



Ministerie van Infrastructuur
en Waterstaat



Clean Air Dialogue between the Netherlands and the European Commission The Hague, 17-18 February 2021

Joint Conclusions

The emissions of important air pollutants have decreased significantly in the Netherlands since 1990. However, in the shorter term, since 2005, the reduction of ammonia and non-methane volatile organic compounds emissions has been less successful; since 2013, ammonia emissions have even been reported to increase.

Nonetheless, the Dutch National Air Pollution Control Programme¹ as prepared in 2019 concludes that the national emission reduction commitments for 2030² could be met with the policies already in place – thanks among others to the new ambitious Clean Air Agreement and to the National Climate Agreement.

The air quality in the Netherlands is in line with EU limit values in almost all air quality zones. For 2019, exceedances of the legally binding annual EU limit value for nitrogen dioxide³ have been registered in only one air quality zone: Amsterdam/Haarlem⁴. The long-term objectives for ozone were exceeded in all nine air quality zones.

Big cities, areas around busy roads and port complexes and near large farm installations with intensive livestock rearing are most affected by air pollution. In total, the European Environment Agency has estimated that almost 11,000 premature deaths per year in the Netherlands⁵ can be attributed to air pollution.

The Netherlands and the European Commission share the continued concern for protecting human health and the environment from the impacts of air pollution. We are both strongly committed to improving air quality in line with EU objectives, including the zero pollution ambition of the European Green Deal.

On the initiative of, and invitation by, the Netherlands, a Clean Air Dialogue took place on 17-18 February 2021. The conference was organised to bring together the Dutch ministries, regional and local authorities and other stakeholders to exchange views and discuss avenues for possible improvements, facilitated by the European Commission.

This note summarises the conclusions from the Clean Air Dialogue with the Netherlands.

¹ https://ec.europa.eu/environment/air/pdf/reduction_napcp/NL%20final%20NAPCP%201Apr19%20EN.pdf
(English version)

² Directive (EU) 2016/2284 on the reduction of national emissions of certain atmospheric pollutants, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2016.344.01.0001.01.ENG&toc=OJ:L:2016:344:TOC

³ I.e. exceeding the annual limit value of 40 µg/m³

⁴ Reported annual concentration 41 µg/m³ (decreasing from 45 µg/m³ reported in 2018)

⁵ <https://www.vtv2018.nl/synthese-vtv-2018-een-gezond-vooruitzicht>

1. Clean air policy – the general approach and public outreach

The Netherlands focus current efforts on meeting EU air quality standards through the National Air Quality Cooperation Programme and the Environmental Planning Act. In addition, a national Clean Air Agreement⁶ was adopted and signed on 13 January 2020. With the national Clean Air Agreement health, effect of air pollution has become the focus of policy, rather than limit values. The agreement translates the new Dutch ambitions on air quality into further actions for each sector. The aim of this agreement is to permanently improve air quality in the Netherlands and *achieving a health gain of 50% in 2030 compared to 2016 from exposure to emissions from Dutch sources.*

In addition, the Netherlands have announced the ambition to achieve by 2030 the WHO air quality guidelines as published in 2005 for particulate matter and nitrogen dioxide. This would mean going beyond the current EU air quality standards.

During the dialogue, the Dutch ministry in charge of coordinating the Clean Air Agreement informed about the planned implementation of the agreement. It was stressed that cooperation between all levels – local and regional authorities, the national government and the EU – would be a key to success for this endeavour. Health indicators are developed and used to ensure the focus is on the most relevant areas / air pollution sources.

Enforcement tools and measures to motivate and encourage a faster and more widespread uptake will be important to ensure that Clean Air Agreement swiftly leads to tangible results. A main challenge is the difference between small and large cities/municipalities, where small municipalities doubt if they have the resources to take on the commitment to the Clean Air Agreement and therefore hesitate to sign. Regional cooperation, financial support from the national government and sharing knowledge and experience between municipalities are developed to facilitate participants in complying. Additional ways to take down this barrier are considered.

