prague	-	X	X	X	Web/yearbook/on request	Yes	No
Vienna	Hourly	X	X	X	Reports	Yes	Yes (for O ₃)
Vilnius	Daily		X	X (beta version)	Only in the national environmental agency Webpage	Yes	Yes

5.c) Presentation of data

Most of cities present their data in several ways (as raw data, statistics and via indices). Only Dublin uses only raw data and Vilnius only statistics and indices in beta version. Plovdiv didn't provide information on this issue.

The statistics go from graphs and tables to annually and monthly statistics.

Indicators or indices are a simplified way of providing information on the state of air quality. They provide a qualitative classification, together with a colour code, based on the concentration of pollutants. Many of the indices used locally by cities are not comparable.

In **Antwerp** (Figure 6), the index of air quality ranges the air quality from 'very bad' to 'excellent' in 10 categories. This index takes into account the measurements of the most relevant air pollutants in Flanders. These are PM₁₀, PM_{2,5}, O₃, NO₂ and SO₂. For every station, an index is assigned to each pollutant and the worst of these pollutant-related indices is attributed to the station. (<http://luchtkwaliteit.vmm.be/> and <http://www.antwerpen.be/eCache/ABE/82/10/708.Y29udGV4dD04MDMzOTAz.html>)



De infoschermen geven de luchtkwaliteit in Antwerpen weer

Figure 6 - Air quality index in Antwerp

In **Madrid**, the pollutants used to define the air quality index are PM₁₀, SO₂, NO₂, CO and O₃. For each of them a partial index is created and the worst value out of the five partial ones defines the global index. Four categories are defined, from "very bad" to "good" (Figure 7). (<http://www.mambiente.munimadrid.es/opencms/opencms/calair/SistIntegral/SistInformacion/concepto.html>)

El índice horario de calidad del aire con el que se informa a la población se muestra en la siguiente tabla:

Indice Horario	Calidad del Aire	PM10 ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m ³) OCTOHORARIO MÓVIL	O ₃ ($\mu\text{g}/\text{m}^3$)
0 - 50	Buena	0 - 50	0 - 175	0 - 100	0 - 5	0 - 90
51 - 100	Admisible	51 - 90	176 - 350	101 - 200	06-10	90 - 180
101 - 150	Deficiente	91 - 150	351 - 525	201 - 300	11-15	180 - 240
> 150	Mala	> 150	> 525	> 301	> 15	> 240

Figure 7 – Table with the air quality index in Madrid

In **Paris**, CITEAIR indices are used (http://www.airqualitynow.eu/about_indices_definition.php). In the Common Air Quality Index (or CAQI), three different indices have been developed to enable the comparison of three different time scale:

- An hourly index, which describes the air quality in the current day, based on hourly values and updated every hours,
- A daily index, which stands for the general air quality situation of the previous day, based on daily values and updated once a day,
- An annual index, which represents the city's general air quality conditions throughout the year and compare to European air quality norms. This index is based on the pollutants year average compare to annual limit values, and updated once a year.

The hourly and daily common indices (Figure 8) have 5 levels using a scale from 0 (very low) to > 100 (very high), it is a relative measure of the amount of air pollution. They are based on 3 pollutants of major concern in Europe: PM₁₀, NO₂, O₃ and will be able to take into account to 3 additional pollutants (CO, PM_{2.5} and SO₂) where data are also available

In **Ploiesti**, the specific index of air quality, in short "index specific", is a coding system recorded concentrations for each pollutant monitored (SO₂, CO, PM₁₀, O₃ and NO₂). The general index (Figure 9) is established for each of the automatic stations of the National Air Quality Monitoring Network, as the highest of the indices corresponding for specific pollutants monitored. In order to calculate the general index at least three specific indicators for the corresponding pollutants monitored must be available. General index and specific indices are represented by numbers between 1 and 6, each number corresponding to a colour (on the figure will be represented both colours and numbers assigned to them).

Common air quality index calculation grid

Index Class	Grid	ROADSIDE INDEX						BACKGROUND INDEX							
		Mandatory pollutant			Auxiliary pollutant			Mandatory pollutant				Auxiliary pollutant			
		NO2	PM10		PM2.5		CO	NO2	PM10		O3	PM2.5		CO	SO2
			1 hour	24 hours	1 hour	24 hours			1 hour	24 hours		1 hour	24 hours		
Very High	>100	>400	>180	>100	>110	>60	>20000	>400	>180	>100	>240	>110	>60	>20000	>500
High	100	400	180	100	110	60	20000	400	180	100	240	110	60	20000	500
	75	200	90	50	55	30	10000	200	90	50	180	55	30	10000	350
Medium	75	200	90	50	55	30	10000	200	90	50	180	55	30	10000	350
	50	100	50	30	30	20	7500	100	50	30	120	30	20	7500	100
Low	50	100	50	30	30	20	7500	100	50	30	120	30	20	7500	100
	25	50	25	15	15	10	5000	50	25	15	60	15	10	5000	50
Very Low	25	50	25	15	15	10	5000	50	25	15	60	15	10	5000	50
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 8 – The hourly and daily Common Air Quality Index, CAQI, used in Paris and Prague



Figure 9 – The colours of the air quality index scale used in Ploiesti - from excellent (left) to very bad (right).

In **Prague**, the CAQI indicator from CITEAIR is used, as in Paris, and also the one developed by CHMI

(http://portal.chmi.cz/files/portal/docs/uoco/web_generator/actual_hour_data_GB.html#legenda), with six categories running from “Very good” to “very poor”:

Legend						
Index	Air quality	SO ₂	NO ₂	CO	O ₃	PM ₁₀
		1h µg/m ³	1h µg/m ³	8h µg/m ³	1h µg/m ³	1h µg/m ³
1	very good	0 - 25	0 - 25	0 - 1000	0 - 33	0 - 20
2	good	> 25 - 50	> 25 - 50	> 1000 - 2000	> 33 - 65	> 20 - 40
3	fair	> 50 - 120	> 50 - 100	> 2000 - 4000	> 65 - 120	> 40 - 70
4	suitable	> 120 - 350	> 100 - 200	> 4000 - 10000	> 120 - 180	> 70 - 90
5	poor	> 350 - 500	> 200 - 400	> 10000 - 30000	> 180 - 240	> 90 - 180
6	very poor	> 500	> 400	> 30000	> 240	> 180
	Component is not measured on this station					
	Incomplete data					

Figure 10 – CHMI air quality index, used in Prague

The calculation of air quality index is based on the assessment of 1-hour concentrations of sulphur dioxide (SO₂), nitrogen dioxide (NO₂), suspended particles (PM₁₀), 8-hour running concentrations of carbon monoxide (CO) and 1-hour ground - level ozone concentrations (O₃) in the summer period (1 April to 30 September). The calculation considers the possible impact of air pollution on the health of population. The calculation for PM₁₀ uses 1-hour average concentrations because they better reflect the current situation (the limits for 1-hour concentrations were derived on the basis of statistical analysis of 24-hour and 1-hour concentrations).

