

Air Pollution Series

Actions on Air Quality

Executive Summary

Context

In 2019, 92 per cent of the world’s population experienced PM_{2.5} concentrations in excess of the World Health Organization (WHO) guideline of 10 µg/m³. Without policy interventions, exposure to PM_{2.5} would increase by 50 per cent by 2030, severely compromising quality of life and risking lives worldwide.

The ‘Actions on Air Quality’ report reviews countries policy actions with regards to the mandate provided by United Nations Environment Assembly (UNEA) resolution 3/8 on Preventing and reducing air pollution to improve air quality globally. This edition of the report is based on data collected in 2020 through a detailed survey shared with countries, which was supplemented with relevant literature documenting key actions being undertaken by governments around the world to improve air quality.

Status and trends

This 2021 report assesses actions in key sectors that contribute to air pollution, focusing on industrial emissions, transportation, solid waste management, household air pollution and agriculture emissions. It also provides an overview of non-sectoral air quality management actions, including air quality frameworks, strategies, standards and monitoring.

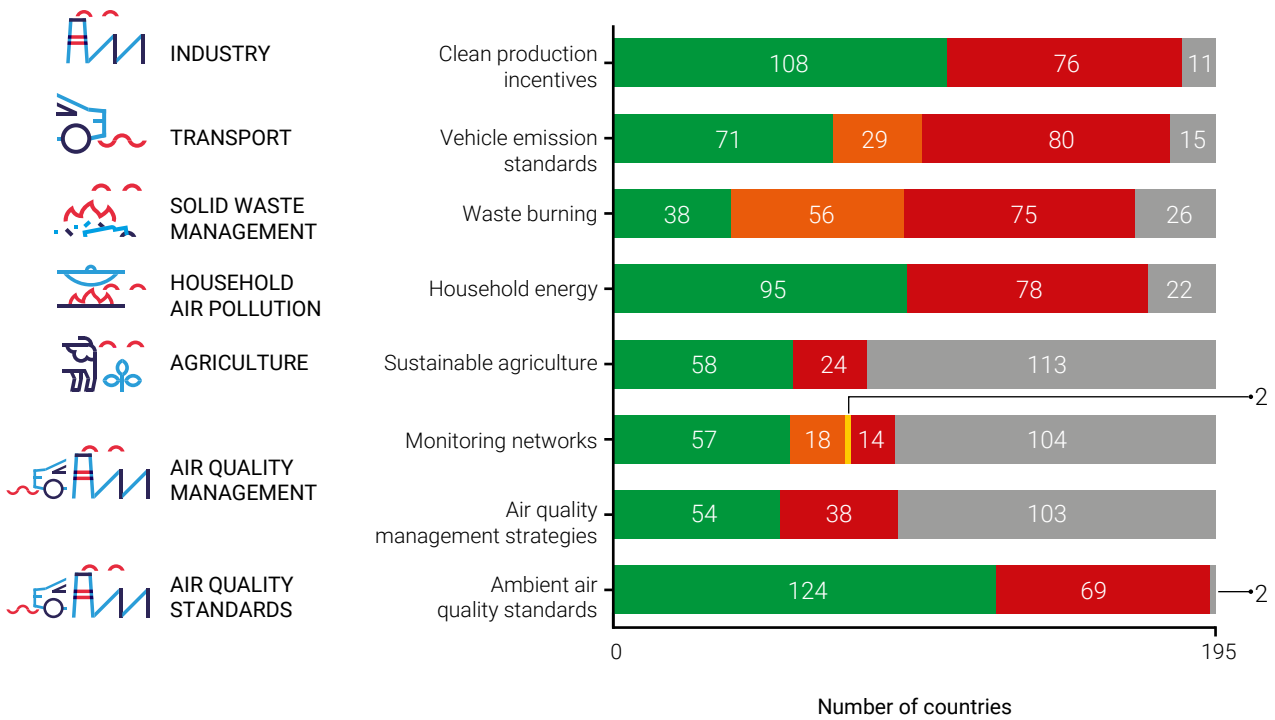


View to cityscape and Industrial Zone with Oil Refineries in Haifa, Israel.
Photo credit: © Shutterstock/Max Zalevsky

Overall, there is progress towards adoption of key actions that can significantly improve air quality

Progress towards adoption of key actions that can significantly improve air quality.¹

