

# AIR QUALITY IMPROVEMENT PLANS AND PROGRAMMES

## Executive Summary

### 5<sup>TH</sup> SEMINAR ON AIR QUALITY IN SPAIN

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## 0. INTRODUCTION.

In recent years, and since the Framework Directive on the assessment and management of ambient air quality came into force, the regulatory framework in this area and the actions taken by the relevant authorities have undergone substantial development in order to address the various issues raised by the new legislation.

After some initial actions aimed at setting up new monitoring networks and improving existing ones, these networks were upgraded with new equipment and sensors to collect information about new pollutants. This has enabled environmental agencies to obtain valid results that, in the last few years, have allowed them to perform a proper environmental diagnostic of the country.

There is a need to assess the present situation and the current trends affecting it in order to propose a series of measures to be taken with a view to ensuring that the present and future scenarios meet the appropriate quality parameters for the population and the environment in general. And this is where the subject of this document '**Air Quality Improvement Plans and Programmes**' comes in:

These plans and programmes are aimed at improving air quality in those places where the diagnostic shows that such an improvement is necessary and, together with other programmes and initiatives aimed at promoting sustainable development within the territory, strive to ensure a future in which air quality parameters are within regulatory limits, and to safeguard the welfare of the population and a desirable air quality in all the Autonomous Communities of Spain.

## LEGISLATIVE ANALYSIS OF THE STATE AND REGIONAL REGULATORY FRAMEWORK WITH REGARD TO PLANS AND PROGRAMMES IN ANDALUSIA AND CATALONIA.

In this section we take a look at the actions taken in two autonomous communities in relation to the development of a regulatory framework and some actions forming part of air quality improvement plans and programmes. In the following section we provide a summary of what the Andalusian Regional Government has been doing in this regard.

Law 7/1994, of May 18, on Environmental Protection, defines the regulatory framework and actions carried out in the Autonomous Community of Andalusia, in both environmental protection and quality environmental (air quality, water quality, waste).

This Law is incorporated into the existing legal framework at the time of its approval (Directive 85/337/EEC of the Council of the European Communities of June 27, 1985, Royal Legislative Decree 1302/1986, of June 28, and Royal Decree 1131/1988, of September 30), and its content refers to a specific range of activities in which the Andalusian Autonomous Community has instruments for action that are well targeted and appropriate to the current situation.

It is an innovative legal text, as it gives the Andalusian public authorities responsibility for environmental protection within a new assignation of competencies, making it possible for the Government of the Autonomous Community, and the local corporations, to intervene where appropriate within their territorial jurisdiction, by instituting the necessary mechanisms of cooperation and development in the consideration of environmental risks and in the provision of services to citizens.

In its Second Final Provision, this Law authorizes the Government Council of the Andalusian Regional Government to draft the necessary provisions for the enactment and development of the law. Thus, in enactment and development of Chapter I, Title III of this Law, Decree 74/1996, of February 20, approving the regulation of air quality, sets out the objectives by means of a regulation whose purpose is to prevent, monitor, and correct air pollution situations, based on the provisions and concepts contained in articles 38, 39.1 and 39.2 of the Environmental Protection Law, the literal transcription of which is to be found respectively in points 1, 2 and 3 of Article 3 of the aforementioned regulation.

In the matter of air quality, the role of city councils in the exercise of their competencies is fundamental to the development of state and regional legislation. City councils articulate air quality legislation by means of municipal ordinances that vary from municipality to municipality but do not vary substantially from the general guidelines set out in the regulation.

In its articles 6 to 9, this Air Quality Regulation also addresses the production of Air Pollution Prevention and Correction Plans, establishing the following basic principles:

- The formulation of these plans shall be agreed by the Department of the Environment, at the proposal of the Environment Agency and, where appropriate, the local authorities within the scope of their respective competencies. The adoption agreement shall be published in the Official Gazette of the Andalusian Regional Government.

- The owners of potentially polluting facilities located in the areas affected are obliged to provide all necessary information, with due respect for industrial and trade secrets, in order to comply with the requirements of the legislation.
- The plans are produced in two consecutive phases. The first phase is to gather the required information, including a report on the impact on human health issued by the Department of Health. In the second phase a study is made of the various management alternatives, and the optimal solution for the short and long term is determined.
- The minimum content of these plans shall be as follows:
  - Specific targets (in the short and long term)
  - Programmes and actions to develop (in the short and long term)
  - Means of funding
  - Review procedure
- These sections should comprise the following data at least:
  - Pollution source
  - Characteristics and levels of emission and immission
  - General technical prescriptions
  - Special provisions for specific sources
  - Locations and installations for monitoring sensors.
- With regard to drafting, approval, and publication, Air Pollution Prevention and Correction Plans shall be approved by Government Council Decree and published in the Official Gazette of the Andalusian Regional Government after being made available for public perusal for a period of not less than one month, and after an opportunity for hearing by interested parties and administrations whose competencies would be affected.

