

Air Quality in Sweden

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Air Quality in Sweden – brief overview



Air quality in Sweden is quite good



...but we have some problems



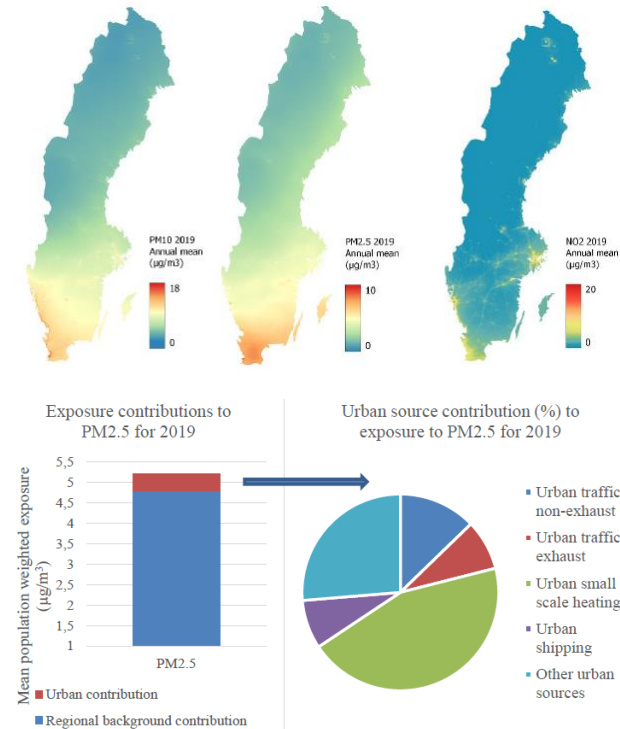
Traffic and wood burning are the major local sources of poor air quality in Sweden



Transboundary air pollution is also a challenge

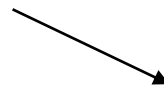
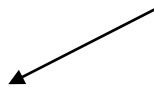
Sweden takes air pollution seriously

- Long history (Acidification / CLRTAP / Gothenburg protocol)
- Between 4 700 – 6 700 premature deaths from air pollution annually in Sweden
- More stringent Swedish Air Quality Standards (AQS) for some pollutants
- Ambitious National Environmental Quality Objectives (EQOs)
- AAQD is central to improving air quality and meeting the national EQOs



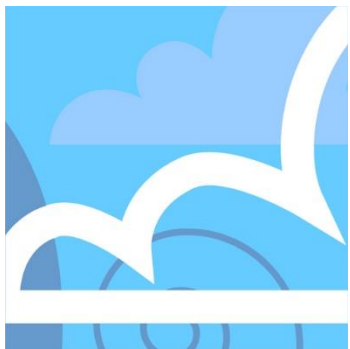


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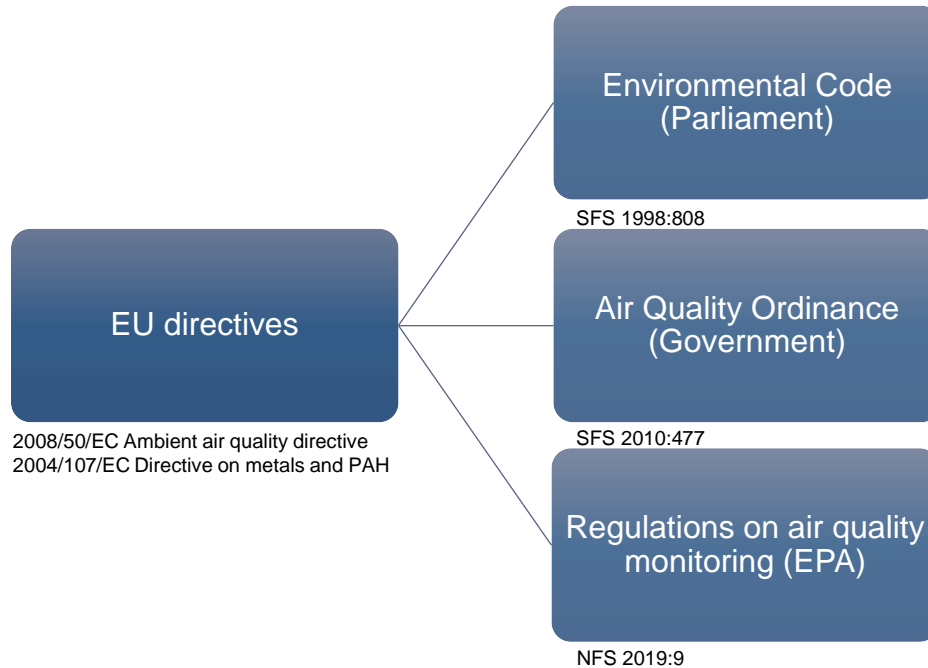