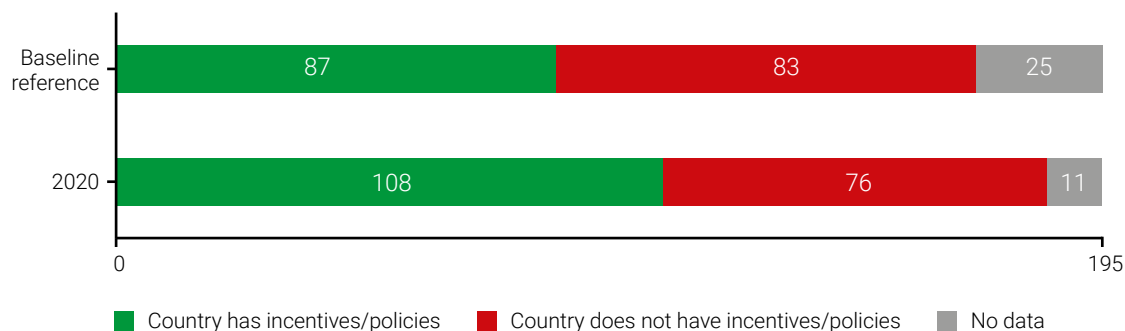
Where is the world in taking action to improve air quality?



Source: UNEP survey data

¹ From the analysis of UNEP data, a set of key policy actions were identified that, if adopted, would significantly improve air quality. The figure indicates how many countries have adopted these policies (green), are on their way to adopting them (orange/yellow) or have yet to adopt or implement them (red). Grey indicates that no data were available.

Countries with incentives or policies promoting cleaner production, energy efficiency and pollution abatement for industries



Source: UNEP survey data

Sectoral measures

More countries have incentives or policies promoting cleaner production, energy efficiency and pollution abatement for industries

In the **industrial sector**, the 2021 report indicates growing uptake of policy incentives for cleaner production and energy efficiency relative to the baseline reference analysis of 2016. While some of this progress may reflect a reduction in data gaps relative to the baseline data, increases are noted in some regions.

National Cleaner Production Centre South Africa (NCPC-SA)

The NCPC-SA is a national government programme that promotes the implementation of resource-efficient and cleaner production methodologies to assist industry to lower costs by reducing energy, water and materials usage and managing waste. The availability of this resource – coupled with the financial incentives introduced through the carbon tax in South Africa – has encouraged many industries to undertake process changes rather than simply implementing end-of-pipe controls to comply with minimum emission standards for SO₂.

More countries are meeting the Euro 4/IV vehicle emission standard

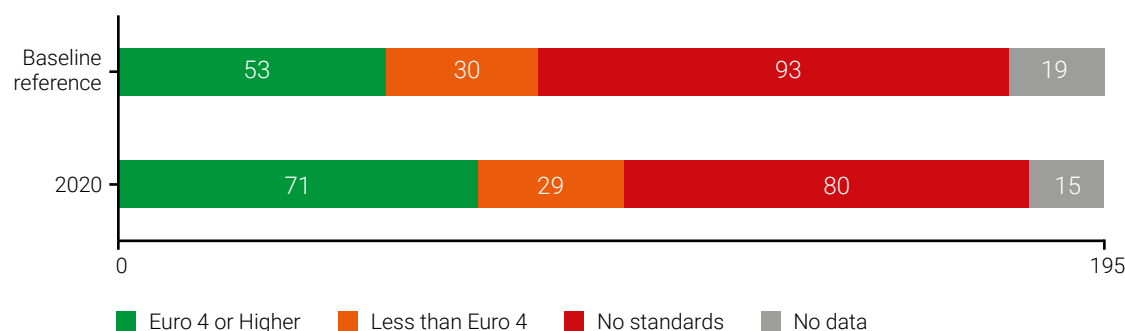
Policies to reduce emissions from the **on-road transportation sector** remain critical in countries (especially their urban areas) around the world. The past five years have shown progress, with 18 additional countries adopting emission standards equivalent to Euro 4/IV or higher, bringing the total to 71 countries. Twenty-nine countries have vehicle standards in place, but they are not yet up to the Euro 4/IV standard.

Used vehicle import regulation in Peru

In 2020, the Ministry of Transport adopted regulations that reduced the maximum age allowed for importing used vehicles from five to two years, aiming to reduce the age of the vehicle fleet, improve air quality and reduce emissions. Additionally, the government created the scrap bond programme to provide incentives for citizens to remove or “scrap” old polluting vehicles.

