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An artistic illustration of a winding path through a forest. The path is a mix of light blue and orange. On the left, there are trees with orange and yellow foliage. On the right, there are dark green trees. In the distance, a family of four (two adults and two children) is walking away from the viewer. In the foreground, another family of three (two adults and one child) is walking towards the viewer. The background shows a hazy, blue-toned landscape with more trees and hills.

Pollution and Health: Guidance Note for Parliamentary Action

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The document was authored (in alphabetical order) by Suvi Huikuri, Natalia Linou, Emily Roberts, Roy Small and Rachael Stanton from UNDP's HIV and Health Group. Hilda van der Veen from UNDP's Chemicals Hub and Agata Walczak from UNDP's Democratic Institutions and Processes Team provided valuable contributions. Richard Fuller from Pure Earth, as well as Lilian Corra and Maria Paola Lia from the Global Alliance on Health and Pollution, also provided crucial inputs. Zsuzsanna Schreck completed the graphic design and layout.

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Overview

Pollution is one of the most significant barriers to sustainable development globally, resulting in widespread social, economic and environmental harms, with disproportionate impacts in low- and middle-income countries (LMICs) and among already vulnerable and marginalized populations [1]. In July 2022, the UN General Assembly adopted Resolution 76/300 declaring access to a clean, healthy and sustainable environment as a human right [2]. Yet action to address pollution remains inadequate. For example, as of March 2024, only 1 percent of international development aid is allocated to clean air interventions [3] and many countries do not have effective strategies or policies to address air pollution.

Parliamentarians and parliamentary institutions, such as committees and caucuses, have a crucial role to play in strengthening national responses to pollution as part of advancing healthy, sustainable societies. That includes supporting governments in strengthening legal frameworks, for example overseeing how existing commitments, laws and policies are implemented. It also includes promoting effective, evidence-based pollution reduction measures, considering their multidimensional benefits and the importance of whole-of-government and whole-of-society efforts.

This guidance note overviews the links between pollution, health, and sustainable development, presenting evidence, recommendations and resources for parliamentary action. The note emphasizes the health impacts of pollution to highlight the urgency and drive for action, while exploring broader co-benefits in line with Agenda 2030 and the Paris Agreement. The note can be most useful for parliamentary actors (including, parliaments, parliamentarians, parliamentary committees, caucuses, staff and advisers), government officials and civil society.



Key messages for parliamentary action:

1. **Pollution of air, water and soil is deadly. It undermines human rights, quality of life and health, and damages the environment, with disproportionate impacts in LMICs.**
2. **Pollution negatively impacts national and local production and economies, including through health-related costs, impeding sustainable development and deepening the spiral of poverty.**
3. **Evidence-informed measures and strategies exist to prevent, reduce and control pollution. These have been successfully implemented in many countries worldwide.**
4. **Effective pollution legislation and law enforcement can simultaneously accelerate achievement of the 2030 Agenda for Sustainable Development and multilateral environment treaties, including the Paris Agreement.**



Recommendations for parliamentary action:

- **Through oversight, evaluations and impact assessment, support governments in advancing strong legislation to protect against the harmful impacts of pollution and implement enforcement measures.**
- **Promote parliamentary debate on pollution by holding a hearing which would present, share and discuss pollution-related data and impacts relevant to the country.**
- **Support governments to develop policies that cut air pollution emissions as part of efforts to set ambitious nationally determined contributions (NDCs).**
- **Advocate for an effective multisectoral response to pollution.**
- **Support increased budgetary allocation and funding for pollution prevention and control measures based on data and other evidence.**
- **Advocate for civil society involvement and inclusive institutions.**
- **Take measures to protect against interference in policy making from polluting industries including fossil fuel industries.**

Key message: Pollution of air, water and soil is deadly. It undermines human rights, quality of life and health, and damages the environment, with disproportionate impacts in LMICs.

What is pollution?

In this Guidance Note, pollution refers to modern pollutants, more specifically particulate and chemical pollution. Traditional (or biological) pollution such as viruses and bacteria is excluded.

Particulate pollution (or particulate matter) refers to small particles or droplets in the air such as dust, dirt, soot or smoke that can be of natural origin, such as from wood or crop burning. Chemical pollution refers to the contamination of our environment with chemicals that are not found naturally, such as pesticides and plastic.

Pollution – in the air we breathe, food we eat and water we drink – currently accounts for 16 percent of all deaths worldwide (9 million per year) and pollution-related deaths have increased by 66 percent over the last two decades [4]. Specific health harms from pollution include stroke, ischaemic heart disease, chronic obstructive pulmonary disease, lung cancer, and pneumonia. Newer evidence also links air pollution exposure with adverse pregnancy outcomes, other cancers, diabetes, cognitive impairment and neurological diseases [5].

The global burden of pollution is deeply unequal and causes widespread human rights violations [1], [6]. Globally, LMICs suffer the most, accounting for more than 90 percent of pollution-attributable deaths [7]. In some LMICs pollution accounts for one in four deaths [1]. This compounds the already disproportionate economic burdens and wider impacts on SDG achievement these countries experience.

Within countries, the most vulnerable – poverty-stricken individuals, indigenous peoples, migrants, minority groups, women and children – are especially at risk for harmful pollution exposure [6], violating their, and all people's, right to a clean, healthy and sustainable environment [2]. Pollution particularly threatens the rights of indigenous peoples, as the release of hazardous waste and toxics, as a result of mining, oil extraction, agriculture and waste disposal, devastates these communities and their lands, impairing health and livelihoods [8]. Through the pollution of environment, soil, water supply, food and consumer products, our bodies absorb harmful elements. Although most pollution remains near pollution sources in countries of origin, a growing body of evidence shows that transboundary pollutants can travel long distances in wind, in water, through the food chain, and in consumer products [1].

Because people are often exposed to multiple types and concentrations of pollutants at the same time, the exact health toll attributed to each singular polluting chemical, metal or particle is not easy to calculate. Strong data indicating direct health impacts exists, for example for different sizes of particulate matter (PM) in air, harmful pesticides, plastic, per- and polyfluoroalkyl substances (PFAS), arsenic, and lead. Annex 1 includes a comprehensive list of contaminants of major public concern according to the WHO [9].