## **2. PRODUCTION OF A WEB PORTAL FOR THE EXCHANGE AND DISSEMINATION OF ENVIRONMENTAL INFORMATION.**

As readers will know, current legislation obliges plans or programmes to be established for any zones or agglomerations where ambient air concentrations of pollutants exceed any limit value, or target value, or concentration cap, or the corresponding margin of tolerance in each case.

Royal Decree 1073/2002, of October 18, on the assessment and management of ambient air quality in relation with the sulphur dioxide, nitrogen dioxide, nitrogen oxides, particles, lead, benzene, and carbon monoxide, in its Article 3 *Actions of public administrations*, point 1c, empowers Autonomous Communities (within the scope of their respective competencies) and the Local Authorities (when appropriate in accordance with the provisions of article 26 of Law 7/1985, April 2, regulating the bases of the local regime, in articles 41 and 42 of General Health Law

14/1986, of April 25, and in the legislation of the Autonomous Communities) to adopt the necessary measures to ensure that regulated pollution concentrations do not exceed limit values, and to improve those concentrations.

Article 11 *Information to the public*, points 6 and 7, requires public administrations to make any plans adopted in accordance with point 1 of article 6 of Royal Decree 1073/2002 available to the population and to any interested parties. It also states that the information made available to the public or interested parties in compliance with the aforementioned provision must be clear, understandable, and accessible.

According to Appendix XIII, *Information that the Autonomous Communities and Local Authorities must provide to the General Directorate of Environmental Quality and Assessment under Article 10*, in the zones and agglomerations where the limit values plus the margin of tolerance, or the limit value where there is no margin of tolerance, are exceeded, the Autonomous Communities and Local Authorities shall report on the action plans or programmes referred to in point 1 of article 6 in the year and a half subsequent to the end of the year in which the levels were recorded, and on how the plan is progressing every three years.

Taking into account that the main objective of the plan or programme is to draw up and implement effective measures for improving the air quality improvement of a zone or agglomeration, it is important that the authorities and technicians responsible for drawing up the plans and programmes have ready access to past experiences. This will allow them know about and learn from solutions and good practices that have already been developed by other agencies and to adapt them to their particular situation, as well as having access to information from other schemes that did not initially obtain the desired results.

The sparse documentation available on the development of plans and programmes is scattered over the web sites of the various Autonomous Communities and Local Agencies which makes it hard to locate for other managers.

For this reason, as an initiative to improve the communication among all the interested parties, we propose the development of a web-based collaborative tool linked with the Ministry of Environment's website, with access restricted to certain specialized users by means of a user ID and password. This tool would gather together all the information of any importance on plans and programmes, with the consequent improvement of the information flow.

Each user (Ministry, Autonomous Community, Local Agency,...) would have free access to their own directory, with privileges allowing them to modify and update it, in which the documentation of

all the plans and programmes drawn up would be stored. They would also have access to other users' directories with read only permissions.

The administration of the collaborative tool would be the responsibility of the Ministry of Environment which would issue the pertinent access permissions together with the user IDs and passwords...

The collaborative tool could be complemented by a number of applications and utilities for users, such as a calendar, task register, webmail,..., and could also be used to exchange information in amore efficient manner among all the Administrations involved (for example, dispatch of data to the Ministry, annual assessments...).

The functioning and success of information exchange based tools of this nature, depend to a large extent on the degree of participation and involvement of its potential users. It would therefore be necessary to encourage and promote its use among all the agencies involved in the production of plans and programmes, a task that could be the responsibility of the Ministry of Environment.

### **3. THE BAILÉN AIR QUALITY IMPROVEMENT PLAN. Authors: Ms. Alicia Quintero Peralias (EGMASA) and Mr. Juan Contreras González (Andalusian Regional Government).**

When the values measured by the Monitoring and Air Quality Control Network of the municipality of Bailén are compared with the limit values set out in Royal Decree 1073/2002 of October 18 on assessment and management of ambient air quality with regard to sulphur dioxide, nitrogen dioxide, and nitrogen oxides, particles, lead, benzene and carbon monoxide, we see that for that the limit value plus the margin of tolerance for particles is exceeded systematically for that zone, and that high values of SO<sub>2</sub> are also detected (although without exceeding the limits). Therefore, according to article 6 of the aforementioned regulation, the relevant authorities should adopt the appropriate action plans to return to the limit values within the established timeframe.

Thus in accordance with the provisions of the Air Quality Regulation (Decree 74/1996, of February 20), it was agreed to draw up a an air quality improvement plan for the municipality of Bailén. The production of this plan, approved by Order of January 27, 2003, would be the responsibility of the General Directorate of Environmental Prevention and Quality of the Department of Environment. Thus, the obligation derived from article 6 of Royal Decree 1073/2002 was addressed by the procedure stipulated in the Air Quality Regulation of Andalusia.

