Assessment of Plans and Programmes reported under 1996/62/EC - in-depth analysis of selected P&P

Study tour of Macedonian experts
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Background

- Air Quality Framework Directive (96/62/EC; AQ FWD) requires a plan or programme (P&P) to be submitted to EC if sum of limit value and margin of tolerance is exceeded in MS prior to attainment date
- Limit values and margin of tolerance were laid down in DDs
- First P&P were due after exceedances of limit values of 1st DD in 2001 at the end of 2003
- Information about P&P has to be submitted to EC
- EC has advertised a contract on „**Assessment of Plans and Programmes reported under 1996/62/EC”** to analyse P&P submitted so far

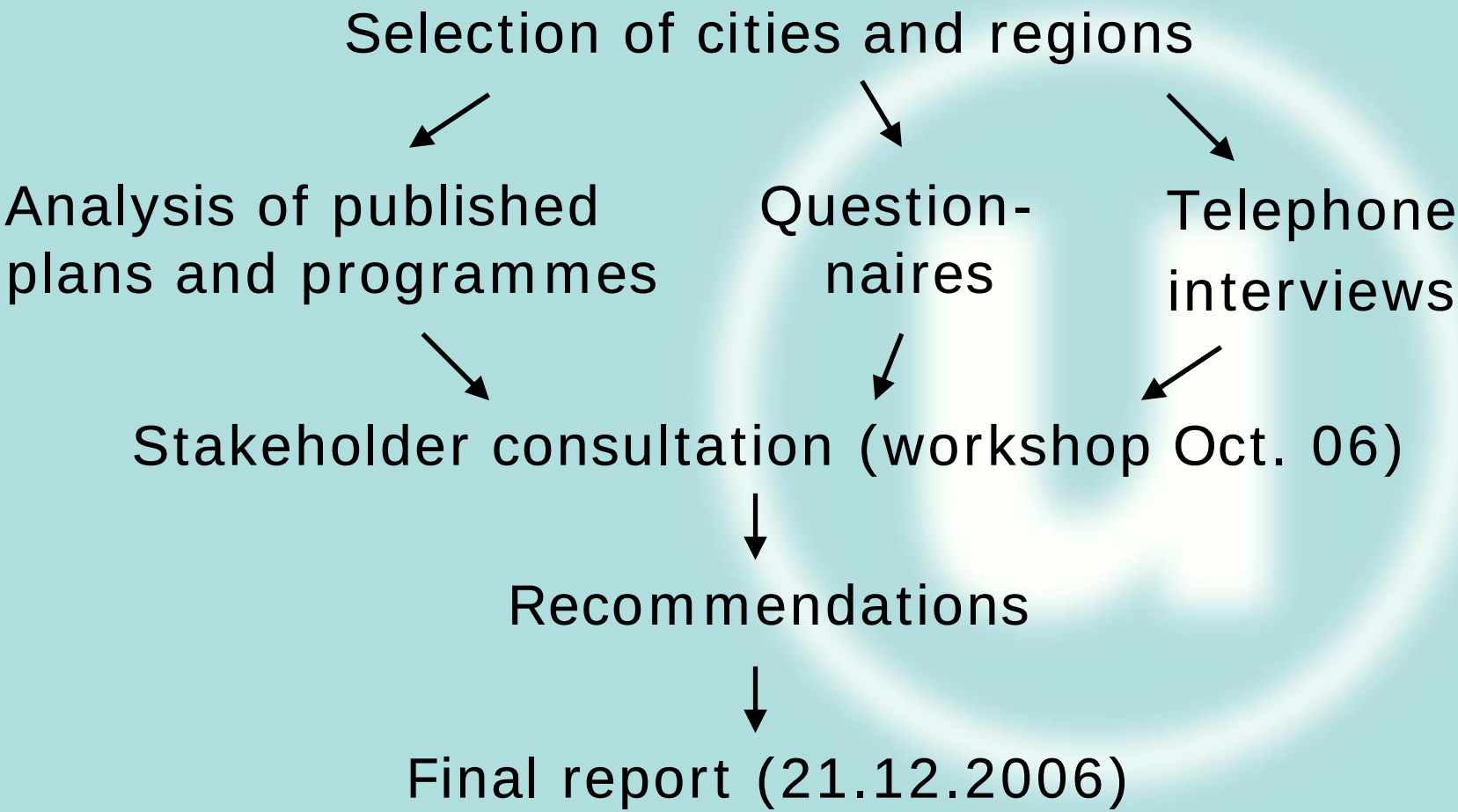
Background: Submission of reports on P&P to EC

