PURE EARTH
BLACKSMITH INSTITUTE

THE GLOBAL GOALS
For Sustainable Development

Pollution: A Critical Link for Achieving the SDGs

According to The Lancet Commission on Pollution and Health (2017) pollution causes an estimated nine million deaths each year worldwide—equivalent to one in six (16%) of all deaths. Nearly 92% of pollution-related deaths occur in low-income and middle-income countries and, in countries at every income level, disease-causing pollution is most prevalent among minorities and the marginalized. Children are at high risk of pollution-related disease and even extremely low-dose exposures to pollutants during windows of vulnerability in utero and in early infancy result in disease, disability, and death in childhood and across their lifespan. Pollution control will advance attainment of at least 10 of the Sustainable Development Goals (SDGs), the 17 goals established by the United Nations to guide global development in the 21st century. In addition to improving health in countries around the world (SDG 3), pollution control will improve access to clean water and improve sanitation (SDG 6), promote sustainable economic growth (SDGs 8, 9, 12, 17), build sustainable cities and communities (SDG 11), and protect land and water (SDGs 2, 14, 15). Efforts to control pollution will be strengthened by global initiatives to slow the pace of climate change (SDG 13) principally by transitioning to a sustainable, circular economy that relies on non-polluting renewable energy.

Goal 2

End hunger, achieve food security and improved nutrition, and promote sustainable agriculture

Targets Relevant to Pollution

2.4 By 2030 ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters, and that progressively improve land and soil quality.

Link to Pollution

Toxic discharges of untreated industrial wastewater into water bodies used for crop irrigation contaminate soil and makes both ground and surface water sources unsafe for agricultural and domestic use. Soil contamination directly impacts agriculture production, by damaging soil fertility and leading to the uptake of chemicals and heavy metals into crops that are then consumed by people and livestock.

Goal 3

Ensure healthy lives and promote well-being for all at all ages

Targets Relevant to Pollution

3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well being.

3.9 By 2030 substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination.

Link to Pollution

Pollution mitigation and prevention can yield large net gains both for human health and the economy. Air quality improvements in high-income countries have not only reduced deaths from cardiovascular and respiratory disease but have also yielded substantial economic gains. In the USA, an estimated US$30 in benefits (range, $4–88) has been returned to the economy for every

dollar invested in air pollution control since 1970, an aggregate benefit of $1.5 trillion against an investment of $65 billion. Similarly, the removal of lead from gasoline has returned an estimated $200 billion (range, $110 billion–300 billion) to the US economy each year since 1980. This results in an aggregate benefit to date of over $6 trillion primarily through the increased cognitive function and enhanced economic productivity of generations of children with lower exposures.

Pollution is now understood to be an important causal agent of many non-communicable diseases. Pollution accounts for 22% of all deaths from cardiovascular disease, 26% of ischemic heart disease deaths, 25% of stroke deaths, 53% of deaths from chronic obstructive pulmonary disease, and 40% of deaths from lung cancer.

Goal 6

Ensure availability and sustainable management of water and sanitation for all

Targets Relevant to Pollution

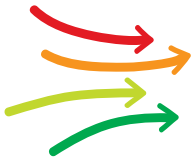
6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and increasing recycling and safe reuse by globally.

Link to Pollution

The quality and safety of surface and ground water used for drinking, working, bathing and agriculture is threatened by pollution, caused by solid waste, unsafe runoff, wastewater treatment, mining, manufacturing and other industrial sources.

Goal 8



Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Targets Relevant to Pollution

8.4 Improve progressively through 2030 global resource efficiency in consumption and production, and endeavor to decouple economic growth from environmental degradation in accordance with the 10-year framework of programs on sustainable consumption and production with developed countries taking the lead.

Link to Pollution

The chemical industry is a major driver of economic growth and employs more than 20 million people around the globe. Nearly all workers are potentially exposed to some sort of chemical hazard because of the ubiquitous use of chemicals in the workplace and at home.

While significant advances have been made in occupational safety and health globally, workers around the world still face unhealthy and unsafe working conditions. Safety of people engaged in economic activities where chemical exposures are significant (e.g., electronic waste recycling, agriculture, small-scale and artisanal mining, used lead acid battery recycling, etc.) need to be ensured without compromising employment opportunities.

Goal 9

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Targets Relevant to Pollution

9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.

Link to Pollution

Developing countries need to expand their industrial sector to alleviate poverty, deliver goods and services, create jobs, and improve standards of living. Most LMICs have relatively low standards of living, and productivity, relatively high rates of population growth, a dependence on primary exports, and rapid rates of urban growth. Countries also face severe environmental degradation and resource depletion, which threaten opportunities for sustainable economic growth.

Small and medium-sized enterprises, constitute the largest segment of industry in most nations. With limited resources at their disposal, small and medium-sized businesses are often unable to meet environmental regulations and controls. Small-scale businesses such as metal working, printing, battery recycling, and leather tanning and dying are frequently among the worst offenders of environmental regulations in any country.

Goal 11

Make cities and human settlements inclusive, safe, resilient and sustainable

Targets Relevant to Pollution

11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services, and upgrade slums.

11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.

Link to Pollution

One-third of the world's urban population live in slums, where people lack basic infrastructure and services and are exposed to environmental and social health risks such as indoor and outdoor air pollution, lack of water and sanitation, and poor working conditions.