The 1-hour ozone concentrations (O₃) are given in the winter period (1– October to 31 March) as well, although they are not included in the calculation of air quality index. For information purposes, the last column presents the 24-hour running average concentrations of PM₁₀, which are not included in the calculation of air quality index.

1. Data for the calculation of air quality index are based on current measurements and they are not verified.
2. Air quality index is determined for each quantity in the given locality separately; the highest of them is presented.
3. Air quality index is imaged in case the 1-hour data are available at least for NO₂, O₃ and PM₁₀ in the summer period (1–April to 30 September) or at least for NO₂ and PM₁₀ in

the winter period (1 October to 31 March), if they are subject of standard measurements in the locality.

4. The term “incomplete data” may indicate that the instruments at the station were under calibration during the respective hour.

Finally, in **Vienna**, concerning hourly updated data <https://www.wien.gv.at/ma22-lgb/luftgi.htm>, they are shown according to the Vienna air quality index (“Wiener Luftgüteindex” <https://www.wien.gv.at/ma22-lgb/luftwl.htm>).

Bewertung	Kennfarbe	Index	Bedeutung
sehr gut		1	Negative Auswirkungen auf Ökosysteme sind nach derzeitigem Wissensstand wenig wahrscheinlich.
gut		2	Alle Gesundheitsschutz-Grenzwerte sind eingehalten. Auswirkungen auf Ökosysteme sind nicht mehr auszuschließen.
befriedigend		3	Die Gesundheitsschutz-Grenzwerte sind meist noch eingehalten. Auswirkungen auf Ökosysteme sind in zunehmendem Maße möglich.
unbefriedigend		4	Die Messwerte befinden sich auf dem Niveau von Gesundheitsschutz-Grenzwerten. Gesundheitliche Beeinträchtigungen empfindlicher Personen können vereinzelt auftreten.
schlecht		5	Die Gesundheitsschutz-Grenzwerte sind überschritten. Gesundheitliche Beeinträchtigungen empfindlicher Personen sind möglich. Die Bevölkerung wird verstärkt über die Schadstoffsituation informiert.
sehr schlecht		6	Die Messwerte befinden sich in der Höhe von Alarmschwellen. Die Gesundheitsschutz-Grenzwerte sind deutlich überschritten. Gesundheitliche Beeinträchtigungen aller Personen sind möglich.

Figure 11 – Air quality index in Vienna

There are six rating levels from "very good" to "very bad". The air pollutants (O₃, PM₁₀, NO₂, SO₂ and CO) are thus classified according to these levels. For every pollutant, it is specified how many measuring points were scored with the appropriate current rating level.

The city of Paris has especially stated that given the work carried out on the citeair indices and the use of this index by more of 100 cities, recommendations for the EU levels regarding this index would be deeply appreciated. This would help to maintain this network alive and therefore public information at the city levels across Europe in real time.

EEA has also developed indices for both up-to-date (UTD) data and historical data.¹⁰ Up-to-date air quality information can be represented in many different ways. Across Europe, there is

¹⁰ The EEA’s UTD exchange includes information for more than 1 500 stations, which cover more than 450 cities across Europe. This information is updated hourly. EEA platforms include both maps and reports of up-to-date air quality information as well as information on historical data (<http://www.eea.europa.eu/themes/air/air-quality>), which covers more than 5 000 stations. UTD air

currently no consensus among air quality practitioners in how to represent UTD air quality data. As part of EEA's aim to provide UTD information to the public and experts, the ETC/ACM has adopted the use of an air quality index to describe the air quality situation at a station level. The index is used at <http://www.eea.europa.eu/themes/air/air-quality/map/real-time-map>, and other EEA maps.

A key aspect of EEA's UTD index is that this is valid to represent UTD information at a station level regardless of:

- *The sitting criteria of the station (urban background, urban traffic, rural background...)*
- *The number of pollutants measured at each station (one, two, three...)*

Moreover, the proposed index provides a consistent approach for all stations without room to interpretation.

quality maps (<http://www.eea.europa.eu/themes/air/air-quality/map/real-time-map>) make use of well-established indices to illustrate homogeneous air quality information across Europe.

5.d) Historical data

All cities give access to historical data related to their AQ state.

Antwerp: on request at the regional Agency (VMM)

Berlin: Annual statistics published in Berlin's Environmental Atlas

(http://www.stadtentwicklung.berlin.de/umwelt/umweltatlas/edinh_03.htm and http://www.stadtentwicklung.berlin.de/umwelt/luftqualitaet/de/entwicklung/lang_so2.shtml).

Dublin: A summary of historical data is published each year, but full data sets are available on request. Such requests are frequently received.

Besides, Dublin City has launched a major project in conjunction with a range of partners to put as much information as possible into the public domain. **DUBLINKED**

(<http://www.dublinked.ie/>) has begun to provide a valuable source on a comprehensive range of information for the research community and the general public. Through this initiative, businesses, technologists, app developers, researchers and entrepreneurs are invited to join "Dublinked" – a membership network to mine, exploit and utilise public data to generate new revenue streams and address regional challenges. Dublinked, sees previously unreleased public operational data being made available online for others to research or reuse. With the initial data coming from Dublin City Council and Dun Laoghaire Rathdown, South Dublin and Fingal County Councils, it is expected that other public and private organisations in Dublin will link up with Dublinked to share their data and invite research collaborations. The initial release of data consists of over 100 environmental, traffic and planning datasets. With the **Dublink** project monthly data will now be made available.

Madrid: From the web (downloading the files) or on demand.

Milan: Through the website (http://ita.arpalombardia.it/ITA/qaria/doc_RichiastaDati.asp)

Paris: From Airparif's website (<http://www.airparif.asso.fr/telechargement/telechargement-polluant>)

Ploiesti: From the Environmental Protection Agency Prahova site an archive can be downloaded with information on air quality bulletins expressed by specific indicators, or by written request to the Environmental Protection Agency Prahova if changes in concentrations of pollutants in a time want to be found out.

Plovdiv: via the RIEW Plovdiv website.

