

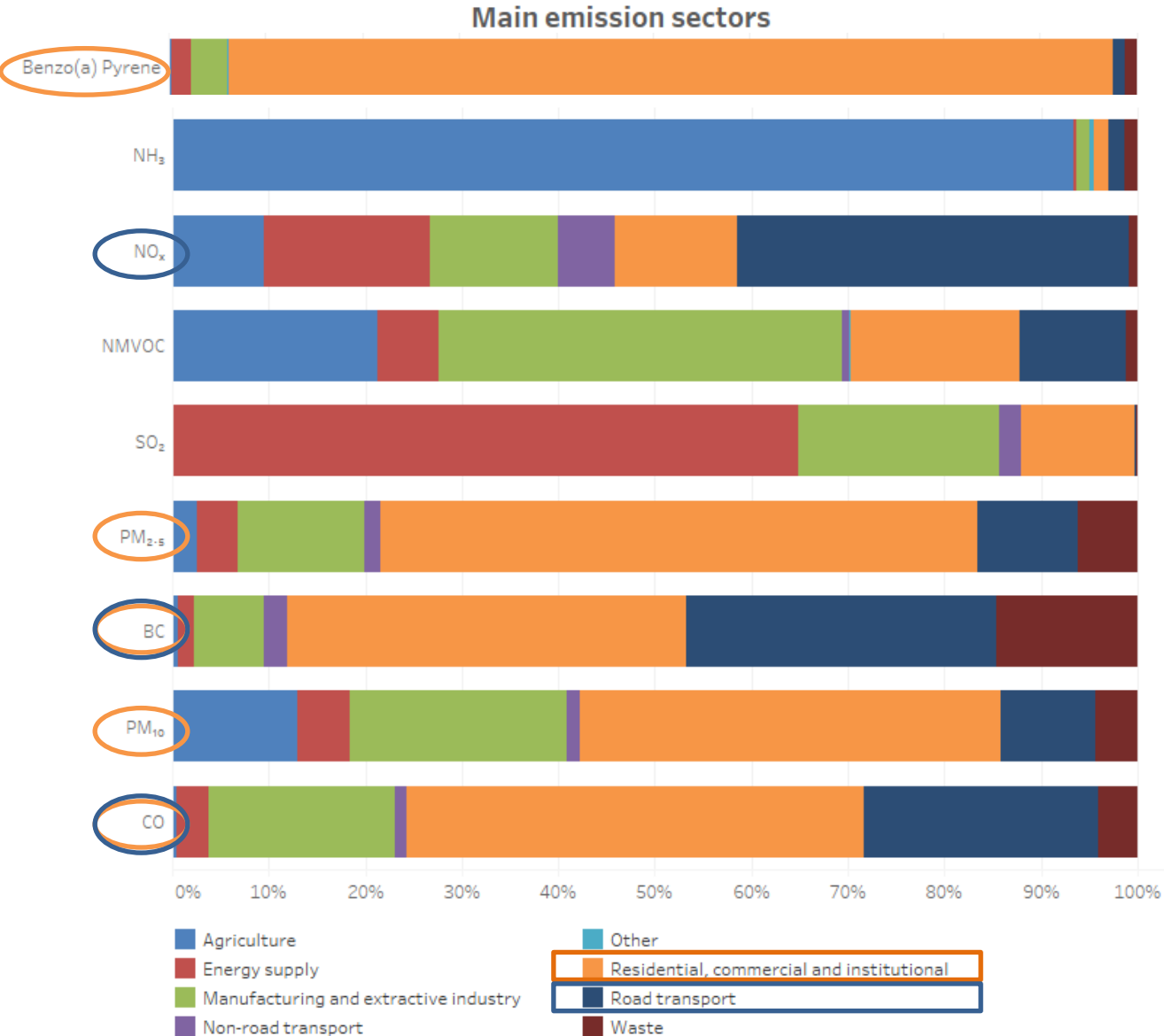
# Air Pollution in Europe: focus on cities



Alberto González Ortiz (EEA) / Healthy cities, healthy people:  
Pathways for clean air in the EU's urban environments/ Brussels, 23 April 2024



# Air pollution: main urban emissions



**Year 2021**

Source: EEA's [Air pollution in Europe: 2023 reporting status under the National Emission reduction Commitments Directive](#)

# Air quality in Europe 2022: NO<sub>2</sub>



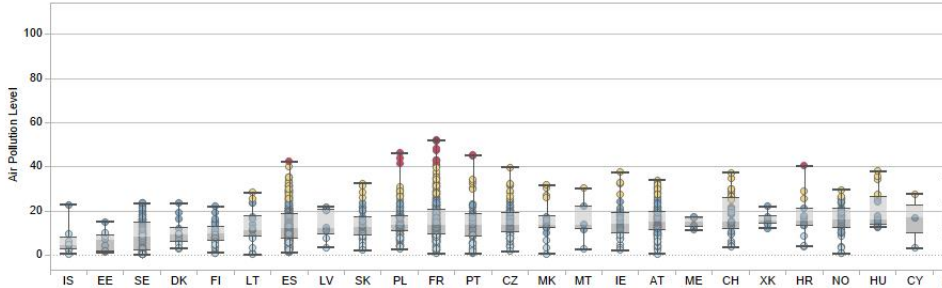
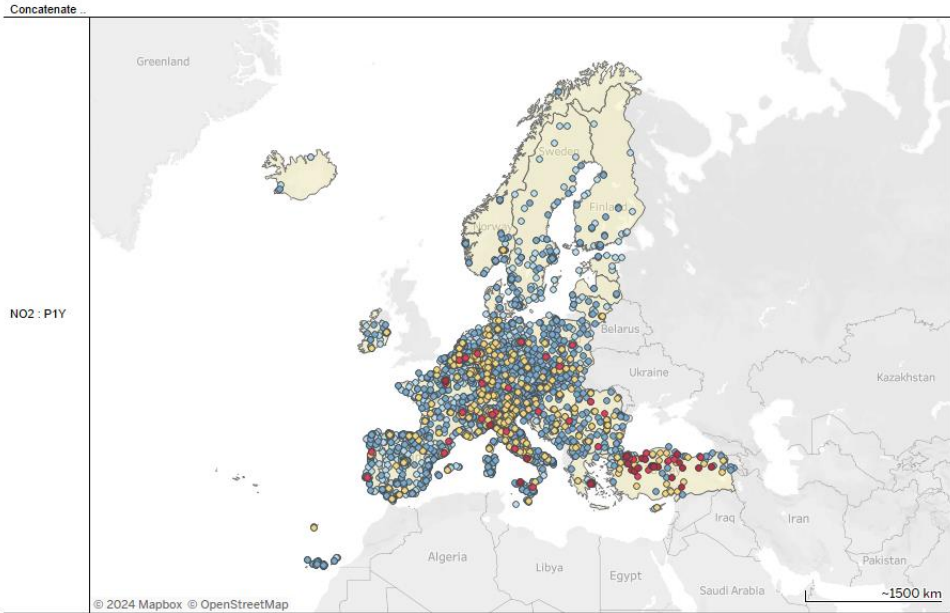
Info