- Recommendations by Working Group on Implementation
- Adopted by Comitology (Commission Decision 2004/224/EC), requires 7 forms:
  - General information on the plan or programme
  - Description of the exceedance of the limit value
  - Analysis of the causes of exceedance of the limit value
  - Baseline level
  - Details of measures beyond those already required by existing legislation
  - Optional: Possible measures that have not yet been taken and long term measures
  - Summary of measures

Key Questions of project

- Are the measures sufficient to ensure compliance with limit values?
- How can P&P be improved?
- How effective are P&P?
- Are there ‘best practise examples’?

Method


Selection of cities and regions
Analysis of published plans and programmes
Question-naires
Telephone interviews
Stakeholder consultation (workshop Oct. 06)
Recommendations
Final report (21.12.2006)

Selection criteria

- To cover whole of Europe
- To cover all climate zones
- Focus on agglomerations
- Focus on traffic related problems
- Selection approved by European Commission

➔ 18 cities and regions selected

➔ Note: No representative sample of all P&P!

Cities and regions chosen for the analysis

- Graz
- Vienna
- Brussels
- Munich
- Berlin
- Stuttgart
- Copenhagen
- Madrid
- Barcelona area
- Paris
- Marseille area
- Bozen
- Milan
- Amsterdam and other cities
- Stockholm
- Bratislava
- Košice
- London

Compliance at attainment date

City	Main source	NO_2 (2010)	PM10 (2005)
Graz	Traffic	No	No
Vienna	Traffic	No	No
Brussels	Traffic	Yes	No
Copenhagen	Traffic	No	x
Paris	Traffic	No	No
Marseille	Traffic, Industry	n.a.	No
Munich	Traffic	No	No
Berlin	Traffic	No	No
Stuttgart	Traffic	No	No
Milan	Traffic	n.a.	No
Bozen	Traffic	x	No
Amsterdam and other cities	Traffic	No	No
Bratislava	n.a.	n.a.	No
Košice	n.a.	x	No
Madrid	Traffic	n.a.	No
Barcelona	Industry	No	n.a.
Stockholm	Traffic	x	No
London	Traffic	No	No

NO_2: 1 out of 9

PM10: none

x: no exc.
n.a.: no information available

Possible reasons for non-compliance

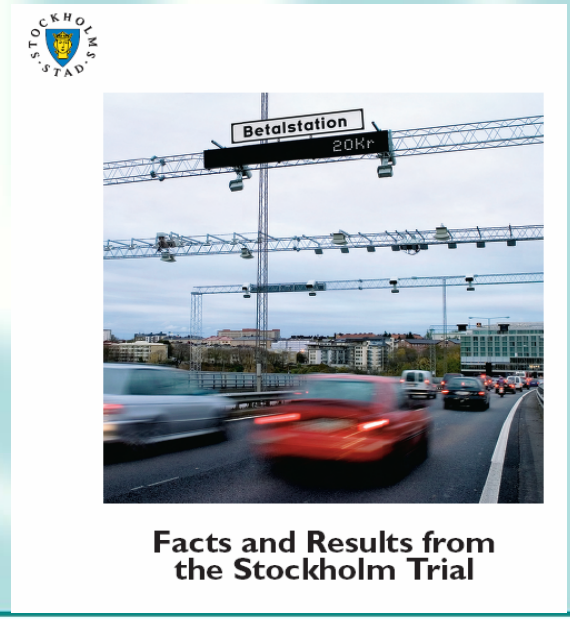
- Timing
- Implementation problems
- Technical difficulties
- Other reasons

Possible reasons for non-compliance - timing

- Planning (and subsequently also implementation) of measures started too late
- Often measures indicated in reports on P&P mark the beginning of the planning process (studies, monitoring…)
- Some measures require several years of planning and implementation (low emission zones, public transport infrastructure,…)

