

DARK REPORT

2022

Executive Summary



righttocleanair
PLATFORM

About The Right to Clean Air Platform (THHP)

The Right to Clean Air Platform (Temiz Hava Hakkı Platformu – THHP), consists of 15 medical professional organizations, environmental and climate NGOs, working together on air pollution and its health impacts in Turkey since 2015. The aim of the Platform is to advocate for the right to live in an environment with clean air and to protect the public health from the air pollution, especially resulting from energy and industrial facilities in Turkey.

Platform Members

350 for Climate Association (İklim için 350 Derneği)
Association of Physicians for the Environment (Çevre için Hekimler Derneği)
Climate Action Network Europe (CAN Europe)
General Practice Association (Pratisyen Hekimlik Derneği)
Green Peace Law Association (Yeşil Banş Hukuk Derneği)
Green Thought Association (Yeşil Düşünce Derneği)
Greenpeace Mediterranean (Greenpeace Akdeniz)
Health and Environment Alliance (HEAL)
Turkish Medical Association (Türk Tabipleri Birliği)
Turkish Neurological Society (Türk Nöroloji Derneği)
Turkish Respiratory Society (Türkiye Solunum Araştırmaları Derneği)
Turkish Society of Occupational Health Specialists (İş ve Meslek Hastalıkları Uzmanları Derneği)
Turkish Society of Public Health Specialists (Halk Sağlığı Uzmanları Derneği)
WWF Turkey (Doğal Hayatı Koruma Vakfı)
Yuva Association (Yuva Derneği)

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Air quality is the primary environmental determinant of human health worldwide today, especially in regions where industrialization and urbanization are rapidly increasing and/or already dense. Air pollution is the most important environmental factor that causes premature deaths and chronic diseases in Turkey, too. Therefore, regular monitoring of air quality and prevention of pollution are of vital importance not only in terms of environmental policies, but also in terms of public health.

The Right to Clean Air Platform (THHP) has been following the air quality management policies and practices in Turkey since 2015. It works to ensure that national policies are brought to the level of international guidelines, standards and best practices and that they are integrated with public health policies. The Platform that is formed by 15 medical, environmental and climate organizations, carries out studies that bring scientific information together with the public in order to raise public awareness about air pollution. **The most important of these studies is the Dark Report that is regularly published every year. The report assesses the air quality throughout the country in the previous year and reviews the official air quality monitoring work of the Ministry of Environment, Urbanization and Climate Change for the same year. The legislation and policies at both international and national level are also reviewed and discussed.** Within the scope of the Dark Report, policy recommendations, especially regarding phase out of fossil fuels, are developed for improving the air quality in Turkey.





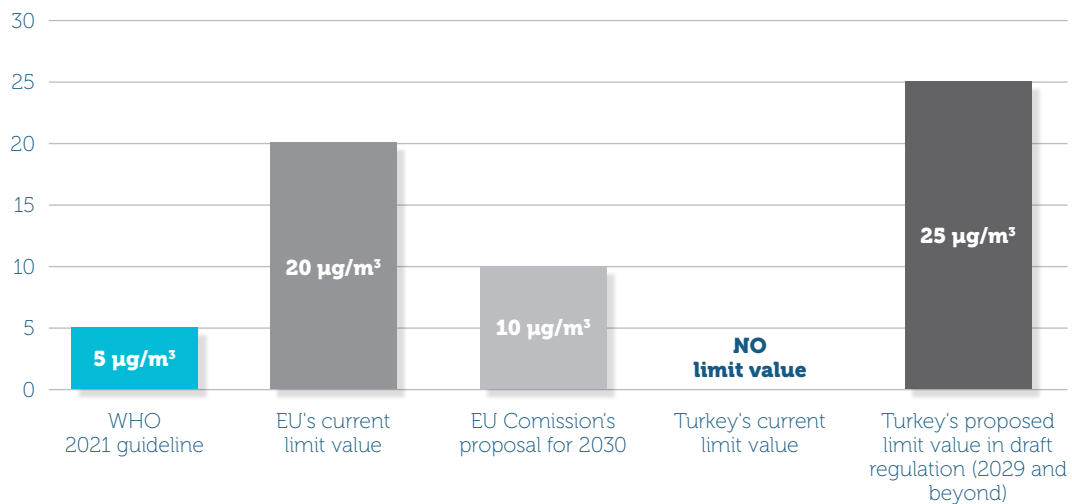
Legal limits for pollutants in Turkey are well above the air quality guidelines of the World Health Organization.

The World Health Organization's Air Quality Guideline was updated on a global scale in September 2021. Thus, the guidelines for health for the concentrations of coarse particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), nitrogen dioxide (NO₂), ozone (O₃) and carbon monoxide (CO) in the air we breathe were lowered in the light of the scientific developments over the last 20 years on the health effects of exposure to air pollution.

