

AIR QUALITY ACROSS EUROPE, PROGRESS TOWARDS LIMIT VALUE ATTAINMENT AND OUTSTANDING ISSUES

Andrej Kobe
ENV C3, DG Environment

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Outline

- **New Commission**
- **AQD : Directive 2008/50/EC**
 - Frame, objectives, expectations
 - PM2.5
- **AQ situation in 2008 (Q461 reporting)**
- **AQD Implementation**
 - Time extension & enforcement
 - Guidance, Implementing Provisions on Reporting
 - AQUILA, FAIRMODE, GMES
 - Workshop NO2 in 2010
- **Challenges, perspectives**



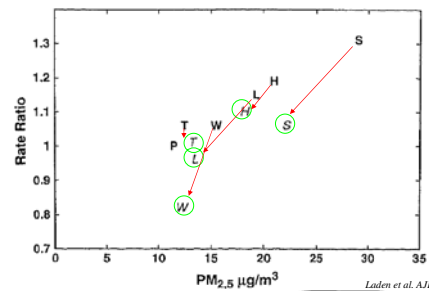
2002: 6th Environmental Action Programme

'achieving levels of air quality that do not give rise to significant negative impacts on and risks to human health and the environment;
(Art 7.1. of 6th EAP)

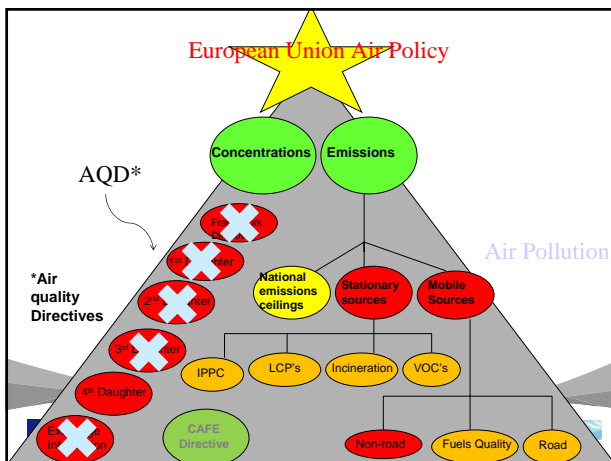
... paying particular attention to sensitive populations...
(Recital 1 2008/50/EC)



Always good to know it works...



European Union Air Policy



Measures outlined in the Strategy - state of play

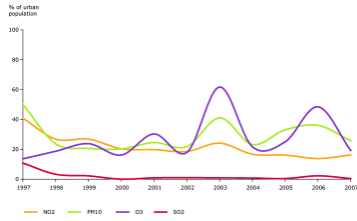
- Y** Exhaust emissions of light duty and heavy duty vehicles,
- P** IPPC
- N** smaller scale industrial combustion sources,
- N** widening the IPPC scope/ammonia
- S** NECD
- Y** refuelling of petrol cars at service stations,
- P** sulphur content of fuels including marine fuels

Investigate the feasibility of:

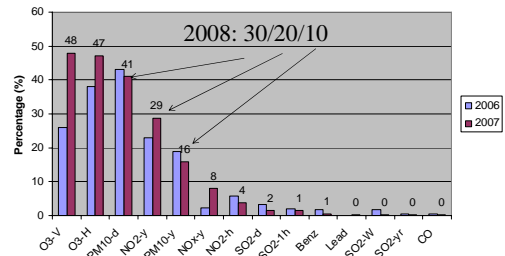
- I** improving the eco-design and reducing the emissions of domestic boilers and water heaters,
- R** reducing the solvent content of paints, varnishes and vehicle refinishing products,
- R** reducing the exhaust emissions of non-road mobile machinery



Percentage of urban population resident in areas in exceedance of current limit values (EEA CSI-004)



Percentage of zones in exceedance 2006-2007 (Source: annual report, Q461)