Possible reasons for non-compliance – implementation problems

- Limited public and political acceptance of measures (esp. for traffic)
- ➔ However, CC in London and Stockholm show the importance of well prepared information campaign and public consultations



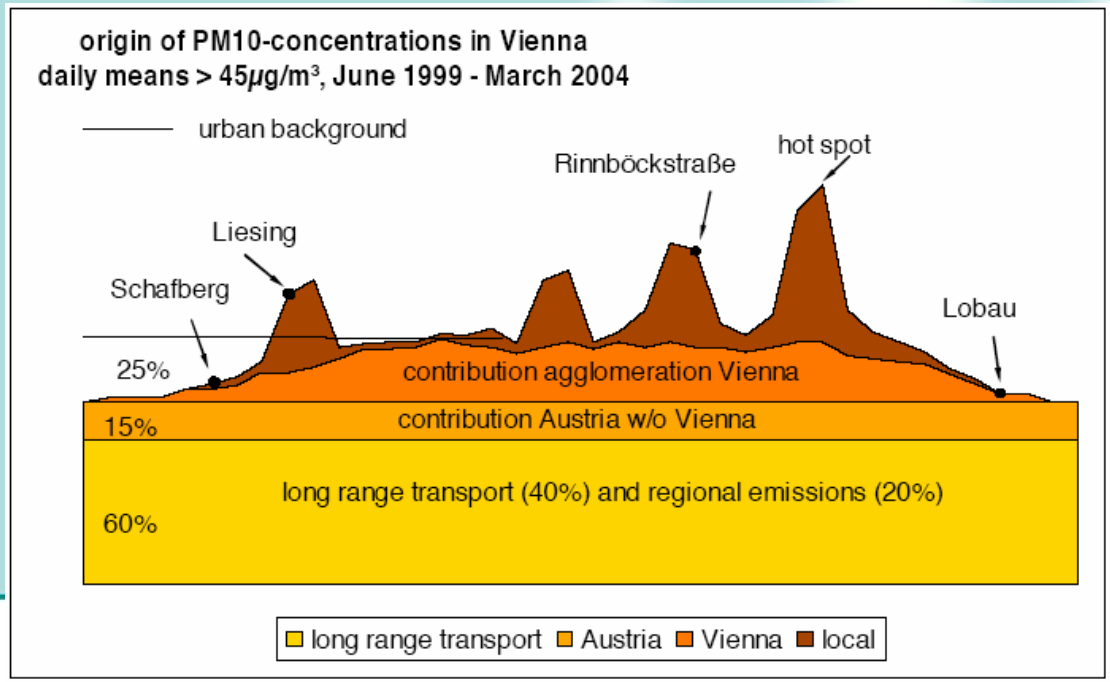
- High costs of measures versus limited funding (esp. for public transport)
- Legal responsibilities split between different administrative levels or authorities

Possible reasons for non-compliance – technical difficulties

- Difficulty of allocating sources for PM10
- Inaccurate emission inventories
- Underestimation of real world emission factors of certain vehicles
- Uncertainty concerning the date and level of attainment of new EURO standards

Possible reasons for non-compliance – other reasons

- High background levels for PM10, hence limited local possibilities
- High overall concentrations, hence only drastic measures might result in compliance (or compliance not possible with local measures at all)



Integration of (transport) plans

- Transport plans available for 8 cities (Graz, Vienna, Berlin, Munich, Paris, Bozen, Stockholm, London)
- In some cases, there is a cooperation between transport planning and air quality planning
- Some transport plans state clear environmental objectives, including air quality objectives
- Impact analysis of several scenarios on traffic, AQ, noise for two plans
- In most cases, air quality plans have to deal with the current situation defined in transport plans
- Integrated plan (incl. NEC, GHG) only for Brussels, NL
- Consistency between NEC and AQ P&P checked in ENTEC NEC review

Effectiveness of measures

- Necessary information
  - Quantification of emission reduction
  - Effect on air quality
  - Assessment of costs
  - Assessment of benefits

