UN environment

Findings of the sixth Global Environment Outlook

World Environment Day, June 05, 2019

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Geneva

How we got here

Main report

- 146 authors, 78 members of advisory bodies
- 41 review editors
- From more than 70 countries
- 301 UN reviewers
- More thank 1,000 technical reviewers
- 364 Intergovernmental reviewers
- 5 review periods, 2 of which were intergovernmental reviews

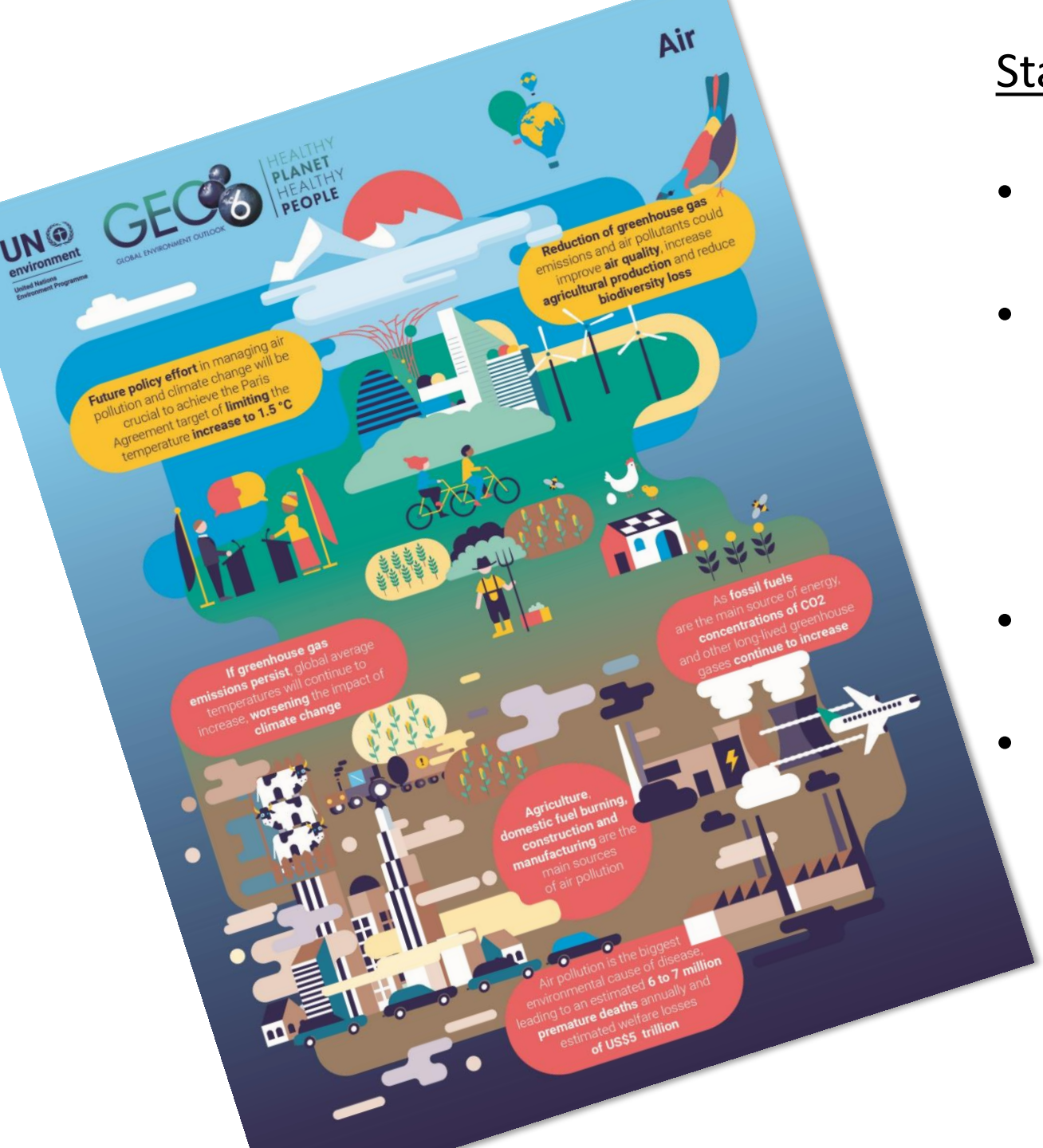
Summary for Policymakers

- Negotiated in January, 2019
- 95 countries, 250 participants, 4 days
- 37 page summary plus ‘Key Messages’

GEO 6 GLOBAL ENVIRONMENT OUTLOOK | HEALTHY PLANET HEALTHY PEOPLE

Drivers of Environmental Change

- **Population** - 9-10 billion people by 2050
- **Demographics** - older in richer countries, younger in poorer countries
- **Urbanization** - 6-7 billion living in cities by 2050, 2-3 billion of those living in informal settlements
- **Economic development** – needed to eradicate poverty, end hunger, but increases consumption and extraction of resources
- **Technological change** – can improve agricultural productivity for example, but creates more waste and toxins.
- **Climate change** – already a 1 degree Celsius increase. We are committed to increases in sea-level rise, more frequent droughts, more severe weather events.