Prague: Statistics available on internet and yearbooks, other data on request.

Vienna: Annual and monthly reports from 2000 on (including statistics with data as far as available from the seventies until now) in the webpage (<https://www.wien.gv.at/umweltschutz/luft/berichte.html>)

Vilnius: via the Lithuanian Environmental Agency's webpage (<http://gamta.lt/cms/index>).

5.e) Use of models

(See also the report "Air Implementation Pilot: Assessing the modelling activities" ETC/ACM Technical Paper 2013/4¹¹)

Modeling is currently carried out in all the cities with the exception of Dublin City Council. Regarding use of models for assessing the ambient AQ in the towns, **Berlin's** AQ data are submitted to the UBA Germany for integration into their optimal interpolation scheme, which combines results of modelling and measurements (<http://www.env-it.de/umweltbundesamt/luftdaten/documents.fwd>). Street canyon annual mean concentration values, modeled with IMMIS-luft, are published as part of Berlin's Environment Atlas (<http://www.stadtentwicklung.berlin.de/umwelt/umweltatlas/ib311.htm>).

Madrid only uses them for time extension notifications but not for annual compliance assessment.

Paris uses them for assessing the areas of exceedance of the annual limit values and the number of people exposed.

Prague also uses models, though no additional information was provided, and in **Vienna** modeling data are used to supplement monitoring data for in-depth analysis of certain situations.

Dispersion models are run to evaluate AQ in **Milan** and in Lombardia. In particular, at the moment, model results are used for AQ forecasts and for near real time evaluations, to extend results of air quality network and to estimate people exposure to exceedances of the limit values. An assimilation process has been defined to correct model results on the basis of measured data. All the results are published on ARPA website

¹¹ http://acm.eionet.europa.eu/reports/ETCACM_TP_2013_4_AirImplPilot_modelling.

(http://ita.arpalombardia.it/ITA/qaria/doc_DistribSpazialeCalcolata.asp). Historical model data are also available (at the moment only as “.pdf” file).

Models used in **Antwerp** are also regional and run by the regional Agency (VMM).

Models are used for forecasts only in:

- Antwerp: information on AQ for the next two days is provided in the web.
- Berlin, where short-term forecasts are conducted inter alia for Berlin by EURAD (University Cologne) and by the MACC consortium (<http://db.eurad.uni-koeln.de/promote/GMcurr/CITY-2012-07-23/EUR-005.gif>; http://macc-raq.gmes-atmosphere.eu/som_eps.php?datamodel=20120722&city=Berlin) and long term forecasts are calculated with IMMIS-luft (e.g. 2015 and 2020) and made available online (<http://www.stadtentwicklung.berlin.de/umwelt/umweltatlas/ic311.htm>);
- Milan, where the meteorological office takes them in account to forecast AQ (http://ita.arpalombardia.it/ITA/qaria/doc_AndamTrend_PM10.asp);
- Paris, for daily forecasts.
- Vienna, for ozone (http://www.umweltbundesamt.at/umweltsituation/luft/luftguete_aktuell/ozonbericht/); and
- Vilnius

Prague, on its hand, reports that forecasts are still under preparation.

5.f) Other information related to Air Quality

Most of the cities also inform the public about issues related to AQ, as emissions, pollutant sources or effects of air pollution.

Table 3 - Other information than AQ status provided to the public in the cities participating in the Air Implementation Pilot

	Emissions	Pollutant sources	Effects	Other issues
Antwerp	Yes	Yes	Yes	
Berlin	Yes	Yes	No	(1)
Dublin	No	No	No	(2)
Madrid	Yes	Yes	Yes	(3)
Milan	Yes	Yes	Yes	(4)
Paris	Yes	Yes	Yes	(5)
Ploiesti	Yes	Yes	No	No
Plovdiv	-	-	-	-
Prague	Yes	Yes	Yes	No
Vienna	Yes	Yes	Yes	(6)
Vilnius	Yes	No	Yes	(7)

(-) no information provided

(1) Legislation, impact evaluation of implemented measures, additional measures.

(2) Summary information, related to public complaints

(3) Legislation, quality plans, citizen actions, enquiry service, FAQ

(4) On the website

(5) Public exposure, links to climate change, pollens, indoor air pollution

(6) An animation to explain AQ

(7) Air pollution maps

Dublin only offers summary information in their annual report, which is primarily related to public complaints.

All the others cities provide general information on emissions and pollutant sources:

- Antwerp via the Flanders annual emissions inventory and on demand.
- Berlin as part of Berlin's Environment Atlas: (http://www.stadtentwicklung.berlin.de/umwelt/umweltatlas/dinh_03.htm) and as part of Berlin's air quality plan 2005-10: <http://www.stadtentwicklung.berlin.de/umwelt/luftqualitaet/de/luftreinhalteplan/ursachen.shtml>, and its recent update: http://www.stadtentwicklung.berlin.de/umwelt/luftqualitaet/de/luftreinhalteplan_entwurf/situation_ursachen.shtml.
- Madrid through dedicated webpage sections, general information and the results from the local emission inventory:

<http://www.mambiente.munimadrid.es/opencms/opencms/calair/ContaAtmosferica/portadilla.html>.

<http://www.mambiente.munimadrid.es/opencms/opencms/calair/SistIntegral/InventarioEmisiones.html>

<http://www.mambiente.munimadrid.es/opencms/opencms/calair/ContaAtmosferica/LosContaminantes/tipos.html>

- Milan, not only on the Arpa website but also on a dedicated website:
<http://www.inemar.eu/xwiki/bin/view/Inemar/HomeLombardia>.
- Paris through an emissions inventory, developed by Airparif, for AQ and greenhouse gases (GHGs), with data available for each municipality. Sources information is based on the inventory and also on source apportionment studies.
- Ploiesti, in the environmental status report (annual reference):
http://apmph.anpm.ro/Mediu/raport_privind_starea_mediului_in_romania-15. On the EPA webpage, under press releases section, all requests for authorization of new economic agents who represents a new potential source of pollution are posted.
- Prague, in the annual overviews:
http://portal.chmi.cz/files/portal/docs/uoco/isko/grafroc/grafroc_EN.html.
- Vienna, via a link to the Umweltbundesamt:
<http://www.umweltbundesamt.at/umweltschutz/luft/>

Some of them also offer information on effects. For instance, Madrid offers general information about effects on health, vegetation, materials and global effects (climate change and ozone layer depletion),

(http://www.mambiente.munimadrid.es/opencms/opencms/calair/ContaAtmosferica/LosContaminantes/Efectos_contaminantes/portada.html), Milan on effects on the health (http://ita.arpalombardia.it/ITA/qaria/doc_QualitaAriaSalute.asp), as Paris, and Prague on health effects and recommendations for human behavior.

