

Climate change

Climate change could be the biggest global health threat of the 21st century (Lancet and University College London Institute for Global Health Commission, 2009, Managing the health effects of climate change, The Lancet, Vol. 373, No. 9676, p1693–1733).

In the last decade EU countries experienced varied weather conditions including an increase of weather events such as periods of extreme heat and cold, heavy rainfall and flooding, in some cases followed by a mosquito invasion.

What are the facts and predictions?

The rise in global mean surface temperature will likely be in the range of 0.3°C to 0.7°C for the period 2016–2035 (relative to 1986–2005) and 0.3°C to 4.8°C for 2081–2100, as stated by the Intergovernmental Panel On Climate Change. The most vulnerable areas of Europe are Southern Europe and the entire basin of the Mediterranean Sea, where the mutual impact of a considerable increase in temperature and decrease in precipitation will affect areas already subject to water shortage.

Four main areas can be distinguished regarding the health impacts of climate change. The first group of effects is directly caused by weather events, the most important being the health impacts of heat waves and extreme weather events. Indirect effects are vector and food borne diseases and allergies caused by airborne allergens – in these cases the changes in climate sensitive environmental systems contribute to the occurrence of different diseases.

There is an increasing body of evidence to support the view that climate change will have an impact on human health, and that it will contribute to disease and premature deaths. Climate change will affect the

health of millions of people, especially those with a low adaptive capacity.

The primary concern in Europe is linked to heat-related morbidity and mortality, due to increases in annual temperature and extremes of heat. These issues are also influenced by socio-economic changes due to population growth and the ageing of the population. In Member States, it is estimated that mortality increases by 1–4% for each one degree rise in temperature, meaning that heat related mortality could rise by 30,000 deaths per year by the 2030s and by 50,000 to 110,000 deaths per year by the 2080s.

If we would like to understand the health impacts of climate change and identify potential policy actions we have to study the complex relationship between the natural, man-made and social environments, and human health. For this purpose we used a combination of the modified and ecosystems-enriched Drivers, Pressures, State, Exposure, Effects, Actions or DPSEEA model (Figure 1).

