Air Pollution in Ghana: Causes, Effects and Solutions

AIR POLLUTION IN GHANA

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Dangerous levels of toxic air, mainly from car exhaust, rubbish fires, road dust and soot from biomass-fuelled cookstoves, is killing thousands of people in Ghana every year, the most latest figures from the World Health Organization (WHO) have revealed.

Air pollution is associated with a number of adverse health effects, including heart disease, stroke, lung cancer, miscarriage, reduction in intelligence, and even mental illness.

The dirty air clogging our lungs both indoors and outdoors is linked to around 7 million premature deaths worldwide every year, with developing countries such as Ghana, Nigeria and India worst impacted.¹

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Ghana’s annual mean concentrations of PM$_{2.5}$ far exceed the WHO guidelines by as much as three times - 31.1 micrograms per cubic meter [$\mu g/m^3$] of ultra-fine particles of 2.5 micrometers or less in diameter which are known to pose a great threat to health as they can clog human lungs.

The WHO recommended annual guideline for PM$_{2.5}$ is 10 $\mu g/m^3$.

All publicly available data ranks the capital Accra the city with the worst air pollution in Ghana.

The PM2.5 annual mean concentrations in Accra in 2016 was more than 5 times above the safe limits set by the WHO - 55 $\mu g/m^3$.

The PM10 annual mean concentrations in Accra in 2015 was one of the worst in the world (172 $\mu g/m^3$ compared with the WHO annual guideline of 20 $\mu g/m^3$).

See also: Particulate Matter (PM$_{2.5}$ and PM$_{10}$) Basics

AIR QUALITY MONITORING IN GHANA
Ghana suffers from a serious lack of air pollution exposure information.

Ghana does not have a real-time or near real-time public air quality information.

Air quality monitoring (non-continuous) in Ghana is limited to only 15 locations, all in the Greater Accra Region. None for the rest of the country's 15 regions (including the 6 newly created).\(^2\)

See also: [A Small Glimmer Of Hope Comes To Agbogbloshie](#)

Ghana's EPA only monitors particulate matter - no nitrogen dioxide, carbon monoxide or any gaseous pollutant.

To make it worse, Ghana's EPA does not issue any form of air quality alerts even when poor air quality is expected to negatively impact human health.

Lack of real-time air quality monitoring networks, exposure information, reliable data and awareness could be contributing to mortality and disease burden attributable to air pollution in Ghana.

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**WHAT ARE THE CAUSES OF AIR POLLUTION IN GHANA?**
Ghana’s dirty air (both indoor and outdoor) is characterized by:

1. **Toxic smoke from car exhaust.** Example - ‘trotro’ and taxis. ‘Trotros’ are a popular form of transportation in Ghana. Mostly old and rickety, these minibuses clog roadways and fill the lungs of urban dwellers with toxic fumes.

2. **Open burning of residential trash.** Ghana’s waste management system is likely one of the worst in the world (mainly due to dysfunctional municipal services).

   Many areas in Accra, Ghana’s capital city, are usually littered with trash, especially single-use plastics.

   Due to this poor waste management practices, residents sometimes burn trash in the open, sending toxic fumes into nearby homes, businesses, etc.

3. **Biomass burning.** Many Ghanaians still rely on solid fuels such as charcoal and wood for cooking in open fires and leaky stoves indoors and on the streets (food vendors).
Wood-based biomass is the most dominant source of energy in sub-Saharan Africa (SSA) - more than 80% of households in the region according to a study by the World Bank\textsuperscript{3}.

According to the Health Effects Institute (HEI) and the Institute for Health Metrics and Evaluations (IHME), more than 70% of people in Ghana rely on solid fuels such as charcoal and wood for cooking.

See also: Pictures: The Rwandan Genocide

Burning wood and charcoal for instance emit soots especially inside homes, and these are known to cause heart disease, pneumonia, stroke, lung cancer, and other cardiorespiratory diseases.

Indoor or household air pollution kills close to 4 million people prematurely worldwide every year.\textsuperscript{4}

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\textbf{4. Dust from unpaved roads.} Residential road networks in Ghana are mostly unpaved (like in the photo below and worse):
Other sources include bushfires, Harmattan and pollutants from industry.

The AirMask & Textiles Company identifies the Agbogbloshie e-waste dump as a major source of air pollution in Accra.

Scrap workers at the Agbogbloshie e-waste dump regularly burn electrical wires, alternators, refrigerator coils, old electronic components, radial tires, etc. to recover copper, steel and other precious metals.