While the specific links between pollution, health, and sustainable development will vary by pollutant and location, some global key figures and facts can be helpful:

- **Air pollution** – often divided between ambient (outdoor) and household (indoor) air pollution - is the single largest environmental health risk. Nearly 99 percent of the world's population live in areas where air quality does not meet WHO guidelines [11], [12]. In 2021, air pollution accounted for 8.1 million deaths globally, including 700,000 children under the age of 5 [15]. The burning of fossil fuels, biofuel (firewood) and kerosene at household level disproportionately harms women and children who are more at risk from indoor air pollution as they often assume the responsibility for household chores and cooking [16]. Air pollution also causes environmental degradation, contributes to biodiversity loss and climate change, and threatens the functioning of ecosystems. Meanwhile, deforestation and desertification increase air pollution. Super pollutants such as black carbon, methane and ground-level ozone damage vegetation by reducing photosynthesis, slowing plant growth and increasing vulnerability to pests and disease [17]. Air pollution impacts food supply and quality, putting people at greater risk for food insecurity and malnutrition. In turn, malnutrition is thought to increase susceptibility to the health consequences of air pollution [18], perpetuating inequalities.
- **Lead (Pb)** exposure in air, water, soil and products is associated with cardiovascular and respiratory diseases as well as negative impacts of reproductive and neurological health [19]. Lead exposure is especially problematic in LMICs, as lead causes a permanent loss of intelligence in children and is also now considered one of the largest causes of heart disease [20]. Lead was estimated to have caused 1,500,000 premature deaths and the loss of 33.8 million years of healthy life in 2021 [21], and a more robust assessment by the World Bank has since increased that estimate to 5,500,000 deaths [19].
- **Plastic**, a material often derived from fossil fuels, is a major pollutant. To give plastics their specific properties, chemicals are added – approximately 13,000–16,000 are known to have been used [22]. When such chemicals are contained in plastic items, they are slowly released into food, water and the environment. Microplastics are being found in human tissue [23]. The vast pollution caused by large amounts of plastic – equivalent to 2,000 garbage trucks every day – end up in oceans, rivers and lakes [24]. The dangers of plastic pollution go far beyond the environment, altering ecosystems, food production and potentially impacting the health of humans and animals, including through increases in cardiovascular conditions [25] and altered hormone production [26]. Lead is also present in plastic, among other nano-metals, without it being regulated during use or recycling [27].
- **Asbestos** is estimated to have caused 230,000 deaths in 2021. Robust estimates on the death and disability toll associated with some other pollutants such as arsenic and **cadmium** are forthcoming. Based on expert surveys, however, WHO has estimated that total annual deaths attributable to dangerous chemicals likely exceeds 2 million [28].
- The application of harmful **pesticides and fertilizers** in agriculture, the use of **toxic dyes** in textiles, the use of **flame retardants** and toxic metals in electronics, as well as the use of harmful chemicals in industry are some of the many ways pollutants are released to air, water and soil and ingested by humans [29].

- Exposure to PFAS is everywhere. PFAS are used in cleaning products, water-resistant fabrics, such as rain jackets, grease-resistant paper, nonstick cookware, personal care products (shampoo, dental floss, nail polish, and eye makeup), stain-resistant coatings (carpets, upholstery, etc). PFAS are a group of man-made chemicals with strong structural integrity which makes them hard to break down, attracting widespread industry usage. This means PFAS accumulate long-term and remain persistent in the environment for up to several thousand years [30]. Certain PFAS have been associated with cancer, altered immune function, liver disease, kidney disease, among other harmful health effects [31].

2.

Key message: Pollution negatively impacts national and local production and economies, including through health-related costs, impeding sustainable development and deepening the spiral of poverty.

Pollution is a drain on economic development, including by reducing workforce productivity and economic growth. Air pollution alone results in 1.2 billion workdays lost each year globally, which is estimated to increase to 3.8 billion days in 2060 [33]. The World Bank estimates that the global health impacts of air pollution cost societies US\$8.1 trillion a year, equivalent to 6.1 percent of global GDP [34]. Similar economic evidence exists for lead exposure, with the main sources being lead paint, spices, toys, cosmetics, water, and dust. The global cost of lead exposure was US\$6 trillion in 2019, equivalent to 6.9 percent of the global gross domestic product. Some 77 percent of the cost was the welfare cost of cardiovascular disease mortality and 23 percent was the present value of future income losses from IQ loss [19]. That includes the links between pollution, children's brain development, cognitive impairment and human capital loss [35].

Countries that work proactively to prevent and mitigate pollution can expect a positive return on their investment. This comes in the form of smarter and more economically productive citizens, lower healthcare costs, higher educational attainment, higher tourism rates and other benefits [36]. According to World Bank estimates, a 20 percent decrease in PM2.5 concentration would result in growth rates in labour productivity (33 percent) and employment (16 percent) [37], driven partly by improved worker health.

UNDP-supported air pollution investment cases demonstrate the return on investment in pollution control at national and sub-national levels. Pollution control can also support social cohesion and stability considering that, in some countries, pollution and environmental degradation have been a leading cause of political protest and a contributor to migration [38], [39], [40]. Adopting sustainable economic models, such as that of circular economy, can also support efforts to reduce pollution and its health impacts [41].

Air pollution investment cases: Findings and recommended interventions

In collaboration with national governments, UNDP, with funding from the EU, developed [ambient and household air pollution investment case methods](#) and piloted them in India, Ethiopia and Mongolia to estimate the deaths and economic losses from air pollution and to develop cost-effective interventions to address poor indoor and outdoor air quality.

