

Particle reduction plans in Europe

IMPLEMENTATION OF THE FIRST DAUGHTER DIRECTIVE ON AMBIENT AIR QUALITY IN EUROPE

Results of an environmental NGO questionnaire by the European Environmental Bureau

DECEMBER 2005



The European Environmental Bureau (EEB)

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FOREWORD

Air pollution has been high on the political agenda in 2005. New figures about the environmental and health impact of air pollution in Europe were published, which showed that air pollution affects more people and ecosystems than previously thought. Furthermore, the air quality limit values for coarse particles (PM₁₀) entered into force in January. Already in the first quarter of 2005 it became obvious that many EU member states were breaching these limits. As those non-compliances became obvious, in many countries the problem of air quality was discussed widely.

At European level the Commission published its Thematic Strategy on Air Pollution in September 2005, highlighting the impacts of air pollution across the EU, setting reduction goals for 2020 and showing the need for further measures to reduce pollution (*CEC 2005a and CEC 2005b*). In addition, the Commission also adopted a proposal to revise the existing ambient air quality directives, which also define limit values for the particles mentioned above (*CEC 2005c*).

This illustrates that to date environmental policy-making in the field of air pollution is between implementing existing laws, revising those laws and proposing new laws. In the context of this revision of the air quality legislation many member states now demand derogations to meet the existing limits, claiming that it was not possible to meet the standards on time. This report looks at the EU-wide implementation of the First Daughter Directive as regards PM₁₀. On the basis of these findings we conclude that member states clearly have not done enough to ensure that air quality management plans really work and that the directive's legally binding limit values are met.

This report has been produced with the help of many individuals. I would like to thank all participating members of the EEB Clean Air Working Group and collaborating NGOs for providing detailed information and NGO evaluation from all over Europe. Without their commitment, this analysis would not have been possible. Furthermore I would like to thank Dragomira Raeva for all her work on developing the questionnaire, coordinating with the participating organisations and providing first evaluations. Further thanks to Marco Contiero for summarizing and cross-checking data as well as to Mia Resch for her invaluable help in fact-checking and editing.

Brussels, December 2005

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INTRODUCTION AND EXECUTIVE SUMMARY

This publication analyses the quality of national implementation of the first Air Quality Daughter Directive (1999/30/EC). The report is based on information from 15 NGOs (members of the EEB's Clean Air Working Group), who provided data for PM₁₀ concentrations in ambient air as well as information about air quality management plans from 30 cities in Europe.

The air pollution challenge

Air pollution in the European Union – particularly in urban areas – is a pressing problem as many people are exposed to high concentrations of pollutants. Recently published research carried out for the European Commission showed that air pollution levels of the year 2000 in Europe lead to almost 370,000 premature deaths per year. Furthermore, air pollution causes significant human suffering such as over 114,000 serious hospital admissions per year and affects the lives of millions of people, who need to take respiratory medication (*CAFE 2005 a*).

Most of the health effects related to air pollution come from long-term exposure to fine particles (PM_{2.5}). These are tiny dust particles with a diameter of about 2.5 micrometers – about a thirtieth of a human hair. Furthermore biodiversity is affected in more than 60% of European ecosystems because of nitrogen deposition above the critical loads and serious damage is also caused by acid deposition (“acid rain”) and high levels of ozone concentrations (*CAFE 2005 b*).

Air quality directives

In order to reduce air pollution impacts on both people and ecosystems, the EU has adopted a series of air quality directives. The air quality Framework Directive (1996/62/EC) and its four Daughter Directives set limit or target values for the pollution concentration in ambient outdoor air, which are not to be exceeded anywhere in the European Union. The first limit values for coarse particles (PM₁₀)¹ as well as SO₂ entered into force in 2005. These limit values are set in the first air quality daughter directive.

According to the air quality directives, EU member states are obliged to monitor air quality throughout their territory and to draw up and implement air quality management plans. These plans have to reduce pollution concentration in order to meet the limit values by the time they enter into force.

Implementation problems

However, already in the first quarter of 2005 many member states were breaching the standards for fine particles. PM concentrations are particularly high in urban areas. In many European cities the PM₁₀ limit values were exceeded in the first half of 2005 – in Turin and Milan already in February, in Budapest already in March 2005.

However, member states have reportedly been late in drawing up plans and programmes to improve air quality. In July 2004 the Commission had started infringement procedures against ten member states for not having submitted plans or programmes on time, or because the plans submitted were incomplete (*CEC 2004a*).

Focus of the survey

The survey focuses on one pollutant – PM₁₀ – because in this case implementation problems are most evident and because the health impacts of particles are severe. We decided to focus our analysis more specifically on cities – because this is where particle pollution is worst, and this is also where most air quality management plans are made.

The report is meant to be a snapshot of the current implementation situation throughout the EU. It is not an exhaustive analysis covering all aspects of the implementation of this directive. But by analysing air quality

¹ Particles of 10 micrometer in diameter also called coarse particles. So far, the EU has not adopted any standards for fine particles (PM_{2.5}).

data, plans and programmes and some background information from altogether 30 cities in 15 European countries², we can highlight some key problems with the implementation of the directive.

Conclusions

Given the serious health problems caused by fine and coarse particles member states clearly have not done enough to implement this directive and meet the legally binding limit values in 2005. Plans have been made too late in most cases, even though the problem should have been apparent since 2002 at least.

Furthermore many plans are not concrete enough and lack dedicated financing, which makes it unlikely that the measures in the plans are going to be put into practice. On the national level member states are putting in place initiatives to improve the performance of the car fleet, but at the same time some NGOs highlighted that in their countries much larger sums are invested in further road expansion and investment in road infrastructure takes priority over investment in other modes of transport.

Regarding the implementation of this directive it will be of utmost importance to make sure that the plans are effective and that the measures in the plans are implemented. It is the obligation of the member states to ensure good implementation at local level, but also to complement local policies with national policies that will actually help cities to reduce pollution.

Key findings

- Most cities analysed in this report have been much too late in responding to the PM problem. Already in the years leading up to 2005 it should have been obvious that it will be difficult to meet the limit values without systematic air quality management. Between the years 2002 and 2004 96% of the cities analysed have recorded exceedances of the daily PM₁₀ limit values plus margin of tolerance in at least one year.
- 50% of these cities however did not make plans and programmes before the year 2005, even though they had exceedances in at least one year before this time. This is clearly against the requirements of the directive, which stipulates that plans and programmes have to be made in order to meet the legally binding limit values by 2005. Some cities, which have already exceeded the legally binding limits in the first half of 2005, have still not adopted any plans to reduce PM₁₀.
- The most popular measure is to charge for parking space and reduce car parking possibilities in the city (72% of plans and draft plans). On second place is the promotion of car sharing, cycling and walking (63%). The third place is shared by two measures: 'reorganising the city to limit car use by providing better opportunities for walking, cycling and public transport' as well as by 'other type of traffic restrictions' (both 59%). Low emission zones, which permanently restrict access of vehicles without particle filters would be very effective as regards air quality and could improve air quality quickly. This measure was only included in three plans and draft plans.
- The city of Bristol comes out best in our evaluation and shows that cities can adopt good air quality management plans and adopt a systematic approach to air quality management. In April 2004 the city published a fairly wide-ranging air quality management plan, which is detailed and clearly written. Bristol's air quality plan is intended to 'top up' the local transport plan so measures should be considered in conjunction with this. The local transport plan was already adopted in 2000. The local transport plan was already adopted in 2000. It resulted in increase in cycling of 27% and rail use of 19% in over three years (*Bristol City Council 2004*).
- The implementation of the air quality management plans is crucial for the functioning of this directive. A plan on paper does not mean that it is implemented accordingly. When analysing plans it is important to consider, when and if the planned measures will enter into force. Even though most cities were late with making plans, not all measures contained in the plans are going to be introduced immediately. For example the low emission zone included in the air quality plan for Berlin will not enter into force before

² Vor Ventspils and Liepaja in Latvia only qualitative data was available (in form of NGO comments). Throughout the report the number of cities analysed for certain questions varies. This is due to the fact that not all cities have made air quality management plans or that for some cities we did not have sufficient information regarding certain questions. This means that we refer to different totals depending on the question. We highlight the total number of cities we refer to at the beginning of each interpreting chapter.

2008. In Düsseldorf on the other hand a low emission zone should have been introduced in 2005. But organizational prerequisites by the federal government (adoption of a national car-labelling directive) are still missing, therefore it is not implemented yet.

- The most critical problem regarding the implementation of the measures is the lack of dedicated financing. Dedicated financing has been missing for more than half of the plans analysed (61%). This is even the case for the otherwise very good air quality plan of Bristol, which means that some of the more ambitious elements of the plan are unlikely to be implemented. Eleven cities of our sample of plans and draft plans have foreseen to retrofit their bus fleet with particle filters. From these eleven cities only three outline clearly how the measures will be financed. If the money needed for the measures in the plans is not clearly designated in the city budget, it is unlikely that they are put into place.
- In addition to that most plans were not concrete enough. Only 38% of the plans project the likely air quality impact of measures and only 31% project when the pollution reduction will be achieved. However, the air quality impact of measures is not projected, it is impossible to judge objectively if these measures will be sufficient to meet the air quality limit values. Furthermore if it is not projected when the concentration reduction will be achieved, it is impossible to know, when the legally binding limit values will be achieved.
- Ultimately member states are responsible to the Commission for meeting or not meeting the limit values anywhere in their territory. It is thus the obligation of the member states to put in place incentives, funding schemes or dissuasive penalties, which ensure that plans are made everywhere and that future plans are made on time (for example regarding the limit values for NO₂, which will enter into force in 2010). They must make certain, that they contain sufficient measures to meet the limit values, the necessary projections and data to verify this, and that they are implemented so that plans are more than just a 'wish list'. The Commission should investigate these points closely when assessing the implementation of this directive. Furthermore member states must complement local policies with national policies that will actually help cities to reduce pollution.

1. The questionnaire and the survey

1.1 The first Daughter Directive

The first Air Quality Daughter Directive came into force in July 1999 (*CEC 1999*). It sets limit values for pollution concentration in ambient outdoor air for sulphur dioxide (SO₂), nitrogen dioxide (NO₂), lead (Pb) and particulate matter (PM₁₀). The limit values for SO₂ and PM₁₀ entered into force in January 2005. The other two limit values will become legally binding in 2010 (*See also Meyer 2005*).

The main objectives of the directive are:

- set air quality limit values for sulphur dioxide, nitrogen dioxide, lead and particulate matter to avoid, prevent or reduce harmful effects on human health and the environment as a whole
- assess concentrations of these pollutants
- ensure that information on concentration is made available to the public
- maintain ambient air quality where it is good and improve it in other cases

The directive sets two limit values for particulate matter: a daily limit value and an annual limit value. The daily limit value is the maximum average concentration of 50 micrograms of PM₁₀ per cubic metre of air over a 24-hour period. It cannot be exceeded by more than 35 days over the course of a year. The annual limit value is set at 40 µg/m³ for the average annual concentration.

In order to see whether they are on track for meeting the limit values, member states must monitor air quality throughout their territory. This information must be made public: it has to be clear and comprehensible as well as updated on at least a daily basis. Between the years 2001 and 2005 authorities were obliged to make "plans and programmes" if a certain level of air pollution concentrations – the so-called "margin of tolerance" – was exceeded. The concentration levels which trigger plans and programmes are specified in detail in the directive (*CEC 1999. See also Annex II of this report for a detailed explanation*).

These plans must list the different policy actions which are foreseen for meeting the limit values. They also have to be reported to the Commission and to be made available to the public, in order to allow citizens to trace progress towards meeting the standards.

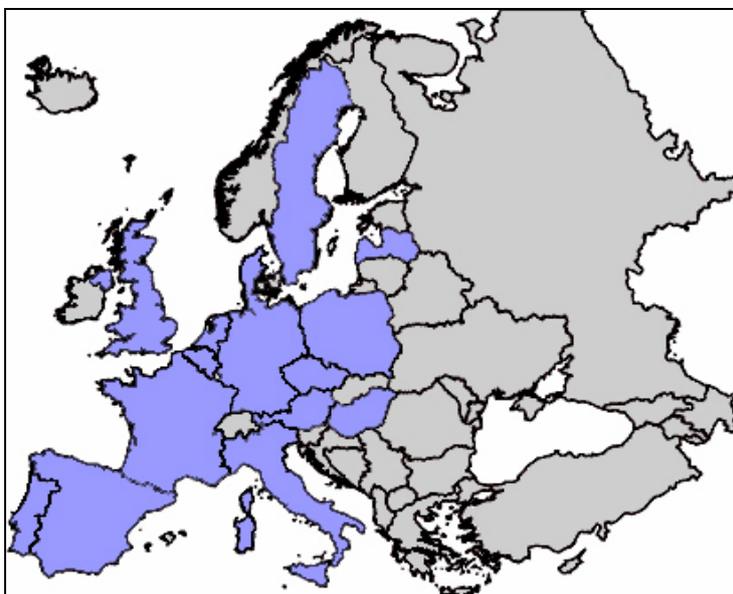
In July 2004, the European Commission sent first warnings to nine out of the EU-15 member states for failure to submit plans and programmes reducing NO₂ and PM, or because the plans submitted were incomplete. These plans based on data of the year 2002 had to be formally submitted to the European Commission by September 2003. The formal notices for missing plans were sent to Austria, France, Germany, Ireland, Italy, Luxembourg, Portugal, Spain and the UK (*CEC 2004b*). None of these countries had submitted plans and programmes to the Commission by December 2003, even though there had been exceedances of limit values plus margin of tolerance. A formal notice for incomplete plans was sent to Greece.

Member states' air quality experts had been aware of the problem of high PM₁₀ concentrations from 1999 onwards. In the year 2005, the topic suddenly featured in the political debate in many member states, because European cities started exceeding the limit values in the first quarter of 2005. By February several cities in northern Italy had already reached their thirty-fifth day of excessive levels, including Turin and Milan. On 12 March, Budapest also reached its thirty-fifth day. By the end of March the limit was reached in the German cities of Munich and Stuttgart, which were soon joined by Berlin and Düsseldorf, and more recently by Leipzig, Hannover, Braunschweig, Dortmund, Dresden and Augsburg (*Elvingson 2005*).

1.2 The Questionnaire

Given the widespread exceedances of PM limit values in Europe we initiated this independent NGO report to analyse how the first air quality daughter directive is implemented in different EU member states. This report is based on the results of a questionnaire which we sent to members of the EEB Clean Air Working Group in April 2005.³ We received responses from organisations in 15 European countries, altogether giving information about and analysing the air quality data and/or the plans and programmes of 30 European cities.

Figure 1. Countries covered by the report



For feasibility and focus we concentrated on one pollutant – PM₁₀, because in this case implementation problems are most evident and the health impacts of particles are severe. We furthermore decided to specifically focus our analysis on cities – because this is where particle pollution is worst and this is also where most air quality management plans are made. We tried to give some background to the national policy context, asking if national policy measures in the member state would help to bring down particle concentrations or if there are policies in place that would lead to an increase of PM in ambient air.

³ Two implementation “snapshot reports” have already been published by the EEB. They analyse the implementation of the water framework directive (*EEB 2005a*) and the implementation of the landfill directive (*EEB 2005b*).

We were interested in a number of key questions related to air quality in the years up to 2005: air quality in the years from 2003 to 2005, accessibility and quality of data, the date when plans were published, the measures contained in these plans and the concreteness of the plans. On the basis of this information we provide an overview of the situation in different European cities and rank them. We asked all participating NGOs to analyse their capital city and furthermore to select at least one other city as they see fit.

The information sources used to answer the questions were:

- the national transposition laws laying down the PM₁₀ limit values
- data on ambient air quality for the capital and/or other cities in the country
- plans or draft plans to improve air quality for the capital and/or other cities in the country
- if available: the national report about plans and programmes that was or will be sent to the Commission

One of the main ideas behind the report was to compare pollution concentrations in the different cities with the air quality management plans that were made in these cities. We tried to get the best data relating to PM concentrations and limit value exceedances. In some cases, however, it was not so easy for the participating NGOs to find out concentration levels or the number of exceedances. While we cannot exclude eventual mistakes, we list the data sources for verification and further information (if they were available on the internet). The assessment of the plans and programmes as well as the national policy measures is a subjective interpretation of our member organisations and the collaborating NGOs, which filled in the questionnaire. It is therefore not conclusive, but it is meant to highlight some key problems with the implementation of this directive as well as good examples that can be seen in this area.

1.3 Participants

We received replies from environmental NGOs in 15 different countries, covering the following cities:

Figure 2. Cities covered by the report

Country	Capital	Other cities
Austria	Vienna	Graz
Belgium	Brussels	Liège
Czech Republic	Prague	Usti nad Labem **
Denmark	Copenhagen **	
France	Paris	Toulouse
Germany	Berlin	Munich, Dortmund, Düsseldorf
Hungary	Budapest	
Italy	Rome	Milan, Naples, Padua
Latvia	Riga	Ventspils, Liepaja *
Netherlands	Amsterdam	Rotterdam **
Poland	Warsaw	
Portugal	Lisbon	
Spain	Madrid	Valladolid
Sweden	Stockholm	
United Kingdom	London	Bristol

* Vor Ventspils and Liepaja only qualitative data was available (in form of NGO comments)

** These cities are not included in figure 6 due to lack of data

Throughout the report the number of cities analysed for certain questions varies. This is due to the fact that not all cities have made air quality management plans or that for some cities we did not have sufficient information regarding certain questions. This means that we refer to different totals depending on the question. We highlight the total number of cities we refer to at the beginning of each interpreting chapter.