Environmental Quality
Objectives

Environmental Quality
Standards



Implementation of EU directives in Sweden



Guidance (EPA)

The role of the Swedish EPA

Transposition of EU legislation

- Proposals on Air quality ordinance
- Regulations on monitoring

Guidance for the municipalities (handbook, support functions, seminars, web pages etc.)

Assessment of need for local / regional action plans

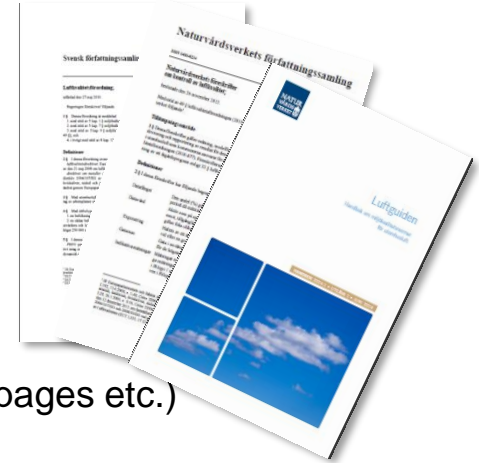
Approval of monitoring equipment (reference & equivalent methods)

Information

Reporting to the Commission

Partake in EU:s Ambient Air Quality Committee and Expert Group

National monitoring – regional background (eg 2008/50/EC & 2004/107/EC, CLRTAP/EMEP, HELCOM, OSPAR, Stockholm Convention)



Support functions for AQ assessment



National Reference Laboratory for Measurements

<https://www.aces.su.se/reflab/>

- Provide national reference standards
- Guidance on measurement methods and QA/QC



National Reference Laboratory for Modelling

<https://www.smhi.se/reflab>

- Guidance on modelling methods and QA/QC



National Data Host

<https://www.smhi.se/datavardluft>

- National database and web services for air quality
- Support for reporting – nationally and to EU via e-reporting



Expert Networks for Air Quality Assessment & Action Planning

- Forum for guidance and exchange of information

www.naturvardsverket.se/luft

www.naturvardsverket.se/mknluft

Where is air quality assessed?



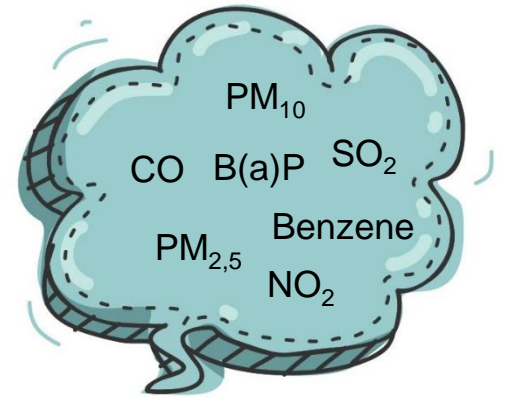
Urban air quality measurements in Sweden