This Plan was carried out in two consecutive phases, as set out in article 8 of the Air Quality Regulation. The first phase was devoted to collecting the necessary information including a report on the repercussions on human health issued by the Department of Health. And in the second phase, a study was made of various management alternatives and the optimal solution was determined, both in the short and long term.

More specifically, the first phase consisted of the following studies:

- Emissions inventory: the purpose of which is to determine the main sources responsible for air quality in Bailén.
- Study of the contribution of cross-border pollution, taking into account that, as in other zones, the area in question is affected by a number of intrusions of Saharan air masses which have a significant influence on the high levels of PM<sub>10</sub> particles.
- Evaluation of ambient air quality, using fixed measurements and supplementary techniques:
  - Fixed stations. The Monitoring and Air Quality Control Network in Andalusia has one station, owned by the Andalusian Regional Government, in Bailén.
  - Mobile units. These are vehicles equipped with the appropriate devices in order to provide a service under the same conditions as the fixed station, but in variable locations and for limited periods of time.
  - Manual campaigns with low, medium, or high volume particle samplers.
  - Diffuse samplers for characterizing urban air pollution by NO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub>, and determining its spatial distribution.
- A great many complementary studies were also carried out:
  - Analysis of PM<sub>10</sub> levels at the Bailén remote station.
  - Chemical and mineralogical characterization and granulometric distribution of particulate matter in suspension.
  - Studies of the clays and cokes used in the brick and ceramics industry (granulometric, mineralogical, and geochemical characterization).
  - Chemical composition, mineralogical characterization, and granulometric profile of the airborne particulate matter at industrial sources.
  - Average levels registered at the Bailén air quality control station during the years 1996-2004.

From all the studies in the first phase it became clear that the ceramic sector is the main cause of pollution in the Bailén area. Therefore, most of the work set in motion in the second phase was targeted towards that sector. The studies to determine the best corrective measures to adopt from a technical and economic point of view were as follows:



- Options for the reduction of fugitive particle emissions:
  - Sprinkling.
  - Improvement and refurbishment of tracks.
  - Clean up of tracks and roads.
  - Particle collection systems in milling processes and transport of material.
- Options for the reduction of emissions of firing processes in industrial ceramic plants.
  - Use natural gas as the sole fuel.
  - Improvement of the quality of the coke (low sulphur coke)
  - Implementation of particle abatement techniques and desulphurization.
- Options for the reduction of emissions of firing processes in 'artistic' ceramic plants.
  - Replacement of Moorish kilns.
  - Installation of a gas filtering system (baghouse filters, scrubber, gas routing and treatment).

From a socio-economic viewpoint, the solution would be to create awareness among the Bailén business community that renewal and technology and sectoral consolidation are the only way to ensure continuity in the future .

Finally, the plan was complemented by a monitoring programme of both emissions and air quality.

Once the whole plan had been drawn up, it was approved by Decree 31/2006, of February 14, and was published in the Official Gazette of the Andalusian Regional Government no. 56, on March 23, 2006.

## CONCLUSIONS

In the course of a number of work sessions, and thanks to the various contributions from those taking part in the working group, we were able to reflect on and analyse the way in which air quality improvement plans and programmes are performed, and we reached the following conclusions:

- After an initial analysis of what is set out in the state regulatory framework with regard to the drawing up of plans and programmes, articulated in Royal Decree 1073/2002, this working group concludes **that the drawing up of plans and programmes should be addressed at a legislative level in greater depth.** Current legislation refers to the minimum information that should be included in the ambient air quality improvement programmes, but there are still a great many details that should be addressed in the regulation.

As has been learned from experience in places where such plans have been implemented, in order to draw up an improvement plan the involvement of various public authorities is often



required; various local agencies, the Autonomous Community, and even the State where it has competencies (ports, airports, major motorways...) **For this reason we believe that the legislation should establish the principles of coordination and cooperation between the various public administrations and define the administrative mechanisms whereby such plans may be approved.**

