

Evrin Dogan Ozturk | 28 June 2018 | Workshop on local measures to improve air quality and health

Following-up the recommendations of AIP2013- 5 years on



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Air Implementation Pilot 2013

- Joint EEA – DG ENV project
- focused 12 cities



OBJECTIVES

- to assess the practical experience of 12 European cities with the current policy framework
 - to better understand the challenges in implementing air quality policy at local level
 - develop proposals for improved implementation
 - share experiences among pilot cities
- PERIOD: 2 year: 2012-2013
 - RESOURCES: EEA + DG ENV + ETC/ACM experts + Cities staff

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Air Implementation Pilot 2013

WORKSTREAMS

- local emission inventories
- modelling activities
- monitoring networks
- trends and management practices
- information to the public

OUTCOMES

- helped the Commission to identify what cities need in order to better implement EU air quality legislation
 - input to EU's Air Quality Policy Review and design of LIFE + Clean Air Policy Package
- encouraged the cities to share their experiences so that they could learn from each other and the experts
- helped identify and address the reasons underlying the gap in implementation of air quality policy in cities, and thereby draw lessons of wider relevance



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Air Implementation Pilot 2018

- follow-up AIP2013 after 5 years
- EEA initiative
- focused on same cities
- 10 cities interested in the follow-up



OBJECTIVES

- highlight improvements as well as challenges
 - explore further needs of cities to overcome challenges
 - develop proposals for improved implementation
 - not intended to solve AQ problems, but improve information base for future action
 - share experiences among pilot cities
- PERIOD: 1 year: 2018
 - RESOURCES: EEA + DG ENV + ETC/ACM experts + Cities staff
 - Kick-off meeting (12 February 2018)
 - Questionnaire (April 2018)
 - Webinars (May 2018)
 - Workshop (31 May-01 June 2018, Copenhagen)

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Background information

Results from AIP2013



City \ Measure	DOMESTIC/ RESIDENTIAL		TRAFFIC			
	Fuels	LEZ	Public transport	Speed limits	Congestion charge	Mobility plan / awareness
Antwerp		In 2016	Modal shift (+ bike sharing)			X
Berlin		X	Modernisation of fleet	30		
Dublin	Ban of bituminous					
Madrid			Renovation of buses fleet			
Malmö		For heavy vehicles	Conversion of fleet			
Milan	Regulation of biomass	winter			X	
Paris			New services (Vélib and Autolib)			
			Spatial measure (+ bike lanes + tramway)			
Plodiv	Municipal buildings		+ bike lanes			
Prague		Heavy trucks	Alternative fuel + electro recharge			
Vienna	District heating		Increase of use			



AIP2018: Key pollutants targeted

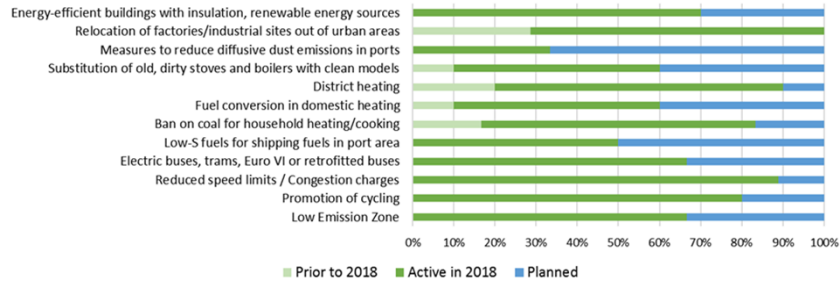
pollutant	main source	status
NO ₂	traffic	⊗ serious problem
PM ₁₀	long-range transport, wood burning, traffic	⊗ still problem in years with adverse meteo, but local contribution decreased, to be solved at national & EU level
O ₃	long-range transport, traffic	⊖ diminishing problem, to be solved at national & EU level
PM _{2.5}	long-range transport, traffic	⊖ diminishing problem
B(a)P	traffic, domestic heating	⊖ still problems at few spots in years with adverse meteo
Pb, HM	traffic, industry	⊖ still problems at few industrial areas
Benzene	traffic	⊕ problem solved
SO ₂	power plants, industry, domestic heating	⊕ problem solved 🔧 switch to clean fuel & control technology