All responses were given by environmental organisations. In Austria, Belgium and the Netherlands the questionnaire was answered jointly by two environmental groups (*see Annex I for further detail*). With the exemption of the Czech Republic, respondents in all countries were from at least one EEB member organisation. In the Czech Republic, a collaborating NGO filled in the questionnaire. Four out of 15 responses were from new EU member states (Czech Republic, Hungary, Latvia and Poland).

1.4 NGOs and implementation of the first daughter directive

Generally the implementation of the first daughter directive has quite a high priority ranking among NGOs. Eight out of 15 groups said this issue has high or very high priority for them and some of them have focused on this issue specifically in recent times. For one of the Dutch NGOs answering the questionnaire, for example, it was their main project for the first half of 2005. However the particular NGO focus on the implementation of the first daughter directive varies, depending mainly on the resource capacity of each organisation. In some of these organisations the implementation of the first daughter directive represents a very high priority issue, while in others it is dealt with only occasionally.

2. National measures

2.1.1 National measures complementing local plans to reach PM limit values

In order to get an impression of the national policy context around the implementation of the first daughter directive we have asked the participating NGOs to highlight examples of national policies which relate to air quality management plans at local level. We used an open question to ask about national measures complementing local plans to reach the PM limit values. We received a lot of detailed and very different responses – the most important ones are summarised in the table below. In 13 out of 15 countries, NGOs mentioned national measures which complement local plans to meet the PM limit values. The NGOs from Latvia and Poland however stated that their countries do not implement any national measures to complement local air quality management.

The measures mentioned by the participating organisations can be grouped into three main categories: measures to promote cleaner cars, measures related to energy and industry, and measures to promote sustainable mobility.

Figure 3. National policy measures complementing meeting the PM limit values

Refers to Question 4 of the Questionnaire, table only shows the most frequently mentioned measures

	Cars				Sustainable mobility	Energy and industry	
	Tax reduction and/or other incentives for cleaner vehicles	Green public procurement (clean vehicles for public administrations)	Measures to replace or restrict use of old cars	Retrofitting programmes for existing diesel vehicles and/or industries	Measures aimed at limiting the use of the private car like promoting cycling, car-sharing, use of public transport	Measures to promote renewables and energy efficiency	Implementing existing laws (IPPC/LCP) to control industrial and power plant pollution
Total	(8)	(4)	(3)	(4)	(3)	(5)	(5)
AT	X			X			
BE	X	X			X		
CZ		X			X	X	X
DE	X			X			
DK				X			
ES			X			X	X
FR	X					X	
HU						X	
IT		X	X		X		
LV							
NL	X	X		X			X
PL							
PT	X					X	X
SE	X		X				
UK	X						X

2.1.2 Cars

Tax incentives

Quite a number of the supporting policies deal with providing incentives for cleaner cars. Tax incentives for cleaner vehicles are the policy measures mentioned most often, mentioned by eight NGOs in total. However, the nature of the tax incentives as well as the definition of clean vehicles differ across countries (energy efficiency as well as air pollution aspects are considered):

Comment from the Swedish NGO: *“National actions directly related to the PM limit mainly deal with emission standards on vehicles. There is a proposal – not yet decided – for a reduction of the annual tax on new diesel cars with PM emissions lower than 5 mg/km. In general the Swedish tax system has been very negative for small diesel cars. As a result less than 7% of newly sold cars are equipped with diesel engines. On the other hand the taxation is very generous for lighter diesel trucks”.*

Comment from the UK NGO: *“Tax incentives for cleaner vehicles (Business rates and VED bands). Primarily climate change measures, though some air quality benefits (e.g. 'reduced pollution certificate' scheme)”.*

Comment from the Austrian NGOs: *“From July 2005 the taxes for newly bought diesel-driven cars without particle have filters will be raised, and will be will reduced for cars with filter (“bonus-malus system”)”.*

The Netherlands have introduced a number of different tax incentives:

Comment from the Dutch NGO: *“Starting 1 June 2005 there is a tax incentive for soot filters in new diesel-driven cars by means of the purchase tax on passenger cars and motorcycles (BPM). The extra costs for the soot filter are eliminated by this measure. Furthermore until 2010 the government plans to spend about 300 million euro on incentives for soot filters in new taxis and vans and retro-filters for several vehicles. In 2004*

and 2005 the government will spend about 40 million euro (together) on tax incentives for the earlier introduction of cleaner heavy goods vehicles (Euro 4 and Euro 5). Until 2010 about 24 million euro is set aside for a subsidy scheme with the aim of reducing NO_x emissions from inland shipping. From 2004 onwards there are and will be tax incentives for the purchase of new hybrid and electric cars”.

Related to fuel use the NGO from Portugal reports a vehicle fuel carbon tax, whereas the UK member mentions fuel duty incentives for bio-diesel, LPG and natural gas.

Public procurement

Public procurement as a way of investing in cleaner vehicle fleets is mentioned by NGOs from Belgium, the Czech Republic, Italy and the Netherlands.

Comment from the Dutch NGO: “2005: The national government will be signing a contract for new cars for their own use. The cars need to be of the A, B or C-label (fuel-efficiency) and need to have a particulate filter if diesel-driven”.

Comment from the Czech NGO: “state sponsorship for cleaner public transport (trolley-buses, metro, trams, gas for vehicles)”.

Retrofitting

Retrofitting programmes for existing vehicles and/or industries were mentioned by NGOs from Germany (250 Euro for retrofitting a car), Austria and Denmark:

Comment from the Austrian NGO: “The Environmental Ministry announced plans to allocate 7 million Euro in the next years to subsidize mainly new filters for the industry. This money will be taken from already planned NO_x-reducing measures!”

Comment from the Danish NGO: “A small fund (2 million Euro per year for two years) provides support for installation of particles filters in lorries/trucks (not buses)”.

Comment from the Dutch NGO: “Until 2010 the government plans to spend about 300 million euro on incentives for soot filters in new taxis and vans and retro-filters for several vehicles. Only little soot filters can be placed though with this amount of money”.

Italy, Spain and Sweden also have measures that deal specifically with old cars. However, the Italian and Spanish NGOs point out that these measures are not adequate to deal with the problem:

Comment from the Swedish NGO: “Since 10 years there are also specific regulations which permit local authorities to prohibit (Swedish-registered) trucks older than 8 years to enter the central parts of the larger cities”.

Comment from the Italian NGO: “For 2005 there are some incentives for changing old cars and some money has been made available to renew old buses; the money for this purpose is very small compared to the need”.

Comment from the Spanish NGO: “There is a plan that incentivises buying new cars, but this does not necessarily mean cleaner cars (i.e. 4x4)”.

2.1.3 Sustainable mobility

The Belgian, Czech and Italian NGOs listed quite a number of different ‘soft’ measures aimed at shifting transport modes and limiting the use of the private car. Among other things the measures mentioned are car-sharing (Belgium, Italy), company travel plans, bicycle plans. The Belgian NGOs mentioned the most exhaustive list of measures:

Comment from the Belgian NGOs:

“For Brussels: promote public transport (enforce existing lines; develop new ones; construction of a new regional train to limit the car entrance in Brussels; limit parking inside Brussels and develop parking areas

outside the city near public transport lines); the philosophy is to develop public transport and reduce the private use of cars; car-sharing is developed in Brussels (and also Namur, Dinant); new parking rates; encourage enterprise mobility plans (if more than 200 workers); control of parking and rate-setting by the local authorities (and "0 tolerance"); encourage bicycle with a regional bicycle plan (remark: such a plan has existed now a long time but very few has been done); (...) inform public if air pollution peaks; information to users for "cool" driving and advantage of public transport."

"At federal (national) level: tax-deduction of expenses to go to work not only for cars but also for other transport modes like train, bicycle, bus since 2004."

2.1.4 Energy and Industry

The Czech, French, Hungarian, Portuguese and Spanish NGOs highlighted programmes to promote renewable energy or energy saving and energy efficiency. It should be noted however that biomass-burning is not a strategy to reduce PM emissions. If biomass-burning is included in a country's renewable energy policy, it must be ensured that the use of bio-energy should not contribute to exceeding existing air quality limit values, particularly regarding PM₁₀ (see EEB 2005d).

Furthermore NGOs from the Czech Republic, Portugal, Spain and the UK mentioned the implementation of existing pollution prevention and control legislation such as the IPPC directive or the Large Combustion Plant directive as contributing to meeting the PM limit values.

Comment from the Czech NGO: "It is believed that IPPC helps in energy sector".

While these chapters give some indication in which areas member states' policies complement meeting the PM₁₀ limit values, it is important also to consider the policies that contradict this goal.

2.2 National measures contradicting local plans to reach PM limit values

With another open question, we asked for policies contradicting local plans to reach the PM limit values. Again, a number of measures have been identified by the NGOs, and interestingly most of them are in similar areas as the complementing measures.

Figure 4. National policy measures contradicting meeting the PM limit values

Refers to Question 5 of the Questionnaire, table only shows the most frequently mentioned measures

	Cars	Traffic policy				Energy	Governance
	Low taxes on diesel fuel	Support for expansion of road infrastructure	Investment in road over rail or public transport	No SEA or EIA on traffic policy	Expansion of harbours or airports	Fossil electricity production	Conflict between different levels of government
	(5)	(8)	(3)	(2)	(2)	(2)	(2)
AT	X	X	X	X			X
BE							
CZ						X	
DE	X	X					
DK	X						
ES		X					
FR							
HU							
IT		X	X			X	X
LV		X		X			
NL	X	X	X	X	X		X*
PL							
PT		X					
SE	X	X					
UK	X				X		

*NL: conflicts for instance over speed control on highways etc.

2.2.1 Cars

Dieselisation

NGOs from Austria, Denmark, Germany, the Netherlands, Sweden and the UK identified lower tax rates on diesel fuel as a factor, which contradicts efforts to meet the PM₁₀ limit values. However concerning the actual tax rates as well as the dieselisation of the fleet the situation differs considerably across member states:

Figure 5. Excise duty for motor fuels in EU-25 member states (Situation at 1st May 2004) [EUR per 1000 litre]:⁴

Country	AT	BE	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	SE	SI	SK	UK
Diesel	302	315	245	312	470	406	245	245	294	319	417	335	368	403	245	253	245	246	360	249	308	366	307	351	668
Unleaded Petrol	417	508	299	340	655	539	337	296	396	588	640	459	547	542	287	442	288	310	659	320	523	527	362	376	688

Low sulphur tax rate is shown, if differentiated. For petrol the tax rate for 95 octane is shown. Numbers in italics: several differentiated tax rates apply.

Referring to the dieselisation of their national private car fleet, the UK NGO stated that incentives and targets on CO₂ drive further dieselisation in the UK. The Spanish NGO mentioned that 70% of newly bought cars are diesel cars. Other NGO comments highlight the differences in Europe:

Comment from the Danish NGO: *“The tax structure enhances the use of diesel cars – although not as much as in some member states, because the registration tax in Denmark is higher for diesel cars, while the diesel tax is lower. Tax on diesel should only be lower than on gasoline, if the diesel car is equipped with particle filter and NO_x reducing equipment.”*

Comment from the Dutch NGO: *“Only 25% of newly bought cars are diesel cars, the percentage is increasing though. There is a high purchase tax for diesel cars. However, this purchase tax does not apply to vans and trucks. Almost all vans and trucks in the Netherlands are diesel-driven. Compared to Germany diesel tax is ten eurocents per litre lower in the Netherlands. There is also no kilometre charge for trucks in the Netherlands, in Germany there is.”*

In another tax-related issue the Belgian NGOs described how their taxation system subsidises 4x4s:

Comment from the Belgian NGOs:

“There are more than 6 million vehicles now in Belgium and for 100 new cars, 45 are business cars and 20 leasing cars for long-term. The federal government (which has the competencies for tax incentives) has implemented this year a tax on enterprise cars but only for CO₂ emissions. There are also discussions about the advantage for utility cars which have only 6% VAT (the others have 21% VAT) and 4x4s are considered as “utility” cars. The 4x4s have no tax when you buy it (the others have a “beginning” tax), a lower annual circulation tax than the others, the VAT is from 6 % and the fiscal deductibility is from 100%. And the federal government decided...not to decide! It is still in discussion”.

If one compares the answers on measures which complement and contradict local plans to meet PM limit values, it is striking that in some countries (Austria, Germany and Sweden) lower tax rates on diesel compared to petrol fuel coexist or will coexist with national tax incentives for less polluting diesel vehicles. One of the main reasons for tax incentives for cleaner diesel cars is certainly that new emission limit values for new diesel vehicles (EURO 5) have still not been decided by the EU institutions – even though they have been announced for a long time. It is important that these limit values are set at a level which will make good particle filters as well as NO_x after-treatment mandatory.

⁴ EEB (2005): Stop Subsidies Polluting the World: Recommendations for Phasing-out and Redesigning Environmentally Harmful Subsidies, Publication by the European Environmental Bureau with the assistance of its Working Group on Environmental Fiscal Reform, February 2005, p.14 http://www.eeb.org/activities/env_fiscal_reform/stop-subsidies-polluting-world-December04.pdf

2.2.2 Unsustainable mobility

The main problem identified by most NGOs is a transport policy which accepts and actively fosters increasing levels of traffic. The Czech NGO simply summarised the situation in their country by stating: “missing transport policy”.

Bad example Spain

It is worth highlighting the Spanish situation in this chapter, because it is a particularly bad example:

Comment from the Spanish NGO: “A plan dealing with transport infrastructures which is currently under debate, contains this proclaimed environmental objective: “to reduce by 2010, 50% of the air quality limit exceedances in the cities” and “to meet European air quality directives by 2015 (!!!!) for 90% of the population”. This plan does not say a word about how to achieve this air quality objective, and since its main target is to spend 240,000 million € in building new transport infrastructures (2005-2020), it will surely worsen the situation, promoting more and more car use”.

The fact that the plan specifically mentions the objective to meet European air quality directives for 90% of the population by 2015 shows a startling disregard for European environmental law. The PM₁₀ limit values entered into force in 2005 and need to be met everywhere in ambient air in 2005. Spain is bound by these laws just like every other EU member state. It is unbelievable that it is apparently possible in Spain to formulate a policy objective which clearly contradicts European law.

The Spanish NGO was therefore most critical when answering the question regarding contradictory measures:

Comment from the Spanish NGO: “There is no contradiction between national and local level measures to reach the PM limit values, because there is no plan at any level to reach the PM limit values.

At the local level there is no Action Plan in the vast majority of Spanish cities. The Spanish authorities are not doing anything at all to solve this situation; they are not taking any position on it. Furthermore, the national and local policies regarding urbanism and transport in Spain both go in the direction of worsening the problem.”

Financing road infrastructure with EU money

The Latvian NGO highlighted specifically that current infrastructure projects financed by EU money will contribute to increasing PM₁₀ levels in the city of Riga:

Comment from the Latvian NGO: “New roads and bridges that surely will increase air pollution in Riga are built by EU money: Cohesion Funds, and particularly Ten-T. Riga is exceeding EU PM₁₀ rules on the main street, Brivibas Street, and really is not doing anything impressive about it. It is ignoring NGO and public concerns, and being very passive how they will fight air pollution in the future – by 2009.

On Sept 29.-30 in Brussels at the meeting of the Transport sector the (Ten-T) financial support Committee meeting of European Communication Network approved the project “Riga city and Riga port integration into the Ten-T network”. The project plans to use 4 million Euro of EU and 4 million Euro of Riga City money to invest in more roads, tunnels, and a major development doubling Riga’s same main Brivibas Street that already has way more air pollution (including Pm10!) from traffic that it should. This is clearly outrageous from ecological and common sense and civic point of view, and just illustrates how EU Cohesion Funds, particularly Ten-T are used, and how environmental criteria and even EU directives like Air Quality directive are taken into account while taking EU Cohesion Fund financing decisions.

One suggestion to avoid this would be auditing for air quality implications and doing proper air quality Strategic Environmental Assessments or Environmental Impact Assessments for all Cohesion fund projects, especially close to exceedance zones”.

The Latvian NGO demands that the EU puts a hold on the financing of planning or building more roads, bridges, and tunnels within cities with EU money – until the air quality directive requirements within cities are met.

Growing traffic volumes and support for expanding road infrastructure

The problem of growing traffic volumes has been mentioned specifically by the Swedish NGO, as well as addressed by the Latvian NGO. The Portuguese NGO has highlighted the problem of further road building in the Lisbon area. National traffic plans have been identified as problematic by Austrian, German, Dutch, and British NGOs.

Comment from the UK NGO: *“Transport White Paper supports major road expansion (The Future of Transport, July 2004).”*

Comment from the Dutch NGOs: *“The proposed policy allows car traffic to increase up to 20 percent in the coming 15 years. The transport sector (trucks and shipping) is predicted to grow even more, between 40 and 80 percent. A lot of this growth is caused by building more roads. The National Traffic plan also contains plan to expand the harbour of Rotterdam.”*

Investment in road infrastructure over other modes of transport

The Italian and the Dutch NGOs specifically pointed out investment policies that favour road building over other modes of transport:

Comment from the Italian NGO: *“Priority for public investment for the years to come is a road implementation plan. Railroad maintenance and fostering is not a priority. The bridge between Sicily and the mainland is drawing almost all financial resources from public investment in trains and railroad network”.*

Comment from the Dutch NGOs: 2003-2005: government decides to spend 1.200.000.000 Euro extra on more lanes for highways. 2003: government decides to spend 300 million euro less on subsidising trams and buses the coming four years. 2005: National Traffic Plan for the years 2010-2020 is made known to the public. From 2010 to 2020 the Dutch government wants to spend 22 billion Euro on building new highways and adding lanes to existing four and six lane highways. In the same period there will be no projects to expand train infrastructure.

