ASPECTS CONCERNING THE LEGISLATION OF AIR QUALITY IN EUROPEAN UNION

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Abstract

The air pollution is the most severe problem having short, mean and long term effects. The air pollutants produces global, regional and local effects. The most important problems generated by pollutant emissions are: acidification, tropospherical ozone producing, suspended matters, heavy metals pollution, ozone layer depletion, and greenhouse effect and climatic changes).

Air pollution is a local but also a transboundary issue. Air pollutants released in one country may be transported in the atmosphere and harm human health and the environment elsewhere.

Key words: environmental protection, air pollution, legislation of European Union.

INTRODUCTION

In Europe, emissions of many air pollutants have fallen substantially since 1990, resulting in improved air quality over the region. However, since 1997, measured concentrations of particulate matter and ozone in the air have not shown much significant improvement despite the decrease in emissions. A significant proportion of Europe's urban population still live in cities where certain EU air quality limits (set for the protection of human health) are exceeded. A number of countries are also likely to have missed one or more legally binding 2010 emission ceilings of four important air pollutants - data confirming this will only be available at the end of 2011. The need to reduce exposure to air pollution remains an important issue.

Protection of the atmosphere is an environmental issue that will dominate Community policies in the coming century, affecting policies as diverse as energy, transport and land development.(Charbonneau S., 2002)

Community activities to protect the air concern a wide range of problems: limiting depletion of stratospheric ozone, controlling acidification, ground-level ozone and other pollutants and climate change.

DISCUSSIONS AND ANALYSES

The EU has taken important steps over the past decade, but there is no substantial improvement in the environment yet, in spite of a decrease in the emissions to air and water of a number of pollutants, such as sulphur dioxide (a 50% reduction since 1980), lead (a 60% reduction since 1980), phosphorous in many water catchment areas (a 30 to 60% reduction since

1980s) and to a lesser extent nitrogen oxides and volatile organic compounds (a 14% reduction since 1990).

Atmospheric pollutants, which enter the air from a wide variety of sources, can be subdivided into three broad categories:

- *Emissions from mobile sources (transport industry).* Apart from CO_2, the main ones are: nitrogen oxides (NO_x), carbon monoxide (CO) and hydrocarbons (HC), i.e. volatile or non-volatile organic compounds, soot particles and ozone (O_3).
- *Emissions from immobile source (businesses, homes, farms and rubbish dumps).* Apart from CO2, the main ones are: sulphur dioxide (SO_2), nitrogen oxides (NOx), hydrocarbons (HC), soot particles, chlorofluorocarbons (CFCs) and methane.
- *Emissions caused by power generation.* Apart from CO_2, the main ones are sulphur dioxide (SO_2) and soot particles.

High concentrations of these gases and pollutants arising from them through chemical reactions in the atmosphere or in the soil are harmful to human health, corrode various materials and damage vegetation, have a detrimental effect on agricultural and forestry production and cause unpleasant smells. Many of these pollutants, such as carbon dioxide (CO_2), methane, nitrogen oxides (NO_x) and chlorofluorocarbons (CFCs), are responsible for the greenhouse effect.

The emissions from the transport sector have a particular importance because of their rapid rate of growth: goods transport by road in Europe have increased by 54% since 1980, passenger transport by road by 46% in the past ten years in the EU and passenger transport by air has increased by 67% in the past ten years.

The main emissions caused by motor traffic are nitrogen oxides (NO_x), hydrocarbons (HC) and carbon monoxide (CO), accounting for 58%, 50% and 75% respectively of all such emissions. Whilst emission levels in the economically more developed countries have increasingly stabilised, they are continuing to rise in the less developed countries. Community directives establishing stricter standards for the emission of pollutants by motor vehicles have had positive results, but the progress achieved to date is threatened by the rising number of vehicles on the road and vehicle use. In the past years, the fuel consumption in the Community increased by 1.5% a year (Marinescu, 2003).

Several directives have been adopted at Community level in order to limit pollution due to transport, setting maximum emission limits for vehicles and other sources of pollution and introducing tax measures in the transport sector aimed at encouraging the consumer to act in a more environmentally friendly manner.