Open filters

See over past years

See distribution

2022 - NO<sub>2</sub> - Annual mean / 1 calendar year



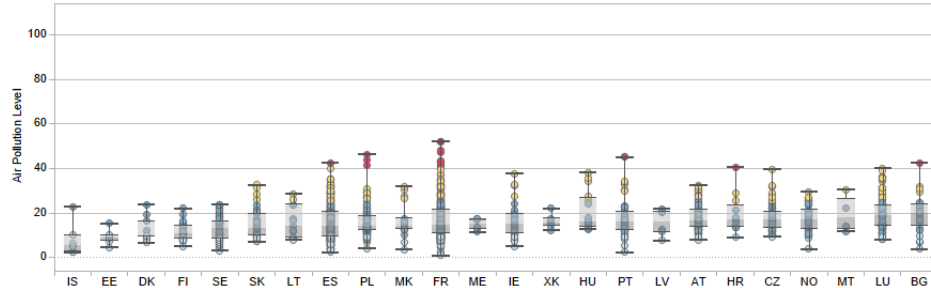
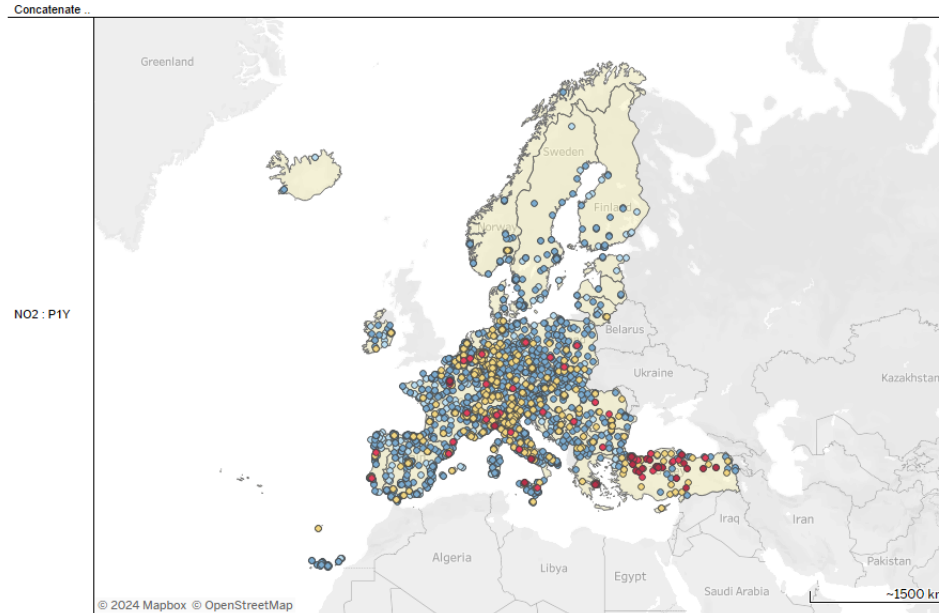
Info

Open filters

See over past years

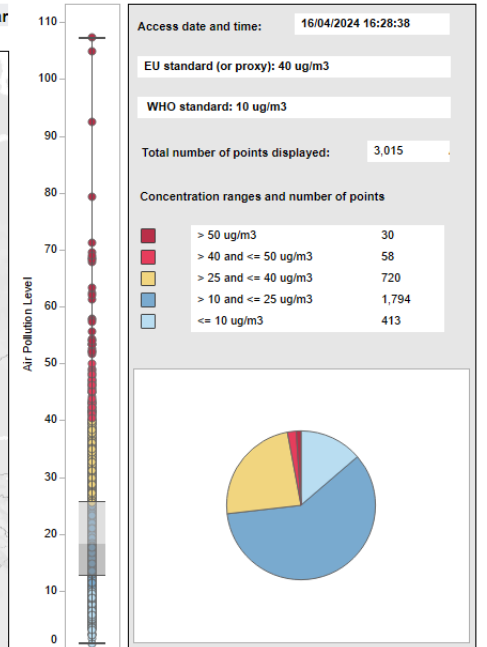
See distribution

2022 - NO<sub>2</sub> - Annual mean / 1 calendar year



## AQ eReporting - Annual statistics

(based on E1a - only validated data)



# Air quality in Europe 2022: PM<sub>2.5</sub>



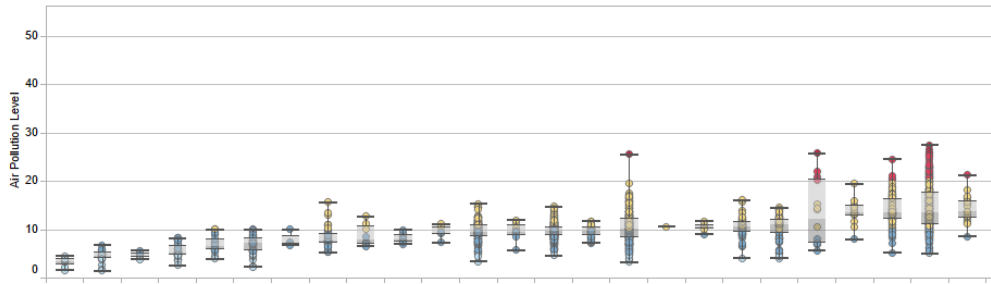
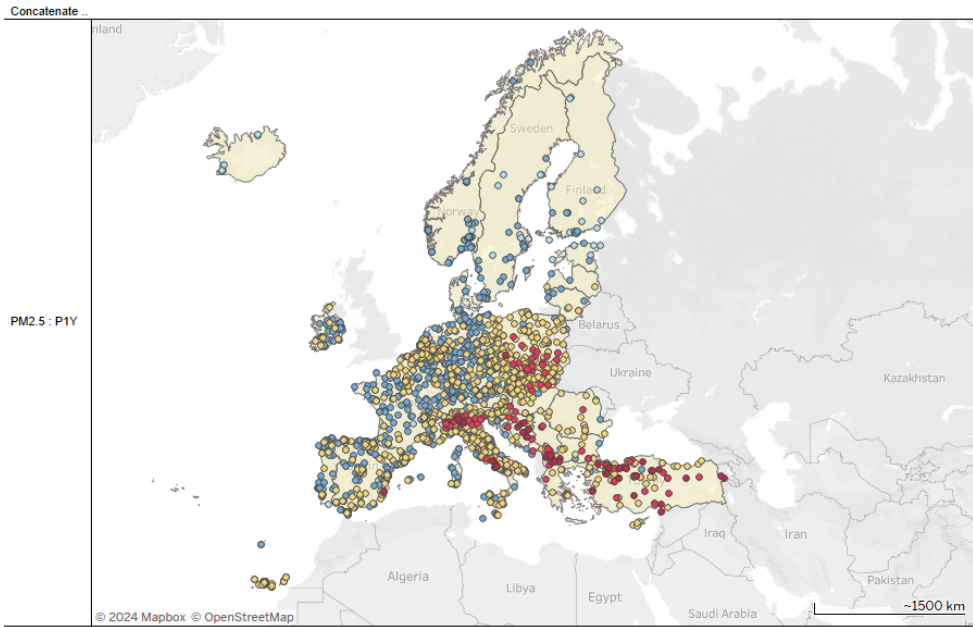
Info