No Impact Assessments for road building

Three NGOs have highlighted that the directives on Strategic Environmental Assessment or Environmental Impact Assessments are not implemented with regard to road building or the national traffic plan as such. The Directive on Strategic Environmental Assessment (SEA – 2001/42/EC) aims to *‘provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that (...) an assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment’*. Unlike project level Environmental Impact Assessments (EIA – 85/337/EEC), which primarily concerns private developers, the SEA Directive relates to plans and programmes prepared by public authorities.⁵

Comment from the Austrian NGOs: *“No SEA on federal traffic-policy plan!”*

Comment from the Dutch NGO: *“No SEA on National Traffic plan, though the plan outlines traffic policy and infrastructure plans for the period 2005-2020.”*

Comment from the Latvian NGO: *“Building new roads and not doing EIA about impact of increased traffic to people health and nature.”*

It must be verified, if the SEA directive applies in these cases as it is not applicable to plans which started before 21 July 2004. However, it is applicable to plans which started before 21 July 2004 but where planning takes longer than 21 of July 2006 (2001/42/EC, Art.13). The three cases mentioned by the NGOs merit closer investigation. They indicate that that environmental impact assessments or strategic environmental assessments seem not to be applied consistently in all cases. As the environmental assessment directives were specifically designed integrate environmental concerns into sectoral policies and projects, it is

⁵ For further reference see: *Ekmetzoglou-Newson (2005): The EIA directive* as well as *Hoedeman (2005): The SEA Directive*, both in: *EEB (2005c)*.

important that programmes such as traffic plans which will have significant effects on the environment are fully included in the assessment.

Other traffic policy measures

The Dutch and British NGOs also specifically mentioned the expansion of airports or harbours. In addition to that, the Dutch NGOs criticised to increasing car-dependency as a result of a cut in rules for spatial planning.

2.2.3 Energy

Two NGOs referred to energy production as contributing to air quality problems. The Czech NGO mentions a low level of renewable energy sources in the national energy strategy, while the Italian NGO points out that the main Italian power supplier (ENEL) is planning to step back to coal for electricity generation.

2.2.4 Policy competencies

Three NGOs from federal countries (Austria, Italy and the Netherlands) referred specifically to problems arising from conflicts in policy competencies between the regions and federal level.

Comment from the Austrian NGOs: *“Discussions and recriminations between federal and regional governments as regards responsibilities for air plans and programmes. The national act implementing air quality directives states clearly that regional governments are responsible for air quality plans and programmes (measures, low emission zones). Some measures (like taxation, financial incentives, transport and traffic SEA planning, some kind of traffic restrictions) can only be done by the federal state due to constitutional reasons”.*

2.3 Conclusions

A number of conclusions can be drawn from the answers to these open questions. First of all it is encouraging that most NGOs were able to identify national policies that complement the goal of meeting the PM₁₀ limit values. The most popular measures are incentives for cleaner vehicles as well as implementing EU-wide directives to control industrial emissions, but also retrofitting programmes as well as clean public procurement were mentioned often. This shows that both national as well as EU-wide measures can contribute to meeting the limit values.

The picture becomes darker, however, when this is compared to policies which contradict meeting this aim. From the replies received to this question it is clear that the problem of unsustainable mobility is far from being solved. On the contrary, many member states' policies actively foster environmentally harmful trends in transportation. Only two NGOs mentioned policy measures which contribute to more sustainable modes of transport. The policies directed at promoting sustainable mobility mentioned by these two NGOs clearly seem inadequate, if the general trend of national transport policy in EU member states is directed towards further fostering the use of the private car.

Two issues can be identified as most worrying:

- 1) an overall investment policy that is geared to further road expansion
- 2) infrastructure projects in areas with PM exceedances are financed with EU money

Many NGOs have highlighted that their countries continue with an overall investment policy geared to further road expansion. From our responses, the Netherlands and Spain are the most outstanding examples in this respect. While on the one hand the Dutch government plans to invest some 300 million Euro in subsidizing soot filters in taxis and vans, on the other hand it plans to spend 22 billion Euro on building new highways and adding lanes to existing highways. Similarly the Spanish government plans to spend 240 billion Euro on building new transport infrastructures, while at the same time formulating policy-objectives, which are in blatant contradiction with European law.

In addition to that the three cases related to the application of the environmental impact directives merit closer investigation as they were specifically designed integrate environmental concerns into sectoral policies and projects. It is therefore important that programmes such as traffic plans which will have significant effects on the environment are fully included in these assessments.

Not only is member states' overall investment policy geared towards further road expansion – sometimes it is even financed with EU money. The TEN-T project in Riga is a perfect example of how wrongly guided infrastructure investment can contribute to further exacerbating the problems of high PM₁₀ concentrations. The Latvian NGO demands that the EU hold financing planning or building more roads, bridges, and tunnels within cities by EU money until air quality directive requirements are met.

Reducing air pollution emissions of the car fleet is another area which merits special attention. On this issue it is obvious that the member states' competencies regarding the introduction of cleaner new diesel cars are severely limited. Here the Commission has clearly failed to deliver a proposal for new emission limit values for light duty vehicles on time (EURO 5), despite earlier announcements to adopt a proposal in the first half of 2005. While EURO 5 is still in the political decision-making process, the only tool that is available to member states at the moment is giving tax incentives to equip cars with particle filters. However, many member states have also contributed to the problem of rising PM emissions from passenger cars and heavy duty vehicles by subsidising diesel fuel.

Another example of contradictory policies can be found in the Netherlands, where ship emissions cause a significant share of transport emissions (*RIVM 2002*). This is recognised by the Dutch government in their programme to reduce emissions from inland shipping. The Dutch NGOs mention “about 24 million Euro is set aside for a subsidise scheme with the aim of reducing NO_x emissions from inland shipping”. On the other hand “the national Traffic Plan also contains a plan to expand the harbour of Rotterdam”. Ship traffic to and from the Rotterdam harbour is the biggest single source of air pollution in the Rotterdam region.

Particulate matter is a transboundary pollutant which can be transported over thousands of kilometres. It is evident that it will be difficult to improve air quality with local air quality management if the overall transport policy is geared towards ever increasing transport levels and lacks policies, which internalise the true costs of transport. The missing integration of environmental concerns into national transport policy as well as into EU infrastructure spending is a crucial structural problem, which hampers the good implementation of this directive.

3. Quality of implementation in cities

3.1 Air quality

This chapter summarises the results of the air quality data we obtained through the questionnaire. As a first question, we asked the participating NGOs how many exceedances of the daily limit value plus margin of tolerance were recorded in their cities in the years 2002 to 2004.

3.1.1 Margins of tolerance

The margin of tolerance for PM₁₀ was in force between 1999 and 2004, before the PM limit values became binding in 2005. A margin of tolerance defines a pollution concentration, which – if surpassed – triggers the making of plans and programmes to reduce air pollution. The daily limit value for PM₁₀ is 50 µg/m³ as of 1 January 2005 and is not to be exceeded more than 35 days per year. The margin of tolerance started at 75µg/m³ in the year 1999, reducing every year by 5 µg from 2001 onwards to reach the daily limit value of 50 µg/m³ in 2005 (*for further details see Annex II*). This mechanism was introduced to give member states a tool for judging when it was necessary to introduce PM₁₀ reduction programmes in order to meet the limit values by 2005. In case the concentration rested under the margin of tolerance, no plans were needed because it was assumed that the limit values would be met without additional local action.

A shortcoming of the directive is that the actual levels of the margins of tolerance are not directly mentioned in the legislative text. Instead the directive's Annex gives a formula how to calculate it: "50% on entry into force of this Directive, reducing on 1 January 2001 and every 12 months thereafter by equal annual percentages to reach 0% by January 2005" (*1999/30/EC, Annex III*).

By doing this survey, we noticed that there is very little knowledge among the general public as well as among NGOs about the margins of tolerance and when they are applied. Furthermore it seems that information about margins of tolerance being exceeded was not always easy to come by.⁶ In the current directive text member states are only obliged to indicate whether limit values and/or alert thresholds are surpassed. Furthermore, air quality management plans also need to be made available to the public. But according to the legislative text, an exceedance of the margin of tolerance does not explicitly need to be communicated to the public. This is a clear shortcoming because this information is essential for the public to be able to assess whether or not authorities are required to reduce pollution. Furthermore it should also be mandatory to communicate clearly that when limit values plus margin of tolerance are exceeded, it is obligatory to draw up air quality management plans.

3.1.2 Exceedances of daily and annual limit values plus margin of tolerance

Our results show that exceedances of the daily PM₁₀ limit value plus margin of tolerance are a problem in almost all of the cities analysed. We obtained the detailed number of exceedances for 24 cities. The data showed that in 96% of the cities (23), the daily limit value plus margin of tolerance has been surpassed on more than 35 days in at least one year between 2002 and 2004 (*for detailed results see Annex III*).⁷ The only city, which does not show more than 35 exceedances in any year, is Toulouse. This means that 96% of the cities analysed were above the limits on more than 35 days in at least one of the years leading up to 2005. Furthermore eleven cities have measured more than 35 exceedances in all three years. These cities are **Vienna, Graz, Brussels, Berlin, Rome, Padua, Milan, Riga, Lisbon, Stockholm and London**. In addition to that it is likely that Budapest and Warsaw also belong to the group of cities that exceeded in all three years, given their very high number of days exceeding the daily limit value plus margin of tolerance in some years. However the NGOs in these countries could not provide us with the data for all years.

⁶ The clarity by which margins of tolerance are communicated to the public varies from place to place. In Spain for instance our colleagues could not find any information on margins of tolerance and had to calculate the number of exceedances themselves. In Berlin, however it was easy for our partner NGO to retrieve the number of days above the limit values plus margin of tolerance. The number of days above limit value plus margin of tolerance were also clearly highlighted in air quality data from Toulouse.

In Budapest, the directive has not been implemented properly, because measurements did not start before 26 June 2003. Nevertheless 73 exceedances were already recorded in one measurement station until the end of 2003 and 142 exceedances were measured in 2004. In Warsaw 246 exceedances were recorded in 2002, compared to 265 exceedances in 2003. For 2004 no data is available yet.⁸

Similar results have been found regarding the annual average for PM₁₀. For the year 2004 the limit value plus margin of tolerance was set at 45 µg/m³. In the year 2002 it was fixed at 42 µg/m³. For 26 cities we have received data about the annual average concentrations. 73% of these cities (nineteen cities) have also exceeded the annual limit values plus margin of tolerance for PM₁₀ for at least one year in the period 2002-2004 (*for detailed results see Annex III*). Regarding the annual limit values, the problem is most persisting in Graz, Brussels, Rome, Naples, Padua, Milan, Riga and Lisbon. These cities have exceeded the annual average plus margin of tolerance in three consecutive years.

In **Graz, Brussels, Rome, Padua, Milan, Riga** and **Lisbon** both the annual limit values plus margin of tolerance as well as the daily limit values plus margin of tolerance have been exceeded in all three years. In addition to that, **Warsaw** and **Budapest** are also very likely to show consistently high values. However, for these cities consistent data-sets were not available for all three years. **Warsaw** shows exceptionally high annual averages of PM₁₀: 85 µg/m³ in 2002 and 122 µg/m³ in 2003. The annual average concentration is thus almost three times than the allowed concentration for 2003. For **Budapest** no annual average data was available. However, the high numbers of exceedances of the daily limit value make it likely that the annual average has also been exceeded.

The scope of our analysis is too small to conclude which are the most polluted cities in Europe. But this snapshot of the air quality situation in different European cities indicates that in **Graz, Brussels, Rome, Padua, Milan, Riga** and **Lisbon** there are particularly difficult and persisting air quality problems. Furthermore we conclude that persistently high levels of PM concentrations are likely to also occur in **Warsaw** and **Budapest**.

3.1.3 Conclusions

- 96% of the cities analysed in our sample have recorded at least one exceedance of the PM₁₀ limit values plus margin of tolerance in the years 2002 and 2004. The only exception is Toulouse, which neither exceeded the daily nor the annual limit values plus margin of tolerance.
- Regarding the annual average concentrations, a similar picture can be seen. Here 73% of the cities analysed exceeded the limit values plus margin of tolerance for PM₁₀ for at least one year in the period 2002-2004.
- **Graz, Brussels, Rome, Padua, Milan, Riga**, and **Lisbon** reported exceedances of both the daily as well as the annual limit value plus margin of tolerance for all three years. This indicates that there are particularly difficult and persisting air quality problems in these cities. Because of their very high number of daily exceedances and/or high annual average levels, it is likely that **Warsaw** and **Budapest** also belong to the group of extremely polluted cities. However, this could not be assessed as for these cities not all of the data was available for all three years.

3.2 Quality and transparency of public information

3.2.1 Have plans been made?

One of the key objectives of our questionnaire was to analyse whether local authorities and responsible administrations have reacted early enough to prevent exceedances of the limit values in 2005. It is therefore important to combine the data on exceedances with the question, when a plan or programme was made. We asked the participating NGOs whether a plan or programme was made in their cities, and if so when it was made available to the public.

⁸ However, the Polish NGO puts a caveat on the data from Warsaw. Comment from the Polish NGO: "The extremely high values reported for Warsaw are derived from a computer model as well as from measured concentrations in the area of the Mazowieckie Voivodship. There might be some inconsistencies with the Warsaw data".

Figure 6. Exceedances of daily PM₁₀ limit value plus margin of tolerance in European cities and availability of air quality plans

Refers to Question 7, 10 and 12 of the Questionnaire

Cities arranged chronologically after plan release dates, for detailed Air Quality data see Annex III

	City	More than 35 days in 2002?	More than 35 days in 2003?	More than 35 days in 2004?	More than 35 days above legally binding limit value in 2005?	Plan and/ or programme adopted before 2005?	Date of plan
1	Toulouse					not needed	
2	Brussels	✓	✓	✓		☺ Yes	11/2002
3	Padua	✓	✓	✓	✓	☺ Yes	09/2002
4	Rome	✓	✓	✓	✓	☺ Yes	09/2002
5	Milan	✓	✓	✓	✓	☺ Yes	09/2002
6	London	✓	✓	✓	✓	☺ Yes	09/2002
8	Stockholm	✓	✓	✓	✓	☺ Yes	?/2003
7	Liège	✓	✓	?	?	☺ Yes	12/2003
9	Warsaw	✓	✓	?	?	☺ Yes	12/2003
10	Bristol		✓			☺ Yes	04/2004
11	Riga	✓	✓	✓	✓	☺ Yes	07/2004
12	Munich	?	✓	✓	✓	☺ Yes	09/2004
13	Graz	✓	✓	✓	✓	☺ Yes	10/2004
14	Berlin	✓	✓	✓	✓	☹ No	02/2005
15	Vienna	✓	✓	✓		☹ No	03/2005
16	Düsseldorf	?	✓	✓	✓	☹ No	04/2005
17	Dortmund	?	✓	?	✓	☹ No	05/2005
18	Lisbon	✓	✓	✓	?	☹ No	06/2005
19	Amsterdam*	✓	✓	✓	?	☹ No	09/2005
20	Prague	?	✓	?	✓	☹ No	
21	Budapest	?	✓	✓	✓	☹ No	
22	Paris		✓	✓		☹ No	
23	Madrid			✓		☹ No	
24	Naples **	✓	✓	✓	✓	☹ No	
25	Valladolid		✓	✓	✓	☹ No	

* After many years of exceedances Amsterdam published a plan in September 2005. However, this is still a draft plan, as the local government has not yet decided on the plan.

** The data for 2003 and 2004 are from different monitoring stations. No consistent dataset for exceedances of the daily limit values plus margin of tolerance was available. However, more than 35 exceedances have been recorded at least one monitoring station in Naples in both 2003 and 2004. Furthermore the annual limit value plus margin of tolerance has been exceeded in at least one monitoring station in Naples every year.

Cities which have not adopted a plan before 2005

This figure combines answers to three different questions in the questionnaire. As highlighted in Figure 2, Copenhagen, Usti nad Labem, Rotterdam, Ventspils and Liepaja are not included in this table due to lack of air quality data. We received sufficient data to answer all of these questions for 25 cities in total. Twenty-four cities exceeded the limit value plus margin of tolerance in the years leading up to 2005. Out of these 24 cities, twelve have not adopted an air quality management plan before 2005. This is against the requirements of the directive, as the plans and programmes are intended to “meet the air quality limit values by 2005” (CEC 2005d).

Bad practice

Berlin, Vienna, Lisbon and Naples are bad examples. Even though they already had exceedances in 2002 they did not adopt any air quality management plan before the year 2005. **Lisbon** stands out most negatively in this group, because pollution concentrations have been very high and they have been consistently so: not only the daily, but also the annual limit value has been exceeded regularly since 2002. Lisbon is therefore also very likely to breach the PM₁₀ limit values for 2005.

Some cities have still not made any plans, even though they have already exceeded the limit value for 2005.

Very bad practice

Prague, Budapest, Paris, Madrid, Naples and Valladolid are particularly bad examples, as they have already exceeded the limit value for 2005, yet still no plan or programme had been adopted by June 2005. In the case of Budapest and Valladolid, the exceedances have already occurred in 2003 and 2004, so the need to adopt a plan should have been obvious. Furthermore the Hungarian NGO criticised that Budapest has only started monitoring in mid-2003, so no annual average concentration is available for 2003, nor any data for the year 2002. In Valladolid up to 112 exceedances of the daily limit value plus margin of tolerance have been recorded. These exceedances occurred after the discounting of desert dust, which the Spanish NGOs found to be done in a very non-transparent way.

