



Scientific Advice Mechanism

Scoping paper:

Adaptation to climate change-related health effects in Europe

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*Research and
Innovation*

Issue at stake

Scientific evidence demonstrates that global climate is changing. Anthropogenic emissions have largely contributed to global warming with a consequential increase in the adverse effects to human health, an increase in morbidity and mortality and amplification of health risks. Climate change requires societies to adapt to a range of challenges, including natural disasters and heat-related health effects, increased incidence of communicable and non-communicable diseases, and to the disproportionate effects on vulnerable populations. The impact of climate change on human health is going to vary according to geographic location, socioeconomic conditions and ecological settings.

Responding to climate change involves a two-pronged approach: reducing the emissions of greenhouse gases (GHGs) (mitigation) and taking actions to help individuals, communities, organisations and natural systems to deal with those consequences of climate change that cannot be avoided (adaptation). Translating this in the context of health impacts, the World Health Organisation (WHO) defines adaptation as the process of ‘designing, implementing, monitoring, and evaluating strategies, policies and programmes to manage the risks of climate-relevant health outcomes’.

The October 2018 International Panel on Climate Change (IPCC) special report on the impacts of global warming of 1.5°C underlines that climate-related risks to health will be far greater than expected. While every human being is in principle exposed to health risks of global warming, urban populations are at disproportionately higher risk of adverse health effects including sub-populations such as, children, the elderly, the poor and outdoor workers. This and a number of other facts were also emphasised in the 2016 scientific assessment of the impacts of climate change on human health of the USA Global Change Research Programme, which describes the interaction of a number of climate impacts with underlying health, demographic and socioeconomic factors and was confirmed by the corresponding Fourth National Climate Assessment report (Ebi K, *et al.* 2018). Recently, the World Health Organisation (WHO 2017) Regional Office for Europe published a report entitled “Protecting health in Europe from climate change: 2017 update” where it describes the current knowledge on impacts in different regions and populations and how appropriate adaptation measures will make the health sector resilient. The latter has been enforced in a recent WHO special report (WHO 2018) and the Lancet Countdown on health and climate change (Watts *et al.* 2018).

From these reports, it may be concluded that both direct and indirect effects on health are expected from climate change:

- Direct impacts due to increased frequency and intensity of extreme events resulting in heat and cold waves, floods, storms, droughts, and wild fires.
- Indirect impacts such as climate change mediated ecological disruptions, altered risk of infectious diseases due to shifting patterns of distribution and abundance of pathogens, their vectors (such as mosquitoes, ticks) and their transmission dynamics;

respiratory diseases due to decreased air quality (ground level ozone and particulate matter) with changing patterns in urban areas; new patterns of allergic conditions due to emergence of aeroallergens. The health effects may be exacerbated by compounding effects of high temperatures and air pollution, wild fires and dust storms.

- Socioeconomic and geopolitical dynamics such as migration responses, due to climate change induced migration, displacement of populations, and resettlement, as well as poverty aggravation, which may further amplify both direct and indirect climate-related health effects.

Taking into consideration the magnitude of exposures and the potential health impact, the Opinion will focus on major health threats emerging from climate change: temperature-dependent phenomena (e.g. global warming, heat and heat-waves) and vector-borne infectious diseases. Emphasis will be put on the impacts on health emerging from the co-occurrence of multiple interacting hazards (e.g., air pollution and heatwaves). Moreover, the health effects of the above threats are expected to be unevenly distributed across and within countries, regions, and more pronounced in urban areas and disproportionately affect vulnerable population groups. Therefore, the Opinion will predominantly explore the health effects on vulnerable population groups in an urban context. The co-benefits that may emerge from climate mitigation measures such as reducing emissions and the associated decrease of health risks will also be addressed.

