

# Towards a Pollution-Free Planet

## EEG's Recommendations and Comments

*Note: The page numbers are according to the number at the bottom of each page (and not according to the PDF)*

Introduction

### **Page 1:**

The WHO statistics – *“The World Health Organization has estimated that nearly a quarter of all deaths worldwide, amounting to 12.6 million people in 2012, are due to environmental causes, with at least 8.2 million attributable to non-communicable, environmental causes, and more than three quarters in just three regions”* – must be highlighted and placed in a box for added emphasis.

### **Page 3:** Table 1 – Main sources of pollution:

We recommend this table be divided into ***‘point-source pollution’*** and ***‘non-point source pollution’*** for greater specificity.

### **Page 5:** Air Pollution

Along with the facts that have been provided, we recommend adding the following –

*“1 in 8 of total global deaths can be attributed to air pollution”* and *“This finding more than doubles previous estimates.”* (WHO website)

### **Page 6:** The impacts of different air pollutants on human health and ecosystems

Under ‘Fine particulate matter’: Ecological effects, we recommend adding –

- Making water bodies more acidic
- Changing nutrient balance of coastal waters
- Depleting nutrients in soil
- Damaging sensitive forests and crops
- Contributing to acid rain

(Source: EPA website)

### **Page 6:** Under ‘Black Carbon’ and its Ecological Effects, we recommend adding –

- Affects reflectivity, stability and duration of clouds, thereby altering precipitation

**Page 9:** Table 3: The impacts of different soil and land pollutants on human health and ecosystems

We recommend adding the following pollutants/actions to the table:

- Deforestation
- Soil erosion
- Construction
- Nuclear waste
- Sewage treatment

We believe these activities (as much as those mentioned in the report) affect human health and the ecology.

**Page 11:** Table 4: The impacts of different freshwater pollutants on human health and ecosystems

We recommend adding the following as researched from the greenfacts.org website

Table 4.5: Freshwater pollution sources, effects and constituents of concern

Pollution type	Primary sources	Effects <sup>1</sup>	Constituents of concern <sup>2</sup>
1 Organic matter	Industrial wastewater and domestic sewage.	Depletion of oxygen from the water column as it decomposes, stress or suffocating aquatic life.	Biological Oxygen Demand (BOD), Dissolved Organic Carbon (DOC), Dissolved Oxygen (DO)
2 Pathogens and microbial contaminants	Domestic sewage, cattle and other livestock, natural sources.	Spreads infectious diseases through contaminated drinking water supplies leading to diarrhoeal disease and intestinal parasites, increased childhood mortality in developing countries.	Shigella, Salmonella, Cryptosporidium, Fecal coliform (Coliform), Escherichia coli (mammal faeces – E. Coli)
3 Nutrients	Principally runoff from agricultural lands and urban areas but also from some industrial discharge.	Over-stimulates growth of algae (eutrophication) which then decomposes, robbing water of oxygen and harming aquatic life. High levels of nitrate in drinking water lead to illness in humans.	Total N (organic + inorganic), total P (organic + inorganic) For eutrophication: (Dissolved Oxygen, Individual N species (NH <sub>4</sub> , NO <sub>2</sub> , NO <sub>3</sub> , Organic N), Orthophosphate)
4 Salinization	Leached from alkaline soils by over irrigation or by over-pumping coastal aquifers resulting in saltwater intrusion.	Salt build-up in soils which kills crops or reduces yields. Renders freshwater supplies undrinkable.	Electrical conductivity, Chloride (followed, post characterization by full suite of major cations (Ca, Mg), anions
5 Acidification (precipitation or runoff)	Sulphur, Nitrogen oxides and particulates from electric power generation, industrial stack and auto/truck emissions (wet and dry deposition). Acid mine drainage from tailings as well as mines.	Acidifies lakes and streams which negatively impacts aquatic organisms and leaches heavy metals such as aluminium from soils into water bodies.	pH
6 Heavy metals	Industries and mining sites.	Persists in freshwater environments such as river sediments and wetlands for long periods. Accumulates in the tissues of fish and shellfish. Can be toxic to both aquatic organisms and humans who consume them.	Pb, Cd, Zn, Cu, Ni, Cr, Hg, As (particularly groundwater)
7 Toxic organic compounds and micro-organic pollutants. <sup>3</sup>	Wide variety of sources from industrial sites, automobiles, farmers, home gardeners, municipal wastewaters.	A range of toxic effects in aquatic fauna and humans from mild immune suppression to acute poisoning or reproductive failure.	PAHs, PCBs, pesticides (lindane, DDT, PCP, Aldrin, Dieldrin, Endrin, Isodrin, hexachlorobenzene)
8 Thermal	Fragmentation of rivers by dams and reservoirs slowing water and allowing it to warm. Industry from cooling towers and other end-of-pipe above-ambient temperature discharges	Changes in oxygen levels and decomposition rate of organic matter in the water column. May shift the species composition of the receiving water body.	Temperature
9 Silt and suspended particles	Natural soil erosion, agriculture, road building, deforestation, construction and other land use changes.	Reduces water quality for drinking and recreation and degrades aquatic habitats by smothering them with silt, disrupting spawning and interfering with feeding.	Total suspended solids, turbidity

Other pollutants include Radioactivity, Fluoride, Selenium.

Sources and notes:

<sup>1</sup> Principally from Revenga and Mock, 2000. Their compilation from Taylor and Smith, 1997; Shiklomanov, 1997; UNEP/GEMS, 1995

<sup>2</sup> From R. Peters, W. Beck, personal communication, 2004.