Finally, regarding other issues related to AQ, Berlin informs on legislation, impact evaluation of implemented measures and additional measures planned for the future and their likely impact (scenario calculations). Furthermore, the websites on the new draft air quality plan 2011-17 will be extended considerably. Madrid informs on legislation, quality plans, citizen actions, enquiry service, frequented asked questions, etc., as well as Milan; Paris on public exposure to health pollution, links with climate change, pesticides, wood burning, pollens, indoor air pollution; and Vienna offers air quality animation <https://www.wien.gv.at/umweltschutz/luft/animation.html> or www.uli-wien.at.

5.g) Near real time platforms

All cities participate in the up-to-date (UTD) or near-real-time (NRT) exchange of data with the EEA, some of them via the national authorities, as Antwerp, Paris and Vilnius. Though it is felt that the system works well and this type of public access to data across Europe has to be promoted, some tools like “Eye on earth” (<http://www.eyeonearth.org/en-us/Pages/Home.aspx>) and the EEA UTD platforms (<http://www.eea.europa.eu/themes/air/air-quality/map/real-time-map>) are considered too complicated and difficult to understand to public (especially the ratings, which can be confusing). City experts have expressed their satisfaction on how comprehensive UTD maps are.

Some other platforms in which cities participate are www.airqualitynow.eu and www.obsairve.eu.

6. Information on postponements/exemptions

According to the new AQ Directive, there is the possibility of asking for a postponement of deadlines to attain nitrogen dioxide or benzene limit values or an exemption from the obligation to apply PM₁₀ limit values. This is made via a notification by the Member State to the European Commission.

In the case of the 12 pilot cities, Dublin, Malmö and Vilnius have not notified to the European Commission any postponement or exemption and regarding the rest, Milan, Paris (as the agglomeration FR04A01), Prague, Plovdiv and Vienna have notified both; Antwerp and Ploiesti the exemption for PM₁₀; and Berlin and Madrid the postponement for NO₂.

In Antwerp, environment organisations as well as citizens commented on the proposal during the public inquiry (October – December 2011). This was also announced in 3 newspapers. In a few public libraries the municipality made it possible for citizens to read through these documents and to react. The public was not directly informed by the city council about the postponement. The Flemish minister for Environmental Affairs issued a press release and some newspapers and magazines picked it up, as well as the webpages of interest groups. More information appeared on the website of the Flemish Environment Administration (Departement voor Leefmilieu, Natuur en Energie)

In Berlin there was no extra routine information process, but the fact that an extension was notified has been covered in the new air quality plan 2011-17 and in several press releases (http://www.stadtentwicklung.berlin.de/umwelt/luftqualitaet/de/luftreinhalteplan_entwurf/download.shtml). In the case of Paris, the issue is handled by the national authorities. Prague has not issued any information to the public.

And for the rest of cities, it can be found in the following links:

- Madrid:

http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/gestion/Exenciones_no2.aspx

<http://www.madrid.es/portales/munimadrid/es/Inicio/Ayuntamiento/Medios-de-Comunicacion/Notas-de-prensa/La-prorroga-del-cumplimiento-de-limites-de-dioxido-de-nitrogeno-espera-el-dictamen-europeo?vgnextfmt=default&vgnextoid=f0064ff52fb58310VgnVCM100000b205a0aRCRD&vgnnextchannel=6091317d3d2a7010VgnVCM100000dc0ca8c0RCRD#>

- Milan:
http://www.minambiente.it/home_it/menu.html?mp=/menu/menu_attivita/&m=argomenti.html%7CInquinamento_atmosferico.html%7CQualita_dellaria.html%7CPiani_sulla_qualita_dellaria.html#Richieste
- Ploiesti:
http://apmph.anpm.ro/articole/programeprograme_integrate_de_gestionare_a_calitati_i_aerului-50
- Plovdiv:
<http://www.plovdiv.bg/item/ecology/%d0%b2%d1%8a%d0%b7%d0%b4%d1%83%d1%85/%d0%bd%d0%be%d1%80%d0%bc%d0%b8-%d0%b7%d0%b0-%d0%be%d0%bf%d0%b0%d0%b7%d0%b2%d0%b0%d0%bd%d0%b5-%d0%bd%d0%b0-%d1%87%d0%be%d0%b2%d0%b5%d1%88%d0%ba%d0%be%d1%82%d0%be-%d0%b7%d0%b4%d1%80%d0%b0%d0%b2%d0%b5/>
- Vienna:
[http://www.umweltbundesamt.at/umweltsituation/luft/luftschadstoffe/staub/pm10/fristerstreckung/.](http://www.umweltbundesamt.at/umweltsituation/luft/luftschadstoffe/staub/pm10/fristerstreckung/)

7. Information on AQ plans

According to the current legislation, two kinds of plans can, and have to, be drafted: air quality plans, in the case of zones or agglomerations where the levels of pollutants exceed any limit or target value and the short-term action plans, in zones or agglomerations where there is a risk that levels of pollutants exceed the alert thresholds.

All cities, except Prague, have foreseen public participation in the drafting of AQ plans. Furthermore, the public is also informed about the implementation and the results (again with the exception of Prague) obtained with the plan. The ways for this public participation vary from one city to another.

In **Antwerp**, the plan was drawn by the Flemish administration, and affected the city and the port area. The action plan was presented for comment in a public inquiry in 2008. Further reports are published in the city's and the regional administration's websites. The reports present also the models used to project the effects.

In **Berlin** public consultation was completed on the draft AQ plan:

http://www.stadtentwicklung.berlin.de/umwelt/luftqualitaet/de/luftreinhalteplan_entwurf/index.shtml, and information on the implementation and results is provided via the press and the internet, where also information on the expected effects of measures, from the used model, can be found: <http://www.stadtentwicklung.berlin.de/umwelt/umweltatlas/ic311.htm>.

In Ireland, it is mandatory under Irish national legislation to engage in public consultation prior to adopting an air quality plan. Furthermore an air quality plan may be adopted by the vote of the City Council before coming into effect. Public consultation and engagement for the current **Dublin** plan involved seeking written submissions following notification in the national newspapers and advertising the plan in the public libraries. Additionally the Councilors were briefed and their views taken on board prior to a vote of the full Council. Besides, the public is kept informed of its implementation and results through the annual report by the Air Quality Unit and by briefings to the Councilors (it should be noted, nevertheless, that the plan is a regional plan and involves other local authorities so the level of public engagement may vary in other local authority areas)

In **Madrid**, on 26 April 2012 a new Air Quality Plan 2011-2015 was approved by the City Council of Madrid and published at the local and regional official gazettes. The first draft was submitted to public consultation for one month and a report about its implementation will be published at the Web annually. The Plan itself includes an annex that describes the model used to project the effect of measures.

