

Reducing Pollution and its Impacts on Health: A Vital Part of the G20's “Safeguarding the Planet” Agenda

G20 Policy Brief

Authors:

Lead author: Rachael Kupka, Global Alliance on Health and Pollution, +1.646.552.9884, rachael@gahp.net
Richard Fuller, Global Alliance on Health and Pollution, +1.646.206.0542, richfuller@gahp.net

[5 Feb 2020](#)

Abstract

Pollution has costly, negative implications for health, economic growth and the integrity of the environment. Not polluting is inherent in the idea of sustainability, yet it is not an international priority.

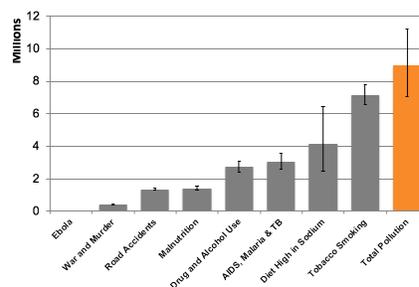
Addressing all types of pollution (air, water and soil) is absolutely essential to safeguarding the planet and its citizens, and to ensuring development and prosperity for all, especially women and children.

A range of cost-effective solutions exist. Investing in those solutions can generate enormous benefits to health, economic growth and global prosperity, many within weeks.

Challenge

- Pollution is the single **largest environmental cause of death** in the world, killing 9 million people each year, and **costing countries up to 2% of GDP and 7% of healthcare costs**.¹
 - Ambient air pollution is estimated to cause 4.2 million deaths per year, and about **91% of the world’s population live in places with unhealthy air**.²
 - 92% of the impacts fall on low- and middle-income countries, including many G20 countries.³
 - **6 of the G20 countries are on the list of the top ten countries in terms of annual premature deaths due to pollution**.⁴
- **Pollution is a leading cause of non-communicable diseases (NCDs)**. Pollution accounts for 22% of all deaths from cardiovascular disease, 26% of ischemic heart

**POLLUTION:
LARGEST CAUSE OF DEATH GLOBALLY**



¹ Landrigan PJ, Fuller R and Acosta NJR. Lancet Commission on Pollution and Health. 2017; 391(10119): 462–512. DOI: [https://doi.org/10.1016/S0140-6736\(17\)32345-0](https://doi.org/10.1016/S0140-6736(17)32345-0)

² <https://www.who.int/health-topics/air-pollution>

³ Same as above.

⁴ 2019 Pollution and Health Metrics: Global Regional and Country Analysis. <https://gahp.net/pollution-and-health-metrics/>

disease deaths, 25% of stroke deaths, 53% of deaths from chronic obstructive pulmonary disease, and 40% of deaths from lung cancer.⁵

- **Even at low levels of exposure, lead is an important risk factor for cardiovascular disease mortality.** 400,000 people die in the USA each year due to lead exposure.⁶
- **Children, pregnant women, their unborn babies and the poor are most at risk** for permanent health and neurological impacts from exposures to pollution.⁷ Pollution is a cause and effect of social injustice, with poor and vulnerable communities suffering the most.
 - Air pollution contributes to rates of miscarriages low birth weight and premature death.⁸
 - Many pollutants, including PM2.5 and lead,⁹ are transferred to the womb and through breast milk.
- **Pollution's impacts on health are compounded by nutritional deficiencies.** However, while proper nutrition including higher levels of omega-3s, vitamin C, B vitamins, vitamin E and other nutrients can help minimize the impacts of pollution on human health¹⁰, efforts to prevent and solve pollution at source are critical, especially in early childhood.
 - Lead replaces calcium, with serious consequences for bone formation, kidney and neural function. It also prevents effective delivery of iron to the body – a factor especially detrimental to chronically malnourished children.¹¹
 - Air pollution can cause lower levels of Vitamin D. Severe air pollution restricts the amount of UVB light reaching the ground, and causes people to stay indoors more.¹²
- **Pollution threatens the world's food and water supply.**
 - Discharge of toxic untreated industrial wastewater makes ground and surface water sources unsafe for agricultural and domestic use.
 - Soil contamination directly impacts agricultural productivity by damaging soil fertility and leading to the uptake of chemicals and heavy metals into crops consumed by livestock and people, and also dairy and meat products. Lead poisoning is one of the most common causes of sudden cattle death.