This “urban mining” of rare earth metals at Agbogbloshie releases a cocktail of highly toxic chemicals into Accra’s air, exposing the city’s population living downwind of the smoke to serious health risks.

See also: Agbogbloshie and Air Pollution in Accra

Agbogbloshie - A short film
WHAT ARE THE EFFECTS OF AIR POLLUTION IN GHANA?

Air pollution is a leading risk factor for premature death in Ghana.

Globally, air pollution is responsible for about 25% of all adult deaths from stroke, 24% from heart disease, 43% from Chronic obstructive pulmonary disease (COPD) and 29% from lung cancer, the WHO estimates show.

Ghana’s disease burden attributable to air pollution-related deaths increased substantially between 2012 and 2016.

Mortality estimate for air pollution in Ghana in 2016 was about 203\(^5\) for every 100,000 people. It was 80 for every 100,000 people in 2012\(^6\).

“The risks from air pollution are now far greater than previously thought or understood, particularly for heart disease and strokes,” says Dr Maria Neira, Director of WHO’s Department for Public Health, Environmental and Social Determinants of Health. “Few risks have a greater impact on global health today than air pollution; the evidence signals the need for concerted action to clean up the air we all breathe.”

These are some annual mortality estimates for Ghana:
1. Air pollution causes about 28,000 premature deaths in Ghana every year - WHO²

2. More than 15,000 premature deaths in Ghana in 2017 were due to air pollution, according to updated estimates from the Health Effects Institute (HEI), the Institute for Health Metrics and Evaluations (IHME), the University of Taxas at Austin, and the University of British Columbia⁸

**NUMBER OF DEATHS ATTRIBUTABLE TO AIR POLLUTION IN GHANA (1990-2017)**

Source: [Stateofglobalair.org](http://Stateofglobalair.org)

Image above plots air pollution-related deaths in Ghana between 1990 and 2017.

You might expect death rates to increase when pollution levels increase. Not true in all cases.

Your risk of premature death from air pollution is determined by a number of factors - the exposure level is only one of them. Your overall health, quality of life and your country’s standard of healthcare, are a few factors.

Increased pollution exposure does not always imply increased mortality rates. Countries with poor ranking healthcare system generally experience increased death rates (when air pollution levels are high or
even stable) as opposed to countries with better healthcare systems (even when pollution levels are high).

People in poorer countries generally tend to have less access to better health services.

This partly explains why more people die from air pollution in poorer countries than in rich economies.

Take developed countries for instance - they experience only small impact from wood-based biomass fuel, in contrast, to say SSA where majority rely on dirty solid fuels such as charcoal and wood.

Where do you think more people would be dying from indoor air pollution - Canada, Ghana or Guyana?

WHAT ARE THE SOLUTIONS FOR AIR POLLUTION IN GHANA?

Ghana's environmental laws already provide frameworks to tackle the country’s dirty air problems.

1. Simple enforcement of existing laws, for instance, should be able to stop Korle Bu, Ghana’s premier healthcare facility, from burning waste openly inside their own premises (photo below), and also remove vehicles which do not meet emission and efficiency standards from Ghana's streets.
2. Air quality assessment is critical to tackling air pollution in Ghana. Without data showing national or international air quality standards are being breached, there would be no urge for authorities to act on air pollution levels.

3. Ghana’s EPA should regularly issue air quality alerts to inform the public and sensitive populations (including older adults, children and those suffering from conditions such as asthma and heart disease) about pollution levels in Ghana.

3. Efficient public transport system could help to reduce traffic congestion in Accra, Kumasi and other urban areas.

4. City authorities could also consider placing restrictions on the most polluting cars entering city centers.

5. And it's time Ghana removes vehicles which do not meet emissions standards from its streets altogether.

See how cities around the world are tackling air pollution in this link: Air Pollution Killing More People in Ghana

“Excessive air pollution is often a by-product of unsustainable policies in sectors such as transport, energy, waste management and industry. In
most cases, healthier strategies will also be more economical in the long term due to health-care cost savings as well as climate gains,” says Dr Carlos Dora, WHO Coordinator for Public Health, Environmental and Social Determinants of Health.

Air pollution in Ghana cannot be deferred to tomorrow's agenda, as existing standards have failed to protect public health. Tightening pollution controls and enforcing already existing environmental laws could improve air quality and save thousands of lives every year.

See also: Videos and Photos of Agbogbloshie, Ghana

See also: "Urban mining" and Air Pollution in Accra, Ghana

Read the longer version of this article at: Air Pollution in Ghana Detailed Version

Sources.