Effectiveness of measures - information given in P&P

City	Emission reduction quantified	Effect on AQ quantified	Assessment of costs	Assessment of benefits
Graz	+	–	+	–
Vienna	+	–	+	–
Brussels	+	–	–	–
Copenhagen	+	+	–	–
Paris	–	–	–	–
Marseille	–	–	+	–
Munich	+	+	–	–
Berlin	+	+	–	–
Stuttgart	+	+	+	–
Milan	–	–	+	–
Bozen	–	–	–	–
Amsterdam	+	+	–	–
Bratislava	–	–	–	–
Košice	–	–	–	–
Madrid	+	–	+	+
Barcelona	–	–	–	–
Stockholm	+	–	–	–
London	+	+	+	+

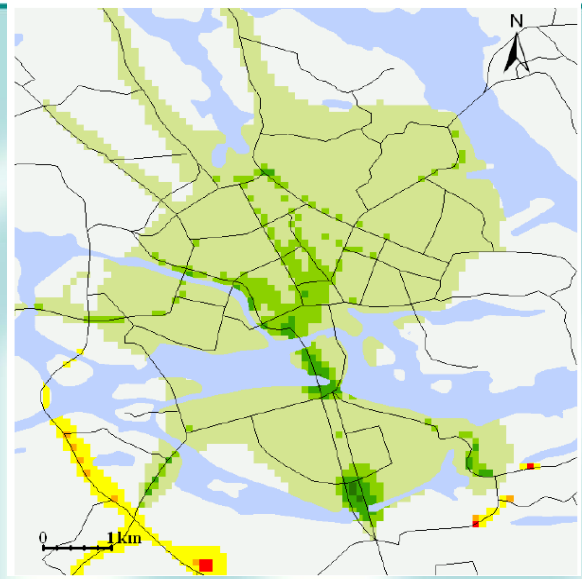
Effectiveness of measures - analysis of costs

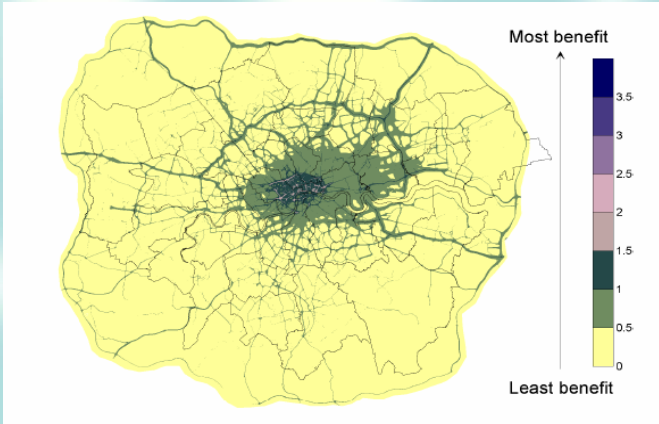
- Cost-benefit analysis only for very few regions available:
  - UK
  - London (low emission zone, congestion charge)
  - Stockholm (congestion charge)
  - Madrid
- For some plans administrative costs or estimation of costs per ton emission reduction are given

Effectiveness of measures – London, Stockholm

- Low emission zone and congestion charge are both cost effective measures
- In the case of Stockholm if implemented, within 4 years the social benefits would exceed the costs
- For London an IAM has been undertaken (Mediavilla-Sahagún, ApSimon 2006):

➔ different scenarios of fuel switching, various low emission zone schemes, public transport improvements, road user charges and increased parking shares would result in compliance with PM10 levels in 2005