- According to [Ethiopia's air pollution investment case](#), household air pollution (HAP) causes nearly 39,000 deaths and US\$8 billion in economic losses each year, equivalent to 4 percent of the country's GDP. Ambient air pollution (AAP) is responsible for more than 25,000 deaths each year, contributing to US\$2.6 billion in economic losses [42]. If the country implements a 10-year programme in which around 5.8 million households using traditional biomass cookstoves switch to cleaner cooking technologies, this transition could generate economic benefits of more than US\$2.4 billion, save households US\$250 million in fuel costs and prevent about 6,000 premature deaths, while reducing pollutant emissions equal to 20 percent of the national 2030 target reduction [42].
- [Mongolia's air pollution investment case](#) showcases that the country suffers an immense air pollution burden, with its capital Ulaanbaatar often ranked among cities as having some of the worst air quality in the world. Coal is a main source of fuel for cooking in Mongolia contributing to both HAP and AAP. HAP is estimated to cause around 4,350 deaths and US\$1.2 billion in economic losses each year, whereas AAP is responsible for more than 2,800 deaths and US\$269 million in economic losses each year. Investing in four AAP-reduction measures that reduce coal burning, open fires and car pollution can save the country US\$671 million by 2055 and 396 lives per year [43].
- Poor ambient air quality in two relatively smaller cities in India – Amritsar and Gurugram – poses a heavy toll on the economy and health of the entire country. According to the [investment case](#), in Amritsar alone, AAP causes US\$8.34 million in economic losses and results in 150 deaths each year. By investing in a package of nine AAP-reduction interventions in each city over five years, Amritsar can save 2,675 lives [44].

Key message: Evidence-informed measures and strategies exist to prevent, reduce and control pollution. These have been successfully implemented in many countries worldwide.

There is a range of proven, evidence-based measures that can be scaled up to tackle pollution and its harms, as well as guidance from UN and international alliances and partners. Laws and policies in particular are a key tool in disincentivizing polluting activities, protecting vulnerable populations and promoting cleaner models of production and consumption. Parliamentary action is therefore crucial for advancing healthier, more sustainable societies. Examples of interventions and available guidance include:¹

- **Household air pollution (HAP).** Countries can reduce HAP by transitioning to cleaner cooking fuels and technologies. Based on the types of inefficient stoves, the WHO-developed the [Manual for Benefits of Action to Reduce Household Air Pollution](#) (BAR-HAP) Tool [45] which details what type of cleaner cooking technology (improved versions of biomass or charcoal stove) or clean cooking technology (biogas, ethanol, electric, or liquid propane gas) is recommended to transition to. In addition, the tool lays out five policy interventions to implement the transition: stove subsidy, fuel subsidy, financing, intensive behaviour change campaign, and bans for polluting technologies/fuels [45].
- **Ambient air pollution (AAP).** It is crucial that governments adopt national pollution legislation and air quality standards that align with the latest (2021) '[WHO Global Air Quality Guidelines](#)'. This sets recommended maximum levels of main air pollutants (PM_{2.5}, PM₁₀, ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide) as well as interim targets [12]. To reach target levels, there are evidence-based interventions and measures that could be applied for specific air pollution sources (e.g. transportation, electricity generation, agriculture, manufacturing, buildings, waste management, etc.). For example, if transport emissions are a leading contributor to ambient air pollution, reducing diesel emissions, supporting the shift to electric vehicles and increasing public and nonmotorized transport are among effective interventions. UNDP's *Methodology for Developing Household and Ambient Air Pollution Investment Cases* (2024) includes information and evidence for interventions based on the leading contributors of air pollution [46].
- **Water and soil pollution.** One-third of the world's population does not have access to safe drinking water [47] and 40 percent are affected by soil and land degradation, with soil pollution being a key contributor [48]. Soil pollution impacts soil health, reducing its quality and capacity to grow crops, negatively impacting food safety and security, and endangering people's health and livelihoods [48]. Regulating levels of pollutants in the water supply and soil (e.g. lead, arsenic and highly hazardous pesticides) helps address the burden.

¹ This is illustrative and not exhaustive. See Tools and Resources for further available guidance.

Countries around the world have taken action to reduce air, water and soil pollution through legalisation. Some notable examples include:

- While the UN General Assembly adopted Resolution 76/300 declaring access to a clean, healthy and sustainable environment as a human right in July 2022, this right has been long-recognised in legislation at national and regional levels [2]. Many countries' constitution explicitly recognises the right to a healthy environment, with over 150 countries enshrining this right [49].
- Nearly half of the world's countries have legislation to restrict the amount of lead in paint [50].
- The right to breathe clean air has been explicitly recognised in legislation in the Philippines, France and the Dominican Republic [49]. France implemented a pollution tax on high-polluting vehicles when purchased, and as of 2024 is charging car owners a tax ranging from €100 to €60,000 depending on the amount of CO₂ emission [50]. This tax is estimated to generate €300 million by 2026 [51].
- To reduce pollutants in the ocean, Palau enacted the *Regulations Prohibiting Reef-Toxic Sunscreens* in 2020, which banned the use of sunscreens containing known toxic ingredients in sunscreens [52].
- Bangladesh has a policy specific to brick kilns, a leading source of air pollution in the country, the *Brick Manufacturing and Brick Kilns Establishment (Control) Act 2013* [53].
- The EU, in adopting the [Ambient Air Quality Directive](#), sets binding air quality standards with rules for access to justice and compensation for people experiencing health impacts due to air pollution [54], [49].

Global organizations offer countries guidance on legislation to address pollution:

- WHO and UNEP established the [Global Alliance to Eliminate Lead Paint](#) in 2011 – a voluntary partnership on efforts to reduce exposure to lead in paint focusing on children. As of 2022 there are 107 partners of the Lead Paint Alliance with 26 of them governments [55].
- In 2022, a resolution was adopted for UNEP to convene an Intergovernmental Negotiating Committee to develop an international legally binding instrument on plastic pollution. As of January 2025, negotiations of the committee are still ongoing [56].
- UNEP's [Regulating Air Quality: The First Global Assessment of Air Pollution Legislation](#) (2021) The document assesses air pollution legislation and the legal standards for failure to meet air quality standards and provides recommendations and resources to support countries to strengthen air quality governance.
- WHO-UNEP [Model Law and Guidance for Regulating Lead Paint](#) (2017) supports parliamentarians and governments to align policies on lead paint.
- UNDP's [Legal Environment Assessment for Health and Pollution. An operational guide to conducting national regulatory and policy assessments to promote effective pollution control and protect public health](#) (2024) guides on assessing legal environments related to pollution and health, for the use of governments, legislators, and more.
- [Compendium of WHO and other UN guidance in health and environment](#) (2024 update) is a comprehensive collection of guidance for improving health by creating healthier environments, with an overview and easy access of more than 500 actions.