The importance of involving all societal actors for progress of the clean air agenda was highlighted. The specific role of business and the private sector was also emphasised as an opportunity to explore further, e.g. in thematic partnerships or joint information campaigns. The discussions also covered the importance of involving citizens, showing how and why they could contribute by changes in their every-day lives.

A prerequisite for such behavioural changes is improved knowledge about air pollution. Citizen science projects and the use of low-cost sensors to provide easy access to air quality data while also raising awareness was mentioned as a good example for further roll-out. It was proposed that creative ways to exploit existing infrastructure (e.g. the network of parking meters in cities) to set up more low-cost sensors could be considered. Such local air quality measurement schemes could be further complemented with satellite data, as provided e.g. via the European CAMS/Copernicus projects. Involving and engaging schools and young people was proposed as a best practice applied in many EU Member States, to spread the message widely. Finally, on citizen involvement, it was proposed that routes to facilitate a bottom-up approach might be needed, to make it easier for citizens to voice their concerns and ideas regarding their local air quality and health situation and ways to improve.

To boost these aspects, a more clear narrative regarding the links and coherence with the climate objectives – as well as with social equity and socio-economic integration objectives – will likely

⁶ An agreement signed between the national government, municipalities and regions on 13 January 2020, aiming to cut negative health impacts from air pollution by half; <https://www.schoneluchtakkoord.nl/>

be useful, both to motivate local and regional authorities to commit and to get citizens and the private sectors more involved.

The Clean Air Dialogue also highlighted the importance of high resolution air quality modelling to assess the general exposure of populations to air pollution, and to identify pollution hotspots, to improve health-related air quality information. The discussion identified room for improvement in the air quality monitoring network by adding missing sampling points. In particular the combination of air quality monitoring and modelling, augmented by public participation in related citizen science projects, offers opportunity for an optimal placement of monitoring stations, and result in improved air quality information. The discussion identified room for improvement in the air quality monitoring network including by adding two missing sampling points in the agglomeration Den Haag - Leiden.

Finally, there was a call for more exchange of best practices with other Member States and between cities and regions within and outside of the Netherlands. The Commission provided information about existing schemes for peer-to-peer exchanges.

2. Emissions from wood combustion and biomass use in the built environment

According to the Dutch Informative Inventory Report 2019, 13% of the fine particulate matter and 22% of the black carbon emitted in the Netherlands come from residential heating. This sector is also responsible for a substantial part of dioxins and polycyclic aromatic hydrocarbon pollution⁷. As a result, residential heating of wood has been assessed to contribute 9% of the health effects linked to exposure to air pollution.⁸

The energy system in the Netherlands is still largely driven by the combustion of fossil fuels. Gas is the most common heating source for buildings. The new National Climate Agreement sets out that the five remaining coal-fired power plants will be gradually phased out by 2030. Natural gas extraction in Groningen (the main extraction area) is set to end in 2022 and the Dutch climate agreement includes the objective to make at least 1.5 million buildings gas-free by 2030 by banning natural gas in all new buildings. The question is what alternatives there are and how this energy transition will contribute to the clean air policy objectives. Today, biomass remains the main source of renewable energy although biomass combustion contributes to air pollution.

The dialogue included exchanges of views on the risk of trade-offs between the clean air and the climate agendas. Targets regarding an increase in renewable energy sources should be carefully weighed against the risk of increased air pollution if biomass is used as a transition fuel in the phase-out of fossil fuels. It was stressed by some participants that biomass combustion poses a risk to clean air objectives, especially with regard to residential wood stoves.

Wood burning for small-scale heat generation by e.g. pellet or wood stoves is currently used only in a smaller share of Dutch households. Wood is also burnt outside in fire pits and campfires for recreational purposes or burnt in fireplaces for creating a cozy atmosphere rather than out of necessity for heating.

⁷ *Informative Inventory Report 2020 : Emissions of transboundary air pollutants in the Netherlands 1990-2018*, <https://www.rivm.nl/publicaties/informative-inventory-report-2020-emissions-of-transboundary-air-pollutants-in>

⁸ From 2021 onwards also the contribution of condensables from wood burning are included in the emission registration. This is expected to increase also the share of wood combustion in the health effects.