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AIP2018: Implementation status of measures

Mitigation measures in place in the cities



	Emission sources targeted by air quality (AQ) measures
Past (<2018)	Industry, residential heating. AQ problem solved, or successful ongoing measures
Present (2018)	Road traffic, energy efficiency, residential heating, shipping. Mostly traffic-related measures; successful ongoing measures
Planned	Inland shipping, construction/demolition, residential heating, road traffic, recreational wood burning

AQ assessment: Berlin

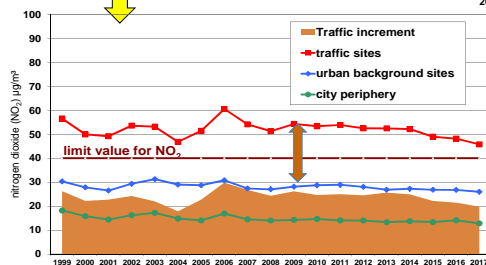
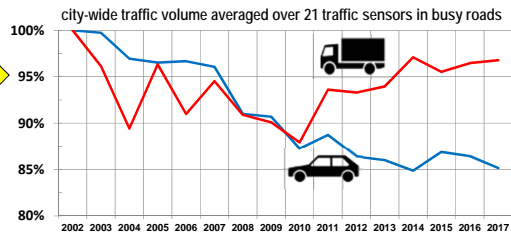
NO₂ pollution & traffic trend

Despite of ...

- the LEZ
- decreasing traffic volumes

-15% passenger car traffic since 2002

...NO₂ concentrations stagnate

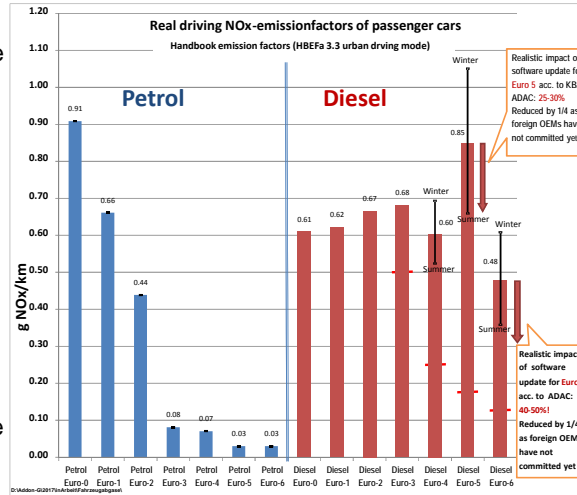


Extra measures badly needed

Diesel dilemma: Berlin

Real driving emissions (RDE) of NOx of petrol & Diesel passenger cars

- 🔥 Petrol (and CNG-vehicles) are clean by now
- 🔥 All Diesel show notoriously high emissions
- 🔥 Euro 5 is the worst, but current Euro 6 not much better
- 🔥 Promised software update insufficient
- 🔥 Vans & light trucks equally bad
- 🔥 (only) Euro VI trucks do have low real-driving emissions due to strict RDE-based type-approval and in-use compliance checks



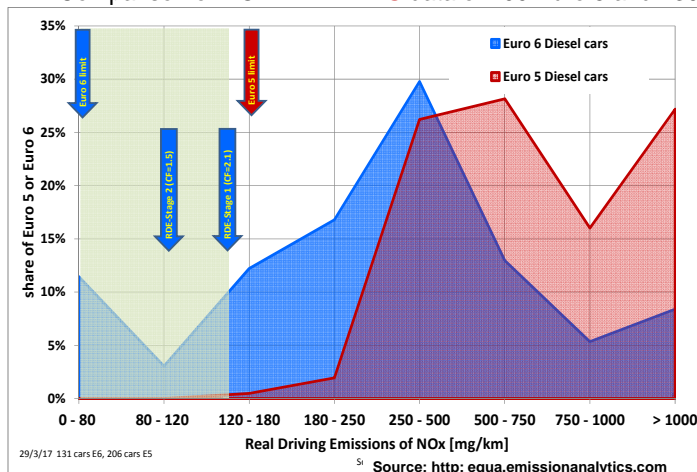
Latest version of the real-world vehicle emissions database from April 2017 published by UBA Germany, based on sophisticated emission measurements for different driving modes on the road and on dynamometer

