WHO European Region, Climate change and Health

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WHO European Region health landscape

- People live longer and have less children.
- People migrate within and between countries, and towards cities.
- Noncommunicable diseases dominate the disease burden.
  - Environmental fraction of BoD is not well understood
- Public health capacities are outdated
  - Essential public health skills and infrastructures are lacking
- Health systems face rising costs.
  - Primary health care systems are weak and lack preventive services.
  - Public health capacities are outdated.
European Region main landscape

**Environmental impacts on health**

**What is the big picture?**

**Fact:**
23% of all global deaths are linked to the environment.
That’s roughly 12.6 million deaths a year.

**Where is it happening?**

- **3.8 million** in South-East Asia Region
- **3.5 million** in Western Pacific Region
- **2.2 million** in Africa Region
- **1.4 million** in European Region
- **854,000** in Eastern Mediterranean Region
- **847,000** in the Region of the Americas

**Cardiovascular diseases**
**Respiratory diseases**
**Type II diabetes**
**Cancer**

**Economic crisis**
**Socioeconomic divide**
**Demographic trends**
**Green economy**
**Urban development**

**Aging populations**
**Poor diet**
**Tobacco and alcohol consumption**
**Sedentary lifestyle**

Climate change affects health

No good news……Arctic and Baltic sea ice

- Over the period 1979–2015, the Arctic has lost on average 42 000 km² of sea ice per year in winter and 91 000 km² per year at the end of summer. The decline in summer sea ice appears to have accelerated since 1999.

- The record low Arctic sea ice cover in September 2007, 2011 and 2012 was roughly half the size of the normal minimum extent in the 1980s. September ice cover in 2013-2015 was larger than the 2012 extent, but in all these years it was still well below the average for 1981-2010.

- The maximum sea ice extent in the Baltic Sea has displayed a decreasing trend since about 1800. The decrease appears to have accelerated since the 1980s but the interannual variability is large.

- Arctic Sea ice is projected to continue to shrink and thin. For high greenhouse gas emissions, a nearly ice-free Arctic Ocean in September is likely before mid-century. There will still be substantial ice in winter.

- Baltic Sea ice, in particular the extent of the maximal cover, is projected to continue to shrink.
Health impacts of the causes of climate change

- **Buildings**: 4.3 m deaths from indoor air pollution
- **Transport**: 1.2 m deaths from road traffic crashes, 3.2 m from physical inactivity
- **Industry**: 1 m deaths from occupational risks
- **Electricity and heat**: 3.7 m deaths from outdoor air pollution
- **Agriculture**: 2.8 m deaths from overweight/obese

Total Greenhouse Gas Emissions

Circle size proportional to GHG emissions in 2010 (tonnes CO$_2$ equivalent). Changes proportional to projections of changes by 2050. *All data from IPCC, 2014.*
Health Impacts of Climate Change: Approximately 250,000 excess deaths/year by 2030s

High level of diversity

Arctic / Subarctic and Polar:
- projected increases in temperatures and heavy precipitation;
- permafrost reduction, retreat of glaciers, increase of lakes;
- risk of injury and illness due to these extreme changes;
- food insecurity;
- impacts on livelihoods of indigenous people.

Northern and Western Europe:
- observed and projected hot days increase;
- observed and projected increase in precipitation;
- projected increase in dryness and short term droughts;
- shift from cold to heat related mortality in England and Wales;
- river and coastal flooding;
- extension of seasonal activity of pests and plant diseases;
- northern expansion of tick disease vectors from south.

Central Asia:
- projected increase in hot days;
- increased mean temperature;
- spatially varying trends for precipitation and dryness;
- increases in food production in north eastern Kazakhstan;
- reductions in food production in Turkmenistan and Uzbekistan;
- adequate water supply is major challenge and could be exacerbated by temperature increases.

Southern Europe and Mediterranean:
- most sensitive to hot weather and highest heat wave exposure;
- increased heat wave mortality and morbidity;
- increase food born disease;
- increase in dryness and desertification;
- reductions in food production;
- increase in forest fires;
- changes in distribution of water borne and vector borne diseases.

Central and Eastern Europe:
- hot day increases projected for east central but not currently observed;
- projected increase in winter precipitation and decrease in summer precipitation;
- projected increase in dryness and short term droughts;
- increase in forest fires and air pollution;
- northern expansion of tick disease vectors from south.

Data Source and map production: Compiled based on EEA and IPCC reports and the WHO mortality strata.

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## Number of people killed per million due to extreme weather events by European sub-regions for the period 1991–2015

<table>
<thead>
<tr>
<th></th>
<th>Flood and wet mass movement (a)</th>
<th>Cold event</th>
<th>Heat wave</th>
<th>Storm</th>
<th>Wildfire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Europe</td>
<td>8.57</td>
<td>28.27</td>
<td>11.39</td>
<td>1.73</td>
<td>0.54</td>
</tr>
<tr>
<td>Northern Europe</td>
<td>0.99</td>
<td>1.67</td>
<td>11.17</td>
<td>2.48</td>
<td>0.01</td>
</tr>
<tr>
<td>Southern Europe</td>
<td>6.75</td>
<td>0.92</td>
<td>177.98</td>
<td>1.19</td>
<td>0.97</td>
</tr>
<tr>
<td>Western Europe</td>
<td>2.09</td>
<td>0.89</td>
<td>191.58</td>
<td>2.79</td>
<td>0.04</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4.64</strong></td>
<td><strong>5.31</strong></td>
<td><strong>128.98</strong></td>
<td><strong>1.99</strong></td>
<td><strong>0.46</strong></td>
</tr>
</tbody>
</table>

Note: The rate is cumulative numbers of deaths per 1000 000 people over the whole time period (1991-2015).