Role of the European Parliament

The European Parliament has played a decisive role in the formulation of a progressive environmental policy to combat air pollution. After successfully forcing through stricter limit values for motor vehicle exhaust fumes despite the opposition of the Commission and Council, it called in another resolution for a further reduction in the limit values for pollutant and noise emissions from cars and aircraft and for stricter fuel quality standards. It also demanded that the 3 litre/100 km petrol-driven car and the 2 litre/100 km diesel-powered car be prescribed from the year 2005.

Clean Air for Europe. The 1996 framework Directive , and a number of daughter Directives, have already been adopted to improve air quality. Strategies have also been formulated to combat acidification, ozone and eutrophication, notably via the proposal for a Directive on national emission ceilings . Existing Community measures and proposals to improve air quality have established:

- target values for air quality;
- national emission ceilings to tackle transboundary pollution;
- integrated pollution reduction programmes in targeted areas;
- specific measures to limit emissions or raise product standards.

CAFE is the first of the thematic strategies announced in the sixth environmental action programme .

CAFE's objectives will be:

- to develop, collect and validate scientific information on the effects of air pollution (including validation of emission inventories, air quality assessment, projections, cost-effectiveness studies and integrated assessment modelling);
- to support the implementation and review the effectiveness of existing legislation and to develop new proposals as and when necessary;
- to ensure that the requisite measures are taken at the relevant level, and to develop structural links with the relevant policy areas;
- to determine an integrated strategy (by 2004 at the latest) to include appropriate objectives and cost-effective measures. The objectives of the first programme phase are: particulate matter, tropospheric ozone, acidification, eutrophication and damage to cultural heritage;
- to disseminate to the general public the information arising from the programme.

European Union legal instruments

The core of the air quality legislation comprises thirteen Council Directives and three Council Decisions. These instruments may usefully be grouped into (a) product control and material handling,(b) ambient air

quality standards (limit values and guidelines), (c) ambient air quality assessment and management; and (d) monitoring and information exchange.

The legislation in the air quality sector is concerned with:

- establishment and maintenance of air quality which does not adversely affect human health or the environment, partly by setting limits on levels of specified pollutants in ambient air, together with requirements for monitoring and reporting on pollution levels;
- control of emissions from particular types of sources, by regulating the storage and transport of petrol, coupled with limits on the lead and sulphur content of fuels; and
- ratification and implementation of relevant international conventions and protocols to which the Community and its Member States are parties.

The first of the daughter directives under the Air Quality Framework Directive, the Sulphur Dioxide, Nitrogen Dioxide and Oxides of Nitrogen, Particulate Matter and Lead in Ambient Air Directive (99/30/EC) is now in force. It will repeal most of the provisions of the three directives regulating the levels of sulphur dioxide, lead and nitrogen dioxide in air by July 2001, and the rest of the provisions of the directives by January 2005 (for the directives on sulphur dioxide and lead) and January 2010 (for the directive on nitrogen dioxide). Candidate Countries are therefore advised to take steps towards implementing the requirements of the daughter directive rather than those of the earlier three directives even though these are still in force.(Kiss Al., Beurier J-P,2008)

In order to ensure the implementation of these policies and standards, most of the legislation lays down requirements for planning, regulation and enforcement. The legislation dealing with air quality standards and monitoring (including the Air Quality Framework Directive) sets the framework for identifying and prioritising air quality planning needs, whilst the legislation dealing with the control of vehicle and petrol emissions and fuel content lays down more regulatory controls (such as prohibitions on the use of certain types of fuels).