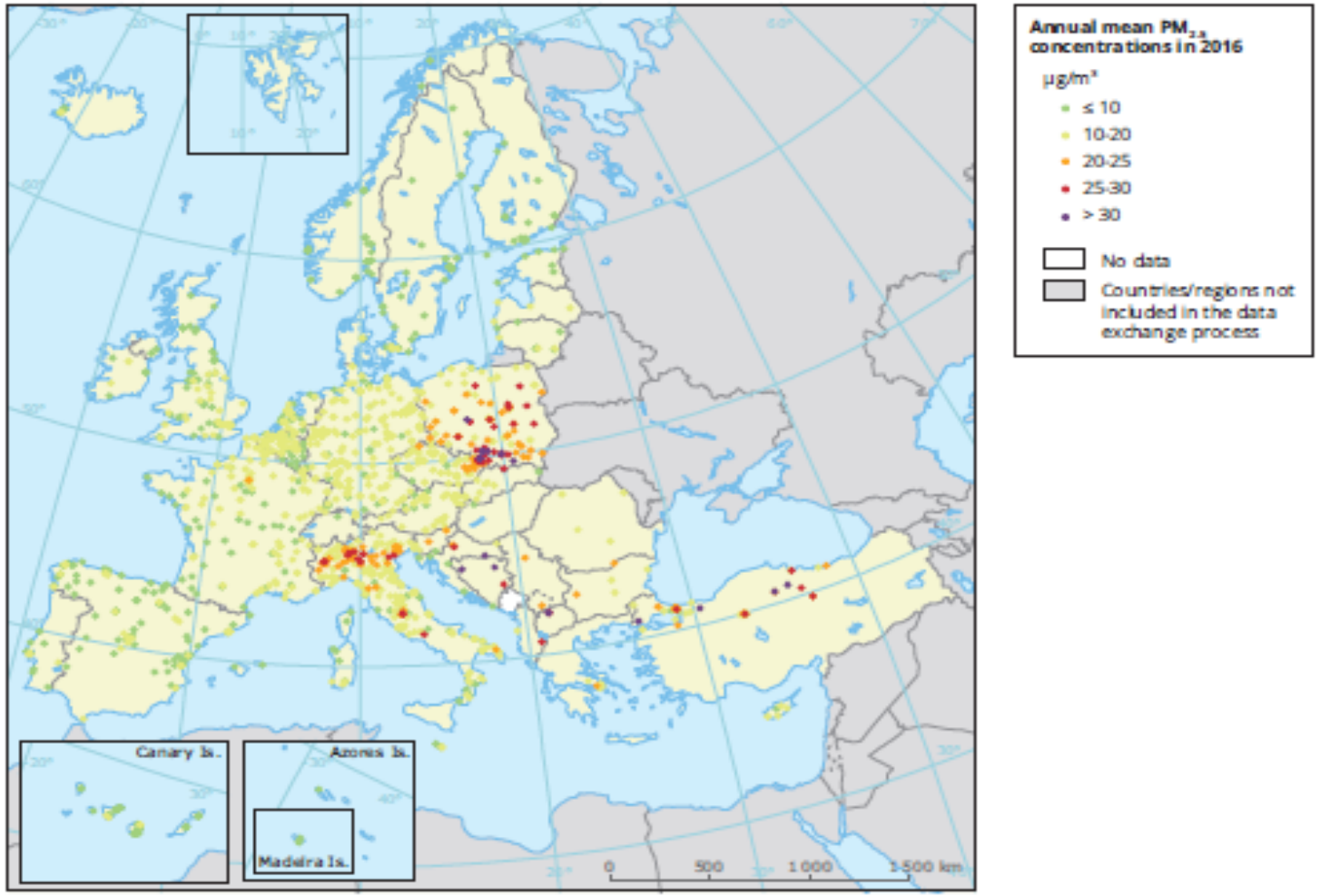
State of the Environment: Air

- **Air Pollution** – 6-7 million premature deaths now, projected to be 4.5-7 million in 2050
- **Greenhouse Gases** – Policies to reduce GHG emissions can produce health benefits (reduce air pollution). Financial savings from these health benefits could be double the cost of climate policies.
- **Ozone depleting substances** – still some effort needed to repair the ozone hole.
- **Persistent and hazardous pollutants** –efforts still needed, for example, to address mercury emissions which have substantial health effects
  Short-lived climate pollutants – easier to control and mitigate and would have more immediate positive effects.

