The integration of European air quality standards in spatial planning: new avenues for a more sustainable urban planning?

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The 10th Annual Colloquium of the IUCN Academy of Environmental Law: Global Environmental Law at a Crossroads and related events (June 30th – July 5th, 2012)
Overview

I. Our health @ risk? let’s talk numbers!
II. General overview legal framework: EU and Belgium (Flemish region)
III. Case study: the impact of EU Air Quality Standards on the planning and authorisation of a large scale infrastructure project in Belgium (Ghent)
IV. General conclusions and outlook: towards a more sustainable urban planning?
I. Our health @risk?
I. Our health @risk?

Air Quality in Europe – EEA, 2011 report

- emissions of main air pollutants in EU declined significantly in the period 1990-2009, in particular sulphur dioxide (SO2) and lead (Pb)
- many EU-countries do not comply with one or more pollutant-specific emissions ceilings set under EU and United Nations (UN) agreements for 2010
- increase of the atmospheric concentrations for particulate matter (PM) and ozone (O3)
I. Our health @risk?

- **20% of the EU urban population** lives in areas where the EU air quality 24-hour limit value for particulate matter (PM10) was exceeded in 2009 – for EEA-countries the estimate is 39% (EEA, 2011)
- EU urban exposure to PM10 levels exceeding the WHO Air Quality Guidelines (AQG) is significantly higher, comprising **80-90% of the total urban population**
- **Total numbers** for Belgium:

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<td>1999</td>
<td>40%</td>
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I. Our health @risk?
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PM10: aantal dagen met daggemiddelde concentratie > 50 μg/m³ (2005)

aantal dagen daggemiddelde > 50 μg/m³

0  5
6 10
11 15
16 20
21 25
26 30
31 35
36 50
51 70
> 70

• meetstation
  (kleur = gemeten aantal dagen)
○ minder dan 75% data

VMM-IRCEL
I. Our health @risk?

- PM is a **blanket term** for all the tiny specks of dust with a size of 10 micrometres (10 microns) or less floating around in the air.
- A further distinction is made between coarse particles (2.5-10 microns – **PM 10**), fine particles (less then 2.5 microns – **PM 2.5**) and ultrafine particles.
I. Our health @ risk?
I. Our health @risk?

- PM is either of **natural origin** (e.g. sea salt, naturally suspended dust, pollen, volcanic ash) or from **anthropogenic sources**
- **primary PM** or **secondary PM** (formed in the atmosphere by oxidation and transformation of primary gaseous emissions)
- **mainly**: fuel combustion, incineration, domestic heating and traffic
- **traffic** is one of the most important sources of PM 10 and PM 2,5 (in general): 33% and 40% (2008)
- in Ghent the local contribution of **local traffic** to PM 10 is estimated at 14-21% (VITO, 2008)
I. Our health @ risk?

Sources of PM emissions (EEA, 2011)
I. Our health @risk?

- although the total emissions of PM10 and PM2.5 decreased significantly during 1995-2008 (46% and 51% - VMM 2008), the air above Belgium (Flemish Region) remains among the **dirtiest of the whole of Europe**
- reductions in emissions of the PM precursors NOx and SOx were undone by increase in primary PM 10 emissions (EEA, 2011)
- 30 to 40% of the emissions originate from the industrial belts across the borders in the France, UK, Netherlands and Germany (MIRA 2006-03)
- on the other hand, the Flemish region is also an important “**exporter of PM 10**”: Flemish export causes twice as many health effects abroad then vice-versa
- Flemish policy can influence 30% of the emissions PM
I. Our health @risk?

- Scientific studies attribute the most severe health effects from air pollution to PM and, to a lesser extent, ozone → no safe level has been identified: even at concentrations below current air quality guidelines they pose a risk (EEA 2011)
- The smaller the particles are, the more dangerous!
- Mortality associated with air pollution is about 15-20% higher in cities with high level of pollution compared to relatively cleaner cities
- In the EU, average life expectancy is 8.6 months lower due to exposure to PM2.5 resulting from human activities (WHO, 2008)
I. Our health at risk?

How Particulate Matter Enters Our Body

1. Particulate matter enters our respiratory (lung) system through the nose and throat.
2. The larger particulate matter (PM10) is eliminated through coughing, sneezing and swallowing.
3. PM2.5 can penetrate deep into the lungs. It can travel all the way to the alveoli, causing lung and heart problems, and delivering harmful chemicals to the blood system.
I. Our health @risk?