Especially the small-scale wood burning is becoming an important discussion issue in the national clean air debate with both public and political attention. This was also reflected in the Clean Air Dialogue where many questions were asked about measures to reduce wood burning in the Netherlands. Participants also proposed the possibility of full or partial bans on biomass combustion e.g. in densely populated areas. This links to the initiative launched under the Clean Air Agreement to investigate options to create wood burning free or low-wood burning neighbourhoods.

The wood used varies from dried firewood to garden or waste wood. As the fuel quality and the user behaviour are two aspects influencing the amount of emissions, there seems to be a need for more awareness raising and information to consumers. Opportunities mentioned in this regard included more neighbourhood cooperation and an increased focus on the role of local action for citizen involvement.

New instruments for information to citizens have already been developed such as the *stookalert* (heating alert) and the *stookwijzer* (developed by the city of Nijmegen), alerting citizens to the weather conditions or air pollution peak periods when it is most important to avoid wood burning. These alert systems seem still to have improvement potential, notably to reach a wider set of the population and to increase the rate of user behaviour changes as a result of the alerts.

On the stoves/boilers, the question of eco-design was discussed including the difficulty to get exemption to apply more ambitious requirements than the EU legislation (internal market rules), the challenge of addressing the old and long-lived stoves/boilers, including on the second hand market, and the lack of confidence in the emissions levels reported for eco-design stoves/boilers ('real-life emissions' as compared to laboratory results'). These issues need to be addressed at EU level to support Dutch policy and progress.

There are also opportunities for national and local action on the stoves/boilers e.g. in ensuring and promoting correct installation by certified professionals, in promoting use of filters and other clean air technology to mitigate emissions where biomass burning cannot in the short term be stopped, and consideration of subsidies and economic incentives to facilitate the transfer to cleaner heating. The available EU funding for this and the untapped potential for increased take-up was emphasised. Stepped up enforcement measures including controls and inspections are also important.

Overall, a multi-pronged approach was recommended, including further exploring options to reduce the need for biomass combustion for heating (e.g. roll-out of cleaner district heating solutions, improved energy efficiency and building standards, etc.).

Finally, the Ministry on Infrastructure and Water Management was asked about the Clean Air Agreement: calculations were based on the old emission inventories that have now been updated to take into account the condensable part of particulate matter emissions. Participants asked whether the Clean Air Agreement priorities will therefore need to be updated or reassessed based on this new information.^{9 10}

⁹ RIVM. Final emission figures for 2019 are known, <https://www.rivm.nl/nieuws/definitieve-emissiecijfers-over-2019-bekend>

¹⁰ Emission registration 2019. Condensable fine dust from wood stoves, <http://www.emissieregistratie.nl/erpubliek/erpub/condensable.aspx>

3. Emissions from inland shipping

The share of inland navigation in air pollutants in national totals is currently on the increase, since emissions in this sector decrease less rapidly than e.g. the road traffic emissions. An estimated 7 percent of the health effects of national air pollution of transport can be traced back to inland shipping according to the Dutch 2020 Clean Air Agreement.

The Clean Air Agreement includes a chapter on inland waterway transport. This chapter relates closely to the Green Deal on Maritime and Inland Shipping and Ports which contains policies and measures to address emissions from inland navigation and a transition to zero-emission or low-emission vessels. The Clean Air Agreement also refers to assessment of the public procurement award criteria for ferry services and water taxi licenses.

Inland waterway vessels have a service life of decades. Opportunities to address this include refitting the old/existing fleet. The main barrier to higher uptake of refits and clean air technology installation is the cost, generally to be carried by the operator. Among the current measures is an EU-funded pilot project to support transition to low or zero-emission vessels including with testing of emission results. It was recommended that further use of the available EU funding should be explored to support developments in this sector.

