Soot-free Cities

A European City Ranking on Best Practices on Air Pollution Reduction from Transport

Methodology

Introduction

In 2011, a first Soot-free Cities Ranking was published to evaluate European cities according to their anti air pollution activities. To update this evaluation we conducted a second City Ranking in 2015 using the same categories.
This paper provides information on ranking methods and the selection of the cities and the categories of measures as well as the way grades were given and subdivided.

The Soot-free City Ranking is focusing on observed and documented activities in the cities regarding transport . The relevant time span ist from 2008 to now. And we included measures that haven been adopted and will exert effects in the coming years.

A. Which Cities Were Ranked?

Cities selected for ranking were identified based on a number of criteria:

- Capitals and/or major cities in Central and Western EuropeCities with high exceedances
- Best-practice suspects of PM10 and NO_2 reduction measures
- Balanced selection representing most European countries; max. three per country

The following 23 cities located in 16 different countries were included in the 2015 update of the city ranking. Six of these cities were not evaluated in the previous City Ranking.

- Amsterdam
- Barcelona (new)
- Berlin
- Brussels
- Copenhagen
- Dublin (new)
- Dusseldorf
- Glasgow
- Graz
- Helsinki (new)
- Lisbon (new)
- London
- Luxembourg (new)
- Lyon
- Madrid
- Milan
- Paris
- Prague (new)
- Rome
- Stockholm
- Stuttgart
- Vienna
- Zurich

Several Central and Eastern European cities were excluded from the selection for feasibility and comparability reasons.

B. Information Approach: Research and NGO Feedback

The evaluation of cities is based on:

- Answers of a questionnaire sent to the cities
- Additional research on websites
- Analyses of official documents especially action plans/air quality plans
- Intensive feedbacks with NGO partners in the ranked cities: The overview of municipal measures and the preliminary ranking was discussed with the clean air experts of NGO.

C. Evaluated Categories

Based on prerequisites of the EU Commission, to grant time extensions (reporting templates) the following array of measures was examined. They can be classified into technical, economic measures and measures of sustainable mobility planung:

1. Reduction success of local emission at urban traffic measuring stations
2. Low emission zones and bans of high emitters (i.e. heavy goods vehicles)
3. Public procurement and clean municipal vehicle and bus fleet
4. Non-road mobile machinery emission regulation
5. Economic incentives (congestion charge, parking management, subsidies, etc.)
6. Traffic and mobility management (incl. modal split)
7. Promotion of public transport
8. Promotion of cycling and walking
9. Transparency and communication

D. Evaluation criteria of reduction measures

Scope: Are respected measures and instruments comprehensive and extensive or only short-sighted, narrow-focussed or selective with little chance of substantial emission reductions? For example, are low emission zones large enough to also reduce urban background concentrations; do we see a high percentage of retrofitting or a high percentage of fleet renewal; is there a comprehensive strategy to promote public transport or cycling, etc.?

Effectiveness: Do these measures and instrument address main emitters and sources (diesel engines, engines with low Euro emission standard etc.)? Are the measures and instruments properly implemented and enforced? Are there fixed timelines or are there just announcements with little commitment?

Evaluation criteria of the categories of measures

In order to increase transparency and further improve accessibility of this ranking, considerable effort has been made to create a set of indicators, both quantitative and qualitative, that help to determine what grade a city would receive for a certain category. These indicators are both enabling and limiting, given the diverse situation and sets of measures of cities, they need to be understood as guidance rather than a fixed grid.

Overall, we looked in particular at the last 5 years and the coming 5 years, taking into account conditions resulting from work before or targets after these time limits.

Reduction Success Local Emissions

++	PM10 **and** NO_2 concentrations comply with EU limit values; significant emission reductions also of NO_2
+	Significant reduction of PM10 and compliance with EU limit values. but compliance with PM10 (daily exceedances and annual mean) expected within the next two years with the measures already adopted/implemented. Reduction trend of NO2.
0	Concentrations of PM10 are slightly above limit values, **but** significant reduction
-	Concentrations above limit values and reductions of PM10 or NO_2 are not sufficient to reach limit values
--	Concentrations above limit values but no clear/distinctive reduction trend of PM10 and NO_2

Doubts about measurement station locations or consistency of the data: downgrading.

Low Emission Zones & Bans of High Emitters

++	Low Emission Zones (LEZ) or bans of diesel vehicles with high emissions for all street vehicles with a comprehensive area (1/3 of inhabitants or area or more), ambitious standards (Euro 4 at least from 2015 onwards, effective enforcement and without excessive exemptions
+	Comprehensive LEZ or or bans for high emitting diesel vehicles,(, but currently still some functional deficits but overall effective or selective bans for high emitting Heavy Goods Vehicles (HGV).
0	LEZ or comparable instrument or selective bans leaving out important emitters: But positive development-
-	LEZ or selective with substantial deficits in conception or enforcement
--	Clearly insufficient LEZ conception (area, standards) or no access restriction

Public Procurement & Clean Cars (Municipal fleet of HDV, LDVs, cars & public bus fleet)