⁵ Landrigan PJ, Fuller R and Acosta NJR. Lancet Commission on Pollution and Health. 2017; 391(10119): 462–512. DOI: [https://doi.org/10.1016/S0140-6736\(17\)32345-0](https://doi.org/10.1016/S0140-6736(17)32345-0)

⁶ Lanphear, Bruce et al. Low level lead exposure and mortality in US adults: a population-based cohort study. The Lancet Public Health. 2018 V3 i4, PE177-E184. [https://www.thelancet.com/journals/lanpub/article/PIIS2468-2667\(18\)30025-2/fulltext](https://www.thelancet.com/journals/lanpub/article/PIIS2468-2667(18)30025-2/fulltext)

⁷ Landrigan PJ, Fuller R and Acosta NJR. Lancet Commission on Pollution and Health. 2017; 391(10119): 462–512. DOI: [https://doi.org/10.1016/S0140-6736\(17\)32345-0](https://doi.org/10.1016/S0140-6736(17)32345-0)

⁸ <https://www.theguardian.com/environment/2019/jan/11/air-pollution-as-bad-as-smoking-in-increasing-risk-of-miscarriage>

⁹ <https://www.cdc.gov/breastfeeding/breastfeeding-special-circumstances/environmental-exposures/lead.html>; Jung, CR et al. Fine Particulate matter exposure during pregnancy an infancy and incident asthma. Journal of Allergy and Clinical Immunology. 2019 June; 143 (6): 2254-2262e5. doi: 10.1016/j.jaci.2019.03.024. Epub 2019 Apr 5. <https://www.ncbi.nlm.nih.gov/pubmed/30959062>

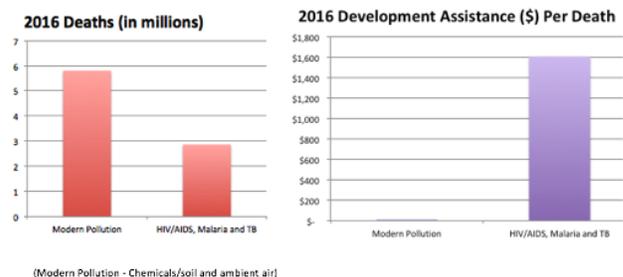
¹⁰ Same as above.

¹¹ Padulescu, Anca and Ludgren, Steven. A pharmacokinetic model of lead absorption and calcium competitive dynamics. Scientific Reports . 2019; 9 Article 14225. <https://www.nature.com/articles/s41598-019-50654-7>

¹² Szabolcs, Peter, et al. Nutritional Solutions to Reduce Risks of Negative Health Impacts of Air Pollution. Nutrients. 2015. Dec 7 (12): 10398-10416 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4690091/>

- Elevated levels of lead have been found in popular chocolate brands, and spices.¹³
- Dangerously high levels of mercury are regularly found in in tunafish.¹⁴
- **Pollution does not stop at the border.**¹⁵ The atmosphere and ocean currents transport mercury, PM2.5 and other pollutants across borders, and the global economy facilitates the trade and consumption of contaminated food, toys, cosmetics and other products.¹⁶ This causes both end consumers and communities at the source of production to be exposed to dangerous levels of pollution, affecting their health, livelihoods and productivity.¹⁷
 - In the USA, 10% percent of fish tested at importation is rejected due to contamination, but less than 1/10th of 1% of fish imports are tested.¹⁸
 - Lead pollution, much of it coming from illegal and improper car battery recycling, causes more than 1 million deaths per year¹⁹. Demand for car and solar batteries will only increase and must be factored into plans for ensuring clean, pollution-free energy and energy storage.
- **Pollution exacerbates impacts of drought, flooding and natural disasters**, via changes in mobility, volatility, and even toxicity making things worse.
 - Spreading of contaminated dust worsens during drought, affecting communities far from the source of pollution, as does access to clean water.
 - Flooding will spread pollution and potentially contaminate drinking water.
- Pollution has not received adequate international attention and abatement efforts are severely under-resourced. **Modern pollution** – that stemming from industrialization and urbanization – **receives 10 times less funding per death**

Impacts are undercounted—solutions are underfunded



Swinehart S, et al. Rethinking Aid Allocation: Analysis of Official Development Spending on Modern Pollution Reduction. *Annals of Global Health*. 2019; 85(1): 132, 1–11. DOI: <https://doi.org/10.5334/aogh.2633>

¹³ Bernhardt, A, Caravanos J. and Fuller, R. Pollution Knows No Borders. 2019. https://www.pureearth.org/wp-content/uploads/2019/01/PE_PollutionKnowsNoBordersOnline.pdf; <https://www.cdc.gov/mmwr/volumes/67/wr/mm6746a2.htm>

¹⁴ Bernhardt, A, Caravanos J. and Fuller, R. Pollution Knows No Borders. 2019. https://www.pureearth.org/wp-content/uploads/2019/01/PE_PollutionKnowsNoBordersOnline.pdf

¹⁵ Bernhardt, A, Caravanos J. and Fuller, R. Pollution Knows No Borders. 2019. https://www.pureearth.org/wp-content/uploads/2019/01/PE_PollutionKnowsNoBordersOnline.pdf

¹⁶ Same as above.