Furthermore, the Central Commission for Navigation on the Rhine currently addresses the issues related to financing of the energy transition in a comprehensive study.¹¹

Easy availability and access to cleaner fuels and infrastructure for low-emission fuel or propulsion systems will be important to support and speed up the transition. At the dialogue, opportunities such as roll-out of shore-side electricity and hydrogen infrastructure were discussed. Bottlenecks today include mainly the incapability of vessel owners to finance investments in greening on their own.

Vessels emit harmful substances into the air when docked in ports and not using shore side electricity. This can happen during loading and unloading when vessels use diesel generators for their power supply. The dialogue discussions emphasised the importance of addressing the entire logistics chain around inland navigation, including the truck connections, port facilities and more efficient logistics at loading/unloading e.g. to minimise idle running.

To address the economic/financial barriers experienced by the sector, creative solutions to maximise incentives while not diluting the polluter pays principle will be needed. The need for guarantees and possibility to offer SMEs a shared investment risk (higher share of offered co-financing) was discussed, including via EU funding.

Good lessons learned include making use of the existing river system cooperation platforms, such as especially the Central Commission for Navigation on the Rhine, to ensure cross-border emission reduction benefits.

4. Emissions from non-road mobile machinery and the role of urban/spatial planning

Non-road mobile machinery cause in particular nitrogen oxides and particulate matter emissions. The main sources in this category are agriculture and construction work machinery. Urban/spatial planning and the emissions linked to construction/building projects were thoroughly discussed in the dedicated dialogue session.

¹¹ The results may be found on www.ccr-zkr.org.

Reduction of non-road mobile machinery emissions has been flagged as a priority in the Dutch National Air Pollution Control Programme and in the Clean Air Agreement. The aim is to go towards “zero emission mobile machinery”, by e.g. an endeavour to phase out older diesel mobile machinery and mobile tools without particulate filters and stimulating the development and uptake of zero emission mobile machinery.

Cities and regions have a specific opportunity for emissions reduction in their approach to public procurement, including public procurement for construction works and the deployment of non-road mobile machinery. The Netherlands is considered one of the frontrunners in the EU on green public procurement¹². It has a national target to reduce annual CO₂ emissions from public procurement projects by over 1 million tonnes by 2021. Public procurement is complex and expected to take into account a range of objectives; for the building sector, environmental and pollution aspects would however be a clearly advantageous complement to the climate related procurement criteria.

Nitrogen oxides are often emitted unnecessarily during idle running of non-road mobile machinery; this was mentioned as an opportunity for emission reductions. This needs to be addressed primarily by the operators and the building sector. Information campaigns and awareness raising coupled with stricter rules and demands on good conduct on building sites could be further considered and implemented.

The Netherlands have an advantage in terms of the comparably shorter distances and well developed electricity grid, making electrification of the sector possible to a higher degree than in some other Member States. Still, further roll-out of charging stations and improved grid access would help speed up this transition and facilitate for operators who want to invest in cleaner machinery.

Another bottleneck for the roll-out of cleaner non-road mobile machine fleet is the low market availability e.g. of electric non-road mobile machinery. European CO₂ or zero-emission standards are still lacking for non-road mobile mobility. Clear public procurement criteria, preferably coordinated across the internal market, could help stimulate production and make clean technology more available and affordable.

On the machine side, there may also be scope for further emission reduction by stricter inspections and enforcement of rules to stop any tampering with or removal of e.g. particle filters. It was noted that stricter EU emission standards and norms for new mobile machinery would help the national efforts in this regard.

The challenges for many municipalities in terms of perceived trade-offs in urban planning were discussed. The increased housing needs often result in compromises for new building sites, allowing new housing to be built in non-optimal locations (close to pollution hotspots). Clear use of health indicators to guide urban planning could be a helpful approach; measures to reduce the emissions at the hotspots should of course also be applied.

Finally, the different challenges for small and big municipalities was stressed. There is no one-size fits all solution. However, some of these challenges can be addressed by increased cooperation across municipalities, including by more active information exchanges.