In **Milan**, AQ plan was at the moment of drafting this report under Strategic Environmental Assessment procedure (see site: http://www.reti.regione.lombardia.it/cs/Satellite?c=Page&childpagename=DG_Reti%2FDGLayout&cid=1213538634528&p=1213538634528&pagename=DG_RSSWrapper). This procedure implied the participation of public from the drafting of the AQ Plan till the final official document and its results. The website with the related information is: <http://www.cartografia.regione.lombardia.it/sivas/jsp/procedimenti/schedaProcedimento.jsf?idPiano=41440&idTipoProcedimento=1> where public have also access to information on the models.

In **Paris**, the plans are regional and the city participates in their development and monitoring. The city has been involved in the drafting of three plans: SRCAE (Regional scheme for climate, air and energy), PPA (Plan for protection of the atmosphere) and a feasibility study about low emissions zones (ZAPA). The SRCAE was submitted to public consultation for two months and the PPA, after consultation to local authorities, was at the moment of drafting this report subject to a public enquiry. Besides, all studies are available to the public in the respective websites, including the modelling with the impact assessments.

In **Ploiesti** the Integrated Air Quality Management Program is underway since 2010 (for SO₂, PM₁₀, O₃ and NO₂). The public was involved in its development in two stages: after preparation of the program proposal the audience was invited by the mass media to come with questions, comments or opinions; after analysing the information received from the public the final version of the Program was drawn, having been subject in this way to a public debate. Furthermore, the Environmental Protection Agency develops an annual report on implementation of the program and then is made available to the public.

The public in **Plovdiv** is informed about the action plan prepared by the municipality in the official website. These kinds of programmes are openly discussed and written comments and opinions are accepted for consideration.

Prague only provides information before the implementation in media and internet. The ATEM model, used to evaluate the effects of some of the measures, can be accessed by public upon request.

In **Vienna**, the air quality plan against NO₂ had “Three steps of intensity of participation”:

- 1.) an “NO₂-program team” cooperated very closely during all steps of the drafting. The team included colleagues from all relevant departments of City of Vienna, but also an

expert group consisting of external experts e.g. on economy, epidemiology, mobility, or sociology

- 2.) an “organized public”, i.e. chamber of commerce, chamber of labor, environmental NGO, automobile clubs, was provided with information during the drafting and invited to a feedback – workshop.
- 3.) A draft of the program as well as further information was published on the homepage of the City of Vienna and everybody was invited to comment (the public was also informed via two large daily newspapers about that possibility)

Information about implementation and results is provided via press releases and reports.

In **Vilnius**, public is consulted before the approval by the Council. Afterwards, public is informed about its implementation and results by annual reports in the website and on demand.

Regarding short-term action plans, only 5 towns have implemented them:

In **Antwerp** it was in place from 2008 until 2012 and is currently being reviewed to cover a new period of 6 years (2013 – 2018). The models used to project the effects of measures can be found in some reports published on the relevant websites.

In **Madrid** there is a protocol for high pollution episodes that includes mainly informative procedures and health advices. It is foreseen to create an ad hoc working group in order to define short action measures.

In **Milan**, Regione Lombardia defined a short term action plan for ozone (with the principle aim of informing people) http://ita.arpalombardia.it/ITA/qaria/pdf/InfoOzono_v1.pdf .

http://www.reti.regione.lombardia.it/cs/Satellite?c=Redazionale_P&childpagename=DG_Reti%2FDetail&cid=1213442291207&packedargs=NoSlotForSitePlan%3Dtrue%26menu-to-render%3D1213374614522&pagename=DG_RSSWrapper

Municipality and Province of Milan defined also short term actions to reduce PM₁₀ values during winter time

(http://www.provincia.milano.it/ambiente/archivi/archivi_news/archivio_news.jsp?id=22140)

All local authorities were invited to discuss actions and public is kept informed about the implementation and results by web and press releases

In **Ploiesti**, the Environmental Protection Agency informs the public through the mass media and by posting on the website of:

- overruns information and/or alert registration;
- value registered compared to information and/or alert threshold value;

- the pollutant(s) which exceeded the alert, date, time and place of the threshold exceeded alert and the reasons therefor, if known. Concentration values are presented registered for 6 hours before the start of the high pollution episode and are updated during the whole 3 days period of the management plan/integrated management plan development
- projections on:
 - changes in concentrations (improvement, stabilization or deterioration), together with the reasons for this change;
 - geographic area affected;
 - duration of the episode.
- risks to human health;
- type of population potentially sensitive to the incident;
- preventive measures which must be taken by the sensitive population concerned (children, elderly, chronically ill).

The Environmental Protection Agency, regularly informs the stage of measures/actions included in the integrated management plan by publishing information on its website.

In **Prague** the public and also the NGOs are members of ad hoc committees. Before implementation, the plan is published in media and city portal, and the ATEM model, used to project the effects of the measures, can be accessed by public and NGOs upon request.

8. Information on other AQ issues than those mandatory

In all cities, public have access to other information than the one considered “mandatory”, mainly via the cities webpages. In particular, in Antwerp and Paris the regional agencies measure other parameters than the ones considered mandatory; Dublin highlights their Dublinked project (please see 5.d), Madrid the general information about sources, effects, legislation, daily meteorology bulletin, citizen actions, enquiry service, frequently asked questions; and Ploiesti the possibility of public of receiving assistance or advice in any case regarding air quality problems.

Furthermore, almost all cities provide links to other AQ information sources, via the annual report (Dublin) or, again, the webpages. This comprises mainly links to other administration webpages, as Ministries or regional governments, and international institutions, as European institutions and EEA pages (ozone maps, Airqualitynow)

Finally, regarding information related to other environmental issues as, for instance, climate change or noise, all the cities link the different environmental information. Again Dublin via the annual report and the Dublinked project and the rest via their webpages (to weather forecasting , noise (Madrid), energy and networks (Milan, http://www.reti.regione.lombardia.it/cs/Satellite?c=Page&childpagename=DG_Reti%2FDGHomeLayout&cid=1213277017319&pagename=DG_RSSWrapper), climate change, daily exposure to air pollution and noise (Paris), noise, radiation, climate change, nature protection and biodiversity, water and waste management (Ploiesti, http://apmph.anpm.ro/articole/rapoarte_lunare_anul_2011-196), water, noise, waste, environmental and health risks, with links to other administrative sites (Plovdiv), noise (Prague) and via www.uli-wien.at, POI “City administration” (Vienna)).