Open filters

See over past years

See distribution

2022 - PM<sub>2.5</sub> - Annual mean / 1 calendar year



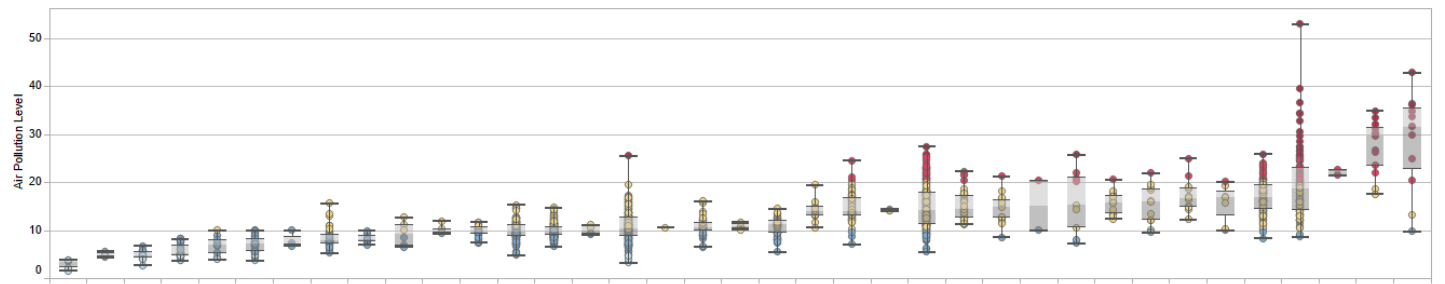
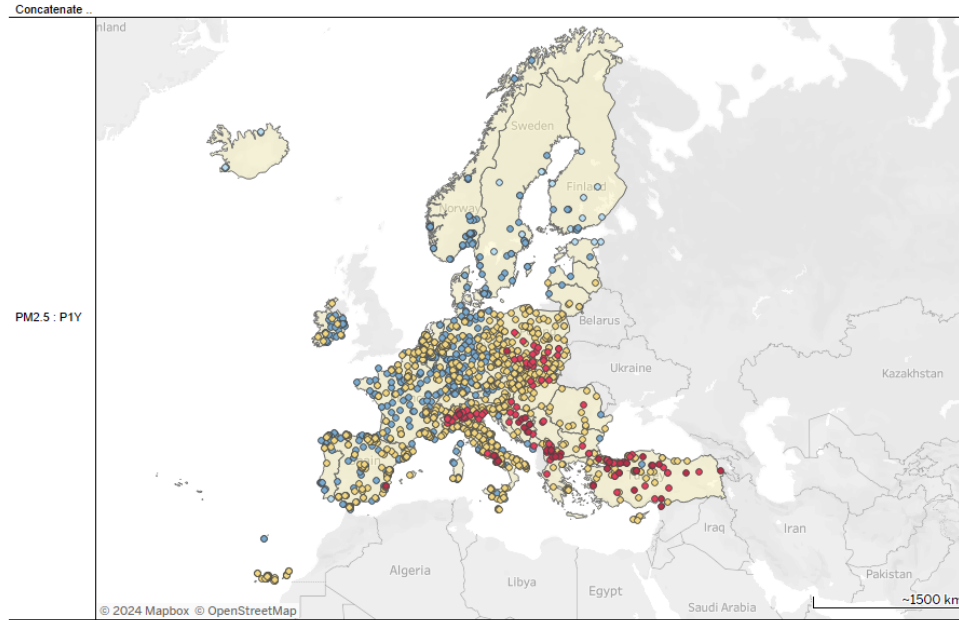
Info

Open filters

See over past years

See distribution

2022 - PM<sub>2.5</sub> - Annual mean / 1 calendar year



AQ eReporting - Annual statistics  
(based on E1a - only validated data)

Access date and time: 15/04/2024 18:24:33

EU standard: 20 indicative / 25 limit value ug/m<sup>3</sup>

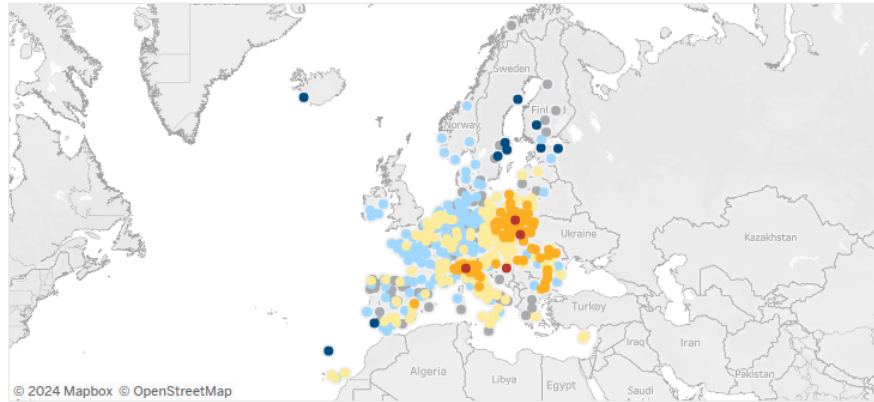
WHO standard: 5 ug/m<sup>3</sup>

Total number of points displayed: 1,709

# The European city air quality viewer

## How clean is the air in my city?

based on the levels of fine particulate matter measured in the air in cities in 2021 and 2022



© 2024 Mapbox © OpenStreetMap

PM2.5  
µg/m³

0 - 5

5 - 10

10 - 15

15 - 25

> 25

no data

Country

(All)

City

(All)



© 2024 Mapbox © OpenStreetMap

## Air in European cities – from the cleanest to the most polluted

City name	Country	Rank	Fine particulate matter in ug/m3	Population in the city
Faro	Portugal	1	3.7	61015
Umeå	Sweden	2	3.9	125080
Uppsala	Sweden	3	4.0	219914
Funchal	Portugal	4	4.2	104024
Tallinn	Estonia	5	4.3	438341
Tampere / Tammerfors	Finland	6	4.3	238140
Reykjavik	Iceland	7	4.3	132252
Norrköping	Sweden	8	4.7	140927
Stockholm (greater city)	Sweden	9	4.8	1745766
Narva	Estonia	10	4.9	53424

## Air in European cities – from the cleanest to the most polluted

City name	Country	Rank	Fine particulate matter in ug/m3	Population in the city
Mainz	Germany	166	10.3	218578
Le Havre	France	167	10.3	195042
Bordeaux	France	168	10.3	650138
Mülheim a.d.Ruhr	Germany	169	10.3	170632
Anncy	France	170	10.4	126924
Arrecife	Spain	171	10.4	64645
Bamberg	Germany	172	10.4	77373
Bruxelles / Brussel	Belgium	173	10.5	1223364
Bilbao	Spain	174	10.5	797590
Greater Rotterdam	Netherlands	175	10.5	1232747
Klagenfurt	Austria	176	10.6	96640
Rennes	France	177	10.6	216815
Friedrichshafen	Germany	178	10.6	61283
La Spezia	Italy	179	10.6	92550



© 2024 Mapbox © OpenStreetMap

## Air in European cities – from the cleanest to the most polluted

City name	Country	Rank	Fine particulate matter in ug/m3	Population in the city
Cremona	Italy	372	25.1	72399
Piotrków Trybunalski	Poland	373	25.2	73670
Nowy Sacz	Poland	374	27.9	83896
Slavonski Brod	Croatia	375	28.0	52836



Country

(All)

City

(All)

## How clean is the air in my city?

based on the levels of fine particulate matter measured in the air in cities in 2021 and 2022