¹² 2020 European Semester: Country Report - Netherlands, <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1584543810241&uri=CELEX%3A52020SC0518>

5. Emissions from agriculture

In 2018, the agricultural sector was responsible for 86% of the ammonia emissions, 22% of the nitrogen oxides and 40% of the total non-methane volatile organic compound emissions in the Netherlands¹³. In addition, around 23% of the primary particulate matter (and 9% of the fine particulate matter) came from agricultural activities¹⁴.

Ammonia emissions are of particular importance for continued discussion and prioritisation since they are reported to have increased since 2013. The ammonia emissions are important for the Dutch ambition to reach the WHO guideline levels of particulate matter, as ammonia is a precursor for secondary particulate matter. These emissions are also urgent to address for the sake of the overall nitrogen pollution situation. The Commission recently recommended the Netherlands to prioritise ammonia reduction measures as part of the new national CAP Strategic Plan¹⁵.

The Netherlands have a high share of intensive farming with a high density of livestock units as well as energy-intensive greenhouse installations. Emissions from livestock farming are found to cause 11% of the health effects attributable to national air pollution according to the Clean Air Agreement analysis.

Among the main challenges for the Dutch agriculture sector is the pollution from intensive rearing of poultry and pigs. Among measures to address the ammonia emissions so far, progress is notable in the increase in low-emission housing systems for pigs and poultry. The Netherlands have been applying mandatory coverage of manure storage and banned surface spreading of manure already since 1991. Still, to ensure a downward trend of ammonia emissions, further efforts are needed, e.g. further expanding the use of low-emission agricultural techniques

The low-emission housing systems should ensure both indoor and outdoor air quality, also taking into account the health of the farmers and animal welfare. The government has made subsidies available for the development and realisation of low-emission housing and business operations through certain subsidy modules. Farmers can apply for a subsidy for innovation, to develop new sustainable technologies for their stables including implementation of low-emission stable systems (e.g. different floors separating manure and urine reducing ammonia emissions). To work efficiently, these systems and filters must be correctly installed and regularly serviced/cleaned. Information and advice to farmers on this may be needed.

The intensity of the sector is another aspect to consider further. In addition to the voluntary schemes in place to encourage reduced livestock production, strategic policy decisions regarding future livestock numbers could be discussed.

In addition to information campaigns and awareness raising, there could be further focus on efficient implementation and enforcement of applicable rules. These measures are often most efficient when applied together: inspections to ensure that rules are followed, coupled with information on why the rules apply.

The dialogue covered discussions on possible synergies (notably climate, water quality, reduction of odour pollution and zoonosis risks) and risks for trade-offs (e.g. animal welfare,

¹³ EEA National Emission Ceilings Directive emissions data viewer 1990-2018, <https://www.eea.europa.eu/data-and-maps/dashboards/necd-directive-data-viewer-3>

¹⁴ *Informative Inventory Report 2020 : Emissions of transboundary air pollutants in the Netherlands 1990-2018*, <https://www.rivm.nl/publicaties/informative-inventory-report-2020-emissions-of-transboundary-air-pollutants-in>

¹⁵ *Commission recommendations for The Netherlands' CAP strategic plan*, SWD/2020/388, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020SC0388>

unless implemented in an optimal way to meet both objectives). It was stressed that the air pollution reduction measures should not be applied in a way to discourage organic farming but ensure fair competition while rewarding practices to prevent or mitigate pollution.

Among the main barriers to further progress, the narrow financial margins for farmers were quoted. In some cases, there may be a willingness to act but no ability to do it because of financial constraints and a perceived too high risk of investments. The price competition is high and consumers do not fully reward cleaner production by willingness to accept higher prices.

One area to further explore is therefore outreach to food consumers and awareness raising about the impact of consumer choice. While it is clear that not all consumers have equal possibility to make such choices, behaviour change should at least not be hampered by lack of knowledge. This must be coupled with a fair approach to pricing (e.g. tax incentives) to ensure that cleaner production can be rewarded by a higher profit margin than more intensive production with larger pollution footprint.

Regarding farm-level investments, big and small farms have very different needs, capacity and possibility to benefit from certain funding opportunities. The national policy must be flexible enough to cater for these different needs.