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Diesel dilemma: Berlin

RDE of Diesel cars Euro 5 versus Euro 6

Comparison of NOx-RDE PEMS data of 200 Euro 5 and 130 Euro 6 cars



- 🔥 Euro 5 and 6 cannot be clearly distinguished in terms of their RDE emissions
- 🔥 Allowing all Euro 6 while banning Euro 5 (and 4) can (legally) be critical

29/3/17 131 cars E6, 206 cars E5

Source: <http://equa.emissionanalytics.com>

Improvements in road traffic sector

1. More ambitious low emission zones

Transport **strategy** resulted in continuous **shift** to **clean** transport modes esp. in the city center

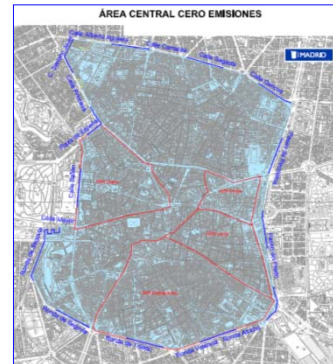
- Completely/temporarily ban of dirty diesel cars from heavily NO₂-polluted roads (Berlin, Paris and Madrid)
- Central zero emission zone (Madrid)
- Car free days (Antwerp and Paris)



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AQ PLAN UPDATED IN THE LAST 5 YEARS



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Improvements in road traffic sector

2. Technological improvements

- Retrofitting programme using Selective Catalytic Reduction (SCR) for Euro IV/V diesel buses, purchase of new Euro VI vehicles based on RDE criteria, esp. for Euro V municipal garbage trucks (Berlin)
- promoting e-mobility with electric buses and e-bikes (Berlin, Paris, Vienna)



3. More sustainable urban mobility plans

- Bike sharing (Milano, Antwerp)
- Car sharing (Antwerp, Madrid and Prague)
- Park and ride-car parks with connections to public transport (Antwerp and Madrid)
- Smart cities with metro-network and economical initiatives for public transport (Vienna)



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Improvements in other sectors