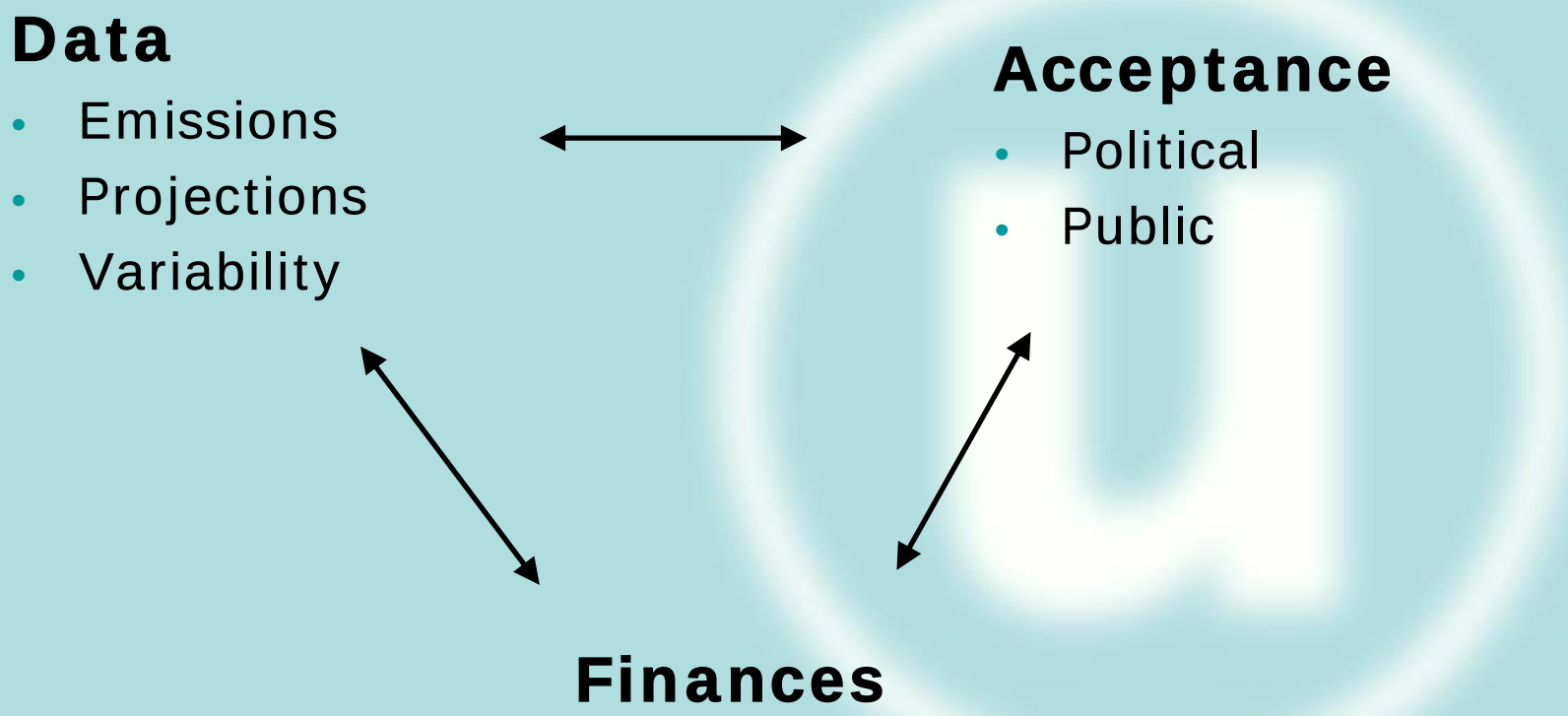




Effective, but not implemented measures

- Reasons for not implementing certain measures:
  - No legal competence
  - Limited funding
  - Disproportionate burden to specific subgroups
  - No political, public support
- Measures that might be effective (but were not impl.):
  - LEZ and environmental zones
  - Substantial reduction of use of studded tyres
  - Rerouting of lorries
  - Stricter emission standards for trucks and passenger cars
  - Traffic restrictions for vehicles with even or odd number plates

Key Problems in implementing measures



Supporting factors in the planning process

- Communication and participation of stakeholders (authorities, trade organisations, NGOs, public) during planning and implementation
- Strong political commitment
- Awareness raising and information of the public about air quality issues

Evaluation of effectiveness of P&P

- Available for:
  - London, Stockholm CC
  - Graz
  - Germany (IVU 2006)
- Measured concentrations most often foreseen as indicator
- However, meteorological influence often superimpose effect of measures; no differentiation between effect of different measures possible
- Guidelines do not recommend to use conc. as indicator