There are EU legal instruments covering other environmental sectors that must be taking into account when implementing legislation regulating air quality.(Kiss Al., Beurier J-P, 2008)

The air quality sector consists of a diverse body of legislative instruments, which form complementary strands within an overall framework. The principal tasks are concerned with:

-. Designating competent authorities at both national and regional/local levels; Introducing statutory ambient air quality standards and alert thresholds. Central government will need to set standards and incorporate them either in primary or secondary legislation. The various directives on air quality standards allow Member States to set more stringent standards than

those contained in the directives. For example, in areas with ecologically sensitive sites, more stringent air quality standards may be required in order to protect such sites. Member States may also wish to set air quality standards for different averaging periods or for pollutants not covered by the directives. There will, therefore, be a need for scientific advice on what standards should be set, based on knowledge of standards in other countries and health considerations, and what is technically realistic in relation to emission standards (as opposed to ambient air quality standards). Such advice may come from government institutes, scientific advisors or independent consultants;

- Establishing and co-ordinating an ambient air quality monitoring and assessment programme
- Reporting annually to the Commission and the public on the results of ambient air quality monitoring;
- Putting in place a system to ensure that the public is notified when alert thresholds are exceeded;
- Preparing plans to improve air quality in areas where it does not meet the ambient air quality standards. This will be a task for central government in co-ordination with local authorities. Plans will need to focus on areas of poor air quality and will need to identify major emission sources, preferably by setting up an emissions inventory. Operators and suppliers of major emission sources (whether industry, household boilers or motor vehicles) and local authorities will need to be consulted, to determine technically and financially realistic approaches to reducing emissions to prescribed standards. There can be a certain amount of overlap between the measurements and the plans. Plans to deal with serious and obvious breaches of air quality limit values may be prepared even before all measurements have been completed, provided that it is certain that it will not be necessary to re-formulate any of the plans after more information has been obtained. This consideration applies mainly to significant local sources of air pollution**;**
- Implementing plans for improving air quality. The competent authority must maintain an overseeing role in relation to the results of air quality monitoring and modelling and the permitting process. Achieving compliance with air quality standards is likely to be brought about through the use of legislation, economic instruments, education and voluntary agreements. It will also require co-operation between the competent authorities and operators in the private sector. The competent authority will need to monitor the success of the various approaches, in order that they can be adjusted as and when necessary;
- Setting and implementing technical and emissions standards for different classes of emitters such as motor vehicles, industry, domestic boilers etc;

- Implementing regulations on the composition of automotive and other fuels;
- Undertaking permitting and enforcement of standards;
- Ratifying the Vienna Convention for the protection of the ozone layer and the Montreal Protocol on substances that deplete the ozone layer;
- Maintaining an inventory of greenhouse gas emissions and preparing a national programme for limiting anthropogenic emissions (this requirement relates to the implementation of the UN Framework Convention on Climate Change, to which the individual EU Member States are all parties).

The government will also need to set overall policy within the context of the EC directives, for example, establishing the role that taxation or other fiscal measures will have in implementing air quality objectives. In addition, the instruments concerned with product control, materials handling and emissions standards for mobile sources will require action, including significant expenditure, by industry and the public to bring about compliance. (http://ec.europa.eu/environment/air/pdf/air.pdf, 20.09.2011)

The strategy needs to carefully consider the relationship between ambient air quality criteria and emission limits from individual sources. There is likely to be a role for emissions inventories and dispersion modelling to establish the inter-relationships and enable air pollution priorities to be identified. Modelling enables not only the contribution of different sources to existing air pollution levels to be quantified, but also an estimate to be made of the benefits from reducing specific emissions at source.

CONCLUSIONS

In 2005, the Commission launched the Thematic Strategy on Air Pollution and Clean Air For Europe (CAFE), the first of seven Thematic Strategies in the EU's Sixth Environment Action Programme (EAP), "Environment 2010: Our future, Our choice".

Our EU objective which was formulated then still stands: "to achieve levels of air quality that do not result in unacceptable impacts on, and risks to, human health and the environment." And we still have a way to go to achieve it.

On 18 January 2011, the Commission discussed the progress on the EU's air policy with particular emphasis on the National Emission Ceilings Directive. As a result of this debate, the Commission agreed measures to improve air quality since action was recognised as a pressing need and a shared responsibility requiring our joint efforts.

Commission action will focus on a number of immediate measures and a more comprehensive review of EU's air policy by 2013 at the latest.

Some immediate measures (in 2011) are:

- Revision of the sulphur content of bunker fuels;

- Review and further reducing emissions from vehicles and machinery;

- Actively participating in the international negotiations on air quality, in particular the review of the UNECE Gothenburg Protocol.

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