The Austrian NGOs generally criticise that even though many areas in Austria have now been declared “air quality management zones”, due to the exceedances in many parts of the country this does not lead to concrete action to reduce air pollution.

Comment from the Austrian NGOs: “There are a lot of exceedance areas. Though exceedances were known for some years already and the national air-act and EIA-act stated that regional governments have to declare these areas to air quality management zones (Sanierungsgebiete) after exceedances, almost nothing happened. Only in the last 12 months regional governments started to declare air quality management zones, though without concrete and actual plans. There are air quality management zones in ALL regions of the country now. But only in Graz and Tyrol does this lead to some traffic restrictions as regards PM.

If an air quality management zone has been declared, plans and programmes for reducing exceedances are mandatory for regional governments due to national air legislation. With delay, there are now some plans around, but they are implemented, only very selectively; no comprehensive approach at all. You find some plans for (further) restrictions in Vienna, Graz, Tyrol, Salzburg (not sure about the others). But these plans are very selective, not comprehensive and not concrete at all”.

Cities which adopted plans and programmes in 2004

Three cities adopted plans in 2004. It is worth pointing out the example of **Graz**, which also responded to the air quality problem with considerable delay. Graz has exceeded both the daily as well as the annual limit value every year leading up to the year 2005. Graz reported 131 exceedances of the limit value plus margin of tolerance both in 2002 and 2003. Also peak levels were very high: the highest daily average level was 229 $\mu\text{g}/\text{m}^3$ in 2002, more than 3 times the concentration that would have been allowed in 2002 (*for detailed results see Annex III*). However, the region of Styria only adopted an air quality management plan in October 2004, two months before the PM limit values would enter into force.

Cities which adopted plans and programmes in 2003

As far as the making of plans and programmes is concerned, **Liège**, **Stockholm** and **Warsaw** are relatively good examples, as they all adopted plans and programmes in 2003. Warsaw also stands out, because it registered particularly high PM concentrations. Warsaw has significantly exceeded both the daily as well as the annual limit values plus margin of tolerance in the years 2003 and 2004. Warsaw was the city in our analysis which reported the highest number of exceedances of the daily limit value plus margin of tolerance as well as the highest annual average concentrations of PM_{10} (*See Annex III*).

Cities which adopted plans and programmes in 2002

Good practice

Brussels, **Milan**, **Padua** and **London** are good examples as regards the adopting plans and programmes. Their plans and programmes were published in the year 2002.

Brussels, Milan, Padua and London demonstrate that there is considerable difference in how the cities from our sample deal with the making of plans and programmes, as these cities have adopted plans early. They also belong to the nine cities which exceeded both daily as well as annual limit value plus margin of tolerance in all three years leading up to 2005.

A surprising outcome of this table is that even though some cities already adopted plans in 2002, pollution levels remained high in the years after 2002. They continued to exceed limit values plus margin of tolerance in the years after the plan was published. This suggests that the measures in the plans were probably not sufficient to deal with the problem or that the plans were not implemented adequately. When analysing plans and programmes it is therefore important to evaluate whether measures were implemented and to compare the projected effects of the measures with their real effects.

Furthermore it seems sensible to introduce a systematic evaluation mechanism for the plans and programmes once they have been adopted. If the limit values plus margin of tolerance continue to be surpassed after the adoption of the plan, it is necessary to analyse why this is the case. Depending on the result of this analysis a city should be required to improve the implementation of the plan or to adopt additional measures with the aim of meeting the limit values by the year they enter into force. For this analysis it is essential that each plan contains a chapter, which projects the likely effect of different measures on the concentrations of PM_{10} .

Limit value exceedances in the year 2005

Fourteen cities have already exceeded the daily limit values more than 35 days in the first half of the year 2005. The exceedances seem to be irrespective of the year in which the plans and programmes were adopted. Even cities, which have adopted plans in 2002 have breached the legally binding limit values already in the first half of 2005. It seems like the air quality plans of **Brussels**, **Padua**, **Milan** and **London** for example did not reduce PM as much as necessary, because these cities still exceeded annual limit value plus margin of tolerance also in the years after adoption of the plans. Therefore it is important to further analyse the content of the plans and programmes.

3.2.1.1. Conclusions

- 50% of the cities analysed here did not make plans before the year 2005, even though they had exceedances of the limit value plus margin of tolerance for at least a year before this time. This is clearly against the requirements of the directive, which stipulates that plans and programmes have to be made in order to meet the legally binding limit values by 2005. Some cities, which have already exceeded the legally binding limits in the first half of 2005, have still not adopted any plans to reduce PM_{10} .

- There was considerable difference between the cities which had showed consistently high PM₁₀ levels in the previous chapter: Graz, Brussels, Rome, Padua, Milan, Riga, Lisbon and London. **Brussels, Padua, Rome, Milan** and **London** come out as good examples for having made plans as early as 2002. **Lisbon** comes out as worst example for not having made any plan before 2005. Neither do **Graz** or **Riga** score very well, having made plans in the second half of 2004 only, despite recurring exceedances since 2002. Similarly, **Prague** and **Budapest** – both cities where we suspect high pollution values throughout the years – are bad examples for not having made any plan before 2005.
- Out of the 25 cities analysed, fourteen have already exceeded the daily limit values more than 35 times in the first half of 2005. These exceedances occurred irrespective of when the plans were adopted. Even the cities which made early plans continued to exceed limit values plus margin of tolerance in the years after the plan was published. This means that the measures in the plans were probably not sufficient to deal with the problem or that the plans were not implemented adequately. When analysing plans and programmes it is therefore important to evaluate whether the measures were implemented adequately.

Recommendations

The projected outcome of the plan should be compared with a systematic ex-post evaluation of the effect of the different measures. This is necessary to verify whether the measures in the plan have had the desired effect. If it is found out that they have not, there the plan should automatically have to be reviewed. The city should be required to ensure that measures are better implemented and/or additional measures are adopted with the aim of meeting the limit values by the year they enter into force.

3.2.2 How easy is it to access air quality data?

The provisions for public information are an important component of the directive. Citizens have a right to know the PM₁₀ concentrations in their city, particularly as they affect their health. The directive states specifically that air quality data should be accessible, clear and comprehensible. We therefore asked the participating NGOs to rate the data quality according to these criteria.

When presenting the results, we kept the order of the previous table, i.e. starting with the cities that made plans or programmes in 2002 and ending with cities that have not made a plan or programme yet. By always keeping the same order it is easier to compare the information between the different tables as well as see whether or not there are any relationships between the previous question and this one.

Figure 7. How easy is it to access the data?

Refers to Question 9 of the Questionnaire. Same order as in figure 6 (chronologically adoption date of plans).

Accessibility is rated as: Very good: 😊 😊, Good: 😊, Moderate: 😊, Bad: 😞, Very bad: 😞 😞

		Access to data	Comments
1	Brussels	😞	The measurements for 2003, 2004 and 2005 were not accessible. Also the "highest level for 2002" was not found on the net. It was necessary to call the laboratory to have the answers.
2	Rome	😊	
3	Padua	😊 😊	On the internet site of the Regional Agency for Environment Protection you can easily find all data. There is a lot of information about air pollution. We discussed a lot with the Regional Agency for the availability of the data. Now on the website you find the information about pollution but not how to fight pollution! No other mass-media but the internet inform citizens about the pollution ratio and about measures to take to limit health risks.
4	Milan	😊	The data are made available on a provincial basis and in user-unfriendly layout. One has to look for the data he/she is interested in by looking up the codes of the monitoring stations. From there one needs to do a series of redundant and complicated tasks:

			such a situation is severe barrier for the full access of data for common citizens and non-professional internet surfers.
5	London	☺	UK national network data is archived nationally by NetCen, hosted by AEA technology. The data is accessible via the internet (www.airquality.co.uk). If you know what you are looking for the database is relatively easy to use. It could potentially be more user-friendly/flexible, especially for non-experts. Further city level data is available from local network or local authority sites. Often there is good air quality information. It is based upon local monitoring networks as well as national network sites. These sites can give a more detailed picture of air quality for a given city. Websites generally have helpdesks or email addresses for more detailed enquiries.
6	Liège	☺	
7	Stockholm	☺ ☺	Accessible on the web
8	Warsaw	☺	The data of 2002 are derived from the programme to protect ambient air; the data of 2003 – from the annual assessment of the quality of ambient air in the Mazowieckie Voivodship.
9	Bristol	☺	
10	Riga	☺	The limits are accessible online only for the following 10 days. Older data are not available online and are available only on request from municipality.
11	Munich	☺	Up-to-date daily concentrations are only online for 5 days.
12	Graz	☺/☹	Online data good to obtain, "historical" data not as good to get. Almost impossible to get a statistical overview. There is a lot of information in the web, but not the relevant and summarised data.
13	Berlin	☺	Berlin is both a city and a region (Land). This means the data is better than for other German cities (as the measurement networks in Germany are managed by the regions).
14	Vienna	☺	
15	Dortmund	☺	
16	Düsseldorf	☺	
17	Lisbon	☺	
18	Prague	☺ ☺	Per internet but frequency of exceedances is available in the yearbook only.
19	Amsterdam	☹	For 'normal' citizens, the information is very difficult to get. With a lot of determination, a 250-page report can be found on the internet. Amsterdam doesn't present the results openly, for example no press releases.
20	Budapest	☺	
21	Paris	☺	
22	Madrid	☹	The air quality data is posted on the website of the city council. It is difficult to find the data. There is no direct link to the air quality data in the homepage: you have to click five links to access the air quality data from the homepage, and it is not very intuitive (the first link you have to click is "city council services"). Interestingly, in the English version of the website is much easier: you find a link called "Pollution levels" in the homepage, which leads you directly to the air quality data (which is in Spanish). It seems the local authorities consider tourists are more sensible to environmental issues than the citizens of Madrid.

23	Naples	😊😊	The Regional Agency for the Environment sent me the relevant data. It only took 76 minutes.
24	Valladolid	😊	Maximum and minimum daily data are published in the website of the Municipality of Valladolid, next day or several days after being processed. Live (real time) a graph can be found on the web showing the evolution of pollution in the previous 24 hours, BUT without numbers. Local authorities provide comprehensive statistics to those citizens and organisations who request, but there is no possibility of downloading such data from the internet.
25	Copenhagen	😊	

The authorities of Madrid only publish the 'raw' pollution data. The Spanish NGO described in detail what this means if they want to check for exceedances:

Comment from the Spanish NGO: "The only information found in the web is the daily average data of each station (on several pollutants, PM₁₀ among them). The information of each day is available on the web during five days; after that, there is no way to check it. So, if you want to control the pollution, you need to check the web every day or, at most, every five days, write down the values, and at the end of the year (we do it almost every month), check how many exceedances there were, compare it with the directive requirements, and with that, finally find out if there was a bad air quality situation in your city during that year.

So, there is no information on the exceedances. An ordinary citizen checking the web who is not used to or related with these issues, will never know whether its city is having a bad air quality situation in reference to the EU legal framework. At the end of the year the municipality issues a report saying how many exceedances took place, but always gives the information already discounting the Saharan dust intrusions, so it seems like Madrid breathed pure air, in terms of PM₁₀, during the whole year".

As far as accessibility of air quality and exceedance information is concerned Germany deserves to be mentioned as a positive example:

Good practice:

Germany: Germany has a "hit-list" of cities showing the number of exceedances of the daily PM₁₀ limit values. See: <http://www.env-it.de/luftdaten/trsyear.fwd>

The Latvian NGO is generally critical of the accessibility of data in Latvia:

Comment from the Latvian NGO: "Currently, the air quality data availability to public it is not good enough (hardly good enough at all for general public without previous analytical training). Guidance from EC of mandatory data representation set using best available samples could help substantially to explain AQ directive! Latvia in three cities (Riga, Ventspils, Liepaja) has five PM₁₀ measuring stations out of which four are operating regularly. Air quality policy of Ventspils can be taken a good example but even there data availability to public is not adequate also in this case".

In addition to problems with data accessibility they also raise attention to problems with the national air quality monitoring network:

Comment from the Latvian NGO: "In addition to that our NGO would like to seek EC guidance in unified praxis of independent, uniform and regular PM₁₀ apparatus calibrating and maintaining standards (ours most likely are not..). Ideally, this should be contracted by EC to a qualified mobile laboratory. For example strictly meteorologically speaking the Latvian PM₁₀ calibration apparatus is not able to test for its accuracy or regularity. The network of five PM₁₀ machines in only three cities is too scarce and not representative for health defence purposes. The machines cost starting 25.000 Euro so the PM₁₀ network coverage can and should be recommended reaching coverage of minimum 1 PM₁₀ machine to every 100 000 inhabitants residing".

The Latvian NGO suggest a unified minimal set of current and historical (by month) PM₁₀ data availability in national, as well as one of the main EU official languages (English, German, French) on an official website. The set of data should have a description of used PM₁₀ calibration method and procedure as well as validity

date of measurements for each of the PM₁₀ stations. The current official air quality plans should be posted on the same websites.

3.2.2.1. Conclusions

- For this question we received answers for 24 cities. Overall the access to air quality data seems fairly good. In 13 out of 24 cities analysed, the access to air quality data was rated good to very good. Only three cities have actually received a bad rating, the rest is moderate, with one city/region being rated between moderate and bad.
- The main exception from this picture is **Latvia**: NGOs raised serious criticism both concerning the accessibility of data as well as the representatively and reliability of the air pollution monitoring network.
- Furthermore, **Amsterdam, Madrid and Valladolid** are bad examples for both not having made plans before 2005 as well as having received bad ratings on access to air quality data. Furthermore, **Padua** and **London** can again be identified as positive examples for having made plans in 2002 as well as having good to very good access to data.
- A repeating motive in the NGOs' criticism is that only some of the data is easily available, while other essential pieces of information are missing. The most illustrative example for this practice is probably the Spanish city of **Valladolid**. It publishes a graph with real-time pollution concentrations in the previous 24 hours, but without including any numbers. While recent, up-to-date data seems relatively easy to get, information is sometimes online only for a limited amount of time or information about past years or the number of exceedances are not on the web.

3.2.3 How easy is it to understand the data?

Figure 8. How easy is it to understand the data? Is the data clear and comprehensible?

Refers to Question 8 of the Questionnaire, same order as in figure 6 (chronologically adoption date of plans).

Comprehensibility is rated as: Very good: 😊 😊, Good: 😊, Moderate: 😐, Bad: 😞, Very bad: 😞 😞

		Comprehensibility	Comments
1	Brussels	😐	
2	Rome	😊	
3	Padua	😊	
4	Milan	😐	
5	London	😊	
6	Liège	😐	
7	Stockholm	😊 😊	
8	Warsaw	😐	
9	Bristol	😊	Only one station.
10	Riga	😐	
11	Munich	😊	
12	Graz / Styria	😊/😐	
13	Berlin	😊	Berlin is both a city and a region (Land). This means the data is better than for other German cities, because the measurement networks in Germany are managed by the regions.

14	Vienna	☹	
15	Dortmund	☺	
16	Düsseldorf	☺	
17	Lisbon	☺ ☺	There are several monitoring stations in the agglomeration of AML Norte which includes Lisbon, but a lot of other points were evaluated through an air quality mobile lab that did several weeks of data collection. This data was compared with the closest station and the Lisbon background station and the worst traffic station.
18	Prague	☺	
19	Amsterdam	☺	Amsterdam makes the best reports of all cities in Holland (though in October 2005 there is still no report of 2004).
20	Budapest	☺ ☺	Official data from the Ministry of Environment
21	Paris	☹	Very precise data but coherence between them is unclear for non-specialists. It is almost impossible for non-experts to find out from this website where which PM limit values have been exceeded. Maps showing the annual PM ₁₀ concentration average the data for the whole monitoring network in Ile-de-France. The average concentration of all stations is obviously lower than the levels measured at hotspot monitoring stations, giving the misleading picture that – at first glance – there are no exceedances. Furthermore Paris publishes a general air quality index without easy-to-find explanations about how this index is calculated.
22	Madrid	☹ ☹	The local authorities of Madrid place the "raw" pollution data (i.e. µg/m ³ of each pollutant) on a website on a daily basis (you can find the data for the last five days), but they don't refer this daily data to the air quality limit values stated on the European directives. So if a person is unfamiliar with the air quality limits this data means virtually nothing. To "inform" the population the authorities every day show a map with the location of the measurement stations with a colour code: white means low pollution, yellow means medium level pollution, and red means high pollution. Of course you always find all the points white. If you click in a particular station you find the daily average for several pollutants, and next to the numeric value they put "qualitative information" which invariably is "nivel bajo" which means low level. This three-colour code does not refer to the limit values of the European air quality directive, but to older ('80s) legislation. According to this colour code on more than 90% of the days the pollution level in Madrid is LOW. With this system a daily level of 75.61 micrograms/m ³ of NO ₂ or 56.47 micrograms/m ³ of PM ₁₀ are considered "nivel bajo".
23	Naples	☺ ☺	
24	Valladolid	☹	In 2003 and 2004 local authorities have multiplied PM ₁₀ concentrations by a correction factor (1,2) in a very disputable interpretation of the 1073/2002 Royal

			Decree second additional disposition (Directive transposition), so the real values could be lower. In 2004, the municipality has discounted 6 daily exceedances corresponding to Saharan dust, while there is no a normative instrument on how to do this. For 2005 onwards the Environmental Health National Centre proposed to apply a correction factor of 0,74 in all Spain (the measurements networks of the regions and municipalities) in order to neutralise the methodological differences between their national system and those used by the Regional governments. Valladolid has decided to apply instead a factor 1 (do not change the data) because they don't agree much with the methodology used by the Environmental Health National Centre. This shows the degree of uncertainty and arbitrariness of how things are being done. ⁹
25	Copenhagen	⊖	The enclosed report seems difficult to interpret. I have seen a diagram in a newspaper showing the PM ₁₀ levels at one of the two stations in Copenhagen in 2001-2003. Including the margin of tolerance they did not exceed the limit value, but they will exceed in 2005 or 2006.