There are more than one million deaths annually that is attributable to PM_{2.5} pollution worldwide. WHO underlines that there is no safe limit value for any pollutant, especially for exposure to PM_{2.5}. The guideline value for PM_{2.5} was set as 5 µg/m³ in the update in 2021. According to a study of WHO, 80% of premature deaths from exposure to PM_{2.5} can be prevented if this guideline value is applied worldwide.

There is still no limit value for PM_{2.5} in the air quality legislation in force in Turkey. In the draft "Regulation on Ambient Air Quality Management" that has been under preparation for two years, the proposed target value for PM_{2.5} to be reached by the year 2029 is exactly 5 times the WHO recommendation, i.e. 25 µg/m³. In the draft, the current limit values in force for other pollutants are preserved as they are, and they are not revised in line with scientific developments and recent WHO recommendations.

Figure 1 - International and national limit values for PM_{2.5} concentration in ambient air (µg/m³)

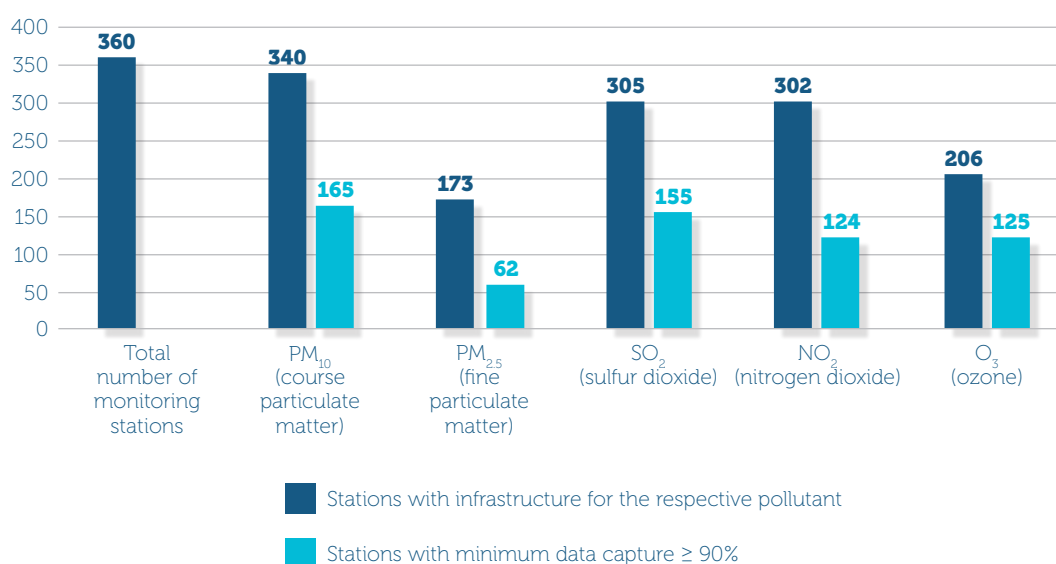


Air quality is not adequately monitored in Turkey

Air quality monitoring in Turkey was insufficient in 2021. Although air quality monitoring stations have increased in number across the country, there has been no improvement in monitoring efficiency. For example, only 165 of the 340 stations were able to measure PM₁₀ for 90% of the year. In other words, the rate of stations that provided sufficient data was only 49%.

According to a Greenpeace study, 80% of the population in Turkey has access to an air quality monitoring station within 25 km. However, there are question marks as to whether the locations of these stations are determined by a systematic approach that can provide accurate monitoring of the pollution load especially arising from large point sources. When we particularly look at the 13 oldest and most polluted coal fired thermal power plants, it has been determined that there are no air monitoring stations in the immediate vicinity of eight of these plants. These 13 thermal power plants are large combustion plants that have the highest share in PM, SO₂ and NO_x pollution in the country. According to Turkey's Energy Outlook report of the Chamber of Mechanical Engineers in 2022, most of these power plants have not completed retrofits of the flue gas filters and treatment plants that they should have put into operation by the end of 2019. Despite these unfinished investments, these power plants are issued either with temporary operating licenses or permanent environmental permits.