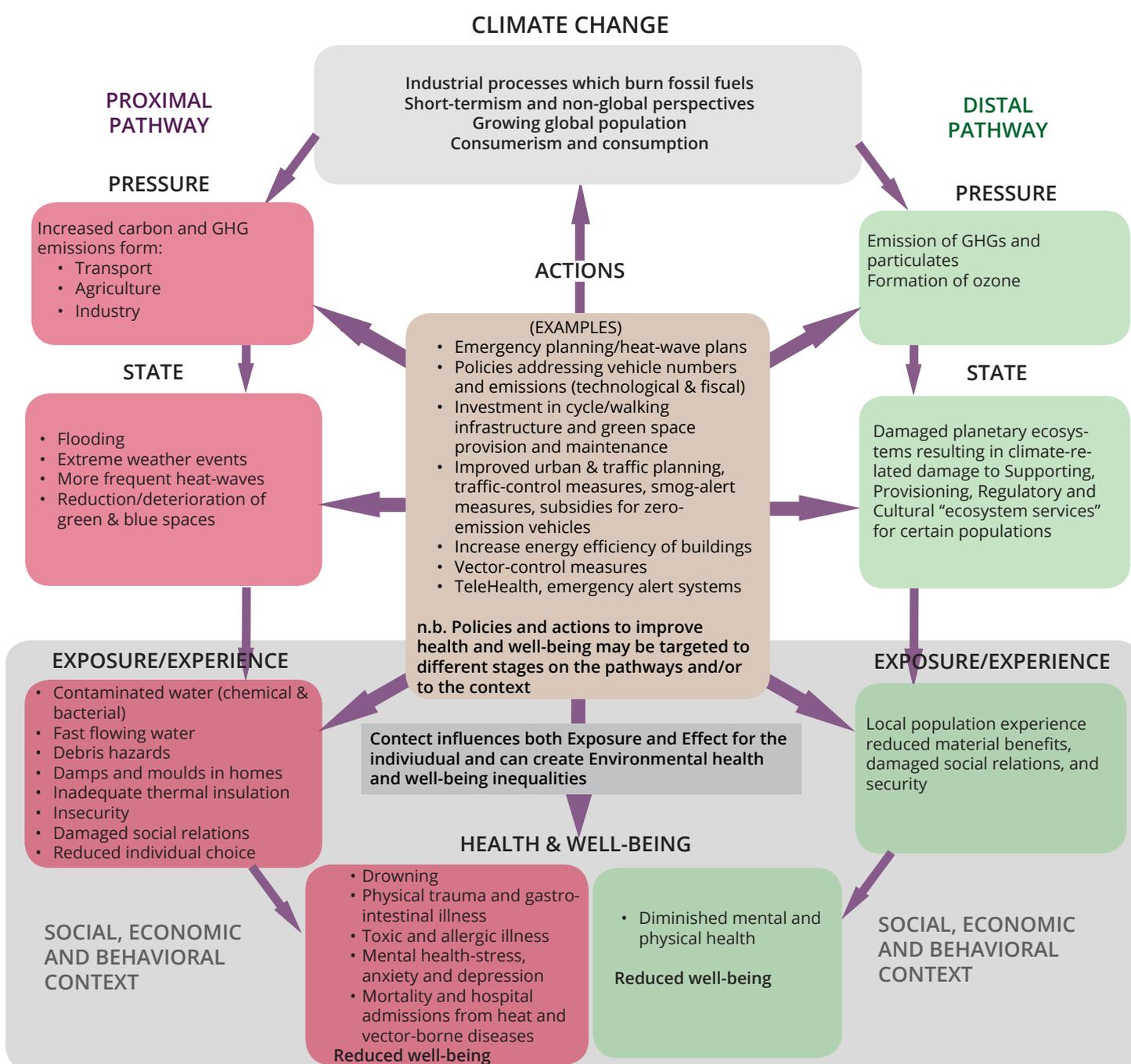


Policy context

The EU Strategy on adaptation to climate change (COM(2013)216) supplemented by a set of accompanying documents (EU Adaptation Strategy Package) aims to strengthen Europe's resilience to the impacts of climate change. One of the priority objectives of the EU's 7th Environment Action Programme (7th EAP) is to increase the Union's effectiveness in addressing international

environmental and climate-related challenges. At the broader European level, the European Regional Framework for Action, Protecting health in an environment challenged by climate change, adopted at the Parma Ministerial Conference in 2010 and the Health 2020 Policy framework and strategy set out the most important policy objectives for the European countries.

Figure 1. Addressing the effects and actions of climate change through DPSEEA models



Modelling approach derived from Reis et al (2013)
<http://www.publichealthjrn.l.com/article/S0033-3506%2813%2900242-4/abstract>

n.b. Global economic social and ecosystem connectivity means the distal pathway can impact on the proximal pathway in health relevant ways and vice versa

How to monitor the impacts of climate change?

Indicators and data are widely available in international databases and can be amended by national data collections. Complex structured analysis is needed in future assessments, for which the combination of modified and distal DPSEEA models is a useful tool (figure 2).

Figure 2. Selected indicators on environmental and health effects of climate change