¹⁷ Same as above.

¹⁸ Same as above.

¹⁹ Landrigan PJ, Fuller R and Acosta NJR. *Lancet Commission on Pollution and Health*. 2017; 391(10119): 462–512. DOI: [https://doi.org/10.1016/S0140-6736\(17\)32345-0](https://doi.org/10.1016/S0140-6736(17)32345-0)

(\$14/death) than funding to HIV/AIDS or TB, and 90 times less than malaria.²⁰

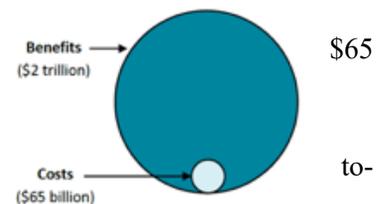
Proposal

By poisoning the air we breathe, the water we drink, and the land that sustains us, **pollution threatens the health and wellbeing of humans and the entire planet.**

Pollution is not just an environmental problem. It underpins the notion of sustainability itself. Pollution is a major contributor of land degradation, food insecurity, water and food contamination and loss of wildlife on land and water. These devastating impacts in turn contribute to fragility and instability in communities and countries, as greater numbers of people compete for fewer natural resources on which their lives depend.

Pollution is not necessary for economic growth – in fact the opposite is true. **Investments in pollution control improve economic development and health outcomes.**

- In the USA, every \$1 spent on air quality control since 1970 yields roughly \$30 in benefits –a total benefit of \$1.5 trillion compared to a billion investment.²¹
- The removal of lead from gasoline has returned an estimated \$200 billion to the US economy each year since 1980, an aggregate benefit date of over \$6 trillion through the increased cognitive function and enhanced economic productivity of generations of children exposed since birth to only low concentrations of lead.



The good news is pollution is preventable and solvable.²² Proven, cost-effective solutions exist but they need funding, and must be implemented at the source and at scale.²³ Other solutions do not cost very much, such as removing subsidies. Further, many solutions have positive co-benefits for climate change, biodiversity, livable

²⁰ Swinehart, S., Fuller, R., Kupka, R. and Conte, M.N., 2019. Rethinking Aid Allocation: Analysis of Official Development Spending on Modern Pollution Reduction. *Annals of Global Health*, 85(1), p.132. DOI: <http://doi.org/10.5334/aogh.2633>

²¹ Entire paragraph Same as Above.

²² Same as above.

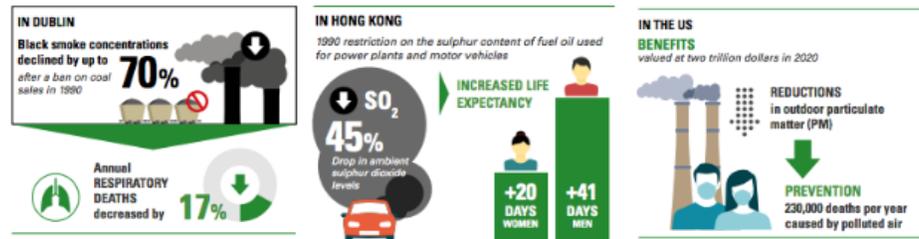
²³ Same as above.

cities and sustainable development.²⁴ Reducing black carbon emissions in particular will help prevent climate change, improve air quality²⁵ and generate significant benefits to health, economic growth.

Pollution is Solvable. The below are key recommendations for policy options that will result in improved health and reduce the impacts to and of climate change.²⁶

Benefits of national and supranational air quality interventions

National policies to reduce pollutant emissions have demonstrated significant success, whilst being cost-effective due to the population-wide benefits.