3.2.3.1. Conclusions

- Like with the previous question, the overall ratings for how easy it is to understand that data are quite good. 14 out of 25 cities were rated good or very good.
- However, in individual cases, the NGOs tend to be stronger in their criticism. The main points of criticism mentioned were that the data was hard to understand, that not all data was on the internet or that it was only there for a certain amount of time. **Madrid** received particularly strong NGO criticism, because here the labelling of the pollution index is according to an old law from the 1980s, thus labelling concentrations above the current daily PM₁₀ limit value as 'low pollution' levels.
- In **Paris** our NGO colleagues first only found annual PM₁₀ data which was averaged across the whole monitoring network. Data on exceedances of the PM₁₀ limit values plus margin of tolerance is impossible to find without having a very good knowledge of the subject and knowing what one is looking for.
- **Padua** and **London**, which have good ratings for making plans and programmes as well as for accessibility have received good ratings for this question, too.
- The additional comments given to this question highlighted another interesting aspect of how the directive is implemented. Two NGOs indicated that it is important which administrative level runs the air quality monitoring network. In Germany the regions are responsible, whereas in Spain the responsibility seems to be shared between the regional governments and the federal state. The German NGO notes that air quality data is better for those cities which are at the same time an independent region. For Spain this means that different monitoring practices exist, depending on if the network is run by the federal or regional level. The Spanish government thus proposes to apply correction factors to the monitoring data obtained by the regional monitoring stations, which makes it difficult for Spanish NGOs to compare the monitored data.

⁹ The method used by the national government to measure air quality in rural areas (away from pollution centres) is different than that used by local and regional governments to measure air pollution in cities. Therefore the national government proposes to use, from 2005 onwards, a correction factor of 0,74 (multiply each individual piece of data by that number). The local government in Valladolid decides not to do it because finds the method used by the national government inadequate. To do this would mean to keep having high values in Valladolid while other cities which will apply the correction factor will be having apparently less pollution. This situation illustrates that there is a degree of uncertainty and arbitrariness around all these measuring issues as it is not clear what you can or cannot do.

Good practice – UK

The UK treatment of air quality data is an example of good practice worth highlighting.

Comment from the UK NGO: “The UK national network data is archived nationally by NetCen, hosted by AEA technology. The data is accessible via the internet (www.airquality.co.uk). If you know what you are looking for the database is relatively easy to use. It could potentially be more user-friendly/flexible, especially for non-experts. Further city level data is available from local network or local authority sites. Often there is good air quality information. It is based upon local monitoring networks as well as national network sites. These sites can give a more detailed picture of air quality for a given city. Websites generally have helpdesks or email addresses for more detailed enquiries”.

3.2.4 . How easy is it to access the plan or programme?

Figure 9. How easy is it to access the plan or programme?

Refers to Question 11 of the Questionnaire, same order as in figure 6 (chronologically adoption date of plans).

Accessibility is rated as: Very good: 😊 😊, Good: 😊, Moderate: 😐, Bad: 😞, Very bad: 😞 😞

		Access to plan	Comments
1	Brussels	😊	I was in touch directly with the contact person from the environmental administration (IBGE) Institut Bruxellois de Gestion de l'Environnement.
2	Rome	😊	Website access to strategies and plans
3	Padua	😊 😊	Website access to strategies and plans
4	Milan	😊 😊	Website access to strategies and plans
5	London	😊 😊	Website access to strategies and plans
6	Liège	😊 😊	Very good with key words on the internet
7	Stockholm	😊 😊	The County Council (government body) was in December 2004 given the task to implement parts of the plan. Other parts need decision-making in parliament. The destiny of these proposals is unclear. http://www.regeringen.se/sb/d/4848/a/35219 .
8	Warsaw	😊 😊	
9	Bristol	😊 😊	
10	Riga	😊	
11	Munich	😊	
12	Graz / Styria	😊/😊	
13	Berlin	😊 😊	Two copies of the Berlin air quality management plan were sent to our BUND office.
14	Vienna	😊	It was published in the Internet and in local districts. Problem: how to know about there being a plan?
15	Dortmund		Action plan send to NGO with invitation for a meeting and evaluation.
16	Lisbon	😊	The plans and programmes for the Lisbon Metropolitan area (three agglomerations) has hundreds of pages and a lot of material is very complicated to understand; the summary, conclusions and a lot of maps and tables try to make it easier.
17	Düsseldorf		Long term plan in 10/2004 discussed in a meeting with NGO. Action Plan 4/2005 without participation of NGO

18	Prague		No plan
19	Amsterdam	☹	Website access to strategies and plans, but not easy to find
20	Budapest		No plan
21	Paris		No plan
22	Madrid		No plan
23	Naples		No plan
24	Valladolid		No plan
25	Copenhagen	☹	

Good practice – Berlin

Comment by the German NGO: "Two copies of the Berlin air quality management plan were sent to our BUND office".

Through our questionnaire another difficulty with the implementation of the first daughter directive became obvious. Cities make a multitude of local action plans – sometimes it was quite difficult for the local NGOs to find exactly the plans that were made in response to exceeding the PM₁₀ limit values plus margin of tolerance. In Belgium for example air quality management is part of a joint plan that also implements measures to meet the requirements of the NEC directive (2001/81/EC) and to reduce CO₂:

Comment by the Belgian NGOs: We have a "national ozone plan (2004-2007) and also air quality and climate regional plans" which give the measures for the 3 Belgian regions; some of the measures are positive also to reach the PM limit (we don't have a "PM reduction plan"); this plan is also a demand for the NEC directive and to reduce CO₂ emissions".

Also in Copenhagen it is unclear whether the plans evaluated in this report have been drawn up in response to exceeding the PM₁₀ limit values plus margin of tolerance or because of some other reason. Copenhagen has produced an Environment and Traffic Plan considering CO₂, air pollution, and noise. These plans thus might as well be plans resulting from an overall commitment of these cities to more environmentally friendly modes of transport.¹⁰

The difficulty in finding out exactly which plans were made in order to meet the PM₁₀ limit values highlights again a problem which we already indicated at the beginning of this chapter. The link between exceedances of limit values plus margins of tolerance and the air quality management plan in response to these exceedances is not always communicated clearly enough. This hampers public scrutiny of air quality management plans as well as public participation in making the plans.

3.2.4.1. Conclusions

- This question was relevant for 17 cities with a plan. Accessing the air quality plans seems to be a lot easier than accessing the air quality data: in 13 out of 17 cities with a plan, it was easy or very easy to access the air quality management plan. The worst ratings are for **Riga** and **Copenhagen**, which both received a moderate. **Padua, Milan, London, Stockholm, Warsaw, Bristol** and **Berlin** were all ranked 'very good' for the accessibility of their plans.
- An interesting point was raised with regard to Vienna: the problem of finding out whether a plan exists. It seems that assessing air quality management plans is easy – as long as you know that they are supposed to exist in the first place. According to the directive, member states are required to make plans and programmes available to "appropriate organisations such as environmental organisations, consumer organisations, organisations representing the interest of sensitive populations and other relevant health-care bodies" (Art. 8, 1999/30/EC).

¹⁰ However, as the measures in these plans will also improve air quality, we have included them in the assessment.

- This issue becomes more encompassing when one included the experiences of NGOs evaluating Brussels, Copenhagen and Amsterdam. Even if one knows there must be a plan, it is not always easy to locate the correct version, i.e. the plan that was indeed drawn up as a consequence of some monitoring stations exceeding the limit values plus margin of tolerance. This issue is very important, because it is at the heart of how the directive is supposed to provide public information. If it is not communicated clearly enough, when a city or a region is obliged to make a plan, it is difficult for citizens to judge, whether authorities have fulfilled their legal obligations. Furthermore, public participation in developing the plans can only happen if the public is informed about it.
- Part of this shortcoming can probably be related back to the directive text itself, which neither prescribes to clearly indicate exceedances of limit values plus margin of tolerance (*see earlier in this chapter*) nor public participation in the *development* of the plans. The public information clauses only oblige member states to clearly communicate, when limit values have been exceeded or plans have been made.

3.3 How good are the plans or programmes?

3.3.1 Rating system

It is very difficult to rate the air quality management plans as well as the draft plans of 21 different European cities according to a simple score system. How effective a certain measure will be in practice often depends on how it is designed concretely. Furthermore it is well known that local conditions vary from city to city – factors such as climatic conditions and geographic layout are different everywhere as are other specific factors. In some cities, for example, the role of industrial pollution is more pronounced than in others – and in some countries the average age of private vehicles or buses is higher than in others.

Nevertheless local diversity can also be an excuse to avoid comparing different plans in Europe. Benchmarking across Europe is one very important tool to stimulate better implementation of existing EU environmental legislation. This is why we have included a ranking of plans and programmes in this report. As with the air quality data, this ranking can only provide a snapshot of the situation. For an extended appraisal of the plans and programmes it would be important to consider them in greater detail.

The assessment of the content of the plans and programmes has been based on the question: “What policy measures have been taken/proposed in the plan or programme for this city to reduce PM?” In the questionnaire we listed the most common measures which are typically included in plans and programmes to reduce PM₁₀ (*see Annex V for further details*). We have focused solely on transport-related measures, because urban traffic is in most cases the main contributor for exceedances in hotspots and it is the main challenge for local authorities and their air quality management plans. Furthermore it will remain the main challenge for future air quality management plans to meet the NO₂ limit values, which enter into force in 2010. However, depending on the local situation other measures for example relating to industry emissions, households or other sources can also be important in air quality management plans.

The ratings of these measures were developed on the basis of experience gathered by colleagues from our German member organisation BUND, who have intensively followed the development of air quality and traffic policy for the last decades. Furthermore, modeled results of air quality impact of measures in Berlin have been made available to BUND in the context of stakeholder participation for preparing the Berlin air quality management plan.¹¹ On the basis of this data we rated every measure according to two criteria:

- a) the likely effect on reducing PM₁₀ concentrations, and
- b) the likely effect on promoting sustainable mobility.

We assumed that for each of these two categories the effect could be positive, neutral or negative. This translates into values of plus 1, zero or minus 1. Thus the combined scores which can be achieved with each measure range from plus 2 to minus 2. We have used this combined approach, because we believe it is necessary that air quality management plans also promote more sustainable modes of mobility in urban

¹¹ Local air quality models usually cannot model the air quality effects of promoting cycling in the city. This then has to be modeled otherwise. A research study conducted by the Umwelt- und Prognose-Institut Heidelberg e. V. (Germany) for example showed that in a city counting 100,000 inhabitants, a 20 per cent shift of transport from motorized vehicles to bicycles results in a reduction of air pollution by 36% (source INTEGAIRE-database <http://www.integaire.org/indexuk.html>).

areas, given the persisting problems which are caused by individual motorised traffic (*see chapter 2 of this report*). This means that in our assessment, measures like construction of new high-speed or ring roads score quite negatively. This is because such measures basically just shift emissions to another place and potentially even induce more traffic and thus more air pollution.

Figure 10. Measures in the plan or programme to reduce fine particles concentration

Question 13/Appendix B-7 of the Questionnaire

			Re-organise city to limit car use by providing better opportunities for walking and cycling, as well as for public transport	Low-emission zones permanently restricting access of diesel cars without particle filters	Provide more frequent and better public transport	Other type of traffic restrictions	Vehicles of city administration with particle filter or electric vehicles or gas vehicles	Retrofitting of diesel busses with particle filters	Charges for parking space and reduced car parking possibilities in city	Speed limits on main roads (30 km/h)	Promotion of car sharing/ cycling/ walking	Avoiding traffic jams (for example through electric signs)*	Road cleaning with water	Enlargement of existing high-speed roads or highways	Construction of new high-speed roads, highways or ring-roads
	Evaluation of measures	Score	😊😊 +2	😊😊 +2	😊😊 +2	😊 +1	😊 +1	😊 +1	😊 +1	😊 +1	😊 +1	😐 0	😐 0	😞😞 -2	😞😞 -2
1	Bristol (GB)	(9)	✓		✓	✓	✓	✓		✓	✓	✓			
2	Copenhagen (DK)	(8)	✓		✓		✓	✓	✓		✓				
2	London (GB)	(8)	✓		✓	✓	✓	✓		✓	✓	✓			
2	Graz (A)	(8)	✓		✓	✓	✓	✓	✓				✓		
3	Berlin (DE)	(7)	✓	✓**				✓	✓	✓	✓	✓			
3	Brussels (B)	(7)	✓				✓	✓	✓	✓	✓				
4	Stockholm (S)	(6)	✓		✓				✓		✓		✓		
4	Riga (LV)	(6)	✓		✓	✓			✓			✓			
4	Vienna (A)	(6)	✓		✓		✓		✓				✓		
5	Rome (I)	(4)			✓	✓	✓		✓		✓			✓	
5	Munich (DE)	(4)			✓	✓**	✓	✓	✓		✓	✓	✓	✓	
6	Milan (I)	(3)			✓	✓									
6	Padua (I)	(3)				✓**			✓		✓		✓		
7	Düsseldorf (DE)	(2)				✓**		✓				✓	✓		
7	Rotterdam (NL)	(2)				✓	✓	✓	✓	✓	✓			✓	✓

			Re-organise city to limit car use by providing better opportunities for walking and cycling, as well as for public transport	Low-emission zones permanently restricting access of diesel cars without particle filters	Provide more frequent and better public transport	Other type of traffic restrictions	Vehicles of city administration with particle filter or electric vehicles or gas vehicles	Retrofitting of diesel busses with particle filters	Charges for parking space and reduced car parking possibilities in city	Speed limits on main roads (30 km/h)	Promotion of car sharing/cycling/walking	Avoiding traffic jams (for example through electric signs)*	Road cleaning with water	Enlargement of existing high-speed roads or highways	Construction of new high-speed roads, highways or ring-roads	
	Evaluation of measures	Score	☺☺ +2	☺☺ / ☺ +2	☺☺ +2	☺ +1	☺ +1	☺ +1	☺ +1	☺ +1	☺ +1	☹ 0	☹ 0	☹☹ -2	☹☹ -2	
7	Liège (B)	(2)							✓		✓					
7	Usti nad Labem (CZ)	(2)							✓		✓	✓	✓			
8	Dortmund (DE)	(1)				✓						✓	✓			
9	Warsaw (PL)	(0)	✓													✓

* In the questionnaire this option is called "Flexible traffic management to move traffic jams out of polluted areas". We changed the title for clarity.

** *Berlin*: the environmental zone will only enter into force in 2008. This is much too late to have an effect on Berlin's current limit value exceedances. We therefore rate just 1 point.

** *Munich*: Munich's air quality management plan needs to be developed between the city of Munich and the government of the Oberbayern region. Because co-ordination between the city and the region has been extremely delayed, the traffic restrictions for heavy duty vehicles have still not entered into force.

** *Padua*: Traffic restrictions for gasoline cars without catalytic converter and diesel vehicles older than 1997. Traffic restrictions apply every Thursday and Friday from November to March. Alternated plates apply for all other cars every Thursday and Friday from November to March.

** *Düsseldorf*: Düsseldorf's plan includes quite an ambitious environmental zone (ban for vehicles worse than Euro 4), which was supposed to be introduced in 2005. Introduction has been postponed, because the federal government has not adopted a directive on car-labelling, which would be needed to enforce the scheme.

Cities which have not adopted a plan yet (draft plans)

	Lisbon (PT) (draft plan)	(9)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
	Amsterdam (NL)	(6)	✓	✓		✓	✓	✓	✓	✓	✓			✓	✓
	Prague (CZ) (draft plan)	(1)	✓		✓				✓			✓	✓	✓	✓

Cities which have not adopted a plan at all: Madrid (ES), Valladolid (ES), Budapest (HU), Naples (IT), Paris (FR)

Measures

The total number of plans and draft plans which we could analyse was 22. All of these 22 plans opt for a policy mix of a number of different measures. The most popular measure is to charge for parking space and reduce car parking possibilities in the city (72%, 16 out of 22 plans and draft plans). On second place is the promotion of car sharing, cycling and walking (63%, 14 plans). The third place is shared by two measures: 'reorganising the city to limit car use by providing better opportunities for walking, cycling and public transport' as well as 'other type of traffic restrictions' (both 59%, 13 plans).

Providing more frequent and better public transport is on fourth place (54%, 12 plans). Next among the popular measures are public procurement of cleaner vehicles for the city administration as well as retro-fitting of diesel buses (both 50%, 11 plans). Ten cities plan to clean their roads with water to reduce resuspension of dust and ten cities want to introduce electric signs to reduce traffic jams (45%). Seven cities in total include the construction of new or enlargement of existing high-speed roads, highways or ring-roads in their air quality management plans (31%). The form of low emission zone, which would have the greatest environmental effect – permanently restricting access of diesel vehicles without particle filters – is so far only included in the plans of three cities (13%).