Loss in statistical life expectancy that can be attributed to man-made emissions of PM$_{2.5}$

Months: 0–1, 1–2, 2–4, 4–6, 6–9, 9–12, 12–36
II. Legal framework

- **European directives** regulating ambient air quality, emissions of air pollutants and fuel quality
- **international conventions** which set national emissions limits for several precursors of PM 10 (and ozone)
- **national legislation**: implementing the international and European framework (in Belgium: environment is a regional competence – exception: product norms)
II. Legal framework

I. Ambient air quality

- **Directive 2008/50/EC** on ambient air quality and cleaner air for Europe, which regulates ambient air concentrations of sulphur dioxide (SO2) and oxides of nitrogen (Nox), particulate matter (PM10 and PM 2.5), lead, benzene, carbon monoxide and ozone
- **Directive 2004/107/EC** relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons (PAH) in ambient air
II. Legal framework

- Directives 2008/50/EC on ambient air quality and cleaner air for Europe
- The merging of most of existing legislation (Framework Directive 96/62/EC and First Daughter Directive 1999/30/CE) into a single directive (except for the Fourth Daughter Directive) with no change to existing air quality objectives (see infra)
- New air quality objectives for PM2.5 (fine particles) including the limit value and exposure related objectives – exposure concentration obligation and exposure reduction target (from 2015 general limit value 25 micrograms PM2.5 per m³)
- The possibility for time extensions of three years (PM10) or up to five years (NO2, benzene) for complying with limit values, based on conditions and the assessment by the European Commission (see infra)
II. Legal framework

- **Air Quality Standards** for PM10: member states must take the necessary measures to ensure that the concentrations of PM10 do not exceed the limit values (result obligation)

- **24hr value** to protect human health: 50µg of PM10 per m³ (not to be exceeded more than 35 times a year)

- **Annual value** to protect health: 40µg of PM10 per m³

- Limit values had to be attained by **1 January 2005** (time extension, see supra)

- **Air quality plans** have to include measures to ensure that the levels of pollutants will drop below the air quality standards (short term actions plans in case of exceedance – suspension of activities)

- **No link with spatial planning!**
II. Legal framework

II. Rules on the anthropogenic emissions of pollutants to air

- **NEC-Directive 2001/81/EC** sets upper limits for each Member State for the total emissions in 2010 of the four pollutants responsible for acidification, eutrophication but also high levels of PM: \( \text{SO}_2 \), \( \text{Nox} \), \( \text{NMVOC} \) and \( \text{NH}_3 \)

- it is up to the Member States to decide which measures – on top of EU legislation for specific source categories – to take in order to comply → develop national programmes

- **Gothenburg Protocol** (UNECE, 1999) to the Convention on Long-Range Transboundary Air pollution: equal or less ambitious emission ceiling than those in the NEC Directive
II. Legal framework

III. Rules on regulating emissions of main pollutants from specific sources and sectors

- Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control) – best available techniques (BAT)
- Euro Directives for road vehicle emissions set standards for emissions of NOx, hydrocarbons (HC), non-methane hydrocarbons (NMHC), CO and PM for vehicle types
- Directive 94/63/EC on the control of VOC emissions resulting from the storage of VOC due to the use of organic solvents in certain activities and installations
- MARPOL-convention preventing pollution by ships (annex VI)
III. Case study

the project “Ghent St.-Pieters” (large infrastructure project)
- renewal of the railway station
- new bus- and tram station
- massive spatial developments in the neighbourhood of the railway station (housing blocks and offices)
- but also…
- new car park (2800 cars)
- new road → more traffic into the railway-neighbourhood: more exceedances of the limit values PM10 (according to the EIA)
III. Case study
III. Case study

Argumentation

- **main argument**: the spatial zoning plan and building permit should be suspended and annulled as the proposed development will lead to a further violation of the limit values for PM\(_{10}\) in most streets

- **reasoning**: as the European limit values for PM\(_{10}\) are interpreted by the Court of Justice as **obligations of result** (Cases C-316/88 and C-59/89, Commissio v Germany) they should also be respected when granting permits for spatial developments with an impact on air quality

- **inspiration**: Dutch case law 2004-2006 where infrastructure projects were stringently tested against the Dutch air quality legislation, often with negative outcome
III. Case study

“battle” between two approaches

- **formalistic approach**: limit values are absolute limits, to be taken into account by all authorities at all levels of government in the execution of all their legal tasks which could have an impact on air quality (e.g. Dutch Air Quality Order 2001)

- **moderate approach**: recognizing that the limit values must be considered as obligations as to result, but primarily achieved by designing and executing national programmes that have a direct impact on the sources of pollution (e.g. Germany)

- Belgian Council of State had to choose between those two approaches – no case law yet from the European Court of Justice and no specific guidance in the Flemish legislation (Vlarem-Decree)
III. Case study

**First outcome in 2008: 1-0 for the moderate approach!**

- **Decision Belgian Council of State 26 May 2008**: Belgian Council of State refused to accept that air quality standards have to be strictly applied within a spatial planning context: **no direct link → no suspension!**
- an imminent violation of limit values only obliges the authorities to draw up and execute plans in order to reduce the possibility of exceedance of the limit values (**programmatic obligation**)
- moreover, spatial decisions are considered to have no direct impact on the air quality as they, as such, cannot be seen as source of pollution
III. Case study

In the meantime (1): new Dutch legislation (2005-2008)

- after the strict case law of the Dutch administrative courts, legal political debate about the interpretation of the European limit values → towards more flexibility?
- **amendment in 2005**: offsetting regime is possible → a limited increase of the concentration of PM10 is allowed if – on balance – the air quality is improved due to the measure taken or due to the effect caused by such measure
- **amendment in 2007**: new exceptions are added: no specific assessment needed for project that do no significantly contribute to the violation of limit values and can be schemed in the National Air Quality Cooperation Programme
III. Case study

In the meantime (2): reply from the European Commission to the complaint (2009)

- violation of the air quality Directive? EC acknowledges the wide discretionary margin for the members states when taking measures to reduce possible violations of air quality standards (e.g. speed limits, financial support for cleaner technology...)