9. Public awareness

Most cities do not have yet any study or statistics regarding the effect of public information in public awareness on AQ issues, so the impact of all this information cannot be estimated.

In **Antwerp**, a marketing research has been done on the effect of the led information signs, but the city didn't provide further information.

In **Paris**, a study was carried out in 2003 and 2007 in order to assess the public perception about air pollution and Airparif's mission. About 500 people were questioned as representatives from the 11 million inhabitants of the region. The results were that 70% of them felt concerned about air pollution. They were quite happy with Airparif's services but did not know that it was an NGO and most of their requests were related to a need for more information (<http://www.airparif.asso.fr/qui-sommes-nous/enquete-notoriete>). A study was led by Plaine Commune (group of cities in the north of PARIS) in 2011, in the frame of ZAPA studies (in coordination with Paris), targeting people with low social level. It showed that they were aware of air pollution but couldn't qualify it and made no relation with their personal behavior.

Some cities as **Milan** and **Vienna** have access numbers to the web pages (and also the telephone service "Ozonix", in Vienna)

In any case, many of the cities can receive users' feedback regarding the information made available. Some, as Dublin, receive direct comment from the public on a daily basis on air quality issues as it affects them, so they have a very highly developed customer support service; in the cases of Prague and Vienna via internet, phone, personal visits; some others, as Antwerp, via a dedicated inquiry to the respondents of reports; or, as Madrid, via a satisfaction questionnaire; or, as Paris and Ploiesti, in the websites; and the final ones in a less structured way (as Milan by Public relation office and Press Office feedbacks or as Berlin via public complaints).

Apart from this feedback and due to the fact that these issues are very often discussed by press and other mass media, authorities can be aware of the public perception regarding AQ issues. As examples it is pointed out the great interest generated in Berlin during the hot phase of the implementation of the low emission zones or the fact that the public perception mirrors the

complexity of society and varies from very intensive personal interest to complete neglect and sometimes seems to be driven by the media and not always being objective.

As an example of involving public in AQ issues, Dublin City Council actively engages in air quality research with a wide range of academics and scientific partners and seeks to include the public in this research. This includes:

- a. Running public meetings with air quality and health experts
- b. Monitoring campaigns where the public act as our monitors such as the PEOPLE project on benzene with the JRC.
- c. Dublin City Council has also worked with the JRC on indoor air quality.
- d. Commissioning and participating in national TV series on the environment. The best known of these is ECOEYE which started its' ninth series later last year. This programme has featured air quality in Dublin and elsewhere in Ireland in every series.

A sample of relevant hyperlinks:.

- <http://www.dublinscience2012.ie/2012/06/health-benefits-of-improved-air-quality-2/>
- <http://www.dit.ie/news/archive2004/projectlaunchedbydittostudyadayinthelife/>
- <http://www.boards.ie/vbulletin/showthread.php?t=149339>
- http://ihcp.jrc.ec.europa.eu/our_databases/airmex
- http://cordis.europa.eu/search/index.cfm?fuseaction=news.document&N_RCN=31818
- http://www.rte.ie/tv/programmes/eco_eye_series_seven.html
- <http://www.rte.ie/tv/theenforcers/>

In the next figure a survey on the perception of air quality in 75 Urban Audit cities, performed by Eurostat, can be found. All the pilot cities are represented, except Milan, Ploiesti and Plovdiv. Among the cities participating in the Air Implementation Pilot, the city where air quality is perceived as a problem most widely is Madrid and where less, Vienna.

