Climate change, environment and public health
Resilient cities: health benefits of green and blue spaces

- Parklife: Health and social cohesion
- Blue space: Leisure and cooling
- Roof garden: Water management
Direct health benefits of green and blue spaces

- Improved mental health
- Improved cognitive functioning
- Reduced cardiovascular morbidity
- Reduced prevalence of type 2 diabetes
- Reduced mortality
- Improved maternal and foetal outcomes
- Enhanced physical activity
- Improved relaxation and restoration
- Improved social cohesion
- Improved immune functioning
Deaths driven by environmental pollution

- 1 in 8 deaths is driven by environmental pollution in Europe – 13 %

- Difference across Europe: East and West

- Pollution drives
  - 19 % of deaths in Romania
  - 10 % in Denmark and Sweden
  - And beyond the EU... 27 % in Bosnia and Herzegovina

Source: WHO, 2016, Global Health Observatory
90% of EU deaths attributed to the environment: non-communicable disease

Top 10 non-communicable diseases driven by environmental pollution

Source: WHO, 2016, Global Health Observatory
400 000 premature deaths per year in Europe in 2018

Air pollution responsible for:

• 17% of deaths from lung cancer

• 12% of deaths from ischaemic heart disease

• 11% of deaths from stroke
No. 2 environmental risk - noise

20% of the EU population — one in five people — live in areas where noise levels are considered harmful to health.

- High annoyance: 22,000,000
- High sleep disturbance: 6,500,000
- Heart disease: 48,000
- Premature mortality: 12,000
- Cognitive impairment in children: 12,500

EEA, 2020
Climate change means that Europe will get warmer...

Projected annual, summer and winter temperature change for the 2080s

Two scenarios:
- **Intermediate scenario RCP 4.5**
  - CO2 emissions decline after 2045
  - 2-3 °C rise at global level

- **Worst case scenario RCP 8.5**
  - Emissions increase
  - 3-5 °C rise at global level

Source: EURO-CORDEX (Jacob et al., 2014)
...and wetter

Winter and summer heavy rain (projected change for 2080s, RCP8.5)

Source: EURO-CORDEX (Jacob et al., 2014)
Climate change impacts and vulnerability
Climate- and weather-related losses from 1980 to 2018

~90,000 climate- and weather-related fatalities in EU countries

€430 billion in economic losses – one third insured
Urban adaptation and a just transition

Groups vulnerable to climate to climate- and weather-related hazards, identified by representatives of European cities

- Elderly
- Children and youth
- Persons with chronic diseases
- Persons with disabilities
- Persons living in substandard housing
- Low-income households
- Marginalised groups
- Women and girls
- Indigenous population
- Unemployed persons

Surface area of publicly available green space per inhabitant in core cities

Area (m²)
- < 5
- 5-10
- 10-20
- 20-50
- > 50

Reference data: ©ESRI
Health impacts of chemicals

- At global level chemicals linked to:
  - 2.7% of the burden of disease
  - 1.7% of total deaths

- Based on the few substances for which we understand exposure and hazard and therefore an underestimate

- Estimates of the annual cost of health impacts of exposure to:
  - Endocrine disruptors €157 billion
  - PFAS €52-84 billion

Sources: WHO, 2018; Trasande et al., 2016; Nordic Council of Ministers, 2019; Haug et al, 2019
Upstream drivers in Europe’s energy, food, mobility and industrial systems

Source: EEA, 2019
Greenhouse gas emissions from transport

EU GHG emissions increased by roughly one quarter between 1990 and 2016

From 15% to 24% of total EU GHG emissions...

...due to dependency on fossil fuels

Road sector accounted for 72% of transport GHG emissions in 2016

- 39% of EU NOx emissions
- 13% of PM2.5

Main source of noise

Source: EEA, 2019
COVID-19 and environmental health

- Zoonotic disease
- Air pollution may be linked to a higher death rate from COVID-19
- Double burden of ill health and air pollution in disadvantaged communities
- Critical role for WASH – water, sanitation and hygiene
- Waste water monitoring for COVID-19 RNA
- PPE - increase in single use plastic and waste
Lessons from lockdown....

Short term..
- Falls in traffic volume
- Better air quality & less noise
- Access to green space

Longer term...
- Teleworking changing mobility patterns
- Impacts on demand for housing in cities
- Fears around using public transport

https://www.tableau.com/about/blog/2020/9/traffic-and-air-quality-during-lockdown
A new policy context: European Green Deal

- First **climate-neutral** continent
- **Biodiversity** Strategy 2030
- New **Circular Economy** Action Plan
- **Farm to fork** strategy
- **Just transition**
- **Sustainable** European **Investment** Plan
- Future ready economy – new **industrial strategy**

Forthcoming...

**Zero pollution** strategy

**Chemical strategy for sustainability**
Thank you

Catherine Ganzleben | 9 October 2020