++	Comprehensive strategy with currently at least 90% Euro 5 or better for public transport **and** municipal fleet
+	At least 75% share of Euro 5 vehicles for public transport **and** municipal fleet OR: Less than 75% Euro 5, **but** comprehensive clean fleet strategy with clear and binding future objectives (e.g. budgetary commitments or targets)
0	At least 30% share of Euro 5 vehicles for public transport **or** municipal fleet **and** additionally a clean fleet strategy
-	Below 30% share of Euro 5 vehicles for public transport **or** municipal fleet; no comprehensive clean fleet strategy
--	No clean fleet strategy; **or** no information retrievable

Non-Road Mobile Emission Sources (Construction Machinery, Ports, Ships)

++	Comprehensive strategy and regulation, requiring particulate filters for all construction machinery
+	City requiring the latest emission standards for construction machinery in public construction works (IIIa-/IIIb-standards)
0	Regulation or measures adopted, but insufficient ambition and loopholes, etc. existent
-	No binding regulation in place, **but** information brochures or guidelines available
--	No measures taken and no information retrievable

Additional measures for other relevant non-road sources like ports or ships are factored into the categories when targeted specifically by the municipality.

Use of Economic Incentives (Congestion Charging and Parking Management)

++	Strong and comprehensive economic measure (i.e. congestion charge or extensive and effective parking management) with positive steering effects.
+	Good economic measures with limited positive effects
0	Economic measure with only marginal foreseeable development
-	Unambitious economic measure with no positive effects, as measures are too weak (insufficient pricing structure)
--	No conception or strategy of economic incentives **or** no information retrievable

Small but innovative measures or additional incentives have been acknowledged.

Traffic & Mobility Management Incl. Existing Modal Split

++	Existing modal share of cars is already very low because of sustainable transport measures already taken (motorised individual transport – MIT - share of <33%) and positive trend in the future (ambitious targets <25% until 2020 or 2025).
+	Larger share of MIT innovative concepts and ideas (e.g. mobility management concepts for events); share of motorised private transport between 33% and 50% but good mobility management strategy OR: Comprehensive and convincing mobility management measures to react on high MIT share (e.g. > 50%)
0	Partially good mobility management measures; share of motorised private transport between 33% and 50%
-	Too limited mobility management strategy which is ineffective on city-scale; **and** high share of motorised private transport > 50%
--	No or only inadequate mobility management; **or** no information retrievable

Promotion of Public Transport

++	Comprehensive measures: expansion of existing lines, new lines in public transport, higher frequencies, expansion of seat capacity to react to or attract demand, attractive tariffs and good marketing
+	Relatively comprehensive public transport strategy with some good measures
0	Individual good measures, but also bad ones such as expensive mis-investments. No overall progress visible or to be expected.
-	Too little measures, inappropriate for modal shift to public transport (stagnation on an insufficient level)
--	Far too little measures. No real effort to expand public transport; mis-investments.

Promotion of Walking & Cycling

++	Comprehensive measures to promote walking and cycling through a comprehensive cycling network and measures in hardware (expansion of cycling lanes including highways, biking stations, racks, a bike sharing scheme **and** expansion of pedestrian zones and routes, sign posts) **and** soft measures such as marketing and information measures (campaigns, information software, etc.)
+	Comprehensive strategy to promote cycling or walking
0	Good, individually effective measures to promote walking or cycling with effects on modal shift
-	Good individual measures without effect of modal shift
--	Insufficient measures or no strategy to promote; no ambition for modal shift

Transparency & Communication Policy

++	Comprehensive and attractive information system: concentration values, legislation, reports including air quality plans, phone contact to the responsible person in the administration, background information, interactive maps, data download; additionally innovative features or communication modes: apps, alert systems, education possibilities. Good NGO participation.
+	Single, less important features of "++" missing
0	Important information is available. However, without much ambition for good content or attractive presentation; no good guidance
-	Most information can be retrieved – some important information missing – but only with noticeable effort by the user.
--	Incomplete or inconsistent information, confusing website or no updated information, no personal contact or no NGO participation

In this category, also the communication of the city with city ranking project team was weighted. Full points were only possible with completed questionnaire. Good communication with the city was adequately factored in, so was suboptimal communication or not answering the questionnaire.

E. Grading system:

The grading system is explained in the following table. Marks were given for each of the main categories.

very good (comprehensive and effective action)	++	2 points
good	+	1 point
not good / not bad	0	0 points
too little action but efforts	-	-1 points
very bad: far too little action	--	-2 points

The final overall grade was calculated as percentage of the highest possible grade (18 points were the maximum to be reached) resulting in a percentage for each city. Depending on the percentage of points achieved, the American grading system A-F was applied and cities were ranked accordingly.

- A: Best grade 90% - 100% (A+ if ≥ 97% and grade A- if ≤ 92%)
- B: Above average 80% - 89% (B+ if ≥ 87% and grade B- if ≤ 82%)
- C: Average 70% - 79% (C+ if ≥ 87% and grade C- if ≤ 72%)
- D: Not satisfactory 60% - 69% (D+ if ≥ 67% and grade D- if ≤ 62%)
- F: Fail 0% - 59%

Contact

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