50-55 stations at roadsides

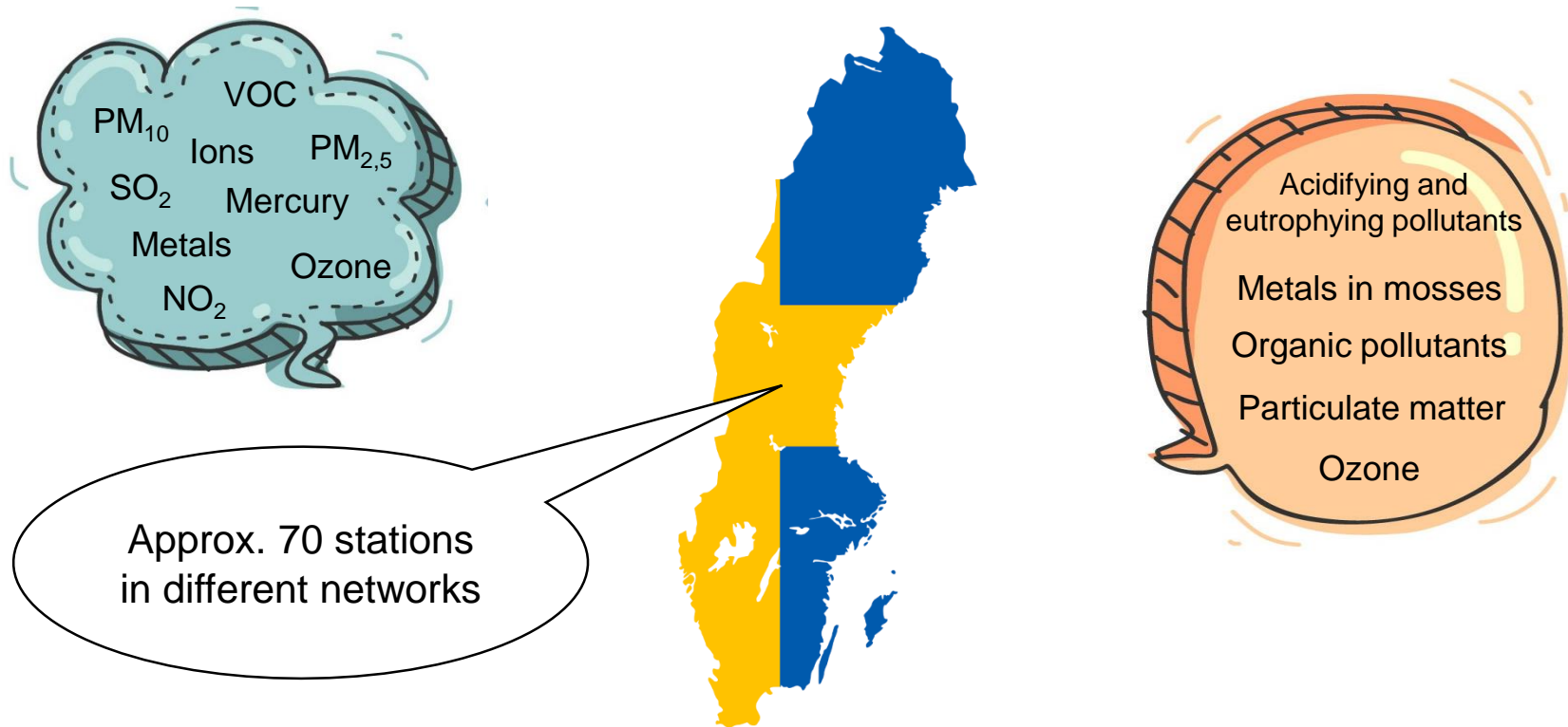
15-20 urban background stations

20-30 sites with passive measurements

1 industrial station



Rural air quality measurements in Sweden



Decentralised system for assessment in urban areas

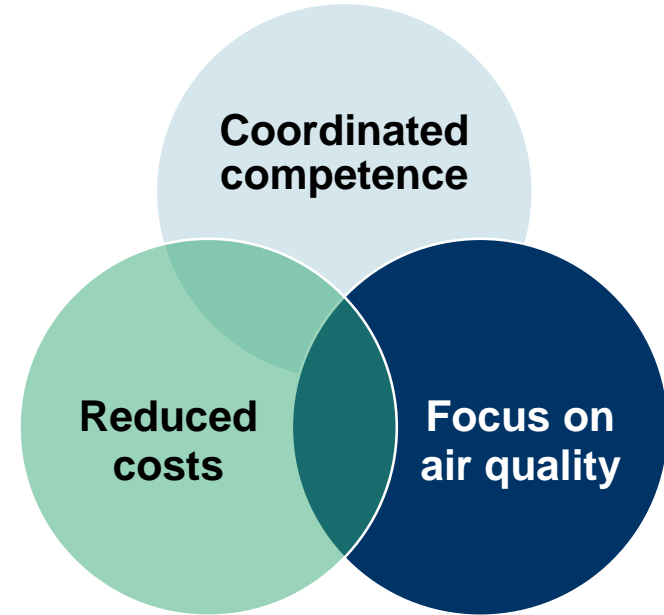
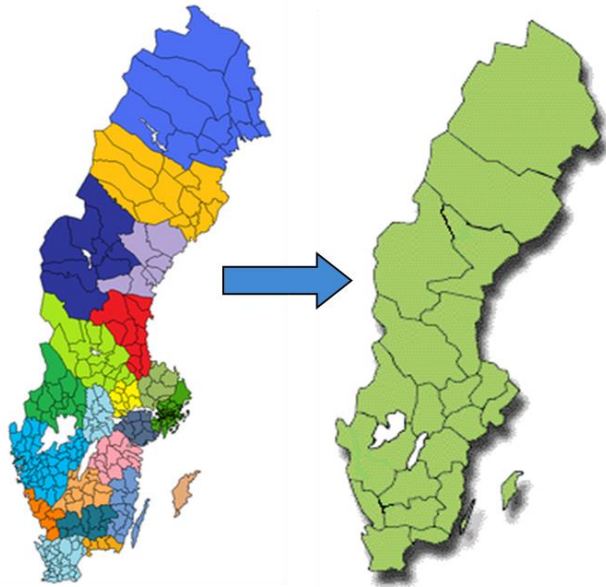
The role of municipalities:

- Assess urban air quality