© 2024 Mapbox © OpenStreetMap

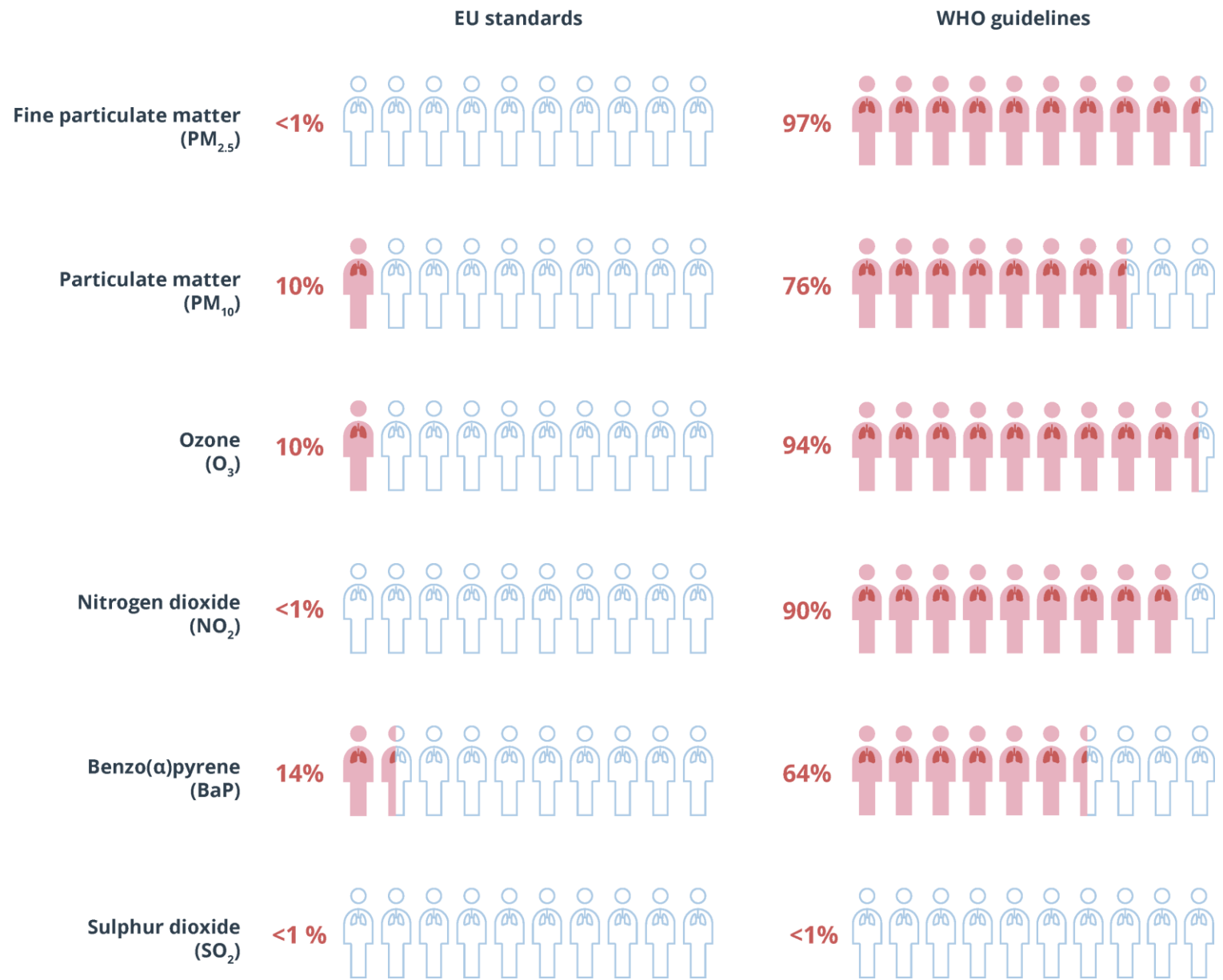
## Air in European cities – from the cleanest to the most polluted



© 2024 Mapbox © OpenStreetMap

Source: [European city air quality viewer](#)

# Exposure of EU urban population in 2021



# Important burden of disease as mortality

In 2021, in Europe, mortality attributable to

https://discomap.eea.europa.eu/App/AQViewer/index.html?fq=Airquality\_Dissem.hra.cities\_sel

**Air Quality Health Risk Assessments for cities and urban centres** Share Download CSV

(\*Total City Population: Eurostat GEOSTAT 2011 1km2 population grid scaled to the year of analysis with national totals)

City Boundary Specification (LAU/grid)	Year	Health Risk Scenario	Country Or Territory	City	City Code	Air Pollutant	Total City Population *	Populated Area [km2]	Air Pollution Average [ug/m3]	Air Pollution Population Weighted Average [ug/m3]	Premature Deaths	Premature Deaths - lower CI	Premature Deaths - upper CI	Years Of Life Lost	Years Of Life Lost - lower CI	Years Of Life Lost - upper CI
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Austria	Wien	AT001C1	PM2.5	1841639	405	10.6	11	804	611	897	8105	6171	9051
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Austria	Graz	AT002C1	PM2.5	285573	160	11.9	14	185	141	207	1869	1427	2084
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Austria	Linz	AT003C1	PM2.5	218938	123	11.4	12.1	112	86	125	1134	865	1266
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Austria	Salzburg	AT004C1	PM2.5	165848	90	10.2	10.8	70	54	79	709	540	792
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Austria	Innsbruck	AT005C1	PM2.5	136236	61	7.8	9.4	44	34	49	445	339	498
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Austria	Klagenfurt	AT006C1	PM2.5	105597	152	11.2	12.3	56	42	62	562	429	629
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Belgium	Bruxelles / Brussel	BE001C1	PM2.5	1282848	195	11.2	11.4	637	485	711	5876	4475	6561
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Belgium	Antwerpen	BE002C1	PM2.5	573244	155	12.1	12.2	318	243	355	2939	2240	3280
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Belgium	Gent	BE003C1	PM2.5	297584	199	12.3	12.4	169	129	189	1561	1190	1743
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Belgium	Charleroi	BE004C1	PM2.5	279634	161	9.6	9.8	104	79	116	959	729	1071
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Belgium	Liege	BE005C1	PM2.5	459768	253	9.1	9.2	151	115	169	1394	1059	1558
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Belgium	Brugge	BE006C1	PM2.5	133302	152	10.7	11.2	65	49	72	596	454	665
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Belgium	Namur	BE007C1	PM2.5	125103	206	8.8	9	40	30	44	366	278	409
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Belgium	Leuven	BE008C1	PM2.5	128133	91	10.8	10.9	59	45	66	542	413	605
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Belgium	Mons	BE009C1	PM2.5	178568	224	10.4	10.9	82	62	92	759	578	848
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Belgium	Kortrijk	BE010C1	PM2.5	104588	101	11.8	12.3	59	45	66	543	414	608
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Belgium	Oostende	BE011C1	PM2.5	82940	45	10.2	10.6	36	27	40	331	252	370
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Belgium	Mechelen	BE012C1	PM2.5	110369	95	11.5	11.5	55	43	63	515	392	576
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Belgium	Mouscron	BE013C1	PM2.5	37443	48	11.6	12.2	21	16	23	191	145	213
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Belgium	La Louvière (greater city)	BE014C1	PM2.5	114455	113	10	10.3	47	35	52	432	328	483
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Belgium	Verviers (greater city)	BE015C1	PM2.5	81315	69	8.1	8.2	20	15	23	188	143	210
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Bulgaria	Sofia	BG001C1	PM2.5	1220559	592	13.2	16	2078	1589	2316	19133	14635	21316
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Bulgaria	Plovdiv	BG002C1	PM2.5	318525	74	19	20.3	743	570	826	6838	5251	7605
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Bulgaria	Varna	BG003C1	PM2.5	322774	150	13.8	16.2	559	428	623	5150	3940	5738
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Bulgaria	Burgas	BG004C1	PM2.5	198994	162	12.6	15.5	325	249	363	2996	2291	3339
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Bulgaria	Pleven	BG005C1	PM2.5	125645	162	13.7	17.4	240	184	267	2211	1694	2462
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Bulgaria	Ruse	BG006C1	PM2.5	157247	121	14.7	16.7	285	218	317	2621	2006	2919
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Bulgaria	Vidin	BG007C1	PM2.5	59725	155	15.6	23.1	162	125	180	1496	1152	1661
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Bulgaria	Stara Zagora	BG008C1	PM2.5	151947	276	13.4	15	237	181	265	2185	1670	2436
ESTAT Urban Audit Cities (LAU)	2021	WHO_2021_AQG_Scen_Base	Bulgaria	Silven	BG009C1	PM2.5	118816	251	11.7	12.8	146	110	162	1336	1019	1491