Selected measures

- Low Emission Zones (Berlin – DE, Sweden, London – UK)
- Congestion charge (London – UK, Stockholm – SE)
- Traffic restrictions during episodes (Graz – AT, Bozen – IT)
- Speed limit restrictions (Graz, Vienna – AT, Berlin, Munich – DE, Paris – FR)
- Retrofitting of diesel vehicles with particle traps (several cities)
- Public transport improvement (several cities)
- Domestic heating (Bozen – IT, Graz – AT)
- Ecological management of construction sites (Vienna – AT; Berlin, Stuttgart – DE)
- Measures on stationary sources (Marseille – F, Košice – SK)

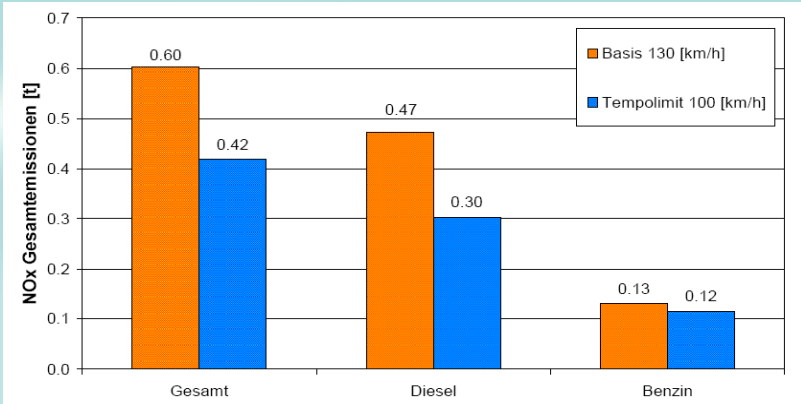
Ecological management of construction sites

- Construction sites have been identified as major PM and soot sources in various countries
- CH: 25% of exhaust PM emissions come from construction machinery
- Vienna: 32% of inner city lorries due to construction work
- In CH particle filters are mandatory since Sept. 03 (next to other measures)
- Draft best practice guide for London
- Ecological management pilot studies in Vienna (e.g. transport via rail)
- Problem: emission estimates very uncertain

➔ Effect of measures difficult to predict

Speed limit restrictions - Graz, Vienna, Berlin, Munich, Paris

- Graz: 130→100, 100→80, 50→30 kph
- As only limited no. of streets are affected, not much influence on AQ: -2.6% PM10 emission
- Much larger effect for motorways: -17% PM10, –36% NOx, even larger if enforced
- Similar result for Rotterdam
- Cost effective measure as only small investment necessary (depending on scheme)
- Enforcement important for effectiveness



A12 motorway NOx emissions passenger cars

Traffic restrictions

- Bozen: Ban of vehicles older than Euro 2 and diesel vehicles if PM10 levels are above 50µg/m³ for 5 consecutive days
- Ban from 7am to 7pm in environmental zones
- Stepwise plan for the next few years
- Clear indication for improved AQ if traffic decreases by 30-40%
- Graz: draft ordinance similar to Bozen (but limit 75µg/m³ in first year, then 50µg/m³)

Domestic heating restrictions

- Bozen:
  - Ban of wood burning if daily means of PM10 are above 50µg/m³ for five consecutive days and alternative heating system is available
- Graz:
  - Stricter limit values for heating systems
  - Closedown of very old heating systems
  - Incentives to replace heating systems

Sources for recommendations

- US experience
- EEB snapshot report (see presentation from Kerstin Mayer)
- Experience from in-depth analysis
- Recommendations from the questionnaire
- Stakeholder workshop

Recommendations for improvement

- In order to comply with the limit values by the attainment date, sound and timely planning is crucial.
- To understand the scale of the problem and to develop and implement measures, mandatory AQ modelling and emission inventories are a prerequisite.
- Information on measures and good practice examples should be made available and shared by all MS. Feedback from the EC on reported P&P should be institutionalised.
- P&P should be harmonised with other national policies and plans.

Recommendations for improvement

- Guidelines should be made available for effective air quality planning.
- Reporting of certain information, such as costs, effectiveness of measures, indicators or timing of measures should be extended.
- Exchange of information on P&P should be facilitated by providing user-friendly forms and making all reported forms readily available.

Conclusions

- Compliance very rarely achieved
- Effects of measures often not assessed
- Public and political support for implementing measures is often lacking
- Integrated approach (e.g. inclusion of other departments, authorities at different levels, public, stakeholders from the beginning) essential