Air Quality in Europe

- Concentrations of PM2.5

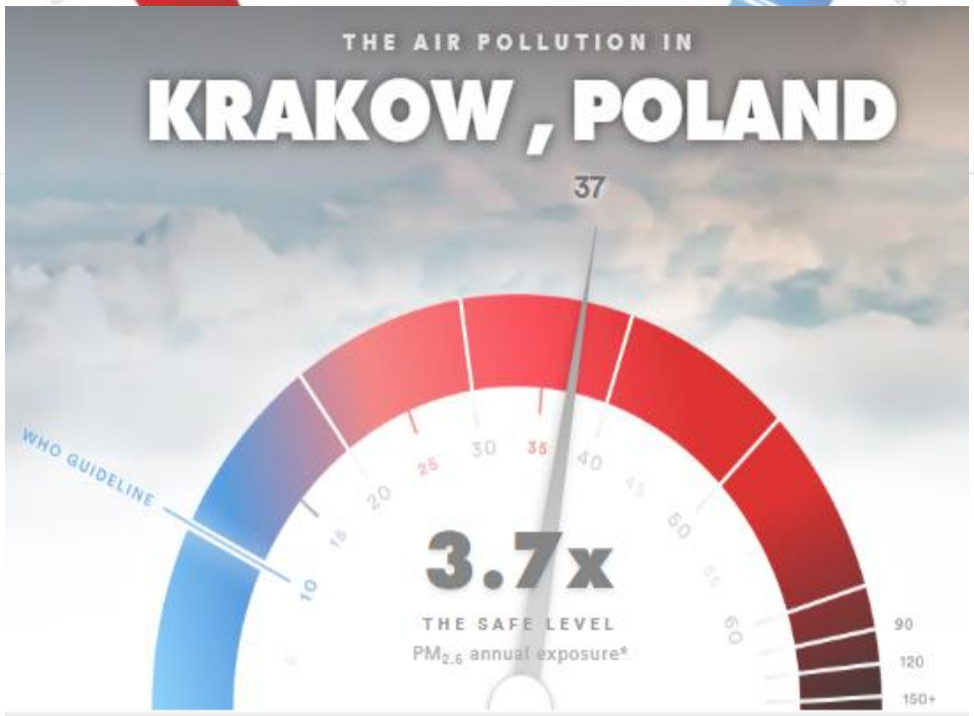
Map 3.3 **Concentrations of $PM_{2.5}$, 2016 — annual limit value**



Notes: Observed concentrations of $PM_{2.5}$ in 2016. The possibility of subtracting contributions to the measured concentrations from natural sources and winter road sanding/salting has not been considered. Dots in the last two colour categories indicate stations reporting concentrations above the EU annual limit value (25 µg/m³). Dots in the first colour category indicate stations reporting values below the WHO AQG for $PM_{2.5}$ (10 µg/m³). Only stations with more than 75 % of valid data have been included in the map. The French overseas territories' stations are not shown in the map but can be found at https://www.eea.europa.eu/data-and-maps/dashboards/air-quality-statistics

Source: EEA, 2018a.

Air Quality in Polish cities



Air Quality in Poland

- Deaths attributable

The table below shows the premature deaths attributable to $PM_{2.5}$, NO_2 and O_3 exposure in each country, EU-28 and total EEA-33 in 2015.

Country	Population (x1000)	Annual mean (PM2.5)	Premature deaths (PM2.5)	Annual mean (NO2)	Premature deaths (NO2)	Somo35 (O3)	Premature deaths (O3)
Poland	38,006	21.6	44,500	15.6	1,700	4,530	1,300
EU-28	506,030	13.9	391,000	18.9	76,000	4,250	16,400
Total	538,278	14.1	422,000	18.8	79,000	4,310	17,700

Air Quality – General solutions for Poland

- **Planning regimes,** strategies or action plans designed to achieve ambient air quality standards or objectives or attain emission ceilings, combined with analyses and environmental impact assessments.
- **Command and control**, including technology, emissions or ecosystem restoration standards; record-keeping and reporting requirements, or limits on manufacture, trade or use of specific chemicals or products; each of which are implemented through permitting and enforcement programmes.
- **Market interventions**, including economic instruments, such as taxes, fees or markets for tradable emission rights, as well as loans and subsidies.
- **Public information**, including product labelling, air quality forecasting, near real-time observations and training.
- **Cooperative frameworks**, including international agreements and voluntary sectoral standards or initiatives.