Showing 1-30 of 787 << < 1 2 3 4 - > >>

**Filters** Clear

City Boundary Specification (LAU/grid)

- ESTAT Urban Audit Cities (LAU) (787)
- Urban Centres (grid) (730)

Year

- 2005 (787)
- 2007 (787)
- 2008 (787)
- 2009 (787)
- 2010 (787)
- 2011 (787)
- 2012 (787)
- 2013 (787)
- 2014 (787)
- 2015 (787)
- 2016 (787)
- 2017 (787)
- 2018 (787)
- 2019 (787)
- 2020 (787)
- 2021 (787)

Health Risk Scenario

- WHO\_2005\_HRAPIE\_Scen\_Base (787)
- WHO\_2021\_AQG\_Scen\_Base (787)
- WHO\_2021\_AQG\_Scen\_Sensitivity\_2 (787)

Level Of Aggregation

- City specific (787)

EU Countries

- No (29)
- Yes (758)

Country Or Territory

[ all ]

City

[ all ]

Air Pollutant

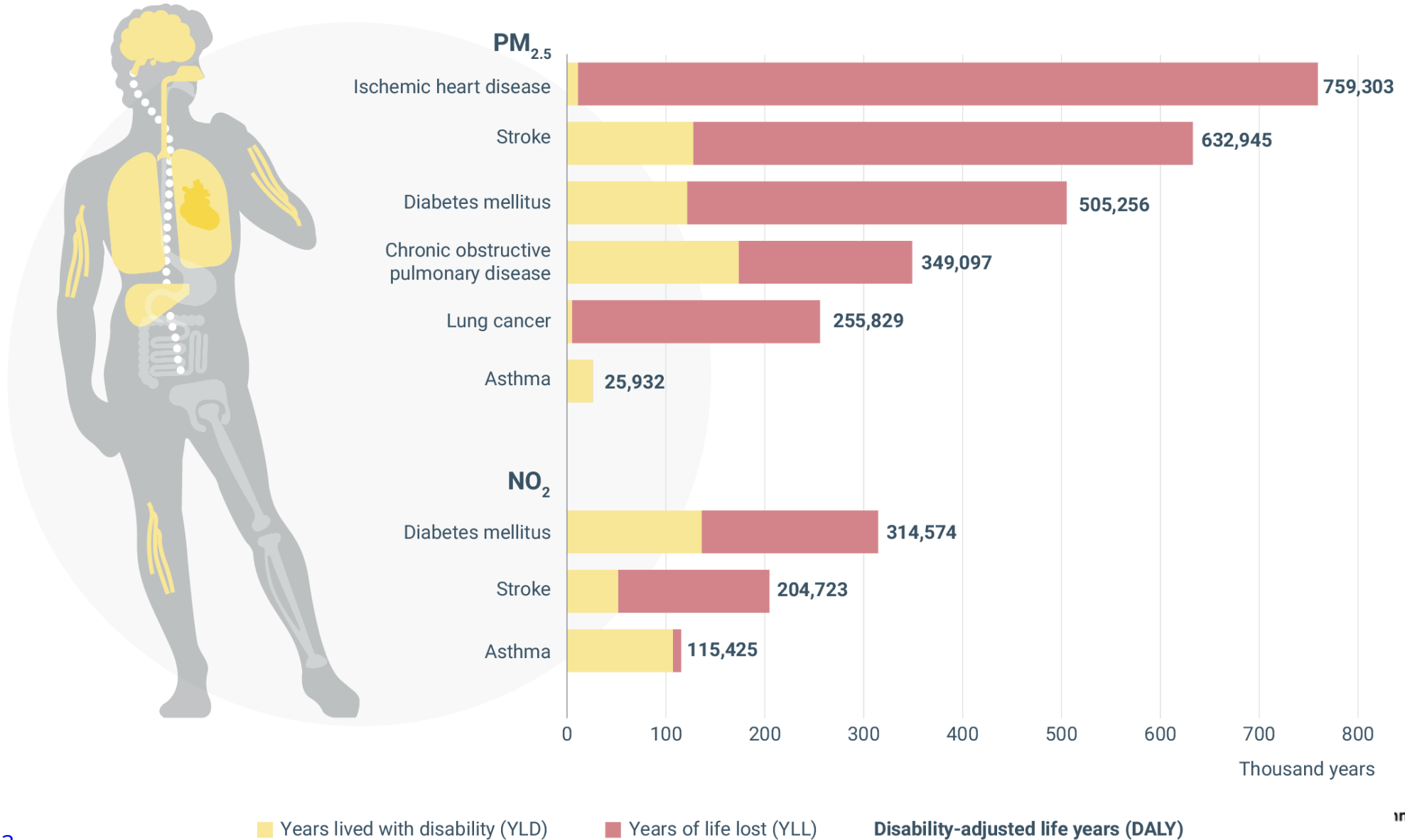
PM2.5 (787)

YLL per 100,000 inhabitants



Source: [Air Quality Health Risk Assessments](#)

# Mortality is not the only impact of air pollution



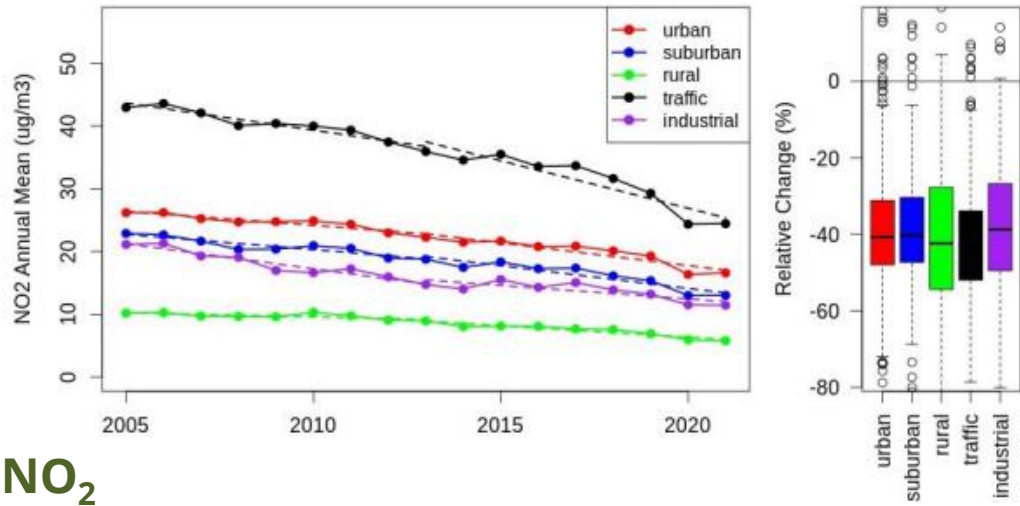
■ Years lived with disability (YLD)