[NCD Alliance 2020: Clean Air Now
https://ncdalliance.org/sites/default/files/resource_files/Clean%20Air%20Now_WebVersion_1.pdf

1. **Allocate/increase domestic and overseas funding specifically to reduce pollution at source.** Major health crises need major funding in order to have any impact.
2. **Prioritize pollution reduction** nationally and internationally. Mainstream it into country and city planning processes. Establish targets and timetables. Translate it into policies that encourage pollution control. Prioritize solutions with the greatest health impacts first.
3. **Implement solutions.** Some solutions begin to **show results within three weeks** - respiratory and irritation symptoms, such as shortness of breath, cough, phlegm, and sore throat disappear; school absenteeism, clinic visits, hospitalizations, premature births, cardiovascular illness and death, and mortality decrease significantly.²⁷

A few of the **cheapest and easiest solutions with major benefits to climate and health** include:

- a. Replace dirty diesel vehicles with electric vehicles, especially school busses.
- b. Rapidly phase out subsidies to polluting industries and fossil fuels
- c. Stop crop-burning
- d. Replace coal fired power plants with renewables or gas
- e. Close polluting factories and mills that do not comply with strict pollution limits
- f. Clean up legacy pollution in urban areas where large number of people are exposed.

²⁴ Same as above.

²⁵ <https://www.iass-potsdam.de/de/ergebnisse/publikationen/2017/black-carbon-europe-targeting-air-pollutant-and-climate-forcer>

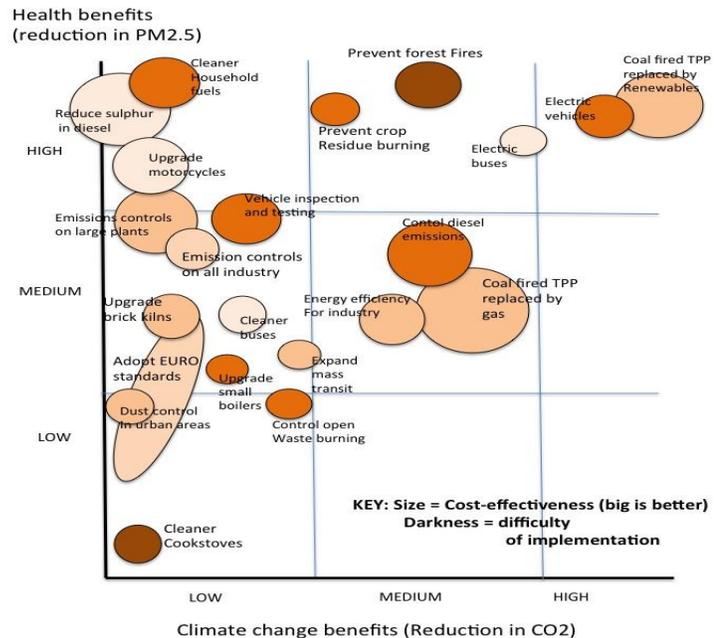
²⁶ Same as above for this paragraph and all recommendations.

²⁷ Schraufnagel DE, Balmes JR, De Matteis S, Hoffman B, Kim WJ, Perez-Padilla R, Rice MB, Sood A, Vanker A, Wuebbles DJ. Health benefits of air pollution reduction. *Ann Am Thorac Soc* 2019;16:1478-87.;
https://ncdalliance.org/sites/default/files/resource_files/Clean%20Air%20Now_WebVersion_1.pdf

4. **Establish systems and metrics to monitor pollution** and its health impacts. Even limited monitoring will enable countries to document pollution problems and track progress. Big data technology can be harnessed to help solve pollution problems and prioritize investments based on returns to health, the environment and economic growth.
5. **Build partnerships** for pollution control. Pollution is a cross-cutting problem and its solutions require planning and collaboration not only between government agencies, but also with the private sector and civil society.
6. **Integrate pollution into the NCD and health agenda.** Pollution underlays many non-communicable diseases (NCDs), which are on the rise globally.

7. **Continue key research**, especially to better understand pollution and support policy changes.

OVERVIEW OF AIR POLLUTION INTERVENTIONS



Relevance to the G20

1. Solving pollution in all its forms is integral to Safeguarding the Planet, one of three issue areas Saudi Arabia has chosen to focus on for the 2020 G20 Summit.
2. Most G20 countries are impacted by pollution, some severely. Six of the G20 countries are on the list of the top ten countries in terms of annual premature deaths due to pollution, but all are impacted.
3. Pollution has implications for 11 SDGs: the economy, climate change, the environment, health, gender and biodiversity, and spill over effects such as pollution refugees, conflict, national security and geopolitical challenges. Not polluting is inherent in the notion of sustainability itself. The world cannot achieve the SDGs without addressing pollution.
4. G20 countries can and should take the lead in tackling pollution. They have the resources and expertise and can share it with other countries.
5. G20 countries and affected countries alike will benefit from the solutions outlined here.

