PEOPLE COUNT

PLCPD POLICY BRIEF MARCH 2022

What is air pollution, and why do we need to talk about it?

General Public

Air pollution is the presence of harmful pollutants in the air beyond safe levels. While these substances, referred to as air pollutants, can come from natural sources, man-made sources such as vehicles, coal-fired power plants, factories, and construction sites are among the top polluters.

Exposure to polluted air can cause respiratory and cardiac diseases, as well as different types of cancers. Roughly **1 in 3** deaths from stroke, lung cancer, and heart disease can be traced back to air pollution. Premature deaths linked to air pollution are estimated to be **7 million** people worldwide[1]. This has prompted the World Health Organization (WHO) to coin air pollution as "the single biggest environmental threat to human health".

In the Philippine context, WHO estimates that 45.3 of every 100,000 people die from air pollution - the third-highest ratio in the world and leaves us only behind Mongolia (48.8) and highly industrialized China (81.5).

How does the Philippine Clean Air Act or RA 8749 address air pollution?

Republic Act 8749 was the government's response to air pollution.

Also known as the Philippines Clean Air Act of 1999, RA 8749 mandates the government to:

(a) Create a national program to manage air pollution.
(b) Delegate and coordinate government functions and activities.
(c) Prioritize air pollution prevention over control.
(d) Provide a comprehensive management program for air pollution.
(e) Educate and encourage the public to participate in air quality planning and monitoring.
(f) Formulate and enforce a system of accountability for the short- and long-term environmental impacts of a project, program, or activity.

1 Obtained from WHO report. The 7 million figure refers to mortality from ambient air pollution (4.2 million) and household air pollution (3.8 million)

Setting ambient air quality standards

Common pollutants ("also known as criteria air pollutants") are emitted by many sources and can be found anywhere in the country, with cities often being hotspots for air pollution due to a large number of transport and industrial activities. The Philippines, through the DENR, lists the following eight criteria air pollutants:

1. total suspended particulate (TSP)
2. particulate matter - 10 (PM10)
3. particulate matter - 2.5 (PM2.5)
4. sulfur dioxide (SO2)
5. nitrogen dioxide (NO2)
6. ozone (O3)
7. carbon monoxide (CO)
8. lead (Pb)

Section 12 of RA 8749 orders the Department of Environment and Natural Resources (DENR), to lead the **review, revision, and publication** of an annual list of hazardous pollutants in the country. The list must also specify not-to-exceed concentrations of these pollutants. For common pollutants in the air, these ceiling concentrations are called **"ambient air quality standards."**

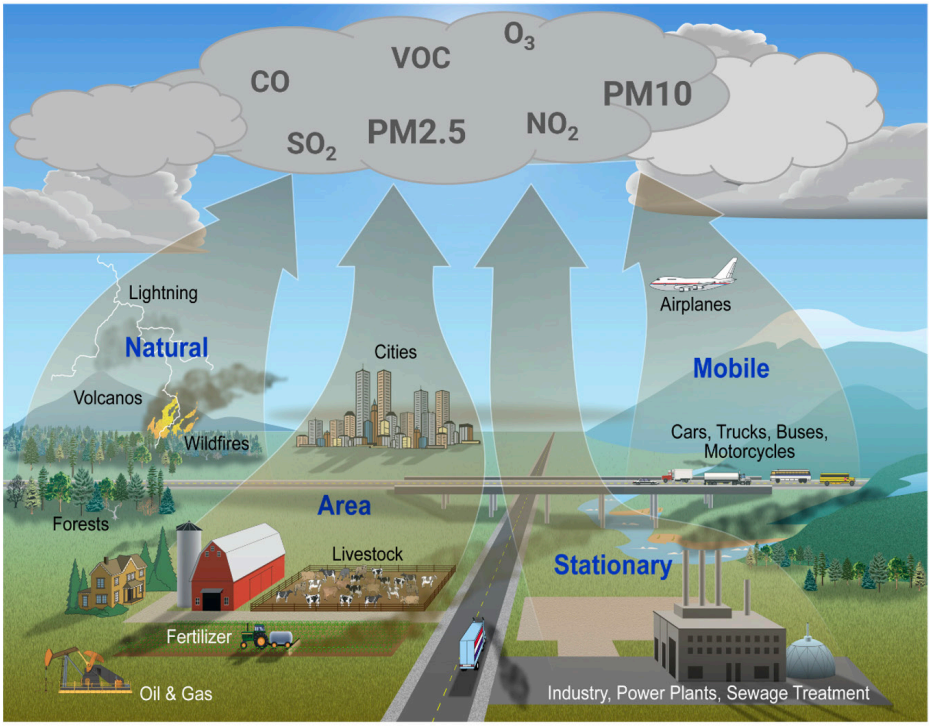
Since the WHO's Global Ambient Air Quality Guidelines provide governments with scientific information on how to keep their citizens safe from the impacts of air pollution, Section 12 also adds that the country's standards must build on the WHO recommendations, but by no means should they be less stringent.