Air Quality – Specifc solutions for Poland

- **Transition to higher energy efficiency in buildings** (insolation, use of heat pumps, etc) both in cities and countryside
- Regarding energy sources: **In cities connect to district heating plants preferably powered by renewable energy** (i.e. geothermic, solar, wind), but the use of gas fired power plants for district heating is also a much lower air pollution source of heat in a transition period to a carbon neutral economy
- **In the countryside, transition to renewable energy sources like solar** (efficiency of solar has increased a lot and the prices are quite low, so it's a feasible solution also in Poland in the near future)
- **In lower population density** areas the use of **highly efficient wood/pellets stoves** is also an ok alternative. But it's not recommendable in areas of higher population density and bad dispersion conditions (like in the valleys in the south of Poland)

State of the Environment: Biodiversity

- **In crisis** - We might be observing the sixth mass extinction in the earth's history
- **Nature's contribution to people** – 70 per cent of poor people rely on natural resources for their livelihoods
- **Species decline** – a 60 per cent decline in the Living Planet Index between 1970 and 2014.
- **Ecosystem decline** – 10 out of 14 terrestrial habitats showed a decrease in vegetation productivity between 2000 and 2013.
- **Marine biodiversity** – global fish stocks overexploitation increased from 10 per cent in 1975 to 33 per cent in 2015.
- **Genetic diversity** – crop genetic diversity being conserved for enhancing productivity, nutritional content and resilience.

State of the Environment: Oceans and Coasts

- **Coral Reefs** – bleaching events are now occurring at 6-year intervals, while recovery normally takes 10 years.
- **Fisheries and aquaculture** – These support between 58-120 million livelihoods and generated US$362 billion in revenue in 2016.
- **Nutrition** – fish provide over 3 billion people with 20 per cent of their dietary protein.
- **Sustainable fisheries** – overexploitation has depleted wild fish stocks but aquaculture also has important environmental and health impacts
- **Marine plastics** – 8 million tons of plastic enter the oceans each year through mismanagement of domestic waste in coastal areas.

State of the Environment: Land and Soil

- **Food production** – Is the primary use of land. We will need 50 percent more food to feed the 10 billion people on the planet in 2050
- **Monoculture crops** – Have helped increase productivity but lead to environmental degradation, biodiversity and nutrition loss.
- **Animal protein** – 77 percent of agricultural land is used for meat production.
- **Food waste** – About 1/3 of food is wasted each year.
- **Deforestation** – The deforestation rate has dropped to 6.5 million ha/yr with planted forests increasing to 3.2 million ha/yr.
- **Urbanization** – Urban settlements have grown by about 2.5 times since 1975, accounting for 7.6 per cent of land use in 2015.

State of the Environment: Freshwater

- **Public good and risk multiplier** – affecting human and ecosystem health through pollution and climate change.
- **Disease** – 1.4 million people die from pathogen-polluted drinking water and 2.3 billion do not have access to safe sanitation.
- **Antibiotic and antimicrobial resistance** – are projected to be a major cause of death in 2050.
- **Freshwater ecosystems** – 40 per cent of global wetlands were lost between 1997 and 2011. Freshwater species populations declined by 81 per cent decline between 1970 and 2012
- **Water use efficiency** – can be dramatically increased by the agricultural, industrial and mining sectors.

Impacts from human activities: Crosscutting

- **Human health** – 9 million premature deaths due to environmental pollution in 2015. Mainly indoor and outdoor air pollution, but also water pollution and sanitation.
- **Environmental disasters** – Affected more than 3 billion people between 2005 and 2015
- **Energy** –1.2 billion people don't have access to electricity and 2.7 billion still use traditional fuels for cooking and heating.
- **Chemicals** – More than 100,000 chemicals in use with chemical pollution now a global threat.
- **Waste and wastewater** – urban waste generation is about 7-10 billion tons/yr.
- **Education for Sustainable Development** – is essential for changing lifestyles and habits.