Country grouping, as reported to EM-DAT/CRED: Eastern Europe: Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia; Northern Europe: Denmark, Estonia, Finland, Iceland, Ireland, Latvia, Lithuania, Norway, Sweden, United Kingdom; Southern Europe and Western Asia: Albania, Bosnia and Herzegovina, Croatia, Cyprus, Greece, Italy, former Yugoslav Republic of Macedonia, Montenegro, Portugal, Serbia, Slovenia, Spain, Turkey; western Europe: Austria, Belgium, France, Germany, Luxembourg, Netherlands, Switzerland. Population rates calculated using population data from 2013.

**Source:** EM-DAT ; Eurostat ; WHO .
Cold weather can have significant health effects

Every winter there are over 200,000 excess deaths across Europe and the increase in mortality is greater in the warmer Mediterranean area than in colder northern and central European countries.

Although climate change is expected to result in a certain degree of warming, cold weather and cold wave events will still occur.
Examples of vector-borne diseases in the WHO European Region

Mosquito-borne
- Dengue fever
- Chikungunya
- Malaria
- West Nile fever (WNF)
- Zika?

Sandfly-borne
- Leishmaniasis

Tick-borne
- Lyme disease
- Tick-borne encephalitis (TBE)
- Crimean–Congo haemorrhagic fever

77 000 Europeans on average fall sick from vector-borne diseases every year.

Mosquito species, such as *Aedes aegypti*, are re-emerging, and *Ae. albopictus* is emerging.
Main messages

1. **Science:** Existing evidence is continuously being confirmed and extended, and existing strategies are increasingly being implemented

2. **Policy:** 2015 brought major steps forward

3. **WHO** supports countries through science policy interface, development of tools and methodologies
Evidence is increasing rapidly

"climate change and health" in PubMed (27 May 2016)
Direct health effects:
- High and low temperature (heat and cold) (33)
- Floods (5)
- Wildfires (6)
- UV radiation (4)*

Indirect health effects:
- Climate sensitive vector-borne infectious diseases (mosquito-, tick- and rodent-borne) (37)
- Food- and water-related health effects (7)
- Effects related to air quality (26)
- Allergic diseases (17)

* Changes in cloudiness as well as changes in human behaviour related to climate change have an effect on UV radiation exposure and skin cancer and cataracts
Main messages

1. **Science**: Existing evidence is continuously being confirmed and extended, and existing strategies are increasingly being implemented

2. **International policy framework**: 2015 brought major steps forward

3. **WHO** supports countries through research, tools and policy
2015: steps forward for health and environment
Paris agreement: 2 degrees Celsius (better: 1.5 degrees)

- Reaffirm the binding obligations, encouraging voluntary contributions by developing countries
- “Nationally Determined Contributions” (NDCs), updated every five years (progressing!)
- Report on emissions and “progress made in implementing and achieving” NDCs, avoid “double counting”
- Finances: mobilizing $100 billion/year 2020 - 2025, new, higher goal after 2025; “loss and damage” Mechanism, Clean Development Mechanism

WHO to combat climate change

“A ruined planet cannot sustain human lives in good health,”

... the hard-won gains for health since the start of this century can easily be swept away by the tidal wave of health threats unleashed by climate change.

“Without a strong agenda for action on climate change most of the 17 [Sustainable Development] Goals will be utopian,”.

Dr Margaret Chan, WHO, Director-General (3 March 2016, Geneva)
Main messages

1. Existing evidence is continuously being confirmed and extended, and existing strategies are increasingly being implemented

2. The Paris Agreement now mainstreams innovative and special practices

3. WHO supports countries through science policy interface, development of tools and methodologies
Climate change and health in the European Ministerial Environment and Health Process

1989: Climate change recognized

1999: Early human health effects

2004: Extreme weather events and renewable energy

2010: • Parma Commitment to Act • Regional Framework for Action

2017
The Parma Commitment to Act

1. Integrate health issues in climate change mitigation and adaptation measures, policies and strategies of other sectors;

2. Strengthen health and public health systems and services

3. Develop and strengthen early warning surveillance and preparedness for extreme weather events and disease outbreaks;

4. Develop and implement educational and public awareness programmes

5. Resilient and environmentally sustainable health systems

6. Encourage research and development
WHO publications on climate change and health

- Environmentally sustainable health systems. Meeting report. 11-12 November 2015, Bonn, Germany
- Health in the latest assessment report of the Intergovernmental Panel on Climate Change (IPCC): A discussion on findings for the European Environment and Health process
- Climate change and health: a tool to estimate health and adaptation costs
- Protecting health from climate change: A seven-country initiative
- Climate change and health in Europe: opportunities for action in partnership
Health in a 'Green Economy' initiative

- WHO assessing policies to mitigate climate change for health impacts
- Identifies those policies/investments most beneficial to health and equity
- Opportunities and barriers to better policies identified

http://www.who.int/hia/green_economy/en/
WHO key messages

- Including health into the adaptation and mitigation policies and activities
- Ensure financing for stronger public health adaptation
- Limit climate change and avoid unacceptable risks to health
- Use Win-win solutions (Urban transport, health care, housing, energy…)}