- The Global Alliance on [Health and Pollution's Health and Pollution Action Plan program](#) is designed to assist governments of low- and middle-income countries to develop and implement solutions to pollution-related health challenges.
- Inter-Organization Programme for the Sound Management of Chemicals (IOMC) [Toolbox for decision making in chemicals management](#) is a problem-solving tool that enables countries to identify the most appropriate and efficient national actions to address specific national problems related to chemicals management.

A variety of challenges persist for effective pollution regulation—but they can be overcome. For example, common themes across the legal environment assessment reports for Ethiopia, India and Mongolia were gaps in the legal framework related to pollution and health, a lack of multisectoral coordination across key government entities, minimal enforcement of pollution-related laws, insufficient financial and human resources towards pollution reduction, and poor public awareness on health impacts of pollution. A myriad of complex factors contribute to these weaknesses, but they stem from the lack of recognition of pollution as a national priority as well as poor monitoring systems of pollutants [57], [58], [59].

4.

Key message: Effective pollution legislation and law enforcement can simultaneously accelerate achievement of the 2030 Agenda for Sustainable Development and multilateral environment treaties, including the Paris Agreement.

Action on pollution is a powerful means to achieve the 2030 Agenda for Sustainable Development and deliver on multilateral environment treaties, including the Paris Agreement. It can at once accelerate SDG 3 Good Health and Well-being, SDG 6 Clean Water and Sanitation, SDG 7 Affordable and Clean Energy, SDG 12 Responsible Consumption and Production, and SDG 13 Climate Action, among others. SDG Target 3.9 calls for a substantial reduction in the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination. With regards to air pollution, SDG targets 3.9.1 on reducing health impacts of air pollution, 7.1.2 on clean energy and 11.6.2. on air quality in cities are most relevant [60].

Some 85 percent of global air pollution is the result of burning fossil fuels and biomass, releasing PM_{2.5} particles that are among the most toxic and damaging to health [61], [62]. Carbon dioxide, methane and black carbon emissions contribute to global warming and more unpredictable and extreme weather patterns and events. Methane is estimated to kill around one million people annually [37]. Tackling air pollution represents an opportunity to address toxic air pollution while also mitigating climate change [37]. World leaders have expressed the urgency to transition away from fossil fuels. The [Pact for the Future](#), adopted in 2024, affirmed commitments of Heads of State and Government to protect future generations, strengthening action against climate change and actions to divest from fossil fuels and phase out subsidies [63].

Each of the 195 Parties to the Paris Agreement must prepare and update their nationally determined contributions (NDCs) [64], [65] offering an opportunity to integrate pollution targets with climate commitments. Countries can go a step further with legislation that enshrines their NDCs into law, as Chile and the United Kingdom have done [66].

Fossil fuel industry interference tactics to prevent action on air pollution and climate change

One of the leading challenges to scaled up action on pollution is industry interference and the spread of misinformation, especially from the fossil fuel industry. The fossil fuel industry actively works to delay and roll-back progress on climate change and air pollution reduction, avoiding accountability and attempting to mislead governments and the public, downplaying the immediate threat [32].

1. **Spreading misinformation** to downplay the fossil fuel industry’s major contributions to climate change. Recently, industry has shifted from denial to more complex messaging to create delays in climate action. For example, leading fossil fuel companies have labelled natural gas (which contains primarily methane) as a renewable energy source using buzzwords like “cleaner future”, misleading the public about the climate impact of natural gas [67].

2. **Influencing policy** to counter climate action and protect their interests through lobbying and political contributions. The fossil fuel industry has been known to fund political candidates and think tanks that deny climate change in the United States [68].

3. **“Greenwashing”** – an orchestrated way to distract the public from the true impact of fossil fuels by promoting superficial efforts to help the environment (e.g. investments in biofuels). In reality, any of these efforts do not come close to outweighing the negative impact of fossil fuels [68].

4. **“Astroturfing”** – creating a fake appearance of grassroots efforts to influence the public, masking the actual source of support. For example, groups that presents themselves as environmentally friendly can be backed by the fossil fuel or other highly polluting industry [68].

Further resources that can support parliamentary action to address climate change and air pollution include:

- [Inter-Parliamentary Union \(IPU\)](#) supports parliamentarians to address climate change and implement the Paris agreement.
- WHO’s [Brief for Parliamentarians on climate change, environment and health](#) (2023) provides talking points and suggested action in the nexus of climate and air pollution.
- Clean Air Fund’s [The Case for Action on Black Carbon](#) provides an overview of the evidence of the black carbon burden, solutions to reduce emissions, and recommended action.



Recommendations for parliamentary actors

Parliamentary actors can strengthen action on pollution, health, and sustainable development in a number of ways, for example:

Through oversight, evaluations and impact assessment, support governments in advancing strong legislation to protect against the harmful impacts of pollution and implement enforcement measures. This includes, but is not limited to, measures that promote a circular economy, evidence-based measures such as emission regulations on maximum level of air pollutants, reducing ambient air pollution based on main contributors, transitioning to cleaner cooking technology, regulating levels of pollutants in the water supply and soil, and legally binding controls on lead in paint.

Promote parliamentary debate on pollution by holding a hearing which presents, shares and discusses pollution-related data and impacts relevant to the country. Parliamentarians can use data and evidence on the health, economic, social and environmental impact of pollution to help build a strong case for increased action to address the main sources of pollution in a given country.

Support governments to develop policies that cut air pollution emissions as part of efforts to set ambitious nationally determined contributions (NDCs). Parliamentarians can support governments to integrate health and air pollution considerations into NDCs. Demonstrating the health benefits of climate action, including attention to black carbon and other super pollutants, can make the case for greater ambition and urgency [69].

Advocate for an effective multisectoral response to pollution. Parliamentarians can work across parties and with relevant ministries as well as non-state actors, including civil society, on policies and strategies for pollution reduction, for example, through parliamentary oversight. Parliamentarians can play a role in supporting national multisectoral plans on pollution where they exist and ensuring representation of parliament on relevant national coordinating mechanisms.