For a deeper assessment of the quality of the measures, it would be important to look at the different measures in more detail. Our general categories for these measures could be interpreted very differently. Regarding for instance the 'promotion of car sharing, cycling and walking', one city might run an advertisement campaign for cycling. However, another city could also choose a much more ambitious strategy to promote cycling by systematically adapting its public transport system so it can be optimally used by cyclists, constructing sheltered and safe bike-parking possibilities and providing a coherent network of cycle lanes. Similarly the category 'other type of traffic restrictions' is very wide and closer analysis shows that the traffic restrictions employed in different cities are very different in nature (see chapter 3.4). For a more detailed analysis of the effects of these measures, air quality projections would be needed (see chapter 3.5).

The question on when measures in the plan will be implemented is an important aspect, which we did not address with the questionnaire. The directive clearly assumes that plans need to be made in order to prevent limit value exceedance. Some of our responses, however, highlight that it takes time to introduce some measures and that not all measures in the plan will be implemented immediately. In Berlin for example, a low-emission zone is part of Berlin's air quality management plan. However, its introduction is only foreseen for 2008, even though the city has already exceeded the limit values for 2005. Similarly, traffic restrictions in Munich still don't apply, because they need to be co-ordinated with the government of the Oberbayern region. Because this co-ordination between the city and the regional government has been extremely delayed, the traffic restrictions for heavy duty vehicles have not entered into force yet. In London, another low-emission zone is under consideration at the moment, but this measure will not become effective before 2007:

Comment from the UK NGO: "Low-emission zone implementation targeted for 2007. Other schemes also under consideration, but implementation is a long way off."¹²

Furthermore, from looking at the measures more closely it becomes obvious that many measures will not have an immediate effect, but will only take effect in the long term. Two of the most popular measures in this analysis – re-organising the city to limit car use and promotion of car-sharing, cycling and walking – concern city-planning as well as behavioural change. They will take some time to become effective. In addition to that it can be assumed that measures which require a certain investment might also take some time to be introduced, as the budget for these investments needs to be provided (see chapter 3.5). Such measures are retro-fitting of diesel buses, cleaner vehicles for the city administration, or providing more frequent and better public transport. When vehicle fleets are concerned it is furthermore the question of whether a city upgrades the whole fleet to less polluting vehicles immediately, or whether this is a process which happens gradually. When evaluating plans and programmes it is therefore very important to know when measures in the plans will be put into practice, and when they are expected to reduce air pollution (see chapter 3.5).

¹² As this measure is still under consideration for London, it is not mentioned in the answers to question 13/figure 10.

Problems with implementing the plans

If one combines the findings to several of our questions it becomes very obvious that the implementation of the plan is at least as important as the measures in the plan. London and Brussels for instance both have high pollution levels, they have both made their plans early and the plans contain a relatively high number of measures. Nevertheless these cities continued to exceed the limit values plus margin of tolerance in the years following the plan. They have both exceeded the legally binding air quality limit values for the year 2005 already. This clearly points to a lack of sufficient measures in the plans or to a lack of implementing the measures in the plans.

One problem with the implementation of plans is their political status. It is important to note that three of the plans mentioned here are draft plans, which have not been adopted politically yet. The drafts have been made available to the public, but they still need to be politically adopted to be able to enter into force. This is true for the draft plan of Lisbon, Prague and Amsterdam.

Comment by the Czech NGO: “Unfortunately under preparation for very long time, politicians are afraid to adopt it”.

Political adoption and endorsement is a key for these plans to enter into force and the fact that they have not been adopted yet highlights again how late these cities with making plans. When analysing plans and programmes it is therefore important to not only evaluate the content of the measures, but also the status of the plan. Only if the plan is legally and politically binding for the responsible authority is it likely to be implemented in practice.

In some countries, different competing competencies between the federal state and the regions make implementation of this directive difficult, as different administrative levels tend to block each other. This is highlighted for example for the city Graz:

Comment by the Austrian NGOs: “The plan is quite comprehensive and detailed; interesting is the fact that the plan was made by the regional state “Styria”. However, about 90 % of the proposed measures are in the competence of the Austrian federal state. So it is easy to argue ‘we can’t do anything, it’s the federal state’s task’. The federal state on the other hand argues that measures are to be done by the regions.”

The plan furthermore lists great number of measures, which need to be implemented by or with the help of local authorities, simply stating that the regional government provides the list of measures *as a suggestion* to the local authorities. For many measures it is not evident from the plan if they will be implemented or how the region will ensure this. For example the plan includes traffic restrictions for diesel vehicles without particle filters suggesting introduction of this measure in 2005/2006, but the measure has so far not been introduced through a decree by the region. Similar problems can be observed in Germany:

Comment by the German NGO: Düsseldorf has adopted the most ambitious low emission zone in Germany so far (vehicles worse the Euro-4 should be banned in 2005). Because the labelling directive was not passed by federal government, these measures could not be implemented.

In this context, it is important to reiterate that it is the responsibility of the member states to ensure that their national, federal and local levels work together in order to reduce air pollution. This furthermore points to the very important question of how the different measures are likely to be put into practice.

3.3.2 Conclusions

- All plans and programmes opt for a policy mix of a number of different measures, though the total number of measures in our sample varies from two up to twelve. The two cities ranked highest on this question both employ eight different measures to reduce PM₁₀.
- **Bristol** was ranked highest for their air quality plans, because of a comprehensive and high number of environmental measures. Bristol’s air quality plan is intended to ‘top up’ the local transport plan so measures should be considered in conjunction with this. Bristol’s air quality plan is intended to ‘top up’ the local transport plan so measures should be considered in conjunction with this. The local transport plan was already adopted in 2000. The local transport plan was already adopted in 2000. It resulted in increase in cycling of 27% and rail use of 19% in over three years (*Bristol City Council 2004*). **Warsaw**

on the other hand is ranked lowest concerning their air quality management plans. In the case of Warsaw, we the air quality data also indicates persistent air quality problems.

- The most popular measure is to charge for parking space and reduce car parking possibilities in the city (72% of plans and draft plans). On second place is the promotion of car sharing, cycling and walking (63%). The third place is shared by two measures: 'reorganising the city to limit car use by providing better opportunities for walking, cycling and public transport' as well as by 'other type of traffic restrictions' (both 59%).
- Low emission zones, which permanently restrict access of vehicles without particle filters would be very effective as regards air quality and could improve air quality quickly. This measure was only included in three plans and draft plans.
- Therefore publication date of the plan plus the measures included in the plan are not sufficient criteria by which to evaluate whether a city is 'on track' with its air pollution policy. When evaluating measures, it is also important to consider both what effects they are likely to have, as well as when the effect is likely to occur. While charges for parking space and reduced car parking possibilities can be effective quickly, they only have a medium effect on air quality. On the other hand, re-organising the city, which can have very positive effects on sustainable mobility, is not a measure, which will show results quickly. Similarly, the promotion of non-motorised transport modes – while very positive with regard to sustainable mobility – is quite 'soft' and needs to be complemented by other structural measures to actually lead to behavioural change. Therefore it is essential to quantify the effects of the measures for reaching the limit values.
- Furthermore not all measures in the plans are implemented immediately, and some – like the low emission zone in Berlin – are only planned to be introduced a few years after the legally binding limit values entered into force. For other measures – like in Düsseldorf or Munich – introduction is delayed, because the different legislative levels involved don't co-operate efficiently. Similarly with regard to Graz it is not evident, which measures will actually be implemented as many measures included in this plan are not directly in the legal competence of the region adopting the plan.
- The example of the draft plans of **Lisbon, Amsterdam and Prague** highlights that plans need to be politically adopted and legally binding for the responsible authorities – otherwise they are unlikely to be implemented. Furthermore it shows again that these cities have been much too late in making plans.
- From this chapter it becomes obvious that the implementation of the air quality management plans is crucial for the success of the implementation of this directive. A plan on paper is not the same as what the city is going to do in reality. It is therefore misleading to draw conclusions solely based on whether there is a plan or which measures are in the plan. The only thing that is verifiable about the success of air quality management is the level of the air quality. What counts ultimately is whether or not the limit values have been met.

3.4 Traffic restrictions

Comment from the Latvian NGO: *"My evaluation is that most PM₁₀ pollution increase correlates well with traffic increase – especially lorries – and decreases with traffic limitations."*

As the Latvian NGO points out, much of urban PM₁₀ concentrations in European cities are traffic-related. This is why traffic restrictions and low emission zones are an important measure to meet the limit values. Traffic restrictions are also fairly popular in the plans analysed above. Sixteen out of 22 cities in total plan to apply some kind of traffic restrictions. However, only three cities opt for the most stringent version 'low-emission zones permanently restricting access of diesel cars without filter', while thirteen cities consider some 'other type of traffic restrictions'.¹³

Because this measure is also fairly novel, it deserves special attention. We therefore asked an additional question dealing specifically with traffic restrictions (see figure 12). According to the NGOs who answered the questionnaire, by June 2005, ten European cities had introduced traffic restrictions or low-emission

¹³ Graz, Lisbon and Amsterdam consider both options, while Berlin and Munich consider the more stringent option.

zones (by June 2005), while 18 cities were considering introducing or enlarging existing traffic restrictions or low-emission zones. A low-emission zone (LEZ) is an area where only 'low emitting vehicles' are allowed entry. However, the definition of 'low emitting' varies between member states. It can be based on age of vehicles or emission standards, or it may target only certain vehicles such as buses or trucks.

Figure 11. Traffic restrictions or low-emission zones (LEZ) in EU member states

<i>Refers to Question 6 of the Questionnaire</i>			
Country	Traffic restrictions / LEZ introduced	Traffic restrictions / LEZ proposed or discussed	No traffic restrictions / LEZ
Austria	Graz, Tyrol	Graz, Salzburg, Tyrol, Vienna	
Belgium		Brussels	
Czech Republic		Prague	
Denmark		Copenhagen	
Germany	Berlin	Munich, Dortmund (lorries > 7.5 t), Düsseldorf (lorries >2.8 t)	
France	Toulouse		
Hungary			✓
Italy	Rome, Milan, Padua		Naples
Latvia	Riga		
Netherlands	Amsterdam	Amsterdam, Tilburg, Haarlem, Delft, Nijmegen, Groningen	Rotterdam
Poland			✓
Portugal		Lisbon	
Spain			✓
Sweden	Stockholm, Göteborg, Malmö		
United Kingdom	London* Durham*	London**	

* Congestion charge

** Low-emission zone

Even though traffic restrictions are used by a number of Europe's big cities, their introduction has not always been a result of the first daughter directive. London, Durham and Riga for example have introduced traffic restrictions primarily due to congestion considerations.

Comment from the Latvian NGO: "Heavy traffic is limited from crossing all (three) Riga City traffic bridges 7-10 am. Mostly because of congestion considerations, but also due to health considerations".

In France, traffic restrictions exist, but they are linked to other pollutants than PM (CO and Ozone) and are emergency measures, when alert levels are exceeded. In Italy, some traffic restrictions – such as the well known ecological Sundays in many cities in northern Italy – are principally organised to raise people's awareness. Car restrictions carried out in Rome, Milan and Padua however are meant to reduce PM₁₀ concentration. Restrictions are limited to winter months, therefore they are considered a short-term measure, and they are carried out regardless of pollution peaks.

Hungary, Poland and Spain have been mentioned as countries that have not introduced any traffic restrictions and are not currently planning to do so either.

Figure 12. Types of traffic restrictions in different cities

Refers to Question 6a/Appendix A-1 of the Questionnaire

City or Area	Permanent restrictions in city centre	Permanent restrictions for lorries, trucks and heavy duty vehicles	Permanent restrictions for old cars not complying with 'Euro' standards or diesel cars without filters	Short-term restrictions depending on exceedances
Tyrol Region		✓		
Prague	✓			
Copenhagen			✓	
Toulouse				✓****
Berlin			✓	
Dortmund		✓*****		
Düsseldorf		✓*****		
Milan				✓****
Padua				✓****
Rome	✓			✓****
Riga		(✓)**		
Amsterdam			✓	
Stockholm		✓***		
London		✓*		

* Restrictions in London for the proposed larger low-emission zone, not for congestion charge area. The scheme does not apply to cars – it covers only trucks and lorries.

** The restrictions in Riga are applied all through the year, but only in the mornings. As they are based primarily on congestion grounds, they depend on the time of day rather than the air quality situation.

*** Only covers Swedish registered heavy duty vehicles (>3,5 tons) older than 8 years.

**** These restrictions apply in winter.

***** Planned Dortmund for > 7.5, Düsseldorf for >2.8

Permanent restrictions:

Interestingly most cities that opt for traffic restrictions consider permanent, rather than temporary restrictions.

Comment from the Czech NGOs: “permanent restrictions in the historical centre – except for cars of inhabitants of centre and deliveries – are concerned with tourism in historical centre, not for purposes of air quality”.

Stockholm introduced permanent restrictions for heavy duty vehicles. They cover Swedish registered heavy duty vehicles (>3,5 tons) older than 8 years. The definition will be changed in future to relate to Euro class instead. The legislation was introduced before the air quality directive existed. In the case of Dortmund measures only addressed heavy duty vehicles in one road. This measure was introduced after a complaint of environmental NGOs. Towards the end of 2005 there are plans to expand the restricted area. Berlin and Lisbon are both planning to introduce traffic restrictions for older cars:

Comment from the German NGOs: “permanent restrictions for old cars - Euro II (diesel), for diesel cars and trucks without filter”.

Comment from the Portuguese NGO: “Permanent as well as short-term restrictions (during high pollution episodes), restrictions for old cars <Euro 2, as well as restrictions for all cars depending on number plate”.

Throughout Europe there are, however, some differences in the stringency of the restrictions: while Lisbon is limiting access to cars older than Euro 2, Copenhagen restricts access to any cars that are older than Euro 4.

The city most advanced in introducing traffic restrictions is certainly London. The criteria planned for the low emission zone that is likely to be introduced in 2007 are:

Comment from the UK NGO: *“Planned for the London low emission zone: permanent restrictions for vehicles – lorries > 3.5t, buses and coaches in 2007, possibly extended to vans and taxis (2010). Emission Criteria – Euro 2 + RPC (or equivalent) in 2007, Euro 3 + RPC (or equivalent) for 2010. Final strategic review is underway. Results anticipated shortly – some practical/logistical concerns remain (www.london-lez.org).”*

However, the existing and planned traffic restrictions for Amsterdam are also very interesting:

Comment from the Dutch NGOs: *“Amsterdam intends to allow only euro-5 trucks from 2010 onwards. At the moment most dirty trucks are banned from the city centre. The local government is planning to study on the legal possibilities to ban diesel cars without soot filter and SUVs”.*

Semi-permanent restrictions

Semi-permanent restrictions are applied in Toulouse, Milan, Rome, Padua and Tyrol:

Comment from the Austrian NGOs: *“Region Tyrol Inntal: semi-permanent restrictions on 40 km of motorway for + 7,5t trucks at night from 20:00 to 05:00 from Nov to April. Salzburg: there are restrictions on motorway traffic here too, but only as regards NO_x, not PM”.*

3.4.1 Conclusions

A variety of traffic restrictions exist throughout Europe – not all of them motivated by air quality concerns. However, the first daughter directive has clearly led to discussions of introducing further traffic restrictions in European cities. The fact that they are being discussed by a larger number of European cities shows that there is a genuine interest in using this measure to improve the air quality for residents. Co-benefits of this measure are that it can also reduce negative effects of air pollution on historical monuments and bring down noise levels and congestion.

Recommendation:

When designing traffic restrictions it is more sensible to introduce permanent restrictions rather than semi-permanent ones. Furthermore it is important that enough area is covered – such as the proposed low-emission zone for London – to achieve a real decrease in PM concentrations. It is sensible to target heavy duty vehicles as well as older private cars and cars that are not equipped with particulate filters.

3.5 How much of these plans will be put into practice?

For an air quality management plan to work, the measures in the plan have to be put into practice. An analysis of more than 140 local air quality management plans in the UK showed that it is important that measures are concrete, that air quality impact is modelled, that funding is committed and that “indirect” measures (such as promotion of cycling) are supported by “direct” measures (such as more cycle lanes) (see Moorcroft 2005 and Defra 2004). In our last question, we therefore asked the participating NGOs to assess how concrete the plans and programmes really are.

Figure 13. How concrete is the plan or programme?

Refers to Question 14 of the Questionnaire

		It shows what concentration reductions are needed and links these to measures	It projects and quantifies the likely air quality impact of the measures	It ranks and prioritises measures by their air quality impact	It outlines clearly how the measures will be financed	It gives information about when the concentration reduction is likely to be achieved	It considers other environmental effects such as effects on CO2 emissions, noise, etc.	It gives a number of very concrete measures BUT: 1) does not estimate their air quality impacts 2) does not explain how the measures will be financed 3) does not project when the concentration reduction will be achieved 4) does not consider other environmental impacts, such as effects on CO2, noise, etc.	It outlines broad general goals, such as "improving public transport" or similar: 1) without providing concrete measures to achieve them 2) without explaining how the plan will be financed
1	Bristol (GB)	✓	✓	✓		✓	✓	✓	
3	Copenhagen (DK)						✓		
4	London (GB)		✓	✓		✓	✓	✓	
2	Graz (A)	✓	✓			✓			✓
5	Berlin (DE)	✓	✓					✓	
6	Brussels (B)		✓			✓	✓	✓	✓
7	Stockholm (S)	✓	✓	✓			✓	✓	✓
8	Riga (LV)								✓
9	Vienna (A)						✓	✓	✓
10	Rome (I)						✓	✓	✓
16	Munich (DE)						✓	✓	✓
11	Milan (I)						✓	✓	✓
12	Padua (I)						✓	✓	✓
13	Rotterdam (NL)			✓	✓			✓	✓
14	Liège (B)	✓				✓	✓		✓
15	Usti nad Labem (CZ)	✓		✓	✓				

		It shows what concentration reductions are needed and links these to measures	It projects and quantifies the likely air quality impact of the measures	It ranks and prioritises measures by their air quality impact	It outlines clearly how the measures will be financed	It gives information about when the concentration reduction is likely to be achieved	It considers other environmental effects such as effects on CO2 emissions, noise, etc.	It gives a number of very concrete measures BUT	1) does not estimate their air quality impacts	2) does not explain how the measures will be financed	3) does not project when the concentration reduction will be achieved	4) does not consider other environmental impacts, such as effects on CO2, noise, etc.	It outlines broad general goals, such as "improving public transport" or similar:	1) without providing concrete measures to achieve them	2) without explaining how the plan will be financed
18	Dortmund (DE)										✓				
17	Warsaw (PL)												✓		✓

Cities which have not adopted a plan yet (draft plans)

19	Lisbon (PT)	✓	✓	✓	✓			✓			✓				
20	Amsterdam (NL)	✓		✓	✓	✓									
21	Prague (CZ)	✓	✓	✓	✓	✓							✓		

Cities which have not adopted a plan at all: Madrid, Valladolid (ES), Budapest (HU), Naples (IT), Paris (FR)

In chapter 3.3 we evaluated the measures chosen in 22 plans and draft plans. Regarding the concreteness of these plans, we lacked NGO information from Düsseldorf. Therefore we can only evaluate 21 plans and draft plans in the following comments.