- Provide information to the public
- Report data to National Data Host
- Report risk of exceedances to the Swedish EPA
- Often responsible for air quality plans, when necessary.



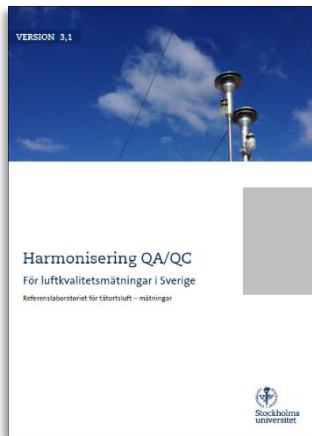
Regional co-operation recommended

290 Municipalities



Harmonisation of QA/QC i Sweden

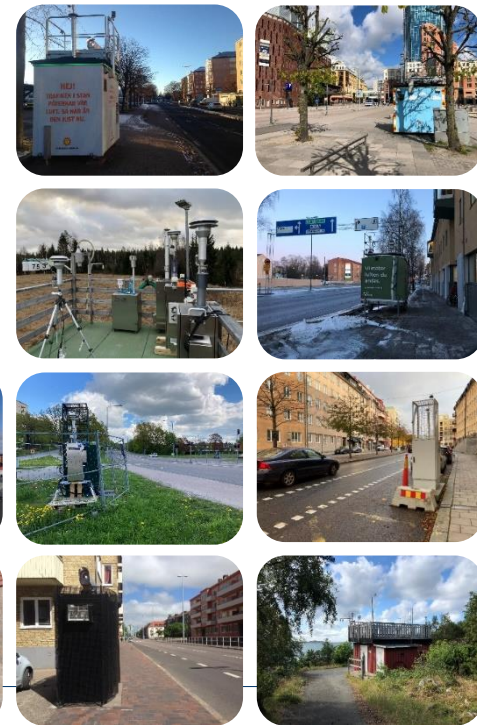
QA/QC manual
(National AQ
Reference Laboratory)