Support increased budgetary allocation and funding for pollution prevention and control based on data and other evidence. This can include emphasizing the economic burden of pollution-attributable disease and the health and economic gains that would result from strengthening pollution control measures in all relevant legislation and budgets. Recognizing the significant health and economic impacts of pollution, parliamentarians can advocate for and support increased budgets and funding for pollution measures to protect the population and support national economic growth. Investment cases can provide countries with estimates of the return-on-investment for specific interventions.

Advocate for civil society involvement and inclusive institutions. Parliamentarians can ensure public rights to access environmental information, participate in air quality and pollution governance, and access justice when pollution laws are not implemented.

Take measures to protect against interference in policy making from polluting industries, including fossil fuels. Parliamentarians can support transparency measures that require disclosure by declaring conflicts of interest related to any involvement with the fossil fuel industry.

References

- [1] R. Fuller et al., 'Pollution and health: a progress update', *Lancet Planet. Health*, vol. 6, no. 6, pp. e535–e547, Jun. 2022, doi: 10.1016/S2542-5196(22)00090-0.
- [2] United Nations General Assembly, 'The human right to a clean, healthy and sustainable environment A_76_L.75'. Jul. 26, 2022.
- [3] Clean Air Fund, 'The State of Global Air Quality Funding 2024'. Oct. 10, 2024. [Online]. Available: <https://www.cleanairfund.org/resource/air-quality-funding-2024/>
- [4] 'Visual Feature | A pollution Free Planet'. Accessed: Nov. 26, 2024. [Online]. Available: <https://www.unep.org/interactive/beat-pollution/>
- [5] World Health Organization, 'Air quality, energy and health'. Accessed: Jan. 03, 2025. [Online]. Available: <https://www.who.int/teams/environment-climate-change-and-health/air-quality-energy-and-health/health-impacts>
- [6] UN Human Rights Office of the High Commissioner, 'About Toxics and Human Rights'. Accessed: Jan. 08, 2025. [Online]. Available: <https://www.ohchr.org/en/special-procedures/sr-toxics-and-human-rights/about-toxics-and-human-rights>
- [7] World Bank Group, 'Pollution', World Bank. Accessed: Nov. 25, 2024. [Online]. Available: <https://www.worldbank.org/en/topic/pollution>
- [8] Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes, 'The impact of toxic substances on the human rights of indigenous peoples', Jul. 2022. [Online]. Available: <https://www.ohchr.org/en/documents/thematic-reports/a77183-impact-toxic-substances-human-rights-indigenous-peoples-report>
- [9] World Health Organization, '10 chemicals of public health concern'. Accessed: Jan. 27, 2025. [Online]. Available: <https://www.who.int/news-room/photo-story/photo-story-detail/10-chemicals-of-public-health-concern>
- [10] UNEP, 'Clean air as a human right'. Accessed: Dec. 02, 2024. [Online]. Available: <https://www.unep.org/news-and-stories/story/clean-air-human-right>
- [11] World Health Organization, 'Air Pollution'. Accessed: Jan. 03, 2025. [Online]. Available: https://www.who.int/health-topics/air-pollution#tab=tab_1
- [12] World Health Organization, 'WHO global air quality guidelines: particulate matter (PM2.5 and PM10), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide', World Health Organization, Sep. 2021. Accessed: Sep. 24, 2024. [Online]. Available: <https://www.who.int/publications/i/item/9789240034228>
- [13] A. Hajat, C. Hsia, and M. S. O'Neill, 'Socioeconomic Disparities and Air Pollution Exposure: a Global Review', *Curr. Environ. Health Rep.*, vol. 2, no. 4, pp. 440–450, Dec. 2015, doi: 10.1007/s40572-015-0069-5.
- [14] L. Van Den Brekel et al., 'Ethnic and socioeconomic inequalities in air pollution exposure: a cross-sectional analysis of nationwide individual-level data from the Netherlands', *Lancet Planet. Health*, vol. 8, no. 1, pp. e18–e29, Jan. 2024, doi: 10.1016/S2542-5196(23)00258-9.
- [15] Health Effects Institute., 'State of Global Air Report 2024', 2024. [Online]. Available: <https://www.stateofglobalair.org/resources/report/state-global-air-report-2024>
- [16] Clean Air Fund, 'The Case for Action on Black Carbon', Dec. 2023. Accessed: Dec. 06, 2024. [Online]. Available: <https://www.cleanairfund.org/resource/black-carbon/>