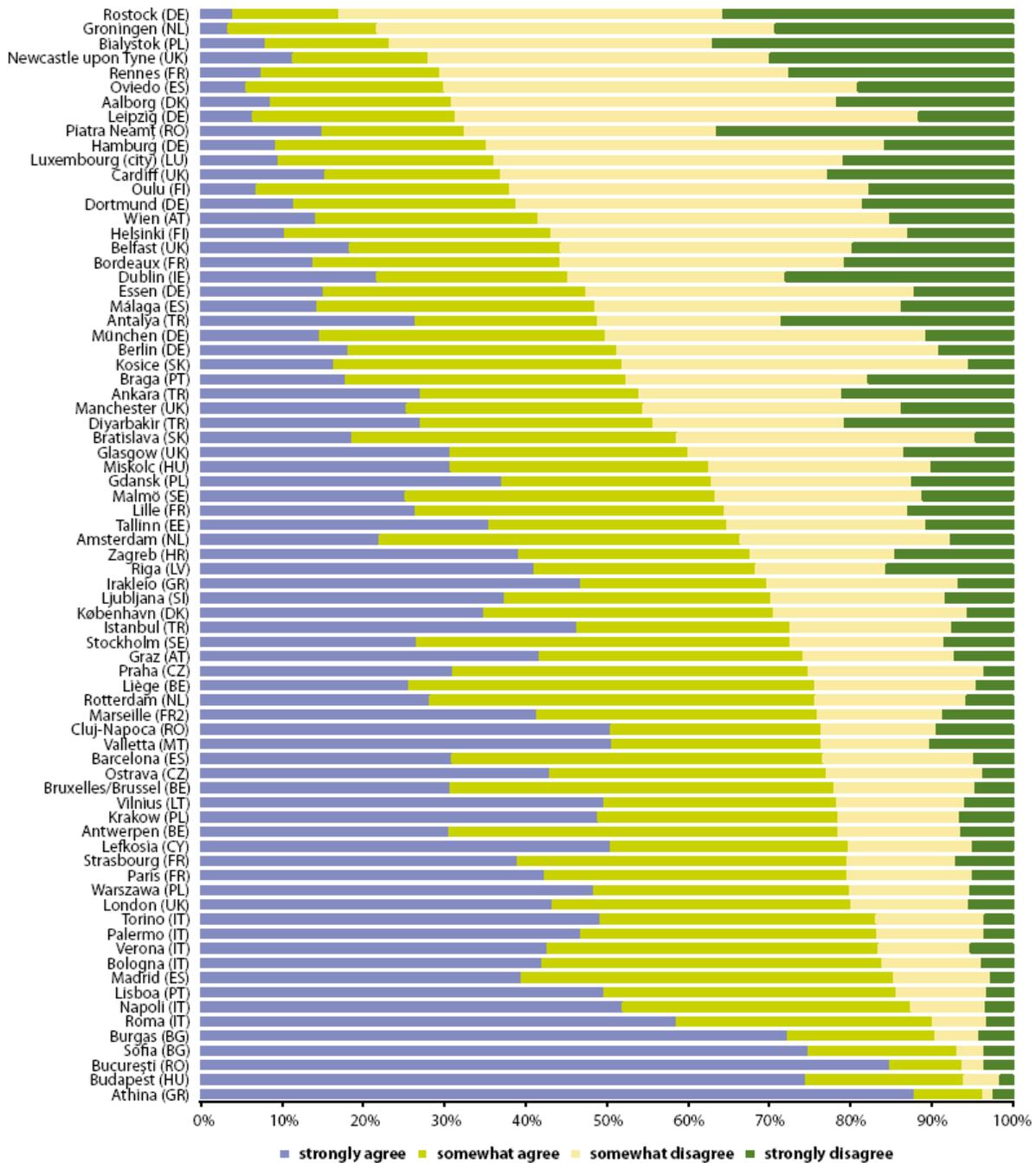


Figure 10 – Perception of air quality as a problem in 75 Urban Audit cities, 2009 (Eurostat)

Further information on the views of the European public on matters of air quality and air pollution can be found in the survey “Attitudes of Europeans towards air quality” (Flash Eurobarometer 360, http://ec.europa.eu/public_opinion/flash/fl_360_en.pdf).

10. Relation with organisations

In some cases, public addresses administration not directly but via different organisations (environmental NGOs, consumer organisations...). Some of them are explicitly mentioned in the European legislation (for instance, “environmental organisations”, “consumer organisations”, “organisations representing the interests of sensitive population groups”, “industrial federations”...). Most of the cities take into account all these organisations in their communication policy. For instance in Ireland there is a list of specified stakeholders included in the legislation that must be consulted in the adoption of air quality plans, including a number of NGOs; the Flemish regional agency delivers the stakeholders digital versions of the reports; Berlin took the stakeholders into account in the context of the drafting and development of the air quality plan and some other cities consider them as part of the general public. Some cities provide them with tailored products, as Madrid, which sends monthly a file with complete validate data from monitoring stations to environmental NGOs. Finally, in Paris, all those organizations are part of the administration board of Airparif, so all stakeholders are brought around the table.

Regarding the interaction and relationships with the environmental and consumer organisations especially interested in air quality issues, Antwerp reports an increasing public interest in AQ and an increasing number of enquiries. The interaction in Berlin is via e-mail, mail or telephone, mainly in concrete events like an excess of PM limit values or the introduction of large-scale measures like the low emission zone. Environmental and consumer organisations have also an on-going dialogue with Dublin City Council; this includes having representatives of the environmental and social organizations as members of the Strategic Policy Committees of the Council. In Madrid there is a technical Commission on Air Quality where one representative of the more active environmental NGO in the field of air quality in Spain is a permanent member. Regarding Milan, in Lombardy different organizations are usually invited to periodical meeting and workshops. For instance, they are invited to take part in the Strategic Environmental Assessment procedure of the AQ Regional Plan. Prague provides special information for NGOs, as ARNIKA, SOS, PRAZSKE MATKY and others on request, and representatives of some of them also participate in ad hoc working groups, committees. Finally, in Vienna there are regular contacts, e.g. with the chamber of commerce and the chamber of labor (“Arbeiterkammer”) and others.

11. Other issues

There is a general feeling that comparing different approaches, best practices (for instance, all webpages of the city of Vienna are configured to be barrier-free, for example readable for blind people) and new ideas will increase the capability of the cities to increase public awareness. Specific examples will be knowing the effectiveness of the information systems: if the population (especially sensitive people) receives helpful information; learning how the implementation of low emission zones has dealt with the citizen opposition to the prohibition of circulation of some vehicles.

In general, cities will also welcome any useful help regarding how to improve ways and contents (health effects, advices, information thresholds) of information to the public. Only the city of Antwerp feels no further guidance is needed in this issue.

12. Conclusions

- In general terms, all information required in the legislation is promptly provided to the public.
- The most common and widespread way of providing information on air quality issues is via dedicated Webpages. In some cases the pages depend on national or regional administration. Some pages offer also information in English, making it accessible for an international audience.
- Information on concentrations of air pollutants and AQ status is provided via different means, with a widespread use of reports. Electronic displays for up-to-date data are used in approximately half of the cities and, again, the most forward mean is Internet.
- Mass media are underutilized, as they are mainly used only for alerts due to specific episodes. There is space to increase AQ issues presence in the media.
- There is a lack of use of innovative means. Alert SMS systems for exceedances are in place in 2 cities. Social media websites are only used by the city of Paris, even if some interest is shown in some others, and only 4 of them make use of smartphone applications.
- There is an inhomogeneous use of indicators and indices. The adoption of a common system would make information more comparable and more understandable at the European level.
- Concentrations data are frequently updated, in most cases on an hourly basis. But there are also annual, monthly and daily reports available on AQ situation. Access to AQ status historic data is also available.
- The use of models can be further promoted. Forecasts of foreseen concentrations are used only in 6 cities, and this could be a way of increasing public awareness regarding air pollution.
- The perception of the public towards all the provided information is frequently missing. There is a need to increase public awareness and to get their feedback. Some innovative initiatives could be more widely used. In general, there is a good interaction with other stakeholders, as environmental NGOs, which in most cases form part of ad-hoc working groups or councils.

- There are also links to information on other environmental issues (e.g., noise), information on other issues related to AQ and information on other institutions.

Annex 1 – Questionnaire on information to the public

Air Pilot study to assess activities regarding information to the public

City of

Please, fill in and return to Alberto González Ortiz, Alberto.González@eea.europa.eu.

1. Overview

One of the tasks of the Air Implementation Pilot is to examine how cities inform the public about the status of air quality (AQ), identify and compile innovative ideas in communication and provide access to local information via EEA dissemination platforms.

This task pretends to give answer, among other, to the following questions:

- g. How do cities communicate AQ status to the public?
- h. Is there any innovative idea especially well appreciated by citizens?
- i. Can these initiatives be applied to other cities?
- j. How can local information be accessed via EEA information platforms?
- k. In which areas is further guidance needed?
- l. What can one city learn from another?