Figure 11.1: Conceptual outline of policy effectiveness analysis

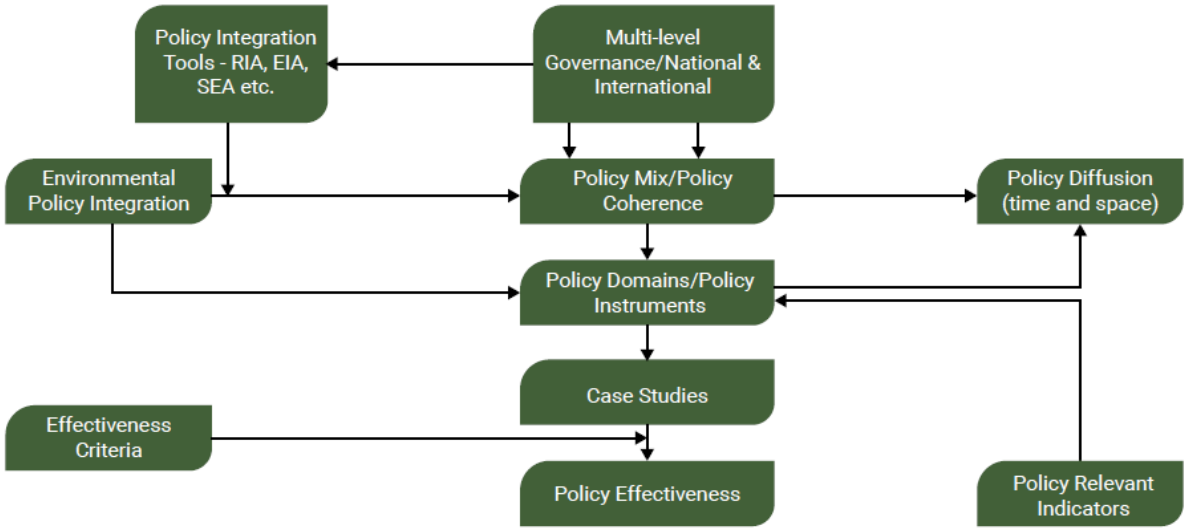
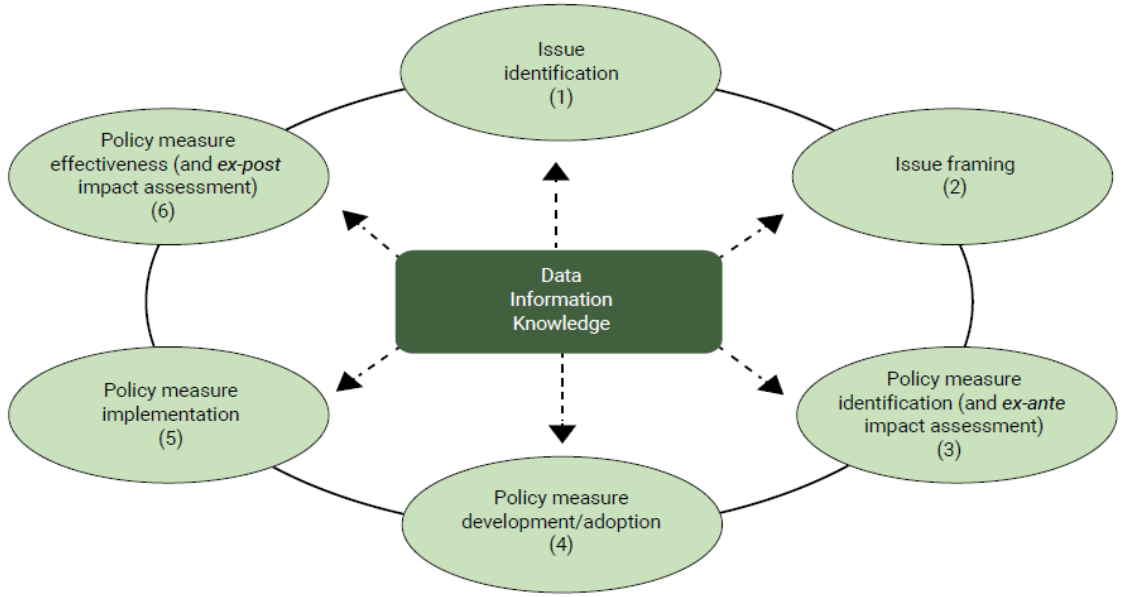


Figure 11.2: The policy cycle



Source: European Environment Agency [EEA] (2006)

Effectiveness of environmental policies

- **Policy design** – at least as important as policy choice when measuring effectiveness.
- **Effectiveness** – Not enough information is available to assess effectiveness, so policies may not reach their full potential.
- **Diffusion** –successful policies are used as role models for adoption in other countries.
- **Integration** – adding environmental concerns to other sectors of policymaking increases effectiveness.
- **Efforts are insufficient** – existing policies insufficient to address the backlog of environmental problems.
- **Systemic approaches** – transformative change by reconfiguring basic social and production systems and structures is needed.