■ Years of life lost (YLL)

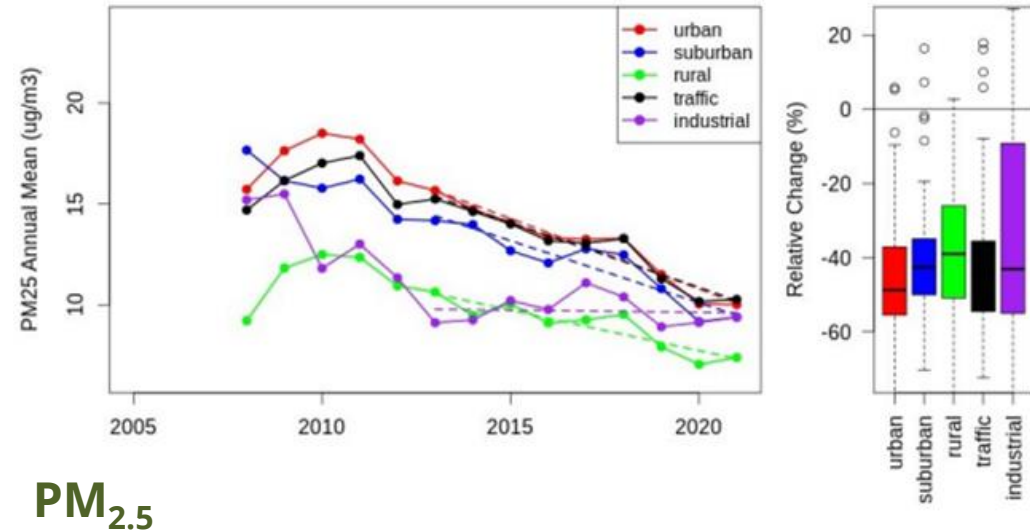
■ Disability-adjusted life years (DALY)



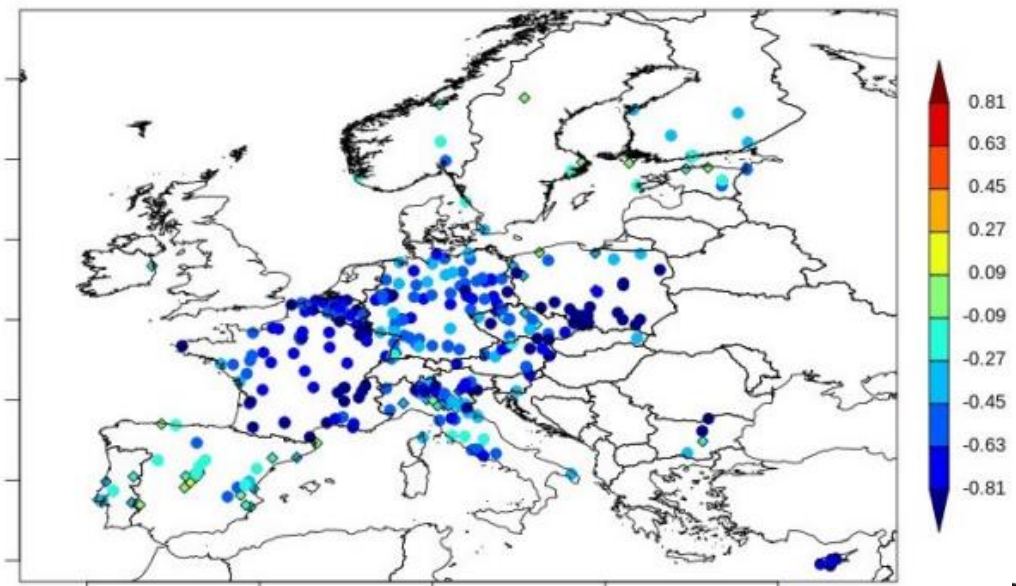
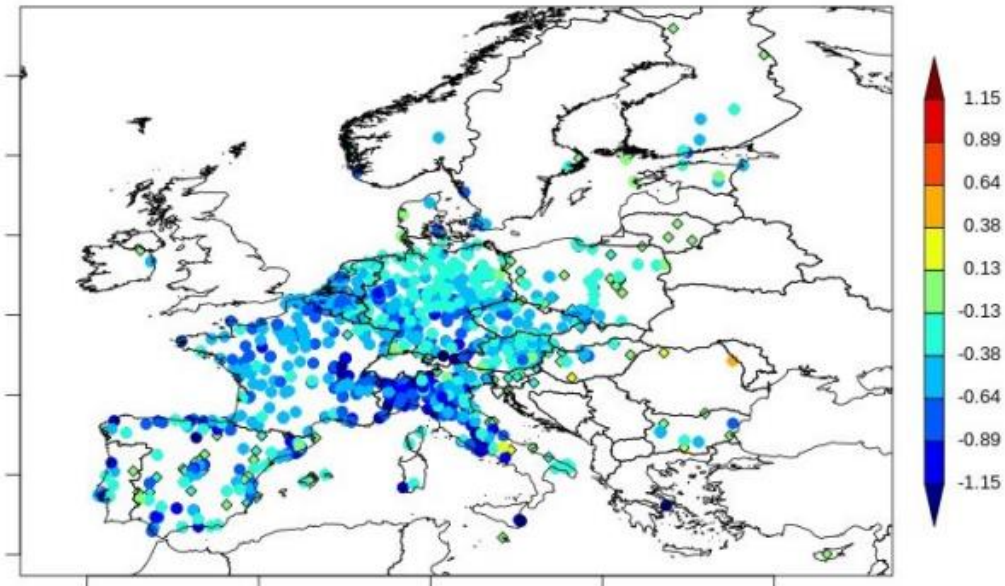
# Trend analysis 2005 – 2021



NO<sub>2</sub>



PM<sub>2.5</sub>



# Improvement also in the health impacts



# Examples of implemented measures

## Managing air quality in Europe

Air quality remains a persistent problem in Europe, continuing to harm health and ecosystems. This briefing reviews the status of air quality plans put in place by countries in situations where air pollution limits are exceeded. It also identifies th...