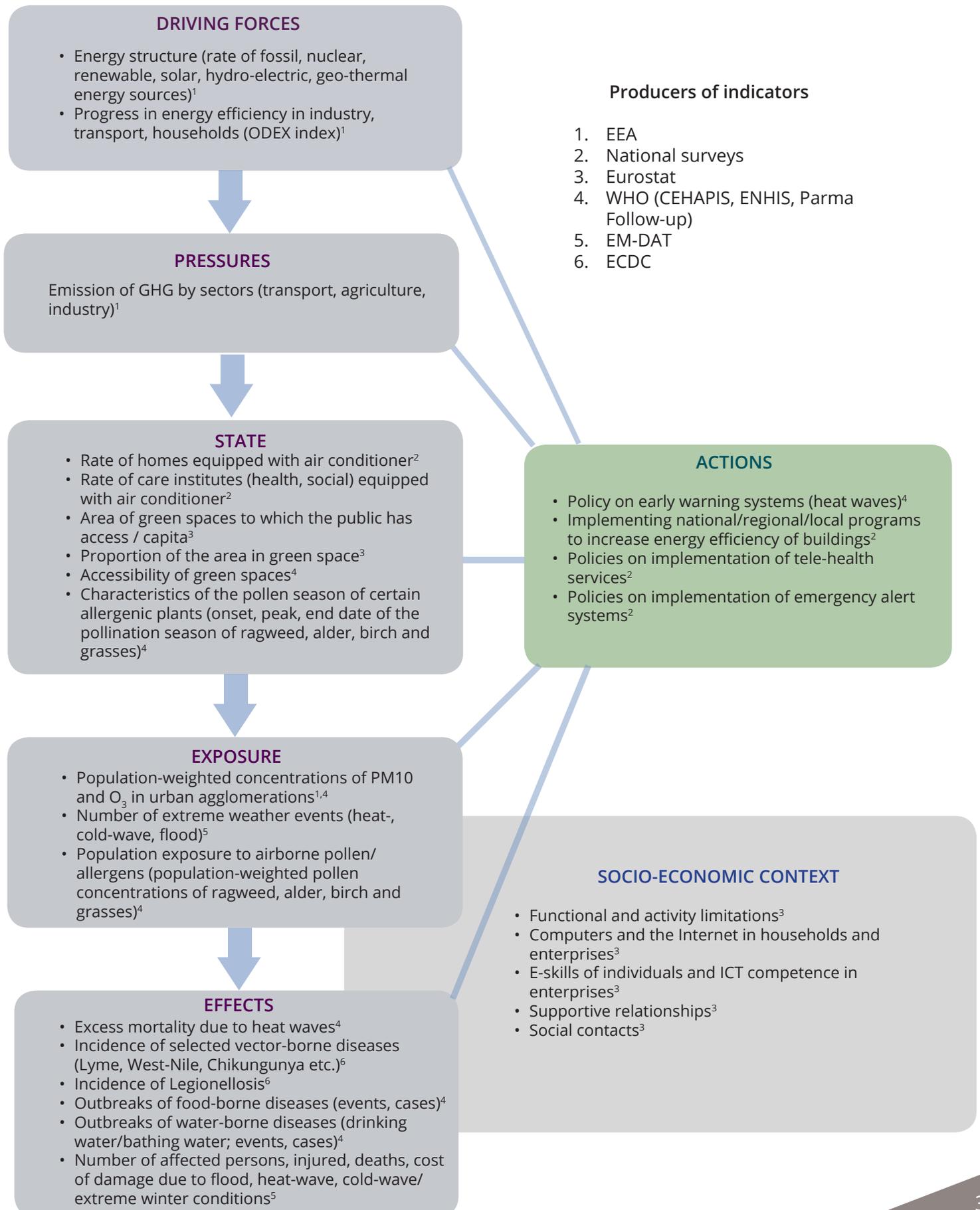
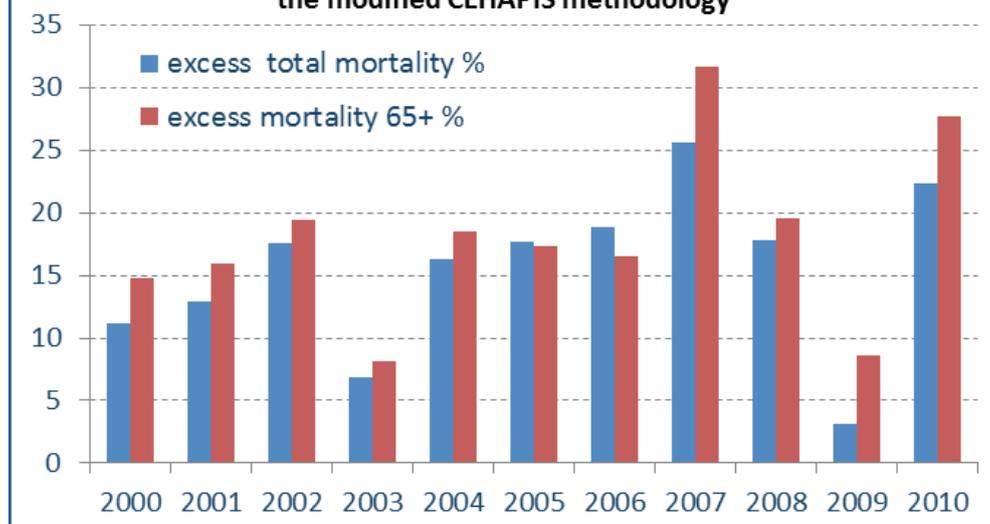


Fig 3 Excess mortality due to heat waves in the total population and in the age group of 65+ in Budapest, 2000-2010 computed by the modified CEHAPIS methodology



Indicators on heat-waves, especially on excess mortality have been developed by the WHO (figure 3). A tool for the analysis of excess mortality is also available for use by European countries. Harmonised data collection is recommended to gather information on the effectiveness of climate change adaptation policies and programmes.

Key messages

All EU Member States should prepare national climate change strategies focusing both on mitigation and adaptation measures.

Housing, energy and spatial policies should be aligned to these strategies.

The village block in Budapest, Hungary, before and after renovation

Complete insulation of the houses, a more efficient heating system and a solar collector system for the production of hot water led to reduction of CO₂ emissions and an increase in the value and living quality of the properties.