Outlook for the future

- **Environmental dimension of SDGs and IAEGs** – not expected to be achieved under current policy scenarios.
- **All environmental areas are affected** – from climate change to biodiversity loss to water scarcity, land degradation and ocean acidification.
- **Urgent action needed now** – failure to act now will lead to ongoing and potentially irreversible impacts on the environment and human health.

Figure SPM.8. Projected global trends in target achievement for selected Sustainable Development Goals and internationally agreed environmental goals

Human development indicators			Environmental indicators		
Related Sustainable Development Goals	Target	Projection	Related Sustainable Development Goals	Target	Projection
2	2.1 End hunger		6	6.3 Improve water quality 6.4 Reduce water scarcity	
3	3.2 End preventable deaths of children under 5		11	11.6 Improve air quality in cities	
6	6.1 Achieve universal access to safe drinking water 6.2 Universal access to adequate sanitation		13	13 Limit global warming	
7	7.1 Achieve universal access to modern energy services		14	14.1 Reduce marine nutrient pollution 14.3 Minimize ocean acidification 14.4 Sustainably manage ocean resources	
			15	15.2 Achieve land degradation neutrality 15.5 Halt biodiversity loss	

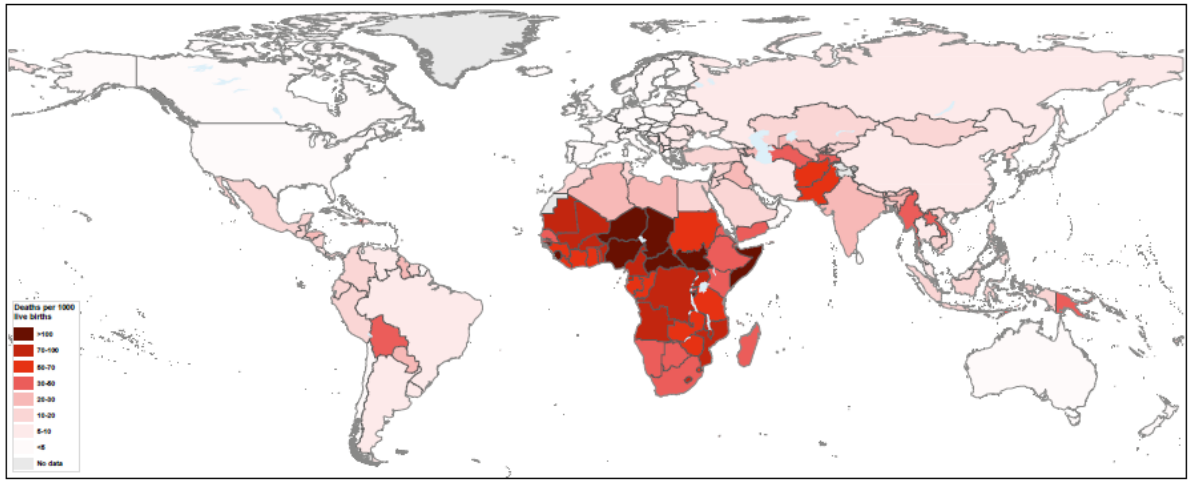
Legend

On track to achieve target (under bbusiness-as-usual scenarios target is projected to be achieved)

Progress towards target, but at an insufficient rate (unless effort is increased, target is projected not to be achieved)

Moving away from target (the trend is projected to be worse, rather than better)

Figure 21.11: Projected under-five mortality rate in 2030



Source: Moyer and Hedden (2018).