- [17] European Environment Agency, 'Impacts of air pollution on ecosystems', European Environment Agency. Accessed: Nov. 26, 2024. [Online]. Available: <https://www.eea.europa.eu/publications/air-quality-in-europe-2022/impacts-of-air-pollution-on-ecosystems>
- [18] C. N. Miller and S. Rayalam, 'The role of micronutrients in the response to ambient air pollutants: Potential mechanisms and suggestions for research design', *J. Toxicol. Environ. Health Part B*, vol. 20, no. 1, pp. 38–53, Jan. 2017, doi: 10.1080/10937404.2016.1261746.
- [19] B. Larsen and E. Sánchez-Triana, 'Global health burden and cost of lead exposure in children and adults: a health impact and economic modelling analysis', *Lancet Planet. Health*, vol. 7, no. 10, pp. e831–e840, Oct. 2023, doi: 10.1016/S2542-5196(23)00166-3.
- [20] B. Lanphear, A. Navas-Acien, and D. C. Bellinger, 'Lead Poisoning', *N. Engl. J. Med.*, vol. 391, no. 17, pp. 1621–1631, Oct. 2024, doi: 10.1056/NEJMra2402527.
- [21] Institute for Health Metrics and Evaluation, 'Causes of death 2021- Global Burden of Disease'. Accessed: Jan. 23, 2025. [Online]. Available: <https://vizhub.healthdata.org/gbd-results/>
- [22] UN Environment Programme, 'Chemicals in plastics: a technical report.', 2023. [Online]. Available: <https://www.unep.org/resources/report/chemicals-plastics-technical-report>
- [23] L. Zhu et al., 'Tissue accumulation of microplastics and potential health risks in human', *Sci. Total Environ.*, vol. 915, p. 170004, Mar. 2024, doi: 10.1016/j.scitotenv.2024.170004.
- [24] UN Environment Programme, 'Plastic Pollution'. Accessed: Dec. 09, 2020. [Online]. Available: <https://www.unep.org/plastic-pollution>
- [25] E. Harris, 'Plastic in Arteries Tied With Higher Risk of Cardiovascular Problems', *JAMA*, vol. 331, no. 16, p. 1354, Apr. 2024, doi: 10.1001/jama.2024.3707.
- [26] Endocrine Society, 'Plastics pose threat to human health'. Accessed: Jan. 08, 2025. [Online]. Available: <https://www.endocrine.org/news-and-advocacy/news-room/2020/plastics-pose-threat-to-human-health>
- [27] A. Turner and M. Filella, 'Lead in plastics – Recycling of legacy material and appropriateness of current regulations', *J. Hazard. Mater.*, vol. 404, p. 124131, Feb. 2021, doi: 10.1016/j.jhazmat.2020.124131.
- [28] World Health Organization, 'The public health impact of chemicals: knowns and unknowns - data addendum for 2019'. Jul. 06, 2021. [Online]. Available: <https://www.who.int/publications/i/item/WHO-HEP-ECH-EHD-21.01>
- [29] R. Naidu et al., 'Chemical pollution: A growing peril and potential catastrophic risk to humanity', *Environ. Int.*, vol. 156, p. 106616, Nov. 2021, doi: 10.1016/j.envint.2021.106616.
- [30] UN Environment Programme, 'Per- and Polyfluoroalkyl Substances (PFASs)'. Accessed: Jan. 08, 2025. [Online]. Available: <https://www.unep.org/topics/chemicals-and-pollution-action/pollution-and-health/persistent-organic-pollutants-pops/and>
- [31] S. E. Fenton et al., 'Per- and Polyfluoroalkyl Substance Toxicity and Human Health Review: Current State of Knowledge and Strategies for Informing Future Research', *Environ. Toxicol. Chem.*, vol. 40, no. 3, pp. 606–630, Oct. 2020, doi: 10.1002/etc.4890.
- [32] United Nations, 'Causes and Effects of Climate Change'. Accessed: Dec. 16, 2024. [Online]. Available: <https://www.un.org/en/climatechange/science/causes-effects-climate-change>
- [33] Clean Air Fund, 'Economy and air pollution', Clean Air Fund. Accessed: Nov. 25, 2024. [Online]. Available: <https://www.cleanairfund.org/theme/economics/>

- [34] World Bank Group and The Global Health Cost of PM2.5 Air Pollution: A Case for Action Beyond 2021, 'Publication: The Global Health Cost of PM2.5 Air Pollution: A Case for Action Beyond 2021'. Accessed: Nov. 25, 2024. [Online]. Available: <https://openknowledge.worldbank.org/entities/publication/c96ee144-4a4b-5164-ad79-74c051179eee>
- [35] European Environment Agency, 'Air pollution and children's health', European Environment Agency. Accessed: Nov. 25, 2024. [Online]. Available: <https://www.eea.europa.eu/publications/air-pollution-and-childrens-health/air-pollution-and-childrens-health>
- [36] The World Bank and Institute for Health Metrics and Evaluation, 'Publication: The Cost of Air Pollution: Strengthening the Economic Case for Action', 2016. Accessed: Nov. 25, 2024. [Online]. Available: <https://openknowledge.worldbank.org/entities/publication/cf3cfd2-6232-5f57-9979-dacb8aa5a302>
- [37] World Bank Group, 'What You Need to Know About Climate Change and Air Pollution', World Bank. Accessed: Nov. 25, 2024. [Online]. Available: <https://www.worldbank.org/en/news/feature/2022/09/01/what-you-need-to-know-about-climate-change-and-air-pollution>
- [38] S. Chen, P. Oliva, and P. Zhang, 'The effect of air pollution on migration: Evidence from China', *J. Dev. Econ.*, vol. 156, p. 102833, May 2022, doi: 10.1016/j.jdeveco.2022.102833.
- [39] E. C. Economy, 'China's Environmental Challenge: Political, Social and Economic Implications'. Jan. 27, 2003. Accessed: Nov. 26, 2024. [Online]. Available: <https://www.cfr.org/report/chinas-environmental-challenge-political-social-and-economic-implications>
- [40] A. R. Germani, P. Scaramozzino, A. Castaldo, and G. Talamo, 'Does air pollution influence internal migration? An empirical investigation on Italian provinces', *Environ. Sci. Policy*, vol. 120, pp. 11–20, Jun. 2021, doi: 10.1016/j.envsci.2021.02.005.
- [41] UNDP, 'What is circular economy and why does it matter?', Apr. 2023, [Online]. Available: <https://climatepromise.undp.org/news-and-stories/what-is-circular-economy-and-how-it-helps-fight-climate-change>
- [42] UNDP, Ethiopia Environmental Protection Authority, and Ethiopia Ministry of Health, 'Investment Case for Air Pollution Reduction in Ethiopia', 2024.
- [43] UNDP, 'Investment Case for Air Pollution Reduction in Mongolia', 2024. [Online]. Available: <https://www.undp.org/mongolia/publications/investment-case-air-pollution-reduction-mongolia>
- [44] UNDP and Centre for Chronic Disease Control India, 'Investment Case for Air Pollution Reduction: Amritsar and Gurugram, India', 2024.
- [45] World Health Organization, 'Benefits of action to reduce household air pollution (BAR-HAP) tool'. Mar. 2022. [Online]. Available: <https://www.who.int/tools/benefits-of-action-to-reduce-household-air-pollution-tool>
- [46] bJORN Larsen, 'Benefits and Costs of the Air Pollution Targets for the Post-2015 Development Agenda', Copenhagen Consensus Center, Dec. 2014. [Online]. Available: https://copenhagenconsensus.com/sites/default/files/air_pollution_assessment_-_larsen.pdf
- [47] World Health Organization, '1 in 3 people globally do not have access to safe drinking water – UNICEF, WHO'. Accessed: Dec. 03, 2024. [Online]. Available: <https://www.who.int/news/item/18-06-2019-1-in-3-people-globally-do-not-have-access-to-safe-drinking-water-unicef-who>
- [48] UN Environment Programme, 'Soil pollution a risk to our health and food security'. Accessed: Dec. 04, 2024. [Online]. Available: <https://www.unep.org/news-and-stories/story/soil-pollution-risk-our-health-and-food-security>