Lack of financing

The most striking result is certainly that more than half of the plans analysed (62% or 13 plans) do not explain how the measures are going to be financed. This is also the case for the otherwise fairly good plan for Bristol. The UK NGO provides some details:

Comment from the UK NGO: “One major problem is that while budgets are discussed in detail, they are not confirmed. Recent article in ENDS [Environment Daily, environmental news service] highlights funding difficulties encountered for the plan (*ENDS report 362, March 2005, p. 29*). It is increasingly unlikely that the full package of measures will be implemented. National funding sources relied upon by Bristol City Council are not being made available. It’s not enough to have a good action plan, funding and implementation are obviously just as important“.

This highlights another key problem with the implementation of this directive: how to ensure that the measures in the plan are implemented. Most of these plans with unclear financing contain measures such as improving public transport, retrofitting of the bus fleet or public procurement of clean vehicles. These measures cost money. Of our sample of plans and draft plans, eleven cities in total have foreseen to retrofit their bus fleet with particle filters. From these eleven cities only three plans or draft plans outline clearly how the measures will be financed. If the money needed for these measures is not clearly designated in the city budget, it is unlikely that they are put into place. However, it is possible to outline clearly how the measures are going to be financed, as shown by the plans for Rotterdam and Usti nad Labem, as well as by the draft plans for Prague, Lisbon and Amsterdam.

Lack of projections

Only eight out of 21 plans (38%) project and quantify the likely air quality impact of the measures, while for seven other plans NGOs mention explicitly that this is missing. However, the quantification of the actual impact of policies on pollution concentrations is necessary to decide which measures should be taken and which measures should be prioritised. Regarding the evaluation of the measures, we have seen that charging for parking space and reducing car parking possibilities in the city are the most popular measures in our sample. This is followed by the ‘promotion of car sharing, cycling and walking’, then by ‘reorganising the city to limit car use by providing better opportunities for walking, cycling and public transport’ and ‘other type of traffic restrictions’. The air quality impact of these measures will depend very much on how exactly they are designed. Therefore it needs to be specified what exactly is going to be done and how much air quality improvement is expected from that. If the air quality impact is not projected, it is impossible to judge objectively if these measures will be sufficient in order to meet the air quality limit values, which are the legally binding obligation and the reason for making air quality management plans.

Furthermore in a situation of high air pollution levels and limited financing it would be sensible for cities to prioritise measures. If the plans do not contain any projections of the likely effect these measures will have on air quality, it is impossible to decide objectively which measures should be a priority to meet the legally binding limit values. Without this data a city would most likely prioritise those measures which are expected to generate least costs (for example charging for parking spaces) or least political opposition (for example road cleaning with water).

In addition to that, only seven plans and draft plans (31%) project when the reduction of pollution concentration is likely to be achieved. For nine plans and draft plans NGOs explicitly highlighted that this type of information is missing. Without this information however it is impossible to determine when a city will be in compliance with the air quality limit values. Neither is this in line with the requirements of the directives, as air quality management plans have to be made in order to meet the limit values, which enter into force at a specific date. Not quantifying the air quality impact of measures – or when the pollution reductions are going to be achieved – is a structural weakness which risks leading to inefficient and inadequate air quality management plans.¹⁴

¹⁴ These conclusions of our report are well in line with the results of a quick-scan among Dutch cities which were obliged to draw up a plan. This report produced by our member organisation SNM showed that more than half of the cities had

Bad practice – Warsaw

The city of Warsaw obtains the worst result: its plan is rated as just outlining broad and general goals without providing concrete measures to achieve them and without explaining how the plan will be financed.

A Comment from the UK NGO illustrates that even with a fairly sophisticated plan such as London's, the devil lies in the details:

Comment from the UK NGO: "Mayor's strategy reports current and predicts future levels and likely exceedances for PM₁₀. It identifies concrete measures and ranks them for high, medium or low impact. Rather than attempting to quantify the impacts themselves it predicts the impact of the entire strategy. It indicates time scale for implementation, but defers funding details to annual planning process. It identifies links to other policy areas (climate, noise, etc.), but doesn't go much further than this. The strategy includes a commitment to report annually on progress, but the relevant website provides no information or links to such reports. Much of the detail for London air quality action planning is contained within local level action plans, so some of the omission of detail above is understandable. Since there are over 30 of these local plans, it was not possible to assess them as part of this questionnaire. The deeply localised approach means that there is no conveniently available, up-to-date view on air quality plans, programmes and progress with regard to daughter directive limit values across London as a whole".

Both this comment as well as the one relating to Bristol address the problem of different levels of governance. In Bristol, local government partly relied on national funding for some of the measures. In London the fact that the plan is a coordinated array of local plans makes it more complex to assess.

3.5.1 Conclusions

- The two most important structural weaknesses regarding the concreteness of plans are lack of financing and lack of air quality projections. For both of these items the results of our survey are rather discouraging. More than half of the plans analysed (61%) do not explain how measures are going to be financed. This makes it very unlikely that certain measures are being put into place, particularly if they are costly.
- Furthermore, few plans (38%) have been identified as projecting the air quality impact of measures or assessing the time when the air quality improvements will be achieved (33%). Both of these deficits hinder the good implementation of the directive as the plans are intended to ensure that binding limit values are met at a certain date. Without air quality projections it is impossible to verify if the measures in the plans are sufficient to meet the limit values, or whether they will be met on time – neither is it possible to prioritise measures according to their impact on air quality.
- Ultimately member states are responsible towards the Commission for meeting or not meeting the limit values anywhere in their territory. It is thus the obligation of the member states to put in place incentives, funding schemes or dissuasive penalties that ensure the plans contain sufficient measures to meet the limit values, that they contain the necessary projections and data to verify this – and crucially that they are actually implemented.

3.6 Conclusions

Exceedances of the daily and annual limit values plus margin of tolerance have been paramount in the great majority of cities analysed in this report. Nevertheless plans and programmes to improve air quality have been made too late in most cases. Half of the cities in our sample have published their plans after the limit values entered into force, even though air quality management plans need to be made to ensure that the legally binding limits are met by 2005. Six cities (Valladolid, Naples, Madrid, Paris, Budapest and Prague) still have not made any plans even though they already exceeded the legally binding limit values in 2005.

As regards access to information the directive generally seems to be implemented well. For both the air quality data as well as the understandability of this data, the overall results are good. More than half of the cities received good to very good ratings. In some cases however NGOs voiced strong criticism for instance

not produced any plan. And most of the plans that did exist had hardly any concrete measures, no budget and did not indicate the effects of the plan (SNM 2005).

about reliability of the air quality monitoring network, data which is hard to find, hard to understand, or even presented in a misleading way. Access to air quality management plans is good or very good for the large majority of cities.

Concerning the content of the air quality management plans most cities opt for a poly-mix of measures, with charges for parking space and reduced car parking possibilities in the city being the most prominent measure. The promotion of car sharing, cycling and walking comes out second. The third place is shared by 'reorganising the city to limit car use by providing better opportunities for walking, cycling and public transport' as well as by 'other type of traffic restrictions'. While quite a high number of cities introduced or plan to introduce some kind of traffic restrictions, low emission zones which permanently restrict access of diesel vehicles without filters are only included in three plans or draft plans. A closer look at the traffic restrictions in Europe shows that quite a high number of them exist already – albeit not always motivated by air quality concerns and with different levels of stringency. Regarding the measures it becomes obvious that implementation of the plans is most important. Not all measures are planned to enter into force immediately. Furthermore we found some examples of cities where the implementation of measures got delayed, because different political levels did not work together efficiently.

Many plans lack concreteness, most importantly in the area of financing and air quality projections. More than half of the plans do not explain how the measures will be financed, making it very unlikely that certain measures are being put into place. Furthermore few plans have projected the effects of the measures on air quality or when the air quality improvements will be achieved. Without these projections however, it is impossible to verify if the measures in the plans are sufficient to meet the limit values or when they will be met.

Regarding the implementation of this directive it will therefore be of utmost importance to make sure that the measures in the plans are implemented. It is the obligation of the member states to complement local policies to improve air quality with national policies that will actually help cities to reduce pollution. Furthermore they must ensure that the measures in the plans are implemented and that plans are more than a 'wish list'. The Commission should investigate closely whether plans contain sound financing and air quality projections and should focus on whether, when and how the measures are implemented.

4. Conclusions of the Snapshot Report

In this report we assessed the implementation of the first daughter directive on ambient air quality (1999/30/EC) regarding the limit values for coarse particles (PM₁₀). We found that by mid-2005 already 14 out of 26 cities were in non-compliance with the daily limit value for PM₁₀ because they had surpassed their yearly quota of exceedances (35 days).

Given the serious health problems caused by fine and coarse particles member states clearly have not done enough to implement this directive and meet the legally binding limit values in 2005. Plans have been made too late in most cases, even though the problem should have been apparent since 2002 at least. Furthermore many plans are not concrete enough and lack dedicated financing, which makes it unlikely that the measures in the plans are going to be put into practice. On the national level member states are putting in place initiatives to improve the performance of the car fleet, but at the same time some NGOs highlighted that in their countries much larger sums are invested in further road expansion and investment in road infrastructure takes priority over investment in other modes of transport.

Regarding the implementation of this directive it will be of utmost importance to make sure that the plans are effective and that the measures in the plans are implemented. It is the obligation of the member states to ensure good implementation at local level, but also to complement local policies with national policies that will actually help cities to reduce pollution.

Key findings

- Most cities analysed in this report have been much too late in responding to the PM problem. Already in the years leading up to 2005 it should have been obvious that it will be difficult to meet the limit values without systematic air quality management. Between the years 2002 and 2004 96% of the cities analysed have recorded exceedances of the daily PM₁₀ limit values plus margin of tolerance in at least one year.
- 50% of these cities however did not make plans and programmes before the year 2005, even though they had exceedances in at least one year before this time. This is clearly against the requirements of the directive, which stipulates that plans and programmes have to be made in order to meet the legally binding limit values by 2005. Some cities, which have already exceeded the legally binding limits in the first half of 2005, have still not adopted any plans to reduce PM₁₀.
- The most popular measure is to charge for parking space and reduce car parking possibilities in the city (72% of plans and draft plans). On second place is the promotion of car sharing, cycling and walking (63%). The third place is shared by two measures: 'reorganising the city to limit car use by providing better opportunities for walking, cycling and public transport' as well as by 'other type of traffic restrictions' (both 59%). Low emission zones, which permanently restrict access of vehicles without particle filters would be very effective as regards air quality and could improve air quality quickly. This measure was only included in three plans and draft plans.
- The city of Bristol comes out best in our evaluation and shows that cities can adopt good air quality management plans and adopt a systematic approach to air quality management. In April 2004 the city published a fairly wide-ranging air quality management plan, which is detailed and clearly written. Bristol's air quality plan is intended to 'top up' the local transport plan so measures should be considered in conjunction with this. The local transport plan was already adopted in 2000. The local transport plan was already adopted in 2000. It resulted in increase in cycling of 27% and rail use of 19% in over three years (*Bristol City Council 2004*).
- The implementation of the air quality management plans is crucial for the functioning of this directive. A plan on paper does not mean that it is implemented accordingly. When analysing plans it is important to consider, when and if the planned measures will enter into force. Even though most cities were late with making plans, not all measures contained in the plans are going to be introduced immediately. For example the low emission zone included in the air quality plan for Berlin will not enter into force before 2008. In Düsseldorf on the other hand a low emission zone should have been introduced in 2005. But organizational prerequisites by the federal government (adoption of a national car-labelling directive) are still missing, therefore it is not implemented yet.

- The most critical problem regarding the implementation of the measures is the lack of dedicated financing. Dedicated financing has been missing for more than half of the plans analysed (61%). This is even the case for the otherwise very good air quality plan of Bristol, which means that some of the more ambitious elements of the plan are unlikely to be implemented. Eleven cities of our sample of plans and draft plans have foreseen to retrofit their bus fleet with particle filters. From these eleven cities only three outline clearly how the measures will be financed. If the money needed for the measures in the plans is not clearly designated in the city budget, it is unlikely that they are put into place.
- In addition to that most plans were not concrete enough. Only 38% of the plans project the likely air quality impact of measures and only 31% project when the pollution reduction will be achieved. However, the air quality impact of measures is not projected, it is impossible to judge objectively if these measures will be sufficient to meet the air quality limit values. Furthermore if it is not projected when the concentration reduction will be achieved, it is impossible to know, when the legally binding limit values will be achieved.
- Ultimately member states are responsible to the Commission for meeting or not meeting the limit values anywhere in their territory. It is thus the obligation of the member states to put in place incentives, funding schemes or dissuasive penalties, which ensure that plans are made everywhere and that future plans are made on time (for example regarding the limit values for NO₂, which will enter into force in 2010). They must make certain, that they contain sufficient measures to meet the limit values, the necessary projections and data to verify this, and that they are implemented so that plans are more than just a 'wish list'. The Commission should investigate these points closely when assessing the implementation of this directive. Furthermore member states must complement local policies with national policies that will actually help cities to reduce pollution.

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6. ANNEX I: Contacts and participants of the survey

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Global 2000 from Austria and the Society for Sustainable Development from the Czech Republic are not EEB members. They worked on this questionnaire in cooperation or on recommendation of an EEB member.

7. ANNEX II: Explanation of margin of tolerance

Daily limit value for Particulate Matter (24 h average) of $50\mu\text{g}/\text{m}^3$

- not to be exceeded more than **35** times a year

- with a margin of tolerance of **50%** on entry into force of this directive, reducing on 1 January 2001 and every 12 months thereafter by equal annual percentages to **0%** by 1 January 2005.

Table 1: daily limit value plus margin of tolerance ¹⁵

Year	If this level is exceeded -> air quality plans
1999 / 2000	$50 \mu\text{g}/\text{m}^3 + 25 \mu\text{g}/\text{m}^3 = 75\mu\text{g}/\text{m}^3$
2001	$50 \mu\text{g}/\text{m}^3 + 20 \mu\text{g}/\text{m}^3 = 70\mu\text{g}/\text{m}^3$
2002	$50 \mu\text{g}/\text{m}^3 + 15 \mu\text{g}/\text{m}^3 = 65\mu\text{g}/\text{m}^3$
2003	$50 \mu\text{g}/\text{m}^3 + 10 \mu\text{g}/\text{m}^3 = 60\mu\text{g}/\text{m}^3$
2004	$50 \mu\text{g}/\text{m}^3 + 5 \mu\text{g}/\text{m}^3 = 55\mu\text{g}/\text{m}^3$
2005	$50\mu\text{g}/\text{m}^3$ (binding limit value)

If the limit value + margin of tolerance is exceeded more than 35 days per year the competent authority must prepare an air quality management plan in order to meet the limit values in 2005.

Average annual limit value of $40\mu\text{g}/\text{m}^3$

- with a **20%** margin of tolerance on the entry into force of this directive, reducing on 1 January 2001 and every 12 months thereafter by equal annual percentages to reach **0%** by 1 January 2005.

Table 2: annual limit value plus margin of tolerance ¹⁶

Year	If this level is exceeded -> air quality plans
1999 / 2000	$40 \mu\text{g}/\text{m}^3 + 8 \mu\text{g}/\text{m}^3 = 48 \mu\text{g}/\text{m}^3$
2001	$40 \mu\text{g}/\text{m}^3 + 6 \mu\text{g}/\text{m}^3 = 46\mu\text{g}/\text{m}^3$
2002	$40 \mu\text{g}/\text{m}^3 + 5 \mu\text{g}/\text{m}^3 = 45\mu\text{g}/\text{m}^3$
2003	$40 \mu\text{g}/\text{m}^3 + 3 \mu\text{g}/\text{m}^3 = 43\mu\text{g}/\text{m}^3$
2004	$40 \mu\text{g}/\text{m}^3 + 2 \mu\text{g}/\text{m}^3 = 42\mu\text{g}/\text{m}^3$
2005	$40\mu\text{g}/\text{m}^3$ (binding limit value)

If the limit value plus margin of tolerance is exceeded for any yearly average, the city is obliged to prepare an air quality plan.