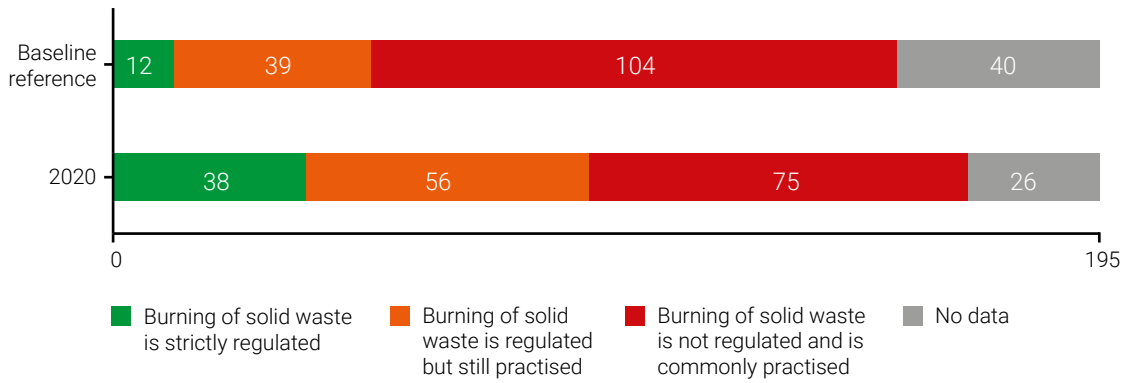
It is estimated that some 10,250 vehicles (including taxis, buses and cargo vehicles) could be recycled each year between 2021 and the programme’s end date of 2030 within the framework of Peru’s nationally determined contributions in the transport sector.

Countries meeting Euro 4/IV vehicle emission standard



Source: UNEP survey data

Countries with solid waste burning regulations



Source: UNEP survey data

UNEP tracks progress on tailpipe standards as well as fuel quality, which is a key aspect of successful implementation of vehicle emission standards. However, as the main report highlights, there is still significant progress to be made with regards to fuel quality.

More countries regulate open burning of solid waste, but it is still a widespread practice

The number of countries that regulate **open waste burning** has increased significantly since 2016, although 75 countries still do not have regulations in place. Ninety-four countries (43 more than in 2016) now regulate burning, but only 38 of these countries have strict regulations in place. Despite the progress in this area since 2016, open burning is still practised in many countries, even those where regulations exist. Survey data indicate that the governments of the 94 countries that regulate burning have taken actions ranging from urban or national waste management plans to waste management regulations and more advanced strategies, such as landfill gas capture and improved collection, separation and environmentally sound waste disposal methods.

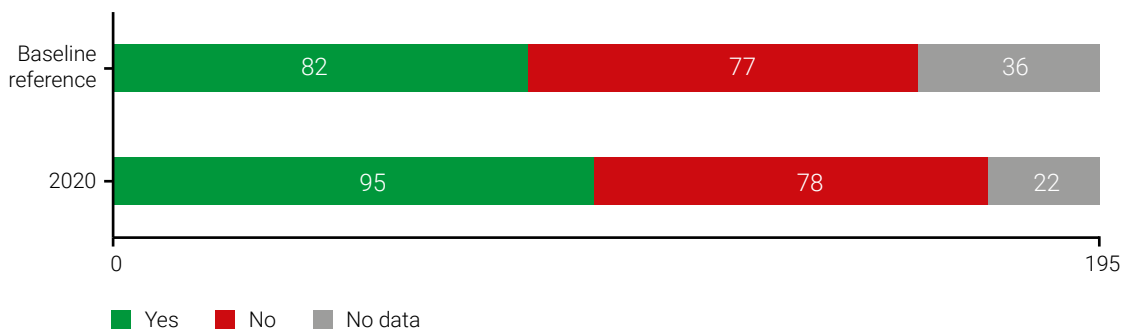
Brazil closes mega dump outside Brasilia

A few miles from the gleaming modernist capital of Brasilia sits a mountain of waste covering more than 300 acres, considered to be the second largest open dump in the world. Piles of waste would frequently catch fire, leading to significant air pollution. In 2011, a federal court deemed the dump illegal and ordered its closure. In 2018, it was finally shut down, with all new garbage from Brasilia that cannot be recycled going to a large, new landfill located far outside the city.

More countries are adopting clean energy programmes for residential heating and cooking

In terms of **household air pollution**, the world has seen increased availability of cleaner fuels and an estimated global reduction in the burden of disease associated with residential heating and cooking sources since 2016. An additional 13 countries now have national programmes to promote clean energy in residential heating and cooking.