Questionnaire 461 : reporting year 2008

- Q461 updated to include
 - HM and PAH (4th DD) : exceedances identified!
 - Zones with approved time extension
 - PM2.5 (limited)
- Not yet received: MT, LU, some IT regions;
 - A number of resubmissions
- Significant reduction in PM10 concentration levels
 - 'good year', 2009 not so promising, although recession is/was helping
- Natural contr. claimed by 8 Member States



Time extension and enforcement

- **Art.22 state of play**
 - 18 MS notified to date, 307 zones
 - (may not include all their zones in exceedance)
 - Ireland and Luxemburg in compliance
 - Finland and Lithuania – winter sanding/salting
 - Estonia, Malta, Romania, Slovenia and Sweden have not notified
 - Decisions taken for 15 MS (NL, AT, BE, DE, DK, EL, ES, FR, HU, SK, IT, LV, CZ, PT, CY),
 - Friday : PL, BG, UK
 - further decisions in autumn, up to January 2009 (IT, DE)
 - NO2 wave expected in 2010, additional discussion in WG Time extension and Workshop in preparation



Time extension and enforcement

- **Enforcement**
 - 12 Member States PM10, 6 SO2
 - Additional 7 for zones where objections were raised
 - Closed if compliance is reached, notification successful
- **In most cases re-notification possible**
 - Decisions should provide indication what needs to be addressed
 - Substantial modification needed – can not be used as 'delaying tactics'



Time extension - conditions

- All appropriate measures must have been taken before the original attainment date
- The exceedance must be due to site-specific dispersion characteristics, adverse climatic conditions or transboundary contributions
- The air quality plan must demonstrate that compliance will be achieved at the expiry of the exemption period

Assessment by Commission confirmed 'subsidiarity principle' embedded in the Directive



Time extension – first impressions

- Significant effort in planning, update in recent years
- Often the formal status of air quality plan, funding for identified measures not clear
- Limited information on reflection why compliance not achieved by 2005
- Quantification of projected impact of measures restricted; impedes planning and robustness of end-date projection
- Only in limited cases has attention to future spatial development been specifically targeted
- In few cases: info on short term action, coherence with climate, noise policy
- No information on IPPC application of Article 10
- No specific measures addressing vulnerable population



NO2 time extension

- 1st condition (all measures before 2010)
 - Implemented measures, adopted AQ plan
 - Time extension option could not be used to delay measures
- 2nd condition (compliance by 2015 at the latest)
 - Objective is as soon as possible, not 2015!
- **NO2 : 60 µg/m3 is not a condition, but...**
- **Challenge**
 - Identify measures and their impact that demonstrate compliance by 2015 at the latest
 - Demonstrate clear commitment



NO2 workshop Q1 2010

- Organised by DG ENV
 - Support effective air management, with focus on NO2 challenge
 - Special attention to preparation of NO2 time extension notification
 - Target audience: policy officers and experts involved in implementation, all governance levels, linked to AQ committee work (tbd.)
 - Commission supported by consultant, expect to be contacted



Guidance

- WG Implementation established under AQ Committee
- By end of October WG Implementation commented on Guidance...
 - Natural contributions
 - Winter sanding/salting
 - Common PM2.5 measurements stations (applied more widely?)
- ...and received modifications of existing guidance documents
 - Assessment...
- Will also review Guidance on use of models (FAIRMODE/EEA)
- Commission will revise documents based on input, reiterate as necessary, then present to AQ committee in May/June 2010, afterwards publish



Guidance (II)

- Natural contributions, winter sanding/salting
 - Expectations: identification and quantification
 - Important role of 'supplemental' monitoring
 - Make use of products under GMES and its precursors (MACC), cooperate with your neighbours
 - Statistical approaches, averaging, extrapolation...
 - Challenges – example sea-salt contribution
- **Legal provisions to deduct for purpose of compliance does not mean 'no health effect'**
 - proceed with public information and action responsibly