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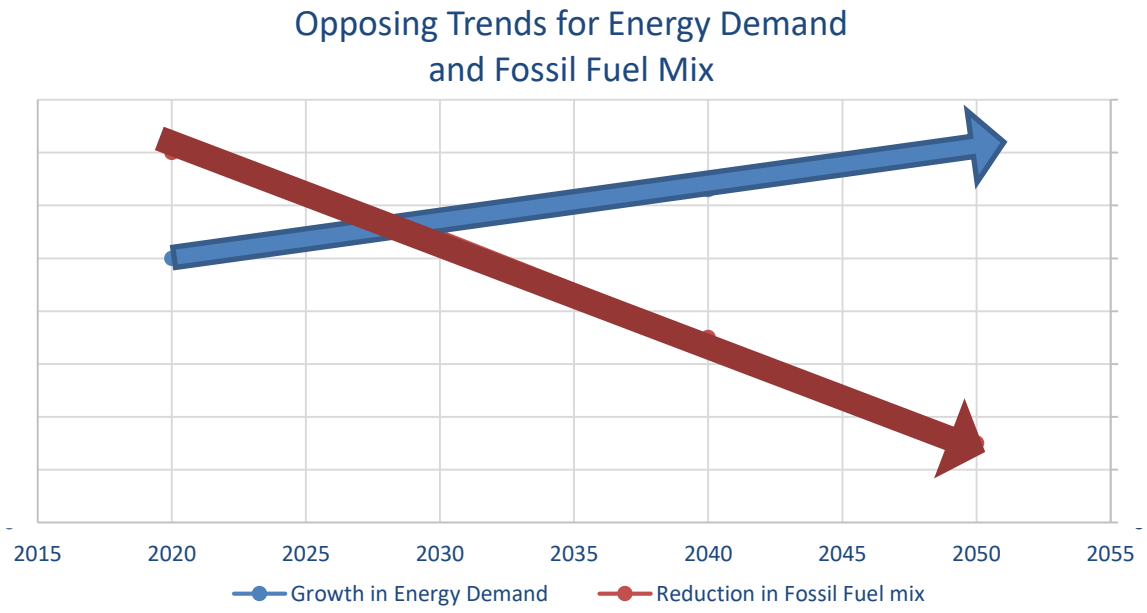
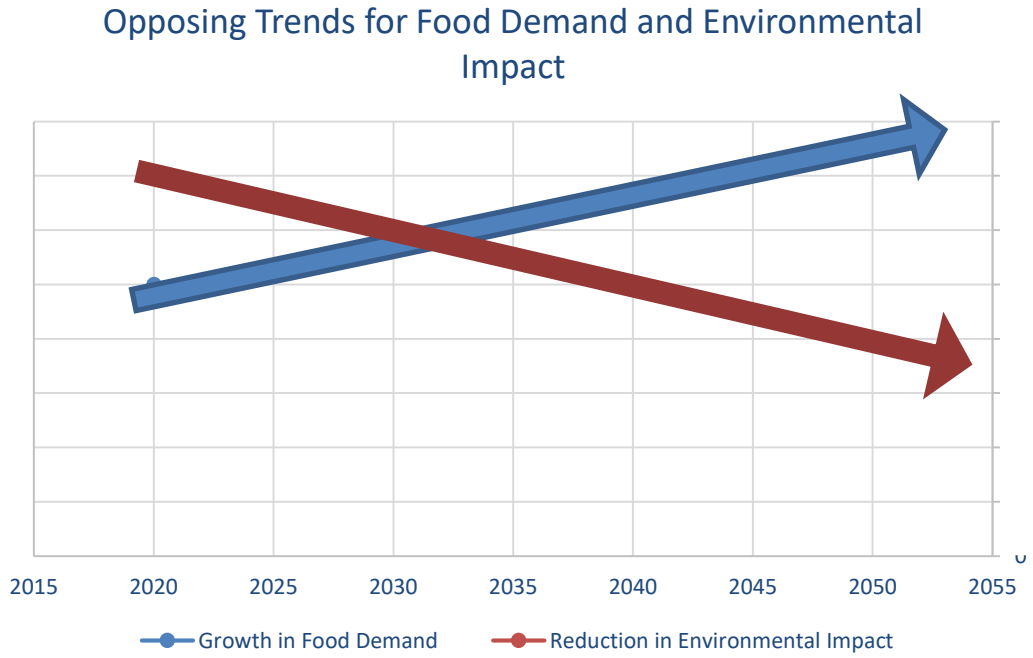
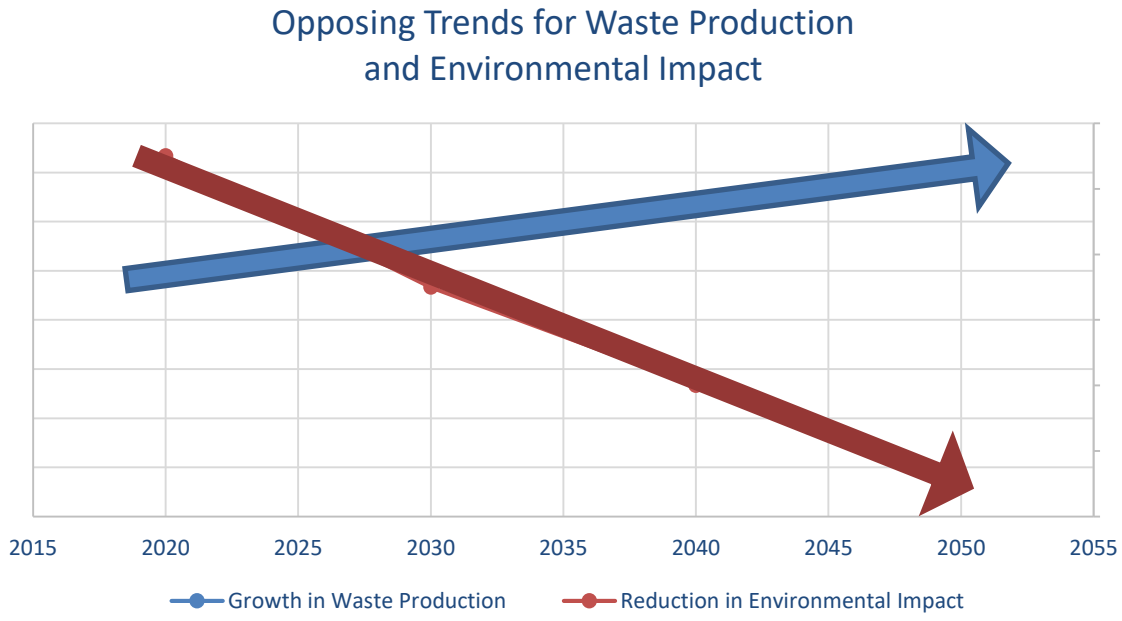