- [49] David Boyd, 'Clean air and human rights A/HRC/40/55 - Executive summary', United Nations Human Rights Special Procedures. Accessed: Nov. 26, 2024. [Online]. Available: <https://www.ohchr.org/sites/default/files/2022-02/CleanAirSummary.pdf>
- [50] France Ministry of Economy, Finance and Industrial and Digital Sovereignty, 'Le Centre de documentation Économie Finances : un service ouvert à tous'. Accessed: Jan. 29, 2025. [Online]. Available: <https://www.economie.gouv.fr/cedef/malus-vehicules-polluants>
- [51] RHO Motion, 'France reduces its EV subsidy, and tightens vehicle CO2 emission penalties amid budget cuts'. Accessed: Dec. 05, 2024. [Online]. Available: <https://rhomotion.com/news/france-reduces-its-ev-subsidy-and-tightens-vehicle-co2-emission-penalties-amid-budget-cuts/>
- [52] Republic of Palau, 'Regulations Governing Reef-Toxic Sunscreens'. Mar. 19, 2020. [Online]. Available: <https://www.palau.gov.pw/wp-content/uploads/2020/03/The-Regulations-Governing-Reef-Toxic-Sunscreens-1.pdf>
- [53] UN Environment Programme, 'Regulating Air Quality. The First Global Assessment of Air Pollution Legislation', 2021. [Online]. Available: <https://www.unep.org/resources/report/regulating-air-quality-first-global-assessment-air-pollution-legislation>
- [54] Clean Air Fund, 'EU adopts pioneering air pollution law for Europe', Clean Air Fund. Accessed: Dec. 02, 2024. [Online]. Available: <https://www.cleanairfund.org/news-item/eu-air-quality-law/>
- [55] World Health Organization, 'Update on the global status of legal limits for lead in paint, March 2023', 2023. [Online]. Available: <https://iris.who.int/bitstream/handle/10665/373149/9789240078093-eng.pdf>
- [56] UN Environment Programme, 'Intergovernmental Negotiating Committee on Plastic Pollution'. Accessed: Dec. 09, 2024. [Online]. Available: <https://www.unep.org/inc-plastic-pollution>
- [57] UNDP, 'Mongolia Legal Environment Assessment. Reducing Health Risks from Lead-Based Paint', 2024.
- [58] UNDP, 'Legal Environment Assessment for Air Pollution and Health, India', 2024.
- [59] UNDP, 'Legal Environment Assessment on Reducing Non-Communicable Diseases Risk from Air Pollution in Mongolia', 2024.
- [60] Pure Earth, 'The Global Goals for Sustainable Development', 2021. [Online]. Available: <https://www.pureearth.org/wp-content/uploads/2021/03/SDGPollutionLinks2018Final.pdf>
- [61] Clean Air Fund, 'Climate and air pollution', Clean Air Fund. Accessed: Dec. 02, 2024. [Online]. Available: <https://www.cleanairfund.org/theme/climate/>
- [62] World Bank Group, 'Publication: Are All Air Pollution Particles Equal? How Constituents and Sources of Fine Air Pollution Particles (PM2.5) Affect Health'. Accessed: Dec. 02, 2024. [Online]. Available: <https://openknowledge.worldbank.org/entities/publication/8af1375e-8054-584d-8207-cf439f87809e>
- [63] United Nations, 'Pact for the Future, Global Digital Compact and Declaration on Future Generations', Sep. 2024. [Online]. Available: <https://www.un.org/en/summit-of-the-future/pact-for-the-future>
- [64] United Nations Climate Change, 'Paris Agreement - Status of Ratification'. Accessed: Dec. 04, 2024. [Online]. Available: <https://unfccc.int/process/the-paris-agreement/status-of-ratification>

- [65] United Nations Climate Change, 'Nationally Determined Contributions (NDCs)'. Accessed: Dec. 03, 2024. [Online]. Available: <https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs>
- [66] World Economic Forum, 'COP29: What are NDCs and why do they matter?' [Online]. Available: <https://www.weforum.org/stories/2024/11/cop29-ndcs-and-why-they-matter/>
- [67] Y. Si, D. Desai, D. Bozhilova, S. Puffer, and J. C. Stephens, 'Fossil fuel companies' climate communication strategies: Industry messaging on renewables and natural gas', *Energy Res. Soc. Sci.*, vol. 98, p. 103028, Apr. 2023, doi: 10.1016/j.erss.2023.103028.
- [68] The Center for American Progress, 'These Fossil Fuel Industry Tactics Are Fuelling Democratic Backsliding'. Accessed: Dec. 16, 2024. [Online]. Available: <https://www.americanprogress.org/article/these-fossil-fuel-industry-tactics-are-fueling-democratic-backsliding/>
- [69] Clean Air Fund, 'Benefits of Integrating Black Carbon into Enhanced NDCs', Jun. 2024. [Online]. Available: <https://www.cleanairfund.org/resource/black-carbon-ndcs/>
- [70] World Health Organization, 'Ambient (outdoor) air pollution'. Accessed: Jan. 24, 2025. [Online]. Available: [https://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health)
- [71] World Health Organization, 'Chemical Safety and Health - Chemicals of major public health concern - Arsenic'. Accessed: Jan. 24, 2025. [Online]. Available: <https://www.who.int/teams/environment-climate-change-and-health/chemical-safety-and-health/health-impacts/chemicals/arsenic>
- [72] World Health Organization, 'Chemical Safety and Health - Chemicals of major public health concern - Asbestos'. Accessed: Jan. 24, 2025. [Online]. Available: <https://www.who.int/teams/environment-climate-change-and-health/chemical-safety-and-health/health-impacts/chemicals/asbestos>
- [73] American Cancer Society, 'Benzene and Cancer Risk'. Accessed: Jan. 24, 2025. [Online]. Available: <https://www.cancer.org/cancer/risk-prevention/chemicals/benzene.html>
- [74] World Health Organization, 'Exposure to cadmium: a major public health concern', May 2019. [Online]. Available: <https://www.who.int/publications/i/item/WHO-CED-PHE-EPE-19-4-3>
- [75] World Health Organization, 'Chemical Safety and Health - Chemicals of major public health concern - Dioxins and dioxin-like substances'. Accessed: Jan. 24, 2025. [Online]. Available: <https://www.who.int/teams/environment-climate-change-and-health/chemical-safety-and-health/health-impacts/chemicals/dioxins>
- [76] World Health Organization, 'Chemical Safety and Health - Chemicals of major public health concern - Lead'. Accessed: Jan. 24, 2025. [Online]. Available: <https://www.who.int/teams/environment-climate-change-and-health/chemical-safety-and-health/health-impacts/chemicals/lead>
- [77] United States Environmental Protection Agency, 'New Technology for Cleaner, Safer Gold Processing Shops: Reducing Mercury Air Emissions', Jan. 2017. [Online]. Available: <https://19january2017snapshot.epa.gov/sites/production/files/2014-05/documents/asgm-fact-sheet.pdf>
- [78] World Health Organization, 'Chemical Safety and Health - Chemicals of major public health concern - Mercury'. Accessed: Jan. 24, 2025. [Online]. Available: <https://www.who.int/teams/environment-climate-change-and-health/chemical-safety-and-health/health-impacts/chemicals/mercury>