Implementing Provisions on Reporting

- To replace all existing reporting under AQ Directives
 - Assessment and management, also Eol
- Faster availability (NearRealTime), higher quality, spatial dimension of AQ
- Multiple use, link assessment/management
- Use/compilations also covered in IPR
- To be adopted at AQ Committee in May/June 2010
- Based on DEG work, legal text in development
- To be reviewed by DEG and WG Impl in early 2010



Implementing Provisions on Reporting (II)

- **INSPIRE**
- **In preparation (example)**
- **Metadata on monitoring stations**
- **Link assessment/management**
 - ➔ Enables to follow that measures bring compliance throughout the territory
 - ➔ Identified exceedance through regular assessment (M) triggers
 - evaluation of area of exceedance (A) and population exposed (Pop)
 - measures to be taken
 - ➔ A and Pop accompany M in subsequent years, may be updated
 - ➔ Compliance can only be reaffirmed when it is evaluated that A and Pop are 0.



AQUILA

- Network of national reference laboratories with responsibilities under AQD
 - ➔ Participation in EU-wide comparisons
 - ➔ Dissemination of QA/QC nationally
 - ➔ AQUILA / recommendations, inter-comparisons
 - ➔ <http://ies.jrc.ec.europa.eu/aquila-homepage.eu>
- At July AQ Committee meeting, documents on...
 - ➔ Demonstration of Equivalence
 - ➔ AQUILA and Quality of measurements
 - ...were accepted without comments.
 - ➔ Commission will interpret provisions and benchmark activities and reports of NRL and networks according to the two documents



AQUILA (II) – Equivalence, PM2.5...

- Ongoing issues with equivalence of PM non-reference measurements
 - ➔ Rigorous QA/QC, periodic comparison with reference required
- PM2.5 exposure
 - ➔ For Average Exposure Indicator (AEI) Commission recommends use of the reference method
 - ➔ QA/QC to go beyond requirements for 'compliance' PM monitoring? Observing trends...



FAIRMODE

- **Modellers forum to support implementation of AQD**
- **Co-managed by EEA and JRC**
- **Plenary 18 November in Ispra**
 - ➔ Lively discussion, workplan 2010 & long perspective
- <http://fairmode.ew.eea.europa.eu>
- **WG1**
 - ➔ Developing guidance on use of models
 - ➔ User forum to facilitate best practices
- **WG2**
 - ➔ Developing QA/QC
 - ➔ Eventual benchmarking of models



GMES

- **User oriented operational service**
- **Space, in-situ, data assimilation and modelling**
- **MACC project to cover 'core service'**
 - ➔ www.gmes-atmosphere.eu
- **'Downstream services' already starting**
 - ➔ PASODOBLE
- **EEA responsible for coordination of in-situ**
- **2011-2013 financing currently under discussion**



...all these assessment(s)

- ...should form coherent picture and enable consistent message...
- Support effective measures: PM10, NO2 compliance
- Inform PM2.5 exposure reduction strategy
- Support public information – reduce exposure
- Catch emerging issues
- Inform research and ex-post evaluation



Research and Development

- Research : significant number of ongoing projects already at EU level
- Particular interest where expected to directly contribute to policy (ESCAPE, TRANSPHORM, MEGAPOLI, CityZen...) or supports such as GMES
- LIFE (EC4MACS, KAPPA GS...)