Urban areas are full of small and medium-scale enterprises, which constitute the largest segment of industry in most nations. With limited resources at their disposal, these operators are often unable to meet environmental regulations and controls. This results in generation of hazardous wastes discharged in the air, water and soil in densely populated areas.

Goal 12

Ensure sustainable consumption and productive patterns

Targets Relevant to Pollution

12.4 By 2020 achieve environmentally sound management of chemicals and all wastes throughout their life cycle in accordance with agreed international frameworks and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

12.5 By 2030, substantially reduce waste generation through prevention, reduction, safe recycling, and reuse.

12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.

12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production.

12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products.

Link to Pollution

Unsustainable consumption and production patterns are increasing water, soil, and air pollution, land and forest degradation, waste generation and the use of harmful chemical substances. Economic growth will have to be decoupled from unsafe resource use and environmental degradation, so that inclusive socio-economic development can be sustained.

Goal 13

Take urgent action to combat climate change and its impacts

Targets Relevant to Pollution

13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

13.2 Integrate climate change measures into national policies, strategies and planning.

13.3 Improve education, awareness-raising and human and institutional capacity on climate.

Link to Pollution

Pollution endangers planetary health, destroys ecosystems, and is linked to global climate change. Fuel combustion—fossil fuel combustion in high-income and middle-income countries and burning of biomass in low-income countries—accounts for 85% of airborne particulate pollution and for almost all pollution by oxides of sulphur and nitrogen. Fuel combustion is also a major source of the greenhouse gases and short-lived climate pollutants that drive climate change. Key emitters of carbon dioxide, such as electricity-generating plants, chemical manufacturing facilities, mining operations, deforestation, and petroleum-powered vehicles, are also major sources of pollution. Coal is the world's most polluting fossil fuel, and coal combustion is an important cause of both pollution-related disease and climate change.

Goal 14

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Targets Relevant to Pollution

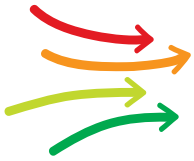
14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, particularly from land-based activities, including marine debris and nutrient pollution.

Link to Pollution

Mercury emitted during artisanal gold mining operations is of particular concern for marine resources and ocean conservation because in aquatic environments it can transform into the neurotoxin, methylmercury. This type of mercury is particularly acute and devastating, as was evidenced by the disaster in Minamata, Japan, where 623 tons of methylmercury were

released over a period of 34 years. Methylmercury can bioaccumulate up the aquatic food chain, poisoning river systems, oceans, fish and birds and negatively impacting global ecosystems and biodiversity.

Goal 15



Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Targets Relevant to Pollution

15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.

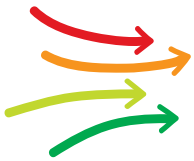
15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world.

15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species.

Link to Pollution

Toxic pollution can contribute to ozone depletion and climate change, cause severe environmental degradation and disrupt ecosystems through the contamination of water, soil, air and flora and fauna. Sound management of chemicals and waste can help prevent or minimize harmful substances from entering the environment and reduce the need for difficult and costly environmental remediation.

Goal 17



Strengthen the means of implementation and revitalize the global partnership for sustainable development

Targets Relevant to Pollution

17.7 Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favorable terms, including on concessional and preferential terms, as mutually agreed.

17.9 Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation.

Link to Pollution

The control and reduction of air, water and soil pollution contributes to the effective realization of several human rights, including the right to life, the right to health, the rights to clean water, food, adequate housing and safe and healthy working conditions, the right to information, and the right to participation and freedom of association. The rights of children are also particularly relevant, because of the well recognized special vulnerability of their health to pollution, chemicals and waste.

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Pure Earth Employs Cost-Effective Solutions To Help Achieve SDGs

Recommendations from The Lancet Commission on Pollution and Health

- Broad-based partnerships across several government agencies and between governments and the private sector can powerfully advance pollution control and accelerate the development of clean energy sources and clean technologies that will ultimately prevent pollution at source.
- Cross-ministerial collaborations that involve health and environment ministries, but also ministries of finance, energy, agriculture, development, and transport are essential.
- Collaborations between governments and industry can catalyze innovation, create incentives for cleaner production technologies and cleaner energy production, and incentivise transition to a more sustainable, circular economy.
- The private sector is in a unique position to provide leadership in the design and development of clean, non-polluting, sustainable technologies for pollution control, and to engage constructively with governments to reward innovation and create incentives.
- Integrate pollution mitigation into plans to address non-communicable diseases. Interventions against pollution need to be a core component of the Global Action Plan for the Prevention and Control of Non-Communicable Diseases.
- Mobilise, increase, and focus the funding and the international technical support dedicated to pollution control. The amount of funding from international agencies, binational donors, philanthropists, and private foundations that is directed to control of pollution, is meagre and needs to be substantially increased.
- The resources directed to pollution management need to be increased within cities and countries as well as internationally. Options for increasing the international development funding directed to pollution include expansion of climate change and non-communicable disease control programs to include pollution control and development of new funding mechanisms.

Pure Earth Solutions Are Underway

Small-scale gold miners can be trained in profitable mercury-free techniques.

Local communities can be trained in lead-free livelihoods and participate in cleanup projects.

Health care workers and communities can be educated on how to monitor and prevent exposure to toxins.

Decaying pesticide storage sites threatening residential areas can be cleaned up.