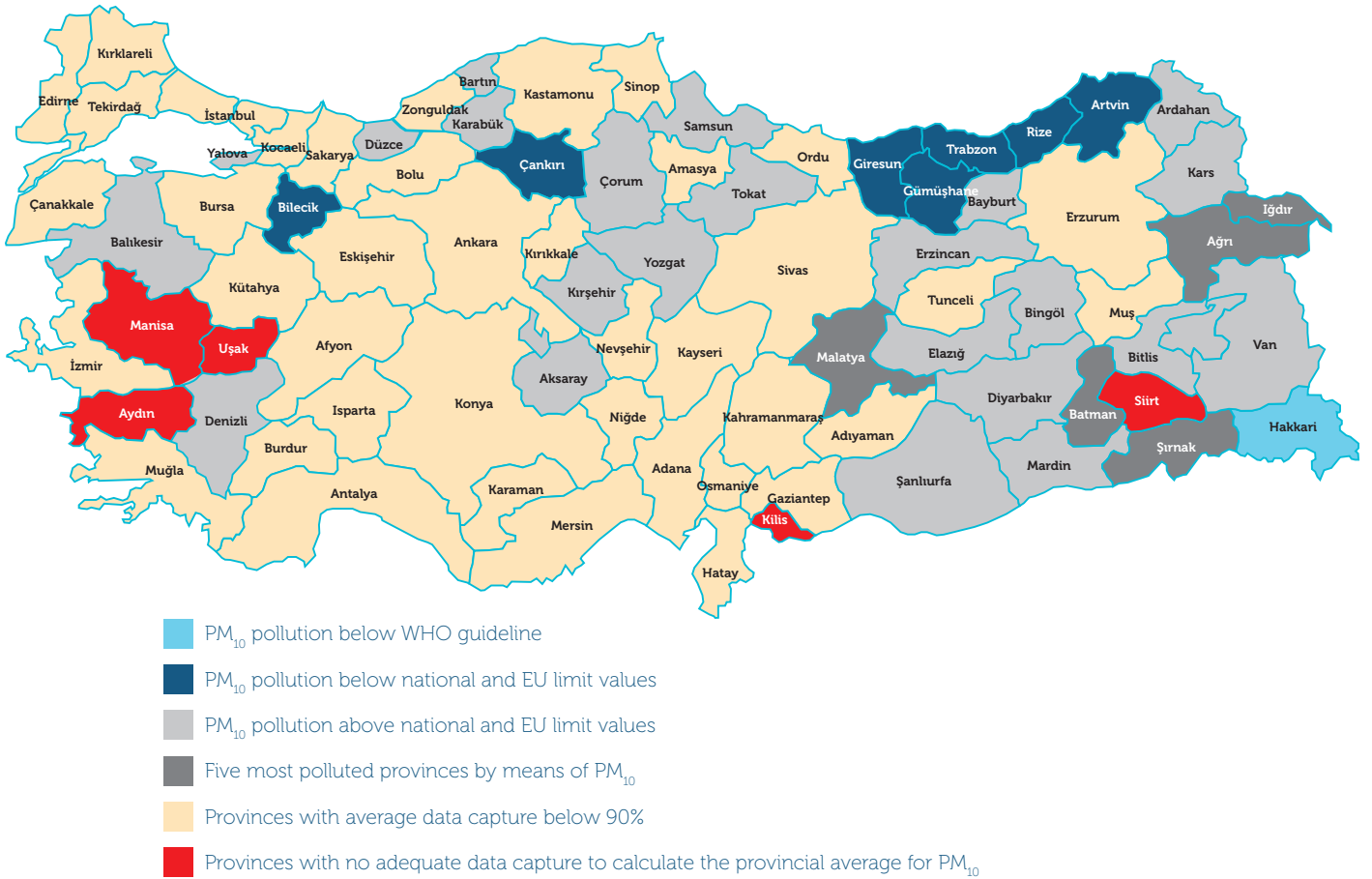
Figure 2 - Number of stations with infrastructure for different air pollutant parameters



Cities where air pollution has become chronic: Batman, Iğdır, Ağrı, Şırnak ve Malatya

In 2021, the first five provinces breathing the most polluted air in terms of PM_{10} were Batman, Iğdır, Ağrı, Şırnak and Malatya, respectively. Air pollution was measured above the PM_{10} national limit value for more than 200 days a year at Batman, Edirne, Iğdır, Ağrı Doğubeyazit and Kahramanmaraş Elbistan stations. The annual averages of these stations have been 5 to 8 times higher than the guideline value of $15 \mu g/m^3$ determined by the WHO for particulate matter PM_{10} .

Figure 3 - Air quality in provinces in terms of PM_{10} in 2021.



Air quality is not monitored regularly in the three biggest cities

Air pollution is at frightening levels in Istanbul and Ankara, especially in districts where coal is burned for heating, and construction and traffic are intense. Almost all of the population in Istanbul, except for Kumköy in Sarıyer, breathes unhealthy air in terms of particulate matter according to WHO guidelines. While a minimum of 90% data was obtained from only six of the 18 stations in operation in Ankara, Ankara residents breathe carcinogenic particulate matter above the national limit value on an annual average when we look at these six stations with sufficient data capture. Only seven of the 23 air quality monitoring stations in İzmir were able to obtain sufficient data to make an assessment of air quality. These data are not sufficient to make inferences about the air quality in İzmir in general.