**Page 12:** We were particularly impressed by the extensive information represented in the two figures on this page namely, 'Proportion of population using improved sanitation facilities in 2015' and Trends in organic pollution'

**Page 15:** The line from the highlighted box –

“These effects are thought to be caused by the plastic itself (physical components and chemical ingredients) as well as from chemical pollutants that **sorb** onto the plastic from the surrounding seawater.”

We believe this may be a typo for the word 'absorb'.

**Page 16:** Figure 7: Top ten hazardous chemicals and groups of pollutants of serious public health concern

We recommend adding the following to the chart –

- Sulphur dioxide (due to mining)
- Chromium (from the dye industries and tanneries)

**Page 18:** Facts to add about urban waste:

“It is estimated the global urban waste is more than triple (0.68 to 2.2 billion tonnes per year).” (According to the World Bank report – 'What a Waste: A Global Review of Solid Waste Management)

**Page 19:** Table 6: Human impacts of events at dumpsites

We recommend adding the following events:

- Naples, Italy (1994 to 2014): Collection crisis with waste piling up in the streets.  
Human impact: Rector borne diseases
- Plague like epidemic in Surat, India (1994): Caused by major flooding  
Human impact: 693 cases and 56 deaths
- Barbados: Damage to the tourism industry from waste littering and dumping  
Human impact: Biological and aesthetic impact, leading to a decline in tourism
- Payatas, Philippines (2000): Landslide at a major uncontrolled municipal dumpsite  
Human impact: 300 deaths and hundreds left homeless

**Page 20:** Box 3: Impacts of E-waste

We recommend adding a few statistics for greater effect. For example:

- It is estimated, that in 2014, a total of 41.8 million tonnes of e-waste was generated globally.
- Only 6.5 million tonnes of this amount was treated. Thus, according to UN reports, only 16% was recycled.
- At present, only 15-20% of the total e-waste generated worldwide is being recycled.
- E-waste is expected to grow by 8% every year.

**Page 23:** Global and Regional Environmental Agreements

It might be useful to list out a few international agreements (past and present specific to the type of pollution). For example:

- Air pollution: Environmental Protection: Aircraft Engine Emissions; US-Canada Air Quality Agreement; Vienna Convention for the Protection of the Ozone Layer
- Chemicals and hazardous substances: Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal; Minamata Convention on Mercury; Convention on the Transboundary Effects of Industrial Accidents
- Water: Convention on the Protection and Use of Transboundary Watercourses and International Lakes
- Marine and coastal pollution: Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter; International Convention for the Prevention of Pollution of the Sea by Oil; United Nations Convention on the Law of the Sea

**Page 26:** Box 5: Eliminating lead in fuels and paint through partnerships

“In 10 years, the Partnership for Clean Fuels and Vehicles – a public-private partnership formed by UN Environment – supported more than 80 countries.”

As per the partnership website, 73 partners have reconfirmed their interest as of 2017.

**Page 27:** We recommend adding a few more actions to eliminate the use of lead paint:

- Voluntary schemes (third party certification and labelling programmes)
- Control manufacture, import, sale and use of lead decorative paints

- Increase awareness of the health and environmental risks of lead paint

**Page 29:** Table 7: Selected examples of multiple benefits of tackling pollution.

We recommend adding a few small and large-scale examples:

- Bangalore, India: The city converted 6,000 buses to compressed natural gas, which resulted in reducing pollution by 20%.
- Curitiba, Brazil: The city has the biggest and lowest costing bus system in the world. Nearly 70% of the population uses the public transport.
- Dubai, United Arab Emirates: The city has identified hot spots of air pollution and acted against violators to maintain air quality standards that conform to global standards.

**Page 33:** This page was especially a pleasure to read as it was wonderful to see how tackling pollution has been related to each of the SDGs.

Our only recommendation would be to also add Goal 8 (Decent Work and Economic Growth). Tackling pollution and moving towards renewable sources of energy will require labour, especially those below the poverty line or from rural areas.

**Page 42:** Interventions targeting key pollution areas

Under Air Pollution:

- More support towards models such as GAINS (Greenhouse Gas – Air Pollution Interaction and Synergies) to assess air pollution that contributes to acid rain.
- Coal-powered plants must be phased out, while moving towards cleaner modes of power generation.
- Industries must be imposed with strict air pollution controls, while phasing in clean low-emissions technologies.
- Stop the burning of forests, mangroves and agricultural crops to prevent South-east Asian ‘haze’

**Page 42:** Under Water Pollution:

- Democratise water management among local communities and regions. Through this, these communities will be able to discuss and decide how to manage their water resources as most beneficially to them.
- Establishment of water justice.

**Page 43:** Under Marine and coastal pollution:

- Stricter government regulation on industries and manufacturing, especially near coastal regions
- Limit off-shore drilling

**Page 51:** Ecosystems based solutions: Add the following:

- Greater focus on forests: This results in biodiversity conservation and climate regulation
- Dune conservation: This helps in fixing eroded soil
- Robust climate change adaptation strategy: This includes several components – erosion monitoring (establishment of a participatory monitoring system), maintaining a natural coastline area
- Instalment of fish ways and changing the structure of tributary streams: This ensures river diversity and at the same time, reduces exposure to flooding risk for communities downstream from the restoration areas

**Page 53:** Incentivising responsible consumption and lifestyle choices

We recommend adding the SDGs here as these are great incentives for people to work towards.

## THE GLOBAL GOALS For Sustainable Development



**Page 60:** Under Education, we recommend mentioning the highly rated French multi-institution group, Paris Tech (Paris Institution of Technology). Based in Hua Zhong University of Science and Technology, its subjects include solar, wind, biomass, geothermal energy, energy storage and energy efficiency.