Pure Earth / Global Alliance on Health and Pollution Response to Concept note from Costa Rica, Switzerland, United Kingdom of Great Britain and Northern Ireland, and Uruguay on a draft resolution for a Science Policy Panel on Chemicals, Waste and Pollution

Thank you for the opportunity to comment upon the above referenced draft resolution for a Science Policy Panel of Chemicals, Waste and Pollution. Pure Earth and the Global Alliance on Health and Pollution are pleased to support this resolution.

Our comments are as follows:

1. A Science Policy Panel for chemicals, waste and pollution is sorely needed.
    a. For decades, pollution and its harmful effects on people's health, economic growth and the planet have been neglected both by Governments and in the international development agenda.[i]
    b. Pollution and health is now recognized by UNEP as one of its three strategic pillars alongside climate change and biodiversity. Despite this, pollution, chemicals and waste continue to receive far less attention and resources.
    c. Although there are fragmented scientific bodies for chemicals, wastes and air pollution, mostly linked to individual Multilateral Environment Agreements, chemicals, waste and pollution as a whole is not adequately covered by any existing science policy interface (IPCC or IPBES).
2. **A science policy interface will help bring much needed visibility and focused attention to this critical issue and help to ensure that the scientific and policy interactions between pollution, biodiversity and climate are considered in all three key decision-making fora.**
    a. Such a body would ensure (i) application of the best science to policy making and solutions, and (ii) the focused attention of governments and others (private sector, academia, civil society).
    b. As currently envisaged, the proposed 2030 Global Biodiversity Framework does not pay much attention to the effects of pollution on water bodies, air, land and soil and their eco-systems. A future chemicals waste and pollution SPI could make specialized input to IPBES and international decision-making on biodiversity.
    c. While traditional household air pollution is gradually being overcome, modern ambient air pollution combined with ever increasing urbanization is having a devastating effect on health and economic development that is often ignored in developing countries. By making the economic and health case for action SPI could lead to actions that would also benefit global action to combat climate change but that might otherwise be overlooked. In any case a pollution SPI should help to avoid silo-thinking policy errors such as the rush to diesel vehicles which was good for CO2 emissions but bad for air pollution and ultimately led to poor long-term investment decisions.

3. Of the chemicals, waste and pollution agenda, exposure to fine particulate matter ($PM_{2.5}$; i.e. air pollution) and Lead (Pb) are currently responsible for the highest burden of disease[ii] and are of significant concern to biodiversity and ecosystem health. Forest crop and open burning (i.e. air pollution not related to fossil fuel combustion) is not adequately covered under the IPCC. Therefore, **actions to address Lead (Pb) and non-fossil fuel based PM2.5 should be prioritized and highlighted in the program of work of a science policy panel/ interface.**
4. We would fully support the proposal that the World Health Organization be invited to share in the work of shaping the SPI from the outset since health outcomes provide a crucial metric for prioritizing the importance of different chemical, waste and pollution challenges. As recognized in the concept note, other international organizations will need to be active players in the SPI once established.
5. Pure Earth and GAHP fully accept that to be authoritative and capture the attention of decision-makers the SPI needs to be inter-governmental in nature. However, we hope that the role of academia and civil society will be clearly recognized and a welcome given to all stakeholders as is the case in the Strategic Approach to International Chemicals Management.

Supporting Data and Information:

1. Pollution is well known to adversely impact human health, biodiversity, climate, and ecosystem health. It continues to be the largest environmental cause of premature death on the planet, responsible for 9 million deaths each year. This continues to be a conservative estimate, as the health impacts of many pollutants have not been fully quantified.[iii] This has been reaffirmed in the 2020 EU Chemicals Strategy for Sustainability: Toward a Toxic-Free Future.
2. Pollution is one of to the top five direct drivers of biodiversity loss.[iv]
    a. Acid rain, mercury deposition, pesticides, herbicides, nitrogen and ammonia accumulations degrade soil and ecosystems and the species that depend on them.[v]
    b. Lead poisoning is a significant cause of death of some rare or endangered species, including Californian Condors.[vi]
    c. Pollution from nutrients, sewage and industrial effluents create dead zones in the marine and freshwater environments where oxygen levels cannot support life.[vii]
    d. Polychlorinated biphenyls banned many years ago remain a legacy threat to cetacean populations, such as killer whales, affecting their reproduction and immune function.[viii]
    e. Three species of vultures in India suffered population losses of >96% following poisoning with the veterinary medicine diclofenac as they consumed contaminated livestock carcasses.[ix]
3. Many pollutants bioaccumulate up the food chain.