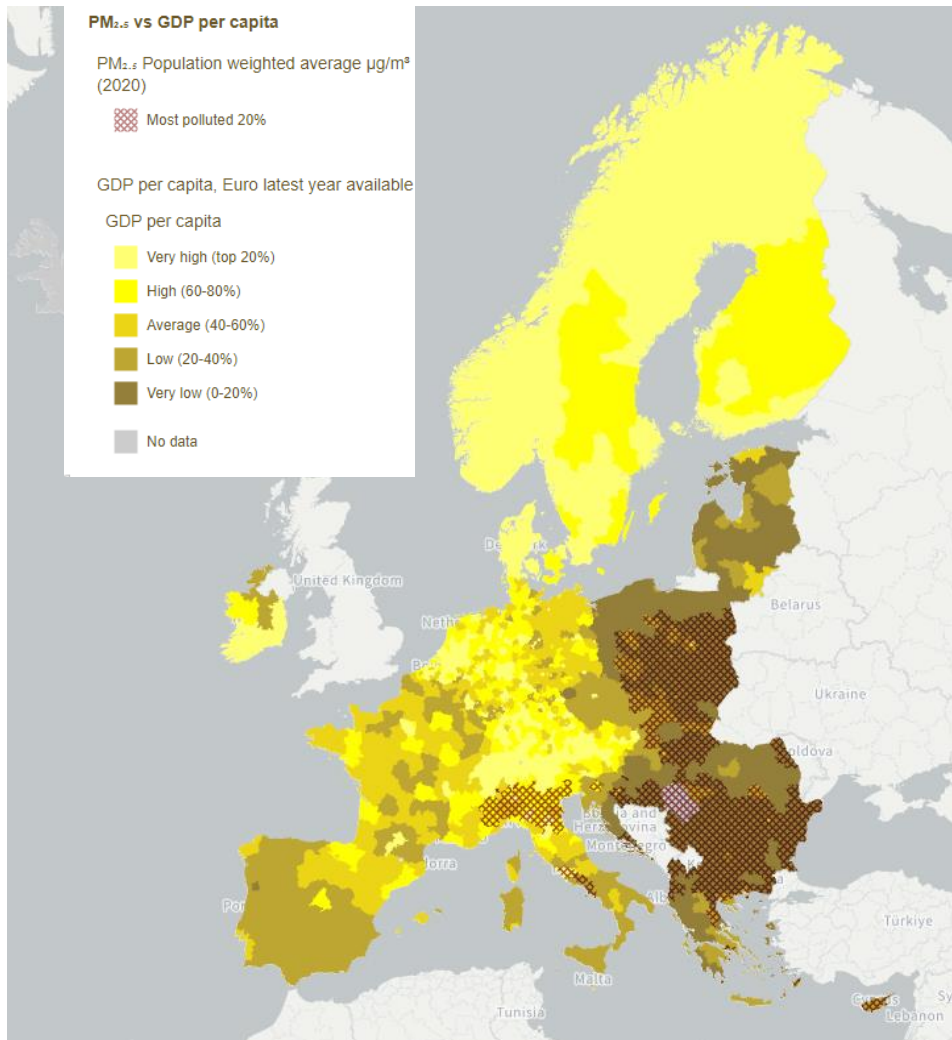
16 Feb 2022

Topics: Air pollution

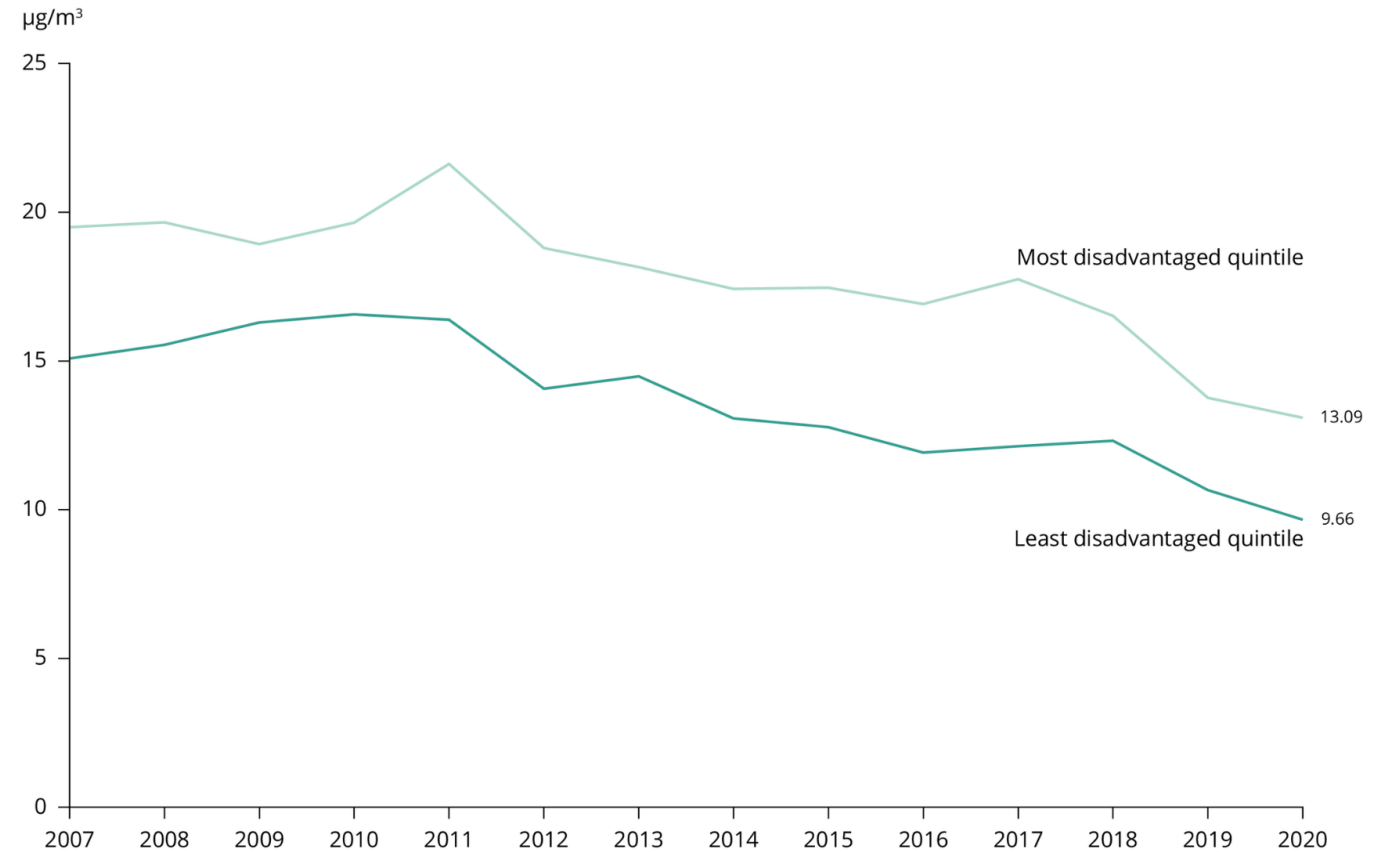
Source: [European Environment Agency / publications / managing-air-quality-i...](#)



# Inequalities in the exposure to air pollution



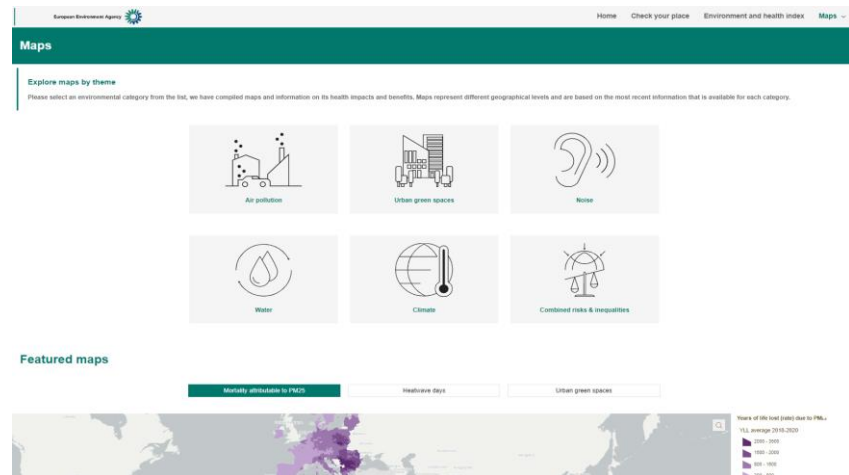
Source: [European environment and health atlas](#)