Final messages (I)

- **Understand your sources**
 - Transboundary and regional, Secondary particles
 - Non-exhaust, wood combustion...
- **Know your measures, plan your measures**
 - Governance issues: national/regional/local
 - Ambition level and funding, time
 - Several challenges addressed at EU level – follow up!
 - Avoid mistakes: Spatial planning, EIA, SEA
 - Specific measures, innovative measures
 - Low Emission Zones, urban transport, short term action...
 - Progress monitoring, indicators; projections and ex-post



Final messages (II)

- **PM10 time extension and enforcement**
 - Resource intensive, but positive feedback received
- **Smart implementation required**
 - PM2.5 provisions step towards better steering to relevant health outcomes but remain a blunt instrument.
- **Integration of objectives : links and trade-offs**
 - PM2.5 exposure reduction, NO2
 - Climate mitigation, transport, indoor air
- **Review/revision in 2013**
 - Positive trends & good information base crucial
 - Can we sharpen our policies with new metric(es) ,assessment



Thank you

<http://ec.europa.eu/environment/air/index.htm>

andrej.kobe@ec.europa.eu



Air /climate change links

- Climate sensitivity (aerosols)
- CC may exacerbate health, agricultural, ecosystem impacts of air pollution
- **Link through measures**
 - Synergies (energy efficiency – beware: indoor air quality)
 - Trade-offs (renewables/wood burning)
 - Case-by-case : land use, transport solutions, biofuels...
- **Need for consistent integrated assessment models (IAM)**
- **Links at all spatial scales!**
- **Watch this space: ozone and black carbon**



- **Some questions remain open...**
 - Better metrics?
 - Effects of changes (tech, society)
- **Air Quality Directive review in 2013**
 - Review of health effects and impact of Community measures
 - Explicit objectives in Article 32
 - Review provision for all pollutants as appropriate
 - Explicitly PM2.5
 - Chance to review other provisions
 - Assessment requirements in view of availability of GMES and developments under modelling forum FAIRMODE
 - Operational SEIS, INSPIRE



Assessment 1st condition

- Source apportionment
- First occurrence of an exceedance triggering abatement action pursuant to Directive 1999/30/EC
- The relevance of the measures taken in relation to the identified sources
- The impact of the external factors, such as transboundary contributions



Assessment 2nd condition

- Criteria as defined in COM(2008)403 or equivalent
- Generally well substantiated
- More details are needed when other indicators/criteria are used than those in the Communication



Assessment 3rd condition

- Projected concentration levels at the expiry of the exemption period
- Estimated impact of additional measures
- Air quality plan accompanying the notification
- Compliance already achieved



Provisions PM_{2,5} (I)

- **Target and limit value**
 - Scope, technique identical to other pollutants, with limited changes compared to established practice
- **Assessment**
 - Ref. Method EN14907, new provisions on QA/QC
 - Similar to established, identical to PM10
 - Including ratio requirements
 - 'Aggregate' PM10/PM2.5 requirement for minimum number of stations in zone
 - Should sampling strategy PM10/PM2.5 be any different?
 - Exposure / Average exposure indicator
 - Urban background stations 1 per million in larger urban areas
 - Equivalence issue – specific challenge for AEI
 - PM2.5 speciation in rural background



Provisions PM_{2,5} (II)

- **Management**
 - Similar to existing provisions
 - Now: AQ plans also after limit and target value entry into force
 - PM2.5 has both TV and LV; exceeding margin of tolerance may modify objective of measures in a plan, but plan triggered already in 2010 by TV
- **Exposure/average exposure indicator**
 - Very blunt proxy for public exposure, more refined local methods can be used for guidance in taking exposure-abatement measures
 - Tracking feeble AEI trends = QAQC challenge
- **Can exposure objective be used to steer abatement decisions?**
- **How can it be linked within AQ plan? Is national plan required?**



5 objectives for PM_{2,5}

- 1) **Target and limit value**
 - 25µg/m³ annual average to apply everywhere .
 - Target value in 2010, **limit value in 2015**
 - Indicative limit value of 20µg/m³ in 2020, to be confirmed at review
- 2) **Exposure (based on national average exposure indicator)**
 - PM non-threshold pollutant – adverse effects also below limit value
 - Largest exposure in urban areas > average across cities
 - **Exposure concentration obligation 20µg/m³ in 2015**
 - **Exposure reduction target** to reduce national average measured urban background concentration 0 to >20% between 2010 and 2020 subject to later review