Countries with national clean residential energy programmes



Source: UNEP survey data

Survey data show that governments are implementing various measures in this sector, with the highest level of uptake for increased energy efficiency in residential appliances and lighting, followed by improved access to green technologies for residential heating, the adoption of low-emission cooking stoves and fuels, and increased use of liquefied petroleum gas (LPG).

India LPG initiative

Switching to a cleaner fuel for residential cooking is looking more promising in India. The central government and some state governments have launched programmes to implement fuel switching among low-income households in urban and rural areas. Such programmes have improved access to – and use of – cleaner cooking in recent years via a government subsidy for LPG. This resulted in a doubling of LPG connections (from 106 million to more than 263 million) between 2009 and 2018.

There is limited evidence of incentives to promote sustainable agricultural practices

Fifty-eight countries reported having incentives in place to promote **sustainable agricultural practices**. Measures include alternatives to open burning of agricultural residues, improved livestock manure management, and composting to reduce food waste. The survey found that among those countries with incentives for sustainable agricultural practices, nearly one quarter of respondents provide alternatives to open burning of agricultural waste and nearly one quarter support closed storage and improved livestock manure management. Approximately 20 per cent of respondents indicate using methane capture for energy use, while 18 per cent have measures to reduce food waste.

US EPA and Department of Agriculture AgSTAR Program

The AgSTAR Program promotes the use of biogas recovery systems to reduce methane emissions from livestock waste. Biogas can be collected from manure and burned to meet on-farm energy needs such as electricity, heating and cooling. By August 2017, AgSTAR estimates that 250 manure anaerobic digester biogas recovery systems were in operation at commercial livestock facilities in the United States. However, the potential is thought to be far greater, with US EPA identifying more than 8,100 candidate farms.

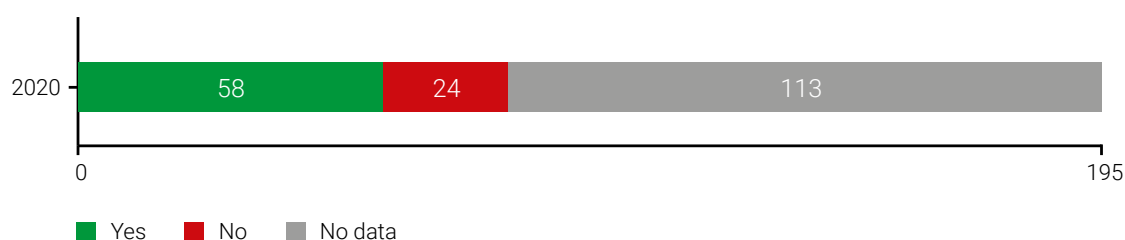
Non-sectoral air quality management actions

Whereas action across the key sectors listed above is likely to significantly reduce air pollution, sectoral measures need to be supported by enabling policy frameworks (including air quality standards) and air quality management capacities. The 2016 assessment found gaps in terms of the accompanying laws and regulations that would facilitate the implementation and enforcement of air pollution standards and strategies. In order to address these gaps and assess progress going forward, the 2021 report introduces two key air quality management aspects into its analysis: (i) air quality management strategies, and (ii) air quality monitoring.

More than a quarter of countries have a national air quality management strategy

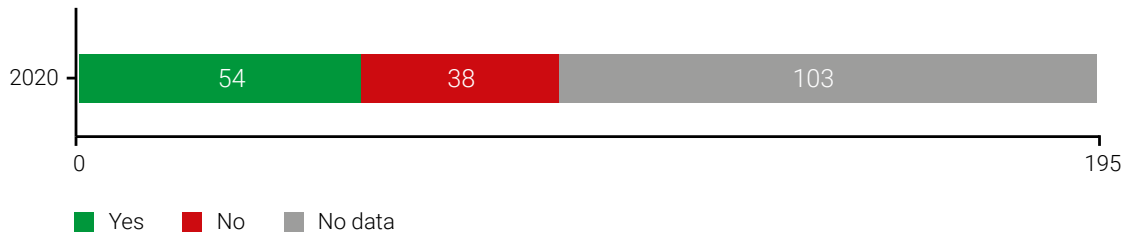
The survey responses to this question do not provide a comprehensive picture of how many countries have a dedicated national **air quality management strategy**. The responses received indicate that three key approaches are being used to implement air quality management strategies: most commonly a national air quality action plan, followed by sectoral plans, clean air acts and other approaches, sometimes combined.