Source: EEA's indicator [AIR009](#)

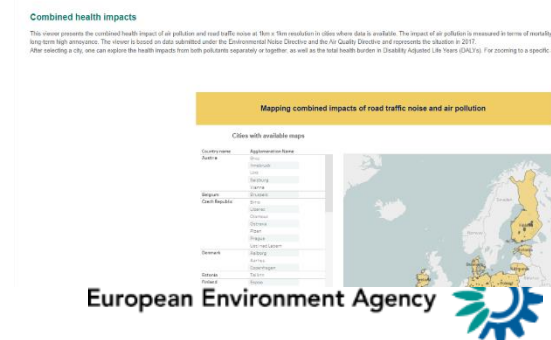
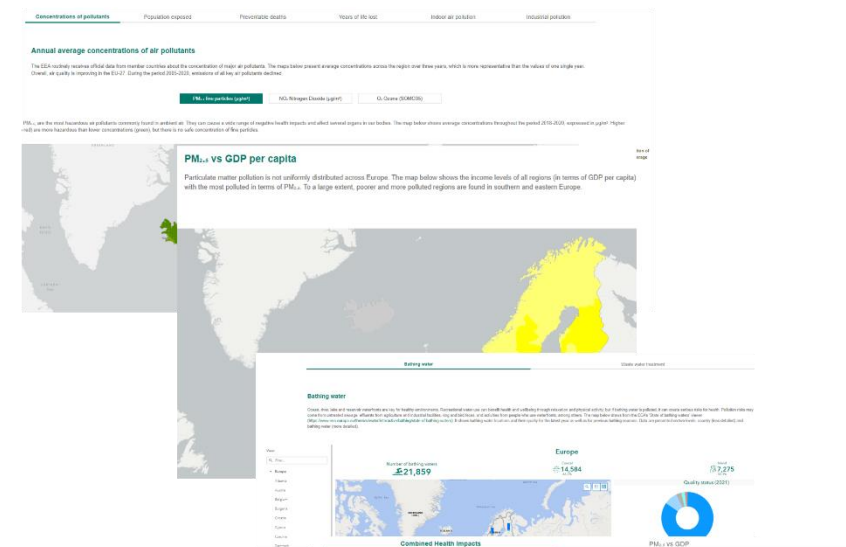
# Environment and Health Atlas

Clear narrative for people: the environment affects your health



## Content organized around major topics

- Air pollutants: PM2.5, NOx, O3, industrial (air/water)
- Environmental noise
- Water (waste, bathing)
- Climate
- Green spaces
- Inequalities in exposure, combined impacts



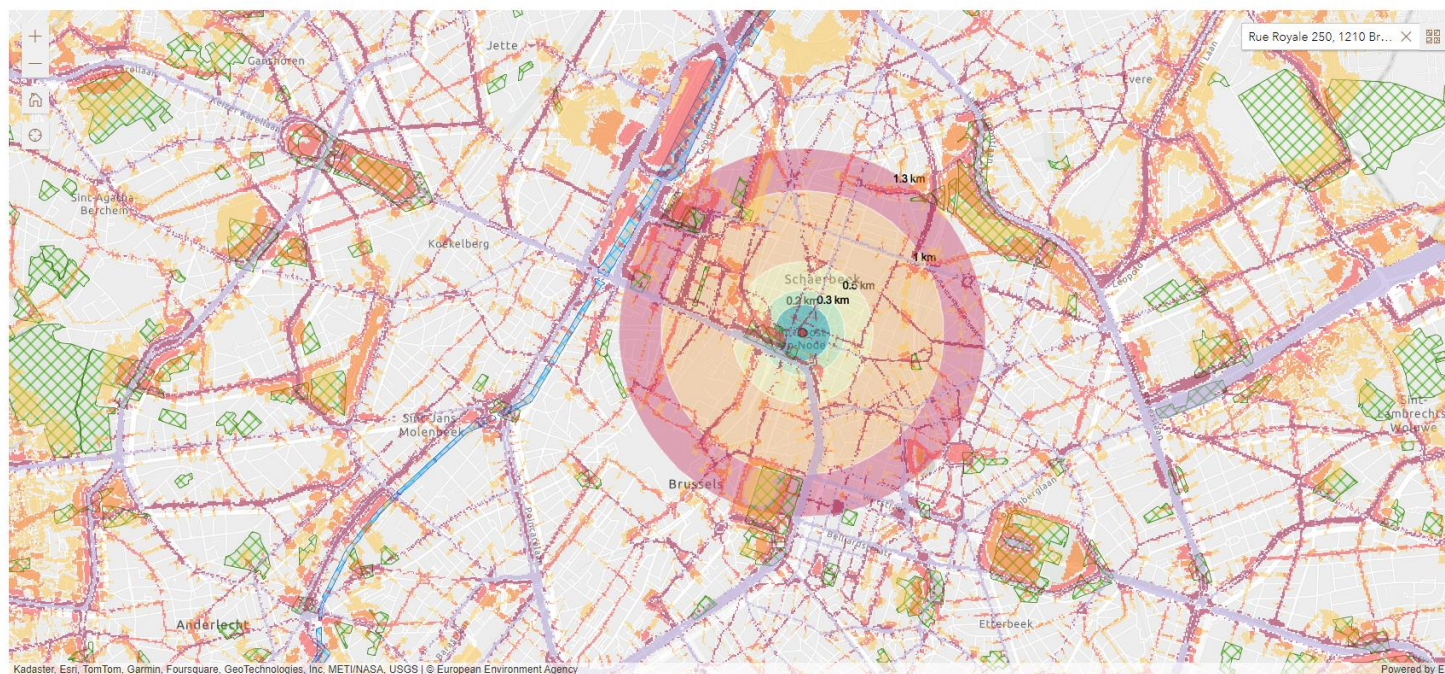
[European environment and health atlas](https://www.eea.europa.eu/en/themes/air/air-quality/air-quality-atlas)

# Environment and Health Atlas

## Making it personal: the “Check your place” widget

### Check your place

Get an overview of the quality of the environment where you live, work, study, commute or play. Click on the map or enter an address and the results will be shown in the right-hand panel. You can show/hide layers by clicking on the eye icons and use the slider to manage the layer transparency. For additional details about the variables and thresholds used, check out the section Additional information below the map.



#### Location Information

Address **Rue Royale 250, 1210, Saint-Josse-ten-Noode**  
City **Saint-Josse-ten-Noode**  
Country **Belgique ()**

#### Environmental Quality

- Average concentration of PM<sub>2.5</sub> in air 10.9  $\mu\text{g}/\text{m}^3$
- Average concentration of NO<sub>2</sub> in air 26.6  $\mu\text{g}/\text{m}^3$
- O<sub>3</sub> concentrations in air (SOMO35) 2677.7  $\mu\text{g}/\text{m}^3\text{-days}$
- Road traffic noise: night No Data
- Road traffic noise: day-evening-night No Data
- Bathing water quality within 10 km None
- Nearest green space or water body is within 0.2 km

#### Neighbourhood information

- Nearest public transport stop within 0.2 km
- Hospitals within 3 km 11 Hospitals
- Sports and leisure facilities within 3 km 8 Facilities



Thank you for your attention!