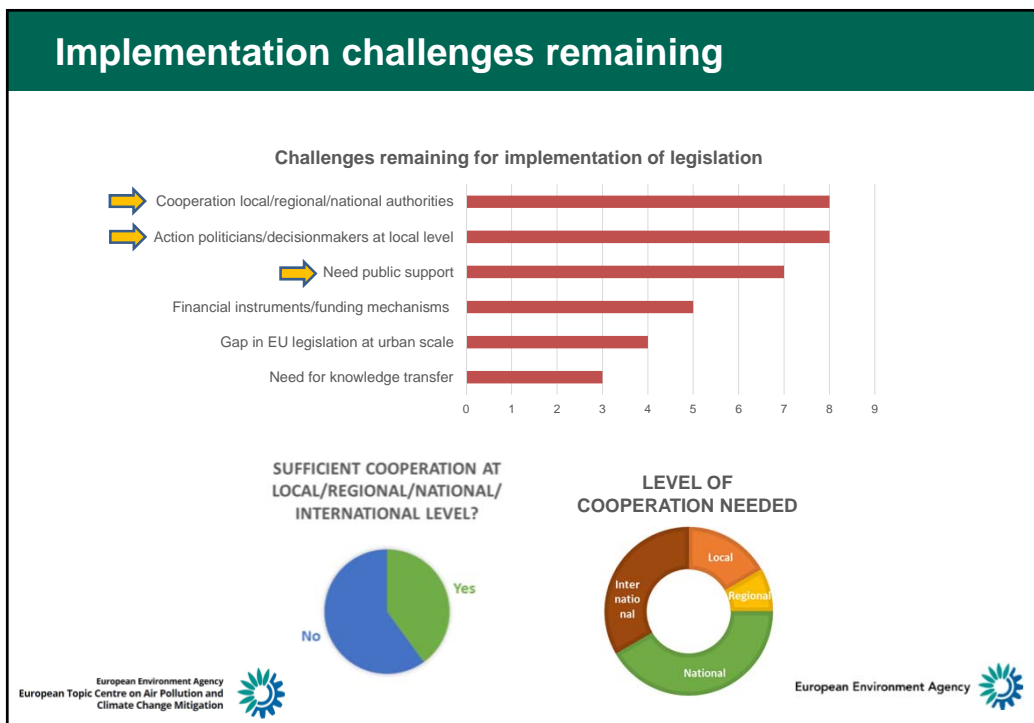
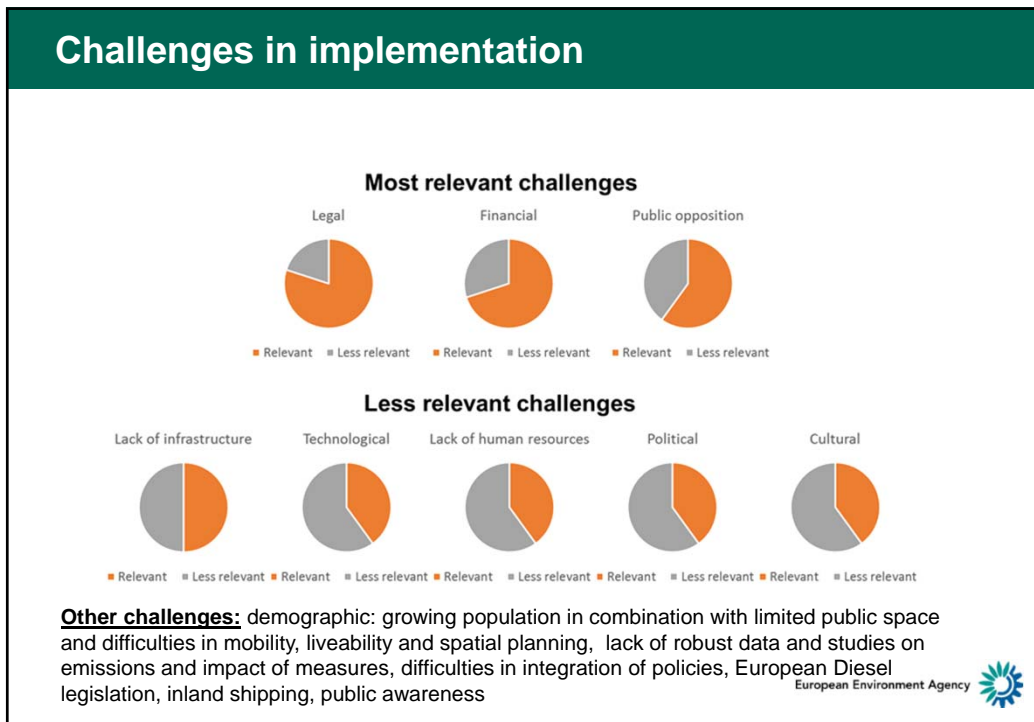
- **Domestic heating** (Berlin)
 - Stricter local emission standards for small combustion with solid fuel
 - Expand existing restriction in city centre for new small heating systems based on solid fuel
 - Even more natural gas/district heating
- **Non-road & inland shipping emissions** (Berlin)
 - Setting emission criteria in public procurement of non-road construction machines and cruise inland ships by requiring
 - compliance of deployed machinery with the latest EU particle emission standard
 - retrofitting construction machines with diesel particle filters (DPF)