¹⁵ Based on: Guidance on Assessment under the EU Air Quality Directives. Final draft, <http://www.europa.eu.int/comm/environment/air/pdf/guidanceunderairquality.pdf>

¹⁶ Ibid.

8. ANNEX III: Additional air quality data

Figure 14. Number of days exceeding the daily limit value plus margin of tolerance [unit: days]

		2002	2003	2004
	Limit value + MOT	65 µg/m ³	60 µg/m ³	55 µg/m ³
1	Vienna	57	66	40
2	Graz	131	131	117
3	Brussels	76	106	105
4	Liège	85	122	
5	Prague			
6	Usti nad Labem			
7	Berlin	80	96	42
8	Dortmund		97	
9	Düsseldorf		68	63
10	Munich		56	44
11	Copenhagen			
12	Madrid	33	47	77
13	Valladolid		49	112
14	Paris	20	57	47
15	Toulouse	0	2	6
16	Budapest*		73	142
17	Rome	57	79	140
18	Naples**	22	46	54
19	Padua	93	119	111
20	Milan	61	69	78
21	Riga**	72	70	111
22	Amsterdam	15	49	
23	Rotterdam			
24	Warsaw	246	265	
25	Lisbon	140	131	119
26	Stockholm	64	39	66
27	Bristol	7	37	10
28	London	106	161	97

* The monitoring station only started to operate on 26 June 2003

** Different monitoring stations had to be used for different years.

This table shows the number of exceedances of the daily limit value plus margin of tolerance in the 27 cities analysed. Cities are sorted by country. In some cases data was not reported to us for a certain year, because the NGO had not been able to get it. Empty cells mean no data was available.

If not indicated otherwise, the data is for one monitoring station (usually a traffic station) per city. Many NGOs reported data for more than one monitoring station. In this case we chose the data-set with the highest number of exceedances. We have tried to use consistent data-sets, which means we tried to always use data from the same monitoring station. In the case of Naples and Riga however, this was not possible. There data from different monitoring stations is used for different years. In the case of Budapest, the data for 2003 is for the second half of the year only (see text). For London, the number of exceedances is slightly too high in this table, as the NGO referred to the number of days above limit value (and not the limit value plus margin of tolerance).

Cities with the highest number of daily exceedances in 2002 were **Warsaw, Lisbon** and **Graz** as well as **Warsaw, Amsterdam** and **London** in 2003. However, the Polish NGO puts a caveat on the data from Warsaw. Comment from the Polish NGO: *“The extremely high values reported for Warsaw are derived from a computer model as well as from measured concentrations in the area of the Mazowieckie Voivodship. There might be some inconsistencies with the Warsaw data”*.

Figure 15. Annual average concentration of PM10 in the years 2002 – 2004 [unit: micrograms/m³]

Cities are sorted by country. Empty cells mean no data was available.

	2002	2003	2004
Limit value plus margin of tolerance	45	43	42
1 Vienna	31	38	29
2 Graz	52	52	47
3 Brussels	52	53	48
4 Liège	40	45	
5 Prague		58	
6 Usti nad Labem		50	
7 Berlin	40	43	35
8 Dortmund			41
9 Düsseldorf		45	41
10 Munich		46	37
11 Copenhagen			
12 Madrid	43	43	40
13 Valladolid	40	39	52
14 Paris	43	46	41
15 Toulouse	23	24	22
16 Budapest			
17 Rome	53	52	54
18 Naples	51	45	44
19 Padua	59	61	60
20 Milan	48	46	42
21 Riga	61	56	53
22 Amsterdam	36	41	34
23 Rotterdam	39	44	37
24 Warsaw	85	112	
25 Lisbon	59	56	51
26 Stockholm	47	41	41
27 Bristol	26	29	24
28 London	45	48	43

This table shows the annual average concentration of PM₁₀ in 28 cities. Cities are sorted by country. In some cases data was not reported to us for a certain year, because the NGO had not been able to get it. Empty cells mean no data was available.

If not indicated otherwise, the data is for one monitoring station (usually a traffic station) per city. For Amsterdam and Rotterdam the concentrations given are **averaged across the whole city area**. This is not the case for the values from the other cities. The Dutch values are thus lower than they would be if a single street were chosen. They are therefore not entirely comparable with the data from the other cities.

Cities with the highest annual average concentrations in our samples in 2002 were **Warsaw, Riga and Padua** and in 2003 **Warsaw, Padua and Prague**.

Figure 16. Highest daily average per year (detail)

Cities are sorted by country. Empty cells mean no data was available.

		2002	2003	2004
1	Vienna	92	174	142
2	Graz	229	156	209
3	Brussels			
4	Liège			
5	Prague		273	
6	Usti nad Labem		279	
7	Berlin	173	157	169
8	Dortmund			
9	Düsseldorf			
10	Munich			
11	Copenhagen			
12	Madrid	106	117	237
13	Valladolid		130	244
14	Paris	222	185	95
15	Toulouse	53	66	70
16	Budapest			160
17	Rome	197	119	177
18	Naples	123	119	132
19	Padua	191	222	204
20	Milan	229	140	163
21	Riga	214	229	169
22	Amsterdam			
23	Rotterdam			
24	Warsaw	283		
25	Lisbon			
26	Stockholm	290	622	229
27	London	129	134	114
28	Bristol	74	80	78

As additional information we had asked for the highest daily average per year. These peak levels are not representative for the air quality situation in a city – this is only the highest level recorded in one year in one monitoring station. However they show the short-term burden that people are exposed to at certain times. Especially sensitive groups like children and asthmatics are negatively affected on those days.

Cities with the highest daily average concentrations in 2002 and 2003 were **Stockholm, Riga** and **Paris** as well as **Stockholm, Madrid** and **Riga** in 2004. The high concentrations in Stockholm are mostly due to the use of studded winter tyres.

9. ANNEX IV: Acronyms and country abbreviations

Countries:

AT	Austria
BE	Belgium
CZ	Czech Republic
DE	Germany
DK	Denmark
ES	Spain
FR	France
HU	Hungary
IT	Italy
LV	Latvia
NL	the Netherlands
PL	Poland
PT	Portugal
SE	Sweden
UK	United Kingdom

Other acronyms:

BEE	Bureau Européen de l'Environnement
EEB	European Environmental Bureau
EU	European Union
EIA	Environmental Impact Assessment (Directive 85/337/EEC)
IPPC	Integrated Pollution and Prevention Control (Directive 96/61/EC)
LCP	Large Combustion Plants Directive (Directive 2001/80/EC)
LEZ	Low Emission Zones
LPG	Liquefied Petroleum Gas
MOT	Margin of Tolerance
NEC Directive	National Emission Ceilings (Directive 2001/81/EC)
NGO	Non-Governmental Organisation
SEA	Strategic Environmental Assessment (Directive 2001/42/EC)
TEN-T	Trans-European Networks for Transport
VAT	Value Added Tax

10. ANNEX V: Ranking of measures

Figure 17. How measures are ranked according to impact on air quality and sustainable mobility

Ranking used in chapter 3.3 “How good are the plans and programmes?” Figure 11: “Measures in the plan or programme to reduce fine particles concentration”

Explanation: positive: +1, neutral: 0, negative: -1

	Effect on air quality	Effect on sustainable mobility
Re-organise city to limit car use by providing better opportunities for walking and cycling, as well as for public transport	+1	+1
Low-emission zones permanently restricting access of diesel cars without particle filters	+1	+1
Provide more frequent and better public transport	+1	+1
Other type of traffic restrictions	+1	0
Vehicles of city administration with particle filter or electric vehicles or gas vehicles	+1	0
Retrofitting of diesel buses with particle filters	+1	0
Charges for parking space and reduced car parking possibilities in city	0	+1
Speed limits on main roads (30 km/h)	+1	0
Promotion of car-sharing/ cycling/ walking	0 ¹⁷	+1
Avoiding traffic jams (for example through electric signs) ¹⁸	+1	-1
Road cleaning with water	0	0
Enlargement of existing high-speed roads or highways	-1	-1
Construction of new high-speed roads, highways or ring-roads	-1	-1

¹⁷ Promotion of car-sharing/cycling/walking has of course effects on both sustainable mobility and air quality. We rank only one point, as these measures work best if combined with other measures (such as improving public transport and re-organising the city by providing better opportunities for walking and cycling, as well as for public transport). A study of more than 140 air quality management plans in the UK has shown that in order to have a good effect, some indirect measures such as promotion of car-sharing/cycling/walking need to be accompanied by “hard” measures such as more cycle lanes or better lightning in areas that feel unsafe for pedestrians (*Moorcroft 2005 and Defra 2004*). As we do not know if this is the case in the different plans, we have rated the effects of this policy rather conservatively.

¹⁸ In the questionnaire this option is called “Flexible traffic management to move traffic jams out of polluted areas”. We changed the title for clarity.



11. ANNEX VI: Questionnaire - Implementation of the First Daughter Directive on Air Quality

Spring 2005

RESPONDENTS PLEASE NOTE:

- The questionnaire only concerns issues related to meeting the limit values for PM₁₀ in ambient air.
- You will need additional information to answer this questionnaire.
 - 1) your national air quality law containing the PM₁₀ limit values (*mandatory*)
 - 2) data on ambient air quality for the capital and/or other cities in your country (*mandatory*)
 - 3) plans and programmes to improve air quality for the capital and/or other cities in your country (*mandatory*)
 - 4) national report about plans and programmes that was or will be sent to the Commission (*if possible*)
- Please evaluate the plans and programmes for the capital and at least one other big city in your country.
- The grey boxes indicate places to give your answers.
- The results from the questionnaire will be made available on our website www.eeb.org/activities/air/Index.htm and in a subsequent publication after the data has been processed

Thank you very much for your time and involvement in this project!

Your contact data

Name:

Organisation:

Your involvement

1. What is/are your main work area(s)?

Please specify in the grey box:

2. How many days per week are you and your colleagues spending all together on working on the implementation of the first daughter directive in your country?

days per week

3. How would you rate the priority working on the implementation of the first daughter directive on air quality in your organisation?

Please click the appropriate box:

- Very high
- High
- Moderate
- Low
- Very low

If you want to give an additional comment, please do so in the grey box:

Quality of implementation

In your country

4. Are there any measures on national level, which complement local measures to reach the PM limit values? Which are the main national measures?

This is an open question: Please list the main national measures that complement local plans and programmes in the grey box. National measures could be: tax incentives for cleaner vehicles, retrofit programmes for existing diesel vehicles, measures to reduce air pollution from energy sector, measures to promote renewable energy, etc.

5. Are there any measures on national level, which contradict local measures to reach the PM limit values?

This is an open question: Please list examples if there are national policies in your country which clearly contradict efforts to reach PM limit values:

6. Is the directive leading to the introduction of traffic restrictions or low-emission zones in your country?

Please click the appropriate box:

- yes, in (please list cities/areas)
 probably – it is planned/discussed in the following cities/areas
 no

6 a. If yes, please describe **for each city/area** how it works. If there is more than one city, please go to Appendix A. Please indicate clearly, which city you refer to.

Name of city:

Please indicate first, if the restrictions are permanent or limited to the short term (see duration) and then click the appropriate box for the type of restriction (see type)

a) duration

- permanent restrictions (all year long)
 semi-permanent restrictions (during some months)
 short-term restrictions (during high pollution episodes)

b) type

- restrictions for old cars (please mention how old)
 restrictions for all cars depending on number plate
 restrictions for diesel cars and trucks without filter
 charges for cars entering the city centre
 other type:

In your capital city

Please evaluate the plan for the **capital city in your country**. Please also evaluate plans and programmes for **at least one other big city**. For that please use **Appendix B**. If you want to evaluate more cities, please also use Appendix B.

Name of capital city:

7. Have the limit values plus margin of tolerance for PM₁₀ been exceeded in the years 2002, 2003 or 2004?

Please find out the air quality data and number of days when the limit values plus margin of tolerance were exceeded for the relevant years:

In 2002

How many exceedances of daily limit value plus margin of tolerance?

Highest level in 2002?

Average annual concentration of PM₁₀?

In 2003

How many exceedances of daily limit value plus margin of tolerance?

Highest level in 2003?
Average annual concentration of PM₁₀?

In 2004
How many exceedances of daily limit value plus margin of tolerance?
Highest level in 2004?
Average annual concentration of PM₁₀?

If you want to give an additional comment, please do so in the grey box:

8. Is this data clear and comprehensible? Is the comprehensibility:

Please click the appropriate box:

very good
 good
 moderate
 bad
 very bad

If you want to give an additional comment, please do so in the grey box:

9. How easy is it to access the data? Is the accessibility:

Please click the appropriate box:

very good
 good
 moderate
 bad
 very bad

If you have chosen very good or very bad, can you explain?

If you want to give an additional comment, please do so in the grey box:

10. If the limit values for any of these years were exceeded, when was a plan or programme made available to the public?

Plan was made available on:

Is it on the internet? If YES, please give the link:

No plan was made available so far

If you want to give an additional comment, please do so in the grey box:

11. If the plan is available to you: how easy was it to access this plan or programme? Is the accessibility:

Please click the appropriate box:

very good
 good
 moderate
 bad
 very bad

If you have chosen very good or very bad, can you explain?

If you want to give an additional comment, please do so in the grey box:

12. For how many days has the daily limit value for PM₁₀ been exceeded in the capital city in 2005?

Limit value has been exceeded on days

Date you answer this question:

13. What policy measures have been taken/proposed in this plan or programme for the capital city to reduce PM?

Please click the appropriate boxes:

- re-organise city to limit car use by providing better opportunities for walking and cycling, as well as for public transport (tram, bus and taxi lines on the streets)
- low-emission zones permanently restricting access of diesel cars without particle filters
- other type of traffic restrictions. Please explain duration and type (see question 3):
- vehicles of city administration with particle filter or electric vehicles or gas vehicles
- provide more frequent and better public transport. Please explain:
- retrofitting of diesel busses with particle filters
- (increased) charges for parking space and reduced car parking possibilities in city
- speed limits on main roads (30 km/h)
- promotion of car sharing/cycling/walking
- flexible traffic management to move traffic jams out of polluted areas
- road cleaning with water
- enlargement of existing high-speed roads or highways
- construction of new high-speed roads, highways or ring-roads
- Other

If you want to give an additional comment, please do so in the grey box:

14. How concrete is the plan or programme for your capital city?

Please click the appropriate box(es):

- It shows what concentration reductions are needed and links necessary reductions to measures
- it projects and quantifies the likely air quality impact of the measures
- it ranks and prioritises measures by their air quality impact
- it outlines clearly how (and with which budget) the measures in the programme will be financed
- it gives information about when the concentration reduction is likely to be achieved
- it considers other environmental impacts such as effects on CO₂ emissions, noise, etc.
- it gives a number of very concrete measures, BUT
 - it does not estimate their air quality impact
 - it does not explain how the measures will be financed
 - it does not project, when the concentration reduction will be achieved
 - it does not consider other environmental impacts, such as effects on CO₂ and noise
- it outlines broad general goals such as “improving public transport” or similar goals
 - without providing concrete measures to achieve them
 - without explaining how the plan will be financed
- Other:

EUROPEAN ENVIRONMENTAL BUREAU

PUBLICATIONS 2005

2005/001	Memorandum to the Luxembourg Presidency (January 2005)
2005/002	EEB evaluation of the European Eco-Label criteria and scheme: What we wanted – what we got... (July 2004)
2005/003	Memorandum to the UK Presidency (July 2005)
2005/004	Toolkit for Environmental NGOs on Sustainable Development (July 2005)
2005/005	EEB Annual Report 2004
2005/006	The 2005 Spring Summit and Europe's Environment (August 2005)
2005/006 bis	Report of EEB Seminar on Sustainable Development (August 2005)
2005/007	EU Environmental Policy Handbook (September 2005)
2005/008	Report from the international conference "Towards a mercury-free world" (September 2005)
2005/009	European Chemicals Policy Reform Countdown to REACH (November 2005)
2005/010	The quality of national implementation of the Waste Landfill Directive, an EEB snapshot report (November 2005)
2005/011	Snapshot Report on Biodiversity in Strategic Environmental Assessment (December 2005)
2005/012	Air and City in Brussels and Europe: can our cities fight against air pollution? (December 2005)
2005/013	Looking ahead to the future of enlargement (December 2005)

PUBLICATIONS 2004

2004/012	Article 6 Watch Briefing Document (June 2004)
2004/013	Annual conference report (December 2004)
2004/014	EEB proposals for a European strategy on Sustainable Use and Management of Natural Resources (September 2004)
2004/015	NGO Guidelines for Promoting National Reforms of Environmentally Harmful Subsidies (EHS) (December 2004)
2004/016	Your Rights Under the Environmental Legislation of the EU (December 2004)
	Vos droits sous la législation environnementale de l'UE (December 2004)
2004/017	Stop Subsidies Polluting the World – Recommendations for Phasing out and Redesigning Environmentally Harmful Subsidies (December 2004)

EEB quarterly newsletter: *Metamorphosis* (available online)

JOINT PUBLICATIONS

WITH WWF	A Resource for Environmental NGOs on the EU Guidance for the Implementation of the Water Framework Directive (March 2004) & EU Water Policy: Making the Water Framework Directive work (February 2005)
WITH G8	Green Eight Review of the Sustainable Development Strategy (August 2004)
WITH ETUC & SOCIAL PLATFORM	Towards a Sustainable Future (February 2004) & Investing in Sustainable Development (June 2004)
WITH G9	Introducing the Green 9 group of environmental NGOs active at EU level – also available in French and German (August 2003)

JOINT NEWSLETTERS

Participate, with Public Participation Campaign Committee
Sustainable Mediterranean, with MIO-ECSDE and RAED

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