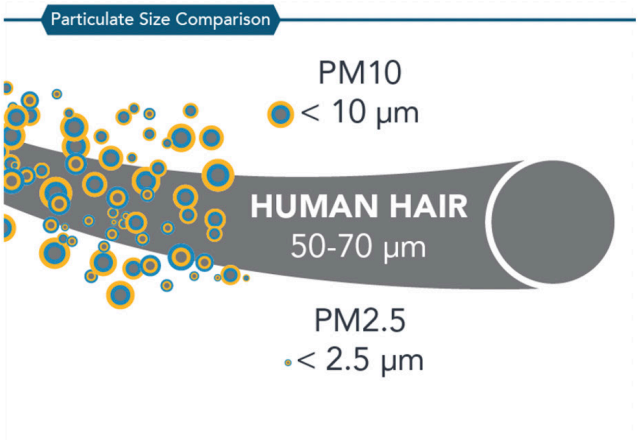
Alarmingly, this has not been the case for the last two decades, as the air quality targets mandated by the Philippine Clean Air Act have remained more lenient than the WHO guidelines released in 2005. This year, in 2021, WHO issued an update to the guidelines with more stringent pollution thresholds, putting more emphasis on the country's need to keep up with the new WHO guidelines.

Setting emission standards

Ambient air pollutant sources are divided into three broad categories:

Figure 1. Sources of air pollution and PM2.5 size comparison.





Legend
CO: carbon monoxide
SO_2: sulfur dioxide
VOC: volatile organic compounds
O_3: ground-level ozone
NO_2: nitrogen dioxide
PM: particulate matter

- stationary sources
- mobile sources, and
- area sources

Stationary sources are non-moving sources of air pollutants. These can be buildings and other immobile structures, which may include factories, boilers, cement kilns, refineries, and power plants.

Section 19 specifies the limits for air pollutant concentration per type of contaminant emitted by stationary sources. Unfortunately, these standards are severely falling behind international recommendations. The country's permissible emissions from coal-fired power plants, for instance, are among the highest in Southeast Asia.

Mobile sources are vehicles powered by carbon-based fuel and operated primarily for the transportation of persons and goods. This category includes motor vehicles such as cars, trucks, motorcycles, trailers, and public utility vehicles, among others, and non-road vehicles such as airplanes, marine vessels, and heavy equipment.

Section 21 outlines the emission standards for motor vehicles. These specifically apply to the quality of fuel and vehicle engine used. The good news is that our fuel and vehicle standards have been updated several times since RA 8749 was passed, and currently, the country has been implementing the Euro 4 standard since 2016. However, while our fuel standards are comparable with our neighbors in the region, unlike them, our government currently has not published any plans for fuel quality upgrade schedules.

Area sources are not confined to a specific point or points of emissions. This category includes construction sites, aggregated small non-regulated sources of emissions such as commercial areas, and the traditional small open burning, colloquially known as "siga" in the Philippines.

Adequately controlling the amount of air pollutants emitted from the above sources, especially those coming from stationary and mobile sources, contributes significantly to improved air quality. As such, RA 8749 also requires the government to set limits on air pollutant emissions from these sources.

Setting adequate monitoring

Monitoring is an integral part of air quality management. Adequate monitoring coverage, up-to-date monitoring equipment, and adequately maintained monitoring stations provide the government with invaluable data for its interventions on air pollution and also provide the public with timely, curated, and meaningful information regarding the air they breathe. Ensuring data transparency empowers citizens to engage in air quality management and ask for accountability in cases where air quality laws are not implemented and when emitters breach emissions standards.

Currently, monitoring coverage (and so data) is absent for some areas of the country, and in areas where there is air quality monitoring, the number of pollutants measured are limited.

2 Euro standards were developed to limit the pollutant emissions from vehicles and have been widely adopted globally. There are currently 6 levels in the Euro standards with Euro 1 being the most lenient and Euro 6 the most stringent.

What is the state of air pollution in the Philippines?

Due to the increasing number of pollution sources in the country, air pollutant emissions have increased since the implementation of RA 8749. Based on the latest government air emissions inventory, about 19 million tons of pollution were released into the atmosphere in 2018, nearly twice the 2002 level[3].

Meanwhile, the air quality in the country continues to fall short when compared with the WHO guidelines. Exceeding the limits set by the WHO guidelines over long periods exposes Filipinos to unsafe levels of air pollution and to acquiring some of the multiple air pollution-related illnesses including:

- Stroke
- Heart disease
- Lung cancer
- Chronic respiratory diseases

Numerous studies have looked into air pollution and COVID-19 and found that there is a clear link between long term exposure to air pollution and increased hospitalization and mortality from COVID19. Many of the same illnesses brought upon us by exposure to air pollution are also associated with worse health outcomes from COVID-19.

In the Philippines, a recent study conducted by the Centre for Research on Energy and Clean Air (CREA) and the Institute for Climate and Sustainable Cities (ICSC) estimates that around 66,000 premature deaths every year are linked to air pollution in the country. The same study also revealed that air pollution costs the country Php 4.5 trillion annually due to healthcare costs related to illness including hospitalization and death, loss of labor, and decreased productivity.

3 Data from the EMB emissions inventory webpage.
4 Aiming Higher: Benchmarking the Philippine Clean Air Act

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