Countries with incentives to promote sustainable agriculture practices (such as livestock manure management and use of organic fertilizers)



Source: UNEP survey data

Countries with a national air quality management strategy/framework/plan of action in place



Source: UNEP survey data

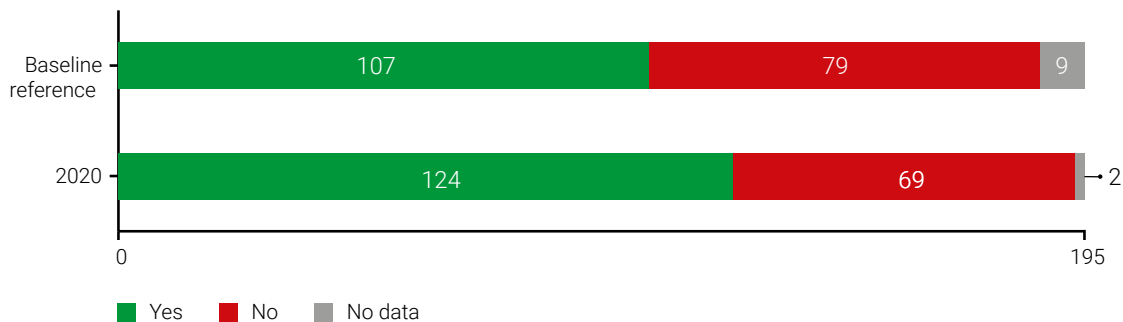
A significant majority of countries have legal instruments containing ambient air quality standards

In 2020, 124 countries (about two thirds) were found to have ambient **air quality standards**, compared with 107 countries in the 2016 report. More than one fifth of countries are in the process of reviewing or updating those standards and nearly another fifth have plans to introduce standards in legislation in the near future.

Air quality monitoring is expanding through a variety of approaches, but many countries still lack reliable routine networks

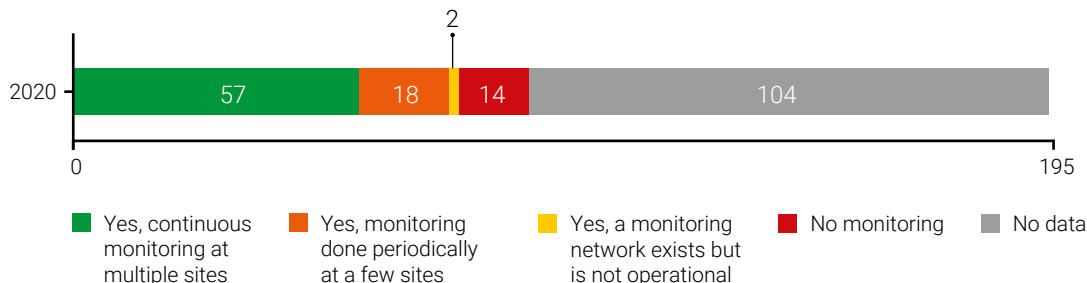
Countries are increasingly establishing **air quality monitoring networks**, with most using a combination of mobile and stationary reference monitors, though some are reliant on low-cost sensors and others use a hybrid of mobile and stationary reference monitors. The 34 countries without "continuous monitoring" and the 104 with no data represent existing data and capacity gaps which hinder global action on air quality.

Countries with ambient air quality standards embedded within a legal instrument



Source: UNEP survey data

Countries with national ambient air quality monitoring networks



Source: UNEP survey data

Conclusions

The findings of this report indicate that while progress can be observed across the sectors in adopting key policies and actions that are known to reduce air pollution, significant gaps remain. The analysis quantifies the extent of uptake of key measures by countries, but it does not take into account implementation or lack thereof. This edition of the Actions on Air Quality report nevertheless acknowledges the barriers in day-to-day implementation of air quality management programmes, including staff retention, capacity gaps, and affordability and maintenance challenges of air quality monitoring equipment. Countries are also facing larger, systemic challenges such as financing gaps that can result in an inability to invest in data analysis, and a lack of enforcement capacity when policies and actions are adopted.

UNEP will continue to track efforts to improve air quality. Continuous tracking of progress is important, as it helps inform and promote accelerated action. It can be used to catalyse support to address the identified capacity gaps at the national, regional and global levels, including efforts undertaken in response to UNEA resolutions, the 2030 Agenda for Sustainable Development, international agreements, and other relevant frameworks for action, including the International Day of Clean Air for blue skies and as part of global efforts and coalitions to promote integrated policies on air quality and climate.