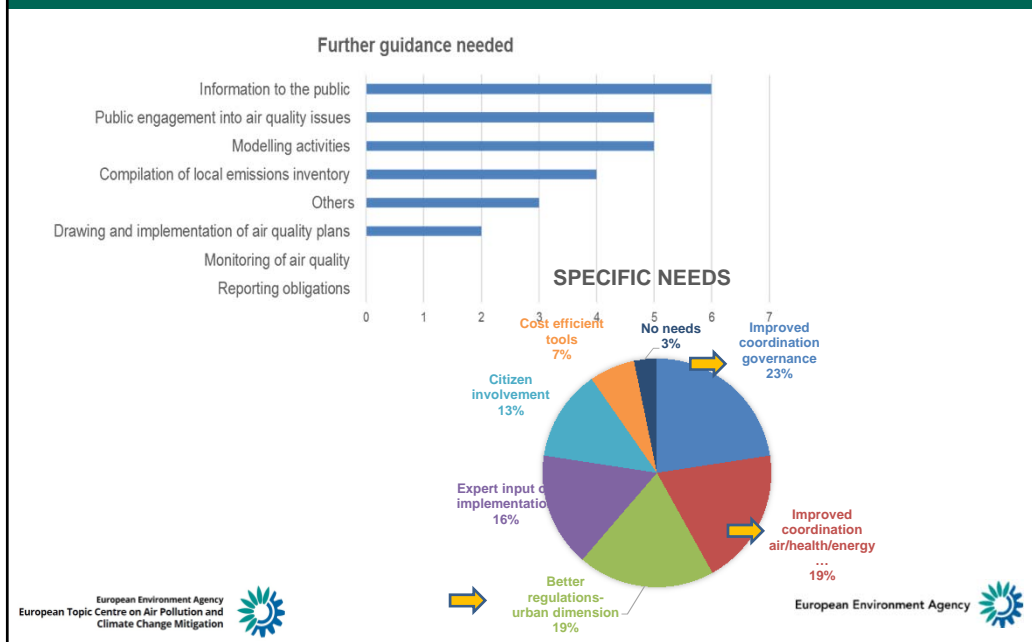
Improvements in other sectors

- **Urban planning**
 - public space (Paris)
 - **greening** the city (Antwerp)
 - **locations for vulnerable functions i.e. schools and day care: Tool for planning** new schools and day-care centers (for 1-6 yr old children) (Antwerp and Malmö)
 - not allowed close to roads considering NO2 levels or
 - allowed with measures (configuration, lay-out of buildings, ventilation system and air filtering etc.)
 - subsidy for air filtering infrastructure (Antwerp),
 - env. assessment before built (Vienna and Berlin)
- **Integrated strategies** (Vienna)
- Growing **awareness and public engagement** into urban air quality
 - with the use of sensors which are easy to run and viable alternative to sophisticated AQ monitors „citizen-science“
 - creating place for **AQ innovations** to public (Airlab) with Airparif (Paris), lab (Citylab2050) for sustainable innovation (Antwerp), on thematic trajectories on air quality (modal split, exposure). Co-creation with citizens, knowledge centres, civil society organisations, companies, tool development to include the citizen science results (Antwerp)





Need for further guidance



Key findings of AIP2018

- Main urban challenge is real driving NO_x emissions of diesel
 - little/no effect of LEZ on NO₂ emissions
- Inland shipping contribution to NO_x emissions still unknown, especially unknown effect of cruise ships allowed in LEZ
- Often lack of data on traffic intensity at street level – including the type of cars
- Still significant PM₁₀ contribution from regional/transboundary transport
- Contribution of wood burning to PM₁₀ concentrations is still unclear
- Labelling schemes of clean vehicle fleet at national or EU level based on real driving emissions are needed
- Use of sensors which are easy to run and viable alternative to sophisticated AQ monitors „citizen-science“, but data quality is questionable
- Communication challenge still on-going, still need for public and political support
- Air quality governance problem
 - No unique central platform on urban air quality issues
 - Lack of coherence of action between city, regional and national level
 - Organisation of action planning when there are no longer exceedances
 - No support from national government to provide technical solutions e.g. hardware-retrofit of dirty diesel