Air pollution has not decreased in the two years with the pandemic

Although there was a temporary decline in air pollution, especially in some big cities during the pandemic, there was no improvement in air quality reflected in the annual averages. It is thought that the fact that curfews were not made to cover the whole society, and the fact that especially industrial production and manufacturing facilities, mining and construction activities, transportation or logistics of products and/or materials were excluded from the restrictions, led to this result.

Electricity generation from coal is the main source of sulfur dioxide and nitrogen dioxide pollution. According to the latest calculations made in 2019 in Turkey, 75% of SO₂ emissions and 41.8% of NO₂ emissions originate from the burning of fossil fuels in electricity generation. However, there is no regular measurement of these two air pollutants throughout the country, especially in the regions where thermal power plants are located.

One hundred thousand lives can be saved by 2030 by shutting down thermal power plants

According to the latest study conducted by the Health and Environment Alliance (HEAL), a member of THHP, if the thermal power plants in the country are closed gradually until the year 2030, 843 thousand tons of particulate matter, 8 million 128 thousand tons of nitrogen dioxide, 9 million 671 thousand tons of sulfur dioxide and 293 tons of mercury will be prevented to be released into the atmosphere. By blocking this huge pollution load, 102 thousand deaths can be prevented. This also means getting rid of the health costs of 195 billion Euros that corresponds to the country's total health expenditure of 12.5 years.

Air pollution is the 5th rank in terms of the risks of death in Turkey

According to the World Health Organization, air pollution kills 13 people every minute worldwide. 4 million deaths occurred in 2019 due to outdoor air pollution in 2019, and more than one million of it was caused by PM_{2.5} that is the result of burning fossil fuels. While coal was responsible for half of these one million deaths, the other half resulted from PM_{2.5} emissions caused by the combustion of natural gas and oil.

In Turkey, air pollution ranks 5th among the risks that cause death after tobacco, overweight, high blood pressure and high blood sugar. Cardiovascular diseases, chronic respiratory diseases, types of cancer, diabetes and chronic kidney failure, respiratory tract infections and tuberculosis take place in the first five rank among the diseases that cause death due to air pollution in Turkey. Air pollution can also cause maternal and newborn deaths.

At least 42,000 people died in 2021 due to air pollution

It is estimated that the number of people who lost their lives due to air pollution in Turkey in 2021 is at least 42,067 (forty two thousand and sixty seven). According to the modelling study conducted by THHP, it is calculated that in the same year 4,848 people in Istanbul, 2,853 people in Ankara, 2,223 people in Bursa and 1,731 people in Izmir lost their lives due to diseases linked to air pollution.

Air pollution also affects mental health and sleep patterns

Scientific studies showing the negative effects of air pollution on mental health have gained momentum in recent years. Studies point out that air pollution is one of the factors causing an increase in the risk of mental illness, worsening existing mental illness symptoms, resulting in increasing hospital admissions and hospitalizations for psychiatric reasons, and they also underline its relationship with suicidal ideation and action. Air pollution is an important public health problem with its effects ranging from its negative effects on brain development to damage to nerve cells, decreased sleep quality and the psychosocial difficulties it causes. The social groups most negatively affected by this vital problem are the poor and deprived populations that are more severely exposed to air pollution, environmental factors and occupational hazards.

Climate change and air pollution: Two sides of a coin

Systematic implementation of low carbon policies globally would also improve the air quality. Ozone is a secondary pollutant and formed by photochemical reactions in the atmosphere. The increase in air temperatures will increase the concentrations of ozone at the earth surface to levels that will affect human health. This additional pollution load called "climate penalty" is expected to affect especially the Asian continent where population density, urbanization and the air pollution associated to these are high.

On the other hand, natural fires that are exacerbated by climate change and increase in number and duration adversely affect air quality both locally and globally, especially due to the particulate matter pollution they cause. According to the reports of the European Union's Copernicus Atmospheric Monitoring Service (CAMS), Turkey was the country most affected by natural fires in the Mediterranean basin and related air pollution in 2021.

We should consider to address the triangle of climate change, air quality and health together and seriously with no further delay

With climate change, on the one hand, the physico-geochemical environment is affected, changed and polluted, and on the other hand, social determinants of health (shelter, clean air, access to clean and healthy water, access to safe and healthy food, security, peace, democracy, etc.) are adversely affected by this process. Therefore, the right to health, the right to live in a healthy environment and the right to life of future generations are in danger according to the foreseen consequences of climate change, that should be addressed with no further delay.







<https://www.temizhavahakki.org/kararapor2022/>



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