- one caveat: if the EC were to conclude that the measures to combat air pollution are insufficient to attain the limit values, then the project, which could lead to a further deterioration of the air quality, would have to be stopped (sic) → application for time extension in 2009 (new directive)
III. Case study

In the meantime (3): rejection of the Flemish application for a time extension and infringement action (2009)

- Flemish region applied for a time extension for the application of the PM10 norms in (amongst others) the Ghent-region: was rejected by the EC and thus, no derogation was granted
- the air quality management plan for the Flemish region contained to many uncertainties, drawbacks and loopholes to ensure that the standards would be met in 2011
- in 2009 start of an infringement action against Belgium (amongst others the Flemish region) for not respecting the limits values for PM10 (no judicial decision yet)
### III. Case study

**Second outcome in 2010: moderate approach revisited!**

- Decision Belgian Council of State 20 December 2010: no direct link between spatial planning decisions and quality standards: no annulment.
- Two corrections due to intervening infringement action:
  - The inadequacy of the existing programmatic approach would entitle plaintiffs to enforce the adoption of additional measures by a judicial review (but does not as such imply that the limit values have to be strictly applied within spatial decision making) ([Janecek case, ECJ, 25 July 2008](https://eur-lex.europa.eu/eli/consreg/2008/1389/oj))
  - Only when the project would render a solution to the air quality issue through a programmatic approach **unfeasible**, the air quality directive would be **violated**! (in casu: not the case) (cf. Commission)
III. Case study

“Revisited” moderate approach in line with the case law of the European Court of Justice?

- ECJ was confronted with a comparable dilemma: do the emission ceilings from the NEC Directive (SO2 and NOx, precursors of PM) have to be respected when granting an environmental permit for power stations in the Netherlands?

- “moderate” view: the NEC directive is primarily based on a programmatic approach and thus does as such not require to take into account the ceilings for a specific measure (permit for one specific source)

- nuance: it is for the national judge to review whether the permits as such cannot seriously compromise the attainment of the ceilings (ECJ, 26 May 2011) – SIMILAR!
III. Case study

“Revisited” moderate approach: most pragmatic solution?

Pro’s

- no unnecessary administrative burden for spatial planning projects
- in accordance with the wordings of the air quality and NEC-directives
- more sensible to adopt a global approach of the air quality problem than to go for piecemeal solutions/approach
- good compromise between strict legal limit values and flexible spatial planning (provided that the general measures are effective)
III. Case study

“Revisited” moderate approach: most pragmatic solution?

Con’s

- rewarding Member States for not complying with air quality standards? (see also: Opinion AG Kokott) <> stick behind the door?
- local traffic does significantly contribute to exceeding limit values in urban areas
- a judicial review of the programmatic approach appears to be quite troublesome (two recent examples – Court of First Instance of Leuven 10 March 2010 and High Court of London 13 December 2011) → loophole in access to justice in environmental matters?
III. Case study

Practical outcome of the case study?

- the project is partially completed (finalization in 2015)
- in June 2010 the municipality of Ghent adopted a local air quality plan which included 50 actions for better air quality
- local traffic measures, construction of new parkings (park and ride at the outskirts of Ghent, enhancement of public transport) → no low emission zone?
- surprising: every time local infrastructure is planned with possible negative effect on air quality, a specific assessment needs to take place
IV. Conclusions and outlook
IV. Conclusions and outlook

Air quality law in EU: environmental law @ crossroads?

- **one of the most important environmental challenges** for the future
- a **strict application** of the limit values within spatial planning is not legally required by the European law
- **no link** between limit values and spatial planning!
- it is up to Member states and local authorities to provide for adequate **measures** to attain the limit values, also in urban areas → can also include spatial measures
IV. Conclusions and outlook

Still, the integration of air quality standards in spatial planning should be **enhanced** (cf. Ghent approach) → sustainable spatial planning

Why?

1) it makes sense to take into account air quality issues when **planning urban development** (e.g. construction of new housing zones next to a heavily polluted highway,...)?

2) **local traffic reduction measures** need to be translated in zoning plans (e.g. avoid street canyons, more space for public transport)

3) serve as a tool to enhance the value of an **EIA/SEA** as a important decision aiding tool (integration principle)

4) increase **public acceptance (participation)**: unthinkable to grant a permit for large infrastructure project without taking into account the impact on PM10 (several recent examples: “Oosterweelconnection”)
IV. Conclusions and outlook

Thank you for your attention!

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