The Opinion will focus on the impacts of climate change on human health and will identify adaptation gaps, their origin, characterization and reason. As animal health in relation to food safety is addressed by other projects, the Opinion will address it only in the context of vector-borne diseases which can be transmitted from animals to humans¹. The Opinion will inform the revision (and broadening) of the EU's climate change adaptation strategy with recommendations that may lead to reduction of risks from climate-related health effects.

Policy context

The Treaty of the Functioning of the European Union (TFEU) demands a high level of human health protection across Union policies and a complementary role of the Union in supporting national health endeavours. The Decision No. 1082/2013/EU on serious cross-border threats to health „ ... lays down rules on epidemiological surveillance, monitoring, early warning of, and combating serious cross-border threats to health, including preparedness and response planning related to those activities, in order to coordinate and complement national policies ... “. The Decision addresses biological, chemical, environmental or other health threats, communicable or not, and defines the engagement of the European Centre for Disease

¹ EFSA has initiated in 2017 a project on climate change as a driver of emerging risks for food and feed safety, plant, animal health and nutritional quality (CLEFSA); possible synergies will be explored.

Prevention and Control (ECDC) and the European Food Safety Authority (EFSA). ECDC, together with the WHO, EFSA and the European Environment Agency (EEA) are working on the identification of risks and vulnerabilities within Europe, as related to communicable and infectious diseases and food safety.

The European Commission (EC) Communication COM/2013/0216 ‘An EU Strategy on adaptation to climate change’ recognises that the consequences of climate change are a global issue and of major relevance for Europe. With an average temperature of the European land area over the last decade (2002-2011) of 1.3°C above preindustrial level, the temperature increase in Europe has been faster than the global average. While mitigation remains a priority for the global community, the impact of climate change will increase in the coming decades because of the delayed impacts of past and current greenhouse gas emissions. Therefore adaptation measures are needed to deal with the unavoidable climate impacts. The European Commission Communication aims at making the EU more climate-resilient by taking a coherent approach and providing for improved coordination. While it focuses on the economic consequences, it acknowledges that in health policy existing measures and systems in the Member States need to be adjusted to whatever new challenges climate change will bring. Further, many Member States identify health as a vulnerable sector for which more information is needed for developing targeted adaptation policies. Although many of the adaptation measures in the socio-economic context will indirectly address public health threats, the specific needs in public health have to be addressed in more detail. Particularly vulnerable populations, such as children, elderly, subpopulations with underlying medical conditions, and regions, such as the Mediterranean basin, coastal zones, densely populated floodplains and urban areas will need specific consideration.

The European Commission has published on the 12th November 2018 a report to the European Parliament and the Council on the implementation of the above-mentioned Strategy. The report contains an analysis of the results in terms of lessons learned and reflections on improvements for future action. This report and the Scientific Advice Mechanism’s Opinion on Climate Change and Health will constitute valuable inputs for subsequent developments in the EU’s adaptation strategy.

Request to the Group of Chief Scientific Advisors of the Scientific Advice Mechanism (SAM)

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The SAM Group of Chief Scientific Advisors will provide scientific advice based on existing evidence on the health impacts of climate change to inform future policy decisions in the field of adaptation. The Opinion will address the following question:

- *Which adaptation measures could strengthen the resilience of the health sector in Europe in view of climate change? The Opinion will give special regard to vulnerable groups, regions and the urban environment, considering specifically impacts from vector-borne infectious diseases and heat and heat waves.*

The Opinion is restricted to human health, with a focus on Europe within a global context.

The Opinion will consider the evidence on the various health impacts and the effectiveness of adaptive measures, and possibilities for co-beneficial health gains of the integration of mitigation measures in a cross-sectoral comprehensive way. Based on this the opinion will propose policy recommendations for adaptation measures at EU level.

Further actors carrying out relevant work on climate change-related health aspects

European academy networks through SAPEA (Science Advice for Policy by European Academies) and the wider scientific community

The European Commission's Joint Research Centre (JRC)

European Centre for Disease Prevention and Control

European Food Safety Authority

European Environmental Agency

References:

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