2. Introduction

Article 26 in Directive 2008/50/EC and article 7 in Directive 2004/107/EC establish the mandatory information to the public in terms of:

- e. Ambient AQ
- f. Postponements/exemptions
- g. AQ plans
- h. Competent authorities

Furthermore, Directive 2008/50/EC requires Member States to provide information to the public regarding exceedances of alert thresholds (art. 19), the content and implementation of short-term action plans (art. 24.3) and exceedances of thresholds in relation to transboundary air pollution (art. 25)

1. Who is the competent authority to inform the public on the previous issues in your city?

3. Public information on ambient AQ

1. Can you explain which means are used in your city (or the correspondent level of competent authority) to make available to the public up-to-date information on your

city's ambient concentrations, including actual or predicted exceedances of alert and/or information thresholds? (*When possible, please provide links to the product and/or specific examples*)

- a. City panels:
 - b. Reports (please specify the frequency):
 - c. Mass media:
 - i. TV
 - ii. Radio
 - iii. Press
 - d. New technologies:
 - i. Social networks
 - ii. Smartphone applications
 - iii. Other
 - e. On demand
 - f. Other
2. How frequently is the information above updated for each pollutant?
 3. How data are presented?
 - a. Raw
 - b. Statistics
 - c. Indicators (*please, provide the description of the indicators used*)
 4. Is it possible to access the historical data related to your city's AQ state? In which way?
 5. Are also modeled data used in assessing the ambient AQ in your city? How are they integrated with measurements?
 6. Are modeled data used to provide public with AQ forecasts?
 7. Do you provide information on:
 - a. Emissions
 - b. Pollutant sources
 - c. Effects
 - d. Other issues related to AQ?
 8. Your city participates in the up-to-date or near-real-time (NRT) exchange of data with the EEA. Can you provide some feedback about EEA NRT platforms?

4. Information on postponements/exemptions

1. In case your city has notified a postponement of deadlines to attain nitrogen dioxide or benzene limit values or an exemption from the obligation to apply PM₁₀ limit values, how have been the public informed about them? (*When possible, please provide links to web pages, reports, etc.*)

5. Information on AQ plans

1. In case there is an air quality plan in force or foreseen in your city:
 - a. How did public participate in its drafting?
 - b. How is public informed about its implementation?
 - c. How is public informed about its results?
 - d. Are models used to project the effect of measures? Does the public have access to this information?
2. In case there are short-term action plans in force or foreseen in your city:
 - a. How did public participate in their drafting?
 - b. How is public informed about their implementation?
 - c. How is public informed about their results?
 - d. Are models used to project the effect of measures? Does the public have access to this information?

6. Information on competent authorities

1. How is the public informed about the competent authorities relating AQ assessment and management in your city?

7. Information on other AQ issues than those mandatory

1. Does the public have access to other information than the one considered “mandatory”?
2. Do you provide relations to other AQ information sources as, for instance, links to other administration webpages, European institutions or international conventions?
3. Do you provide information in relation with other environmental issues as, for instance, climate change, noise...?

8. Public awareness

2. Have you any study or statistics regarding the effect of public information in public awareness on AQ issues?
3. Do you have a way to receive users’ feedback regarding the information made available to them?
4. Are you aware of the public perception regarding AQ issues?

9. Relation with organisations

In some cases, public addresses administration not directly but via different organisations (environmental NGOs, consumer organisations...). Some of them are explicitly mentioned in the European legislation (for instance, “environmental organisations”, “consumer organisations”, “organisations representing the interests of sensitive population groups”, “industrial federations” ...)

2. Do you take into account all these organisations in your communication policy? If so, do you provide them with tailored products?
3. Are environmental and consumer organisations in your city/region/country interested in air quality issues? Do they address you regularly? How is the interaction with them?

10. Other issues

1. Do you need guidance regarding informing the public on AQ?
2. Do you want to share any additional views regarding AQ information to the public in your city?

Annex 2 – Web pages in the cities participating in the Air Implementation Pilot

Antwerp: <http://www.antwerpen.be/eCache/ABE/82/10/708.Y29udGV4dD04MDMzOTAz.html>

See also the Flemish Environmental Agency webpage: <http://www.vmm.be/>; and the Belgian Interregional Environment Agency (IRCEL) webpage: <http://www.irceline.be/>

Berlin: <http://www.stadtentwicklung.berlin.de/umwelt/luftqualitaet/index.shtml>

See also the German Federal Environmental Agency webpage: <http://www.env-it.de/umweltbundesamt/luftdaten/index.html>.

Dublin:

<http://www.dublincity.ie/WaterWasteEnvironment/AirQualityMonitoringandNoiseControl/Pages/AirQualityandNoiseControl.aspx>

See also the Irish Environmental Protection Agency webpage:

<http://www.epa.ie/irelandsenvironment/air/>

Madrid: <http://www.mambiente.munimadrid.es/opencms/opencms/calair/index.html>

Malmö: <http://www.malmo.se/Medborgare/Miljo--hallbarhet/Miljolaget-i-Malmo/Luft.html>

Milan: the Lombardy Environmental Protection Agency webpage:

<http://ita.arpalombardia.it/ITA/garia/Home.asp>

Paris: <http://www.paris.fr/pratique/environnement/bruit-et-qualite-de-l-air/p136>.

See also the Air Quality Monitoring Network (AirParif) webpage: <http://www.airparif.asso.fr/>.

Ploiesti: the Ministry of Environment and Climate Change's Environment Protection Agency webpage: <http://www.calitateaer.ro/>.

Plovdiv:

<http://www.plovdiv.bg/item/ecology/%d0%b2%d1%8a%d0%b7%d0%b4%d1%83%d1%85/>.

See also the Regional Inspectorate for Environment and Waters – Plovdiv (RIEW) webpage

http://plovdiv.riosv.com/main.php?module=content&cnt_id=1; the Ministry of Environment

and Waters (MEW) webpage: <http://www3.moew.government.bg/>; and the Environment

Executive Agency (EEA) webpage <http://www.eea.government.bg/>.

Prague: the Czech Hydrometeorological Institute webpage:

http://portal.chmi.cz/portal/dt?action=content&provider=JSPTabContainer&menu=JSPTabContainer/P1_0_Home&nc=1&portal_lang=cs#PP_TabbedWeather

Vienna: <https://www.wien.gv.at/umwelt-klimaschutz/luft/>.

See also the Austrian Federal Environmental Agency webpage:
<http://www.umweltbundesamt.at/umweltsituation/luft>.

Vilnius: <http://www.aplinka.vilnius.lt/lt/>.

See also the Vilnius Public Health Office webpage: <http://www.vvsb.lt/>; and the Environmental Protection Agency of Lithuania webpage: <http://gamta.lt/cms/index>.