a. The best known example is prevalence of elevated levels of mercury in fish, especially large pelagic species such as tuna and shark, though elevated levels of cadmium and lead have also been documented in fish tissue. [x]
b. Heavy metals and other toxicants, such as lead, cadmium, arsenic have also been documented in food , including rice, wheat, dairy, eggs, chocolate and, particularly troublingly, in baby food such as infant cereal.[xi]

4. Pollution has adverse implications for antimicrobial resistance.
    a. Industrial effluent, especially heavy metals such as lead, cadmium, and pharmaceuticals may contribute to antimicrobial resistance.[xii]
    b. For example, case studies have documented increase in prevalence of anti-microbial resistance genes in Brazilian dairy cows that consumed heavy metal contaminated water, with consequences for their productivity. [xiii]

5. Pollution compromises delivery of key ecosystem services - provision of clean air, water and food - in both urban and rural locations.
    a. Excessive nutrient loads in surface and groundwater and soil cause a decline in water and air quality and soil productivity.[xiv]
    b. Air pollution has been documented to induce structural and function changes to surfaces of leaves, affecting growth and flowering. [xv]
    c. Heavy metal bioaccumulation in both prey and predators, from insects and mice to loons, condors, raptors, pelagic fish, sharks, and alligators, can disrupt reproductive and feeding capacity, disturbing ecosystem balance and further putting endangered species at risk of extinction[xvi].

6. Pollution undermines ecosystem resilience to climate change, whilst climate change increases the vulnerability of ecosystems to pollution.[xvii]
    a. Reducing pollution and other local stressors is important for managing coral reef resilience in the face of climate change.[xviii]
    b. Polar bears already struggling to contend with melting sea ice and access to prey are also exposed to high concentrations of persistent organic pollutants.[xix]
    c. Climate change may increase releases of pollutants as temperature rises, sea ice melts and extreme weather becomes more frequent. There may be increases in uses of DDT to combat increased incidence of vector borne disease.[xx]

7. <u>Lead (Pb) is particularly worrisome</u> because:
    a. One third of all children are lead poisoned - up to 800 million children globally have blood lead levels at or above 5 micrograms per decilitre (µg/dL), a level that the United States Centers for Disease Control and Prevention have stated requires intervention. [xxi] According to the World Health Organization, there is no safe level of lead exposure.[xxii]
    b. Despite the global phaseout of leaded gasoline and efforts underway to ban lead paint, blood lead levels remain high, especially in low- and middle-income countries. [xxiii]

c. Additional and significant sources of lead exposure are emerging, such as unsafe used lead acid battery recycling, lead contaminated spices, cookware, and pottery. [xxiv]
d. Lead permanently reduces intelligence, thereby draining economic growth, hindering prosperity and reducing lifetime earnings.[xxv]
e. It also damages brains so that people are more likely to be violent. There is evidence that violent crime rates drop when lead exposures are reduced.[xxvi]
f. Lead kills 900,000 people each year.[xxvii]
g. As outlined above, the impact of lead on biodiversity, the food chain, and implications for antimicrobial resistance are also highly concerning.

8. Pollution mitigation and prevention yields large returns on investment for human health and the economy. Data from the Lancet Commission on Pollution and Health, 2017:
    a. Pollution-related diseases reduce GDP in low- to middle-income countries by up to 2% per year.
    b. Up to 7% of health spending in heavily polluted, rapidly developing middle-income countries goes to care for people made sick by pollution.
    c. In the US, air pollution control has returned an estimated US $30 in economic benefit (range, $4–$88) for every dollar invested since 1970—an aggregate benefit of $1.5 trillion against an investment of $65 billion.
    d. Programs to halt lead exposures are do-able and cost-effective, and can have an enormous impact on health, economic growth, and security. The removal of lead from gasoline and the resulting increases in the American population's IQ and productivity have returned an estimated $200 billion (range, $110-$300 billion) to the American economy each year since 1980—an aggregate benefit to date of over $6 trillion.

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