Annex: Contaminants of major public concern according to WHO

Air pollution	Air pollution typically refers to inhalable particulate matter that is less than 2.5 micrometres in width (also called PM _{2.5}) suspended in indoor or outdoor air [70]. These fine particles are the most damaging to health because they can penetrate deep into lung tissue and impair lung function. Air pollution may also refer to larger particles up to 10 micrometres in width (PM ₁₀) and other types of contaminants, including ozone.
Arsenic	Arsenic is a metal element distributed throughout the Earth's crust that can form various toxic compounds. Soluble inorganic arsenic is one of the most dangerous and can lead to chronic arsenic poisoning, which may cause skin lesions, gastrointestinal symptoms, diabetes, cardiovascular diseases, developmental toxicity, and cancers [71]. Exposure to arsenic often comes through ingesting contaminated groundwater and foods.
Asbestos	Asbestos is a fibrous mineral commonly used in pipe insulation, floor tiles, roofing materials, other building materials and in vehicle brakes and clutches [72]. There are six types of asbestos, each made from long and thin fibrous crystals that can be released into the air when the material is disturbed. Exposure is typically through inhalation. Breathing asbestos fibers can cause lung cancer and scar-like tissue in the lungs, resulting in decreased lung function that often progresses to disability and death.
Benzene	Benzene is an organic hydrocarbon that is clear and highly flammable. Benzene is found in crude oils and gasoline, and as a by product of oil-refining. It is one of the most used chemicals in industrialized countries, being used as a solvent and chemical intermediary to produce a variety of other chemicals. People are typically exposed to benzene through inhalation. Benzene is known to cause cancers [73].
Cadmium	Cadmium is a heavy metal released into the environment through human activities such as tobacco smoking, mining, smelting and refining of nonferrous metals, burning of fossil fuels and municipal waste (especially batteries and plastics), production of phosphate fertilizers, and recycling of cadmium-plated steel scrap and electronic waste. Cadmium can travel in the atmosphere and bioaccumulate in animals. Exposure is often by way of contaminated food. Cadmium can affect the kidney, the skeletal system and the respiratory system and is classified as a carcinogen [74].
Dioxins and dioxin-like substances	Dioxins are a class of persistent organic pollutants (POPs) addressed under the Stockholm Convention on POPs. They are often byproducts of combustion and industrial processes such as bleaching of paper pulp with chlorine and metal smelting. This class of pollutant includes polychlorinated biphenyls (PCBs), released from the disposal of large-scale electrical equipment and waste. Exposure generally occurs through consumption of contaminated food. However, acute exposures can occur in occupational settings. Dioxins are carcinogenic and cause

<p>Inadequate or excess fluoride</p>	<p>Fluoride is a chemical with beneficial effects within a certain exposure range, particularly in reducing the incidence of dental caries, but negative effects from prolonged excess exposure in the form of skeletal fluorosis. Excessive fluoride intake often results from consumption of groundwater naturally rich in fluoride, particularly in warm climates, or where water high in fluoride is used to irrigate crops and prepare food.</p>
<p>Lead</p>	<p>Lead is a toxic heavy metal and one of the best studied chemicals in terms of its prevalence and impacts on human health. Lead is released into the environment through metal refining and smelting, and the recycling of e-waste and used lead-acid batteries (e.g., car, truck and motorbike batteries and those used in telecommunications towers and uninterruptable power supplies). Lead exposure also comes from the use and consumption of lead-contaminated products, including lead-based paint, some spices, foodstuffs, ceramic cookware made with lead-based glaze and “aluminium cookware” that is in fact made with mixed recycled metals. However these exposure sources are not considered environmental “pollution,” per se. Most lead exposure happens through ingestion of contaminated dust and soil. Children are particularly vulnerable, and it is estimated that approximately 800 million children (one-third of all children globally) have a concentration of lead in their blood that is sufficient to cause permanent brain damage and loss of intellectual capacities. Lead also affects the hematologic, gastrointestinal, cardiovascular, and renal systems [76].</p>
<p>Mercury</p>	<p>Mercury is a heavy metal that can exist in three forms: elemental or metallic; inorganic (e.g., mercuric chloride); and organic (e.g., methyl- and ethyl mercury). Mercury is typically released into the environment from coal-fired power stations, waste incinerators and as a result of gold mining. Small-scale and artisanal gold mining is the largest source of mercury emissions globally [77]. Once in the environment, elemental mercury is transformed into methylmercury, which can bioaccumulate in aquatic animals. Exposure is typically through inhalation of elemental mercury through industrial or mining processes, or through consumption of contaminated fish and shellfish. Mercury exposure can affect the nervous, digestive and immune systems, lungs, kidneys, skin and eyes [78].</p>
<p>Highly hazardous pesticides</p>	<p>Pesticides are released into the environment intentionally to suppress insects and other pests. However, some countries also have stockpiles of obsolete pesticides in disrepair that leak to the environment. Exposure is often the result of consumption of residues on foods and possibly in drinking-water. Pesticides are a broad classification of chemicals and health effects vary by type.</p>