Information was also provided about the available EU funding linked to the Common Agricultural Policy, currently with much untapped potential for air pollution reduction investment. The Dutch Ministry of Agriculture was invited to further explore opportunities and discuss with the Commission DG AGRI.

Overall, it was stressed that this is an area that would benefit from more cross-border cooperation and exchanges between the neighbour countries, to ensure fair competition.

To ensure success on all these opportunities, it is important that the Ministry of Agriculture and the agricultural community remain closely involved and committed to reaching the emission reduction targets.

6. Emissions from road transport

According to the latest emission inventory, road transport accounted for 34% of nitrogen oxides emissions (national totals), 11% of the fine particulate matter and 11% of non-methane volatile organic compounds¹⁶. The Dutch Informative Inventory Report for 2020 also shows that road transport is the source of 16% of the total particulate matter and 32% of the total black carbon emissions¹⁷.

Most road transport emissions in the Netherlands have significantly decreased over time notably linked to the introduction of more stringent EU emission standards for road vehicles. Emissions of ammonia from road transport are however rather increasing since 2015.

The Netherlands are on the forefront in rolling out infrastructure for electric vehicles and have the highest market share of electric passenger cars in the EU. Public transport systems and bicycle infrastructure are comparably very well developed. Still, road transport is found to cause approximately 36% of all health impacts related to air pollution (Clean Air Agreement analysis)

¹⁶ EEA National Emission Ceilings Directive emissions data viewer 1990-2018, <https://www.eea.europa.eu/data-and-maps/dashboards/necd-directive-data-viewer-3>

¹⁷ *Informative Inventory Report 2020 : Emissions of transboundary air pollutants in the Netherlands 1990-2018*, <https://www.rivm.nl/publicaties/informative-inventory-report-2020-emissions-of-transboundary-air-pollutants-in>

and the achievement of air quality objectives are particularly challenging in zones with intense traffic, notably in and around urban areas.

Combining the need for efficient mobility for a growing and increasingly urban population with the need for more sustainable transport and less air pollution is therefore a key objective for mainstreaming of air quality policy.

The dialogue participants noted that actions at EU level could support national efforts notably by further strengthening rules and requirements, e.g. euro standards for vehicles. This legislation is regularly reviewed. In addition, non-exhaust emission from tyres and break wear could be further addressed as appropriate, both by legislative means and by improved road user behaviours (e.g. eco-driving skills).

Soft/active transport modes could be further facilitated notably with the increasing trend of e-bikes and electric mopeds. Cycling highways and more bicycle parking space are being considered in many municipalities as part of the urban planning.

The current situation with the Covid-19 pandemic has also raised questions on future work patterns and the possibility to reduce mobility needs by encouraging more telework also in the post-pandemic setting. Such discussions could be coupled with more awareness raising and information to citizens about peak pollution periods (air quality data) as one of the aspects for informed mobility choices on a day-by-day basis.

Specific challenges to further consider in this regard is the social equity dimension (different possibilities to apply good mobility choices depending on e.g. income, age) and the different needs for commuters inside a city as compared to commuters from outside a city.

Financial incentives that could support the transition includes further use of congestion charges and various tax incentives (bonus malus).

There is also scope for higher ambition with regard to inspections and enforcement mechanisms. Dialogue participants flagged particular concern about the risk of diesel particle filter removal in connection to the new periodic technical inspection regime recently introduced in the Netherlands, to be applied as of 1 July 2022. The objective of the particle number testing should be to identify vehicles with removed or faulty filters to ensure such vehicles are not in use.

7. The way forward – opportunities and approaches

Overall, the Dialogue provided an opportunity for broad information exchanges and discussions between experts from different levels of government and from NGOs, industry and public authorities on the main challenges and most promising ways forwards.

The Netherlands are already in a good position to protect their citizens. The air quality and pollution levels have been successfully improved over time. Opportunities to further raise the ambition level are in particular linked to the agriculture and residential heating sectors. Fine-tuning and creative additional solution is also clearly possible in the transport and building sectors and by further applying green urban planning, green public procurement and a *one atmosphere approach* to maximise the synergies between the clean air and the climate agendas.