- Secondly, we have reached the conclusion that, **although air quality improvement plans and programmes may be set up by a public body with competencies in matters of ambient air quality assessment and management, when the time comes to implement these plans and programmes, the involvement of a great many other authorities is required: Industry, Agriculture, Public Works, Science & Technology, Health, and even Education need to become involved.** Some public bodies will need to act jointly in the pursuit of actions that will lead to the ultimate goal of improving ambient air quality.
- Another of the conclusions reached is that, when drawing up air quality improvement plans and programmes we should **include and make use of the various initiatives that already exist, initiatives whose actions and outcomes may help towards the improvement of ambient air quality.** On many occasions, municipalities embark on initiatives in isolation, when they could be integrated into other plans and programmes and, with appropriate coordination, even involve neighbouring municipalities, thus achieving more effective and efficient results, especially given that air masses know no geographic or political boundaries.
- Finally, based on this work of analysis and reflection, we also concluded that the exchange of information among the various public administrations needs to be improved. The various Autonomous Communities could know the work being done in other territories with which they might share common environmental issues and leverage already existing resources, without the need to repeat work already done. This working group therefore proposes **the creation of a web portal with a dual purpose:** firstly, to provide **information to the population about actions performed**, in compliance with current legislation on environmental information, and secondly, to **exchange information among specialized agencies**, who ultimately are responsible for planning and implementing these actions. We propose that the Ministry of Environment be responsible for centralizing this information and hosting the proposed web portal.

**APPENDIX: Analysis of various municipal initiatives in Spain, or national or international programmes to which cities can subscribe: Project: “Cities for Climate”, Eurocities, Smile, etc...**

**SOURCE: MR. JOSÉ ANTONIO FERNÁNDEZ AND MS. PAULA ELÍAS.**

The “Spanish Network of Cities for Climate” was set up under the auspices of the Spanish Federation Municipalities and Provinces (FEMP), in a meeting of its Executive Committee on September 28, 2004.

The Network’s mission statement and operating rules are available on FEMP’s website at [www.redciudadesclima.es](http://www.redciudadesclima.es). The Network’s main aim to promote sustainable development policies and the reduction of greenhouse gas emissions. Given the closeness of local governments to their citizens it falls to the city councils to orient individual behaviour towards sustainability through education and awareness raising.

At the time of writing (May 2006) there are 115 municipalities that are members of the Spanish Network of Cities for Climate. Of those, 82 have fewer than 100,000 inhabitants, 28 between 100,000 and 500,000 inhabitants, and 5 municipalities have a population of over 500,000 inhabitants.

The basic requirements that city councils forming part of the Network must meet are:

- Municipal agreement to join the Network approved in a city council meeting. An institutional statement should be made to the citizens by the mayor setting out the commitment to implement greenhouse gas reduction policies.
- Designation of one political representative and another technical one.
- Payment of an annual fee of 300 euros.
- Organization of a technical committee for monitoring the policies of environmental prevention and reduction of pollution with the representation of the departments responsible for urban planning, environment, transport, etc.
- Organization of a citizen debate forum.

The minimum actions consist of the adoption of an Action Plan 2005-2007, approved by the municipality, which should include measures covering three fields: energy, transport, and urban planning and development.

During the first year the following actions should be carried out:

1. Agreement to approve within one year municipal ordinances on thermal solar energy for new buildings and for public lighting.
2. To introduce economic and tax measures to promote the implementation of renewable energies and less polluting forms of urban transport.
3. Energy efficiency criteria in new contracts and requests for tenders.
4. Gradual implementation of energy efficient systems and renewable energies in municipal buildings.
5. Implementation of traffic calming measures; restriction of private traffic in certain urban areas; speed limits, etc.
6. Promotion of efficient household appliances (class A) and good use of energy in private homes.
7. Land to be set aside for trees, thereby increasing the town's green areas.

During the following years the council should:

1. Draw up energy municipal plans requiring municipal facilities and services to be energy efficient.
2. Perform energy audits and certify municipal buildings.
3. Apply municipal ordinances regarding renewable energies and public lighting.
4. Draw up and approve a Sustainable Mobility Plan including the gradual restriction of the use of private vehicles and integrating collective transport systems into urban developments.
5. Encourage the use of bio-fuels for vehicle fleets.
6. Promote bioclimatic architecture.
7. Rationalize the use and consumption of land.
8. Promote less polluting forms of transport in new urban developments.

Finally, to determine the progress made in the reduction of greenhouse gases in the local area concerned, there should be a series of monitoring indicators and an annual report of results and conclusion. This report will be made public so that citizens are kept informed and conclusions can be analysed in the citizen debate forum.

The Network shall develop a methodology for designing a system of indicators for evaluating municipal energy consumption, transport, and urban development.

At the time of writing (May 5, 2006) a number of municipal actions are posted on the Network's web page, broken down into the following five sectors:

Eco-technology : 11 actions in city councils including, for example, a bio-diesel production plant belonging to the Alcalá de Henares City Council, or the environmental recovery of the old Bens landfill and residual biogas energy recovery scheme, in La Coruña.

Urban planning: 16 actions, 6 of them in Madrid, including the local contracting code of good practices in Madrid, or the Municipal Energy Optimization Plan, in Seville.

Energy: 16 actions, such as the energy efficiency audits of the Las Palmas de Gran Canaria City Council, or the Solar Sports Centres of the Alcalá de Henares City Council.