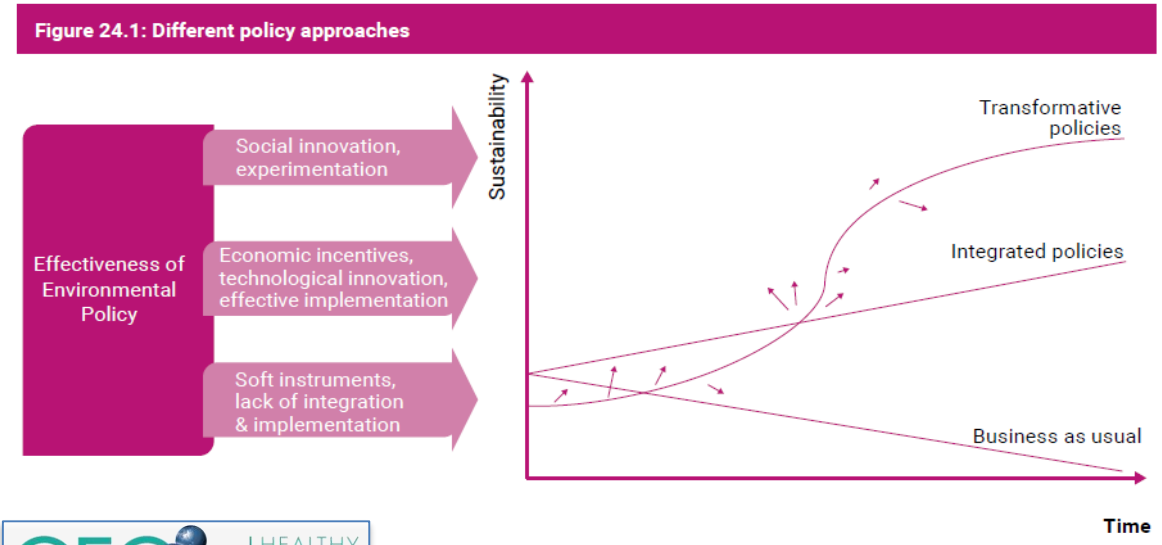


Changing the path we are on

- **Pathways exist** – need to achieve sustainable consumption and production for energy, food and water.
- **Incremental policies will not be sufficient** – a mix of social and technological innovations facilitated by policy cooperation from local to international scales.
- **More synergies than tradeoffs exist** – achieving climate targets will help achieve air pollution and human health goals.
- **Some tradeoffs still exist** – mostly on land-based climate change mitigation (e.g. bioenergy and agricultural intensification).
- **Policy integration and coherence are needed** – systems approach can help achieve these.

The way forward





- **Healthy planet is a foundation for supporting all life forms** – but, we have transformed earth's natural systems and disrupted self-regulatory mechanisms and life-support systems.
- **Human health is now affected at a significant scale** – through exposure to harmful pollutants and reduced access to ecosystem services.
- **Policy innovation** – can help guide the transformative change that is needed.
- **Systemic innovation** – the key to socioeconomic development towards a sustainable world.
- **Transformative change** – is a disruptive process that goes beyond incremental improvement, but can be achieved.

Producing an assessment of this scale requires many generous contributions. The following organizations provided funding directly or indirectly to the sixth *Global Environment Outlook*: The Government of Norway, the European Union, the Governments of Italy, Singapore, China, Mexico, Switzerland, Denmark, Egypt and Thailand. Together with UN Environment's Environment Fund and Regular Budget, these contributions allowed for the production of GEO-6 and its accompanying Summary for Policymakers, as well as subsequent outreach activities.

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Thank you

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