Regional & local QA/QC
programmes / routines

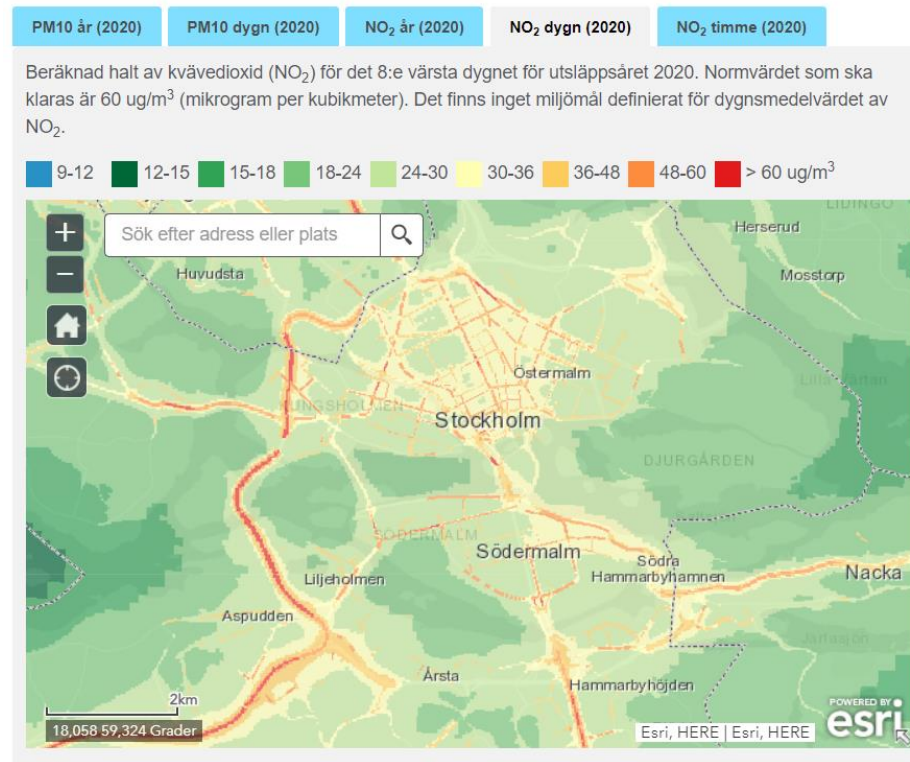


QA/QC at measurement stations
– checked through regular audits!



Modelling

- Modelling is encouraged for an effective air quality assessment and management
- Can provide a complete mapping of air quality in a city
- Hot spot locator for measurements
- Monitoring and modelling in combination is optimal



Source: SLB-analys, Stockholm/Östra Sveriges Luftvårdsförbund [Luftföroreningskartor](#) | [SLB-analys](#)

Action Plans

Action Plans	Action Plans to be
Stockholms län, NO ₂ /PM10 + CO	Örnsköldsvik, NO ₂
Göteborgsregionen, NO ₂	Skellefteå, PM10
Uppsala, NO ₂	Linköping, PM10
Umeå, NO ₂	Hedemora, PM10
Skellefteå, NO ₂	Göteborg, PM10
Örnsköldsvik, PM10	Köping, PM10
Luleå, NO ₂	Västerås, PM10
Gotland, PM10	
Sundsvall, PM10	
Linköping, NO ₂	
Östersund, PM10	
Piteå, PM10	



Measures NO ₂	Measures PM10
Traffic planning	Ban for studded tires
Public transport	Street cleaning
Environmental zones	Dust binding
Congestion charges	Road surface
Parking measures	etc
etc	

Road traffic measures – exhaust gases (PM_{2,5}, NO₂)

 Congestion charges	Stockholm & Gothenburg
 Low emission zones for heavy vehicles (buses & trucks)	Stockholm, Göteborg, Malmö, Mölndal, Uppsala, Helsingborg, Lund, Umeå
 Urban Environment Contracts	Investment support for local and regional public transport and bicycle infrastructure
 Electric bus premium	Investment support for electric buses aimed at regional public transport authorities and public transport companies.
 Investment support for e-bikes/e-mopeds	25% of the cost. Vehicles purchased, including 20 Sep 2017 eligible.
 Klimatklivet (~The climate stride)	Investment & support for i.e. charging infrastructure for electric vehicles.
 Bonus-malus vehicle purchase/tax system	Purchase premium / Vehicle tax for light vehicles. Entry into force on July 1, 2018. Applies to new vehicles.

Wood burning measures – PM_{2,5}, bens(a)pyren

Wood burning equipment emission requirements

EU Ecodesign emission requirements (CO, PM and energy efficiency) on new wood burning equipment (boilers and room heaters)

Wood burning rules

Municipalities have the possibility to...

- affect the presence of wood burning equipment as permitted by building law applications
- set rules for wood burning in local regulations, i.e. temporary prohibit wood burning within a specified area, if necessary to prevent inconvenience to human health
- if necessary, require individual property owners to take measures to limit disturbances from wood fire





SWEDISH ENVIRONMENTAL
PROTECTION AGENCY