



Adaptation to health Effects of climate change in Europe

Scientific Advice Mechanism (SAM)
Group of Chief Scientific Advisors
Scientific Opinion No.10, December 2020

Independent
Expert
Report



Read [the full Scientific Opinion](#)

Adaptation to health effects of climate change in Europe

EXECUTIVE SUMMARY

The emission of anthropogenic greenhouse gases is the main driver of climate change. Even with unprecedented action to reduce emissions, the consequences of climate change within the coming decades are likely to be catastrophic.

Responding to climate change involves a two-pronged approach: reducing the emissions of greenhouse gases (mitigation), planning, and acting to address those consequences of climate change that cannot be avoided (adaptation). For health impacts, adaptation is defined as 'designing, implementing, monitoring, and evaluating strategies, policies and programmes to manage the risks of climate-relevant health outcomes' (WHO 2014).

The EU is committed to the global fight against climate change. The European Green Deal is the EU's new growth strategy (2019-2024) which centres on the goal of achieving climate neutrality by 2050. The Green Deal intends to cut greenhouse gas emissions by at least 55 % by 2030 compared to 1990 as the EU's commitment to the Paris Agreement. The Paris agreement sets out to limit global warming to 'well below 2 °C', with the average temperature now already 1 °C above the average pre-industrial level. Even if these ambitious goals are fully achieved, some effects of climate change will be significant and inevitable.

Climate change is already having numerous negative consequences for health, which will get worse with the inevitable rises in temperature. As an example, annual fatalities from extreme heat could rise from 2,700 deaths/year today to ca. 30,000-50,000 by 2050 with the global warming of 1.5 °C and 2 °C, respectively, assuming present vulnerability to heat and without additional adaptation measures. Therefore health needs to be firmly integrated in climate change adaptation.

The EU has been pursuing its climate adaptation policy based on the 2013 EU Adaptation Strategy and more recently on the new EU Strategy on Adaptation to Climate Change of 2021 and the European Climate Law. The Climate Law also turns adaptation to the inevitable consequences of climate change into a legal obligation, calling for 'continuous progress in enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change'. Under the 2013 Adaptation Strategy, a number of actions already address some climate-related anticipatory and preventive health concerns, for instance 'climate-proofing' infrastructure projects including flood management or building design. However, the integration of climate adaptation into EU policies has proven to be a very complex process, progress has been uneven as confirmed by the EC's own evaluation, and the 'health in all adaptation policies' approach has not yet become a major focus.

In public health policy, the EU has mainly supporting competences, though it has a stronger mandate in the case of serious cross-border health threats. Through the work of the European Centre for Disease Prevention and Control (ECDC) and Copernicus Climate Change Service (C3S) some progress has been made in integrating climate-induced threats (such as climate-sensitive vector-borne infectious diseases or extreme weather events) into the EU's common system of epidemiological surveillance, monitoring, early warning, preparedness and response planning.

Drawing upon a synthesis of scientific evidence including expert consultation, this independent scientific opinion aims to inform the EU's new Adaptation Strategy and EU health policies with recommendations aimed to limit risks as a result of climate-related health effects.

Recommendation 1

Integrate human health into all climate change adaptation policies

The integration of health aspects in all policies should take place across all sectors and governance levels affected by the climate change adaptation strategies and plans.

The EC should offer strategic direction and coordination for that integration across all governance levels (European, national, regional and local) taking into account international goals,

Moreover, we recommend strong support for policy learning across all policy sectors and governance levels, evidence-based assessment of adaptation actions, and closing evidence gaps.

Recommended policy actions:

- Promote synergies across all policy areas relevant to health, and increase the effort in integrating climate adaptation and health considerations into policies and standards, notably in:
 - land use (e.g. the role of health in urban, spatial and coastal planning)
 - building design, and infrastructures (e.g. for energy), such as supporting the incorporation of health-related climate-neutral, climate adaptation measures in building and infrastructure standards and codes
 - disaster management, water and food supply, including provision of safe water and healthy food
- Seek and prioritise synergies with climate mitigation actions and disaster risk reduction. Adaptation should not harm mitigation goals, or – in the very least – unavoidable trade-offs should be transparently accounted for. Embedding ‘human health’ as a key component of the EU adaptation strategy contributing to the Green Deal should be aligned with the Sustainable Development Goals and with the Sendai framework for disaster risk reduction.
- Use the entire mix of policy interventions available at the EU level in order to intensify adaptation efforts in general, and particularly the integration of health into climate adaptation. For instance:
 - embed health-related requirements into the guidance for national adaptation strategies and plans
 - targeted funding of adaptation projects, and projects supported by e.g. European structural and investment funds; examples of relevant local projects that could receive support include city-level risk assessment of urban heat islands, and ways to reduce them through planning measures, or local planning and risk assessment to identify areas with greater mosquito breeding potential

- Support policy learning, evidence-based assessment of adaptation actions, and closing evidence gaps; including fostering peer learning from ongoing and completed adaptation initiatives; rigorous evidence-based assessment of planned, ongoing and completed climate adaptation actions; and further research where important evidence gaps are identified.

Recommendation 2

Support the resilience of the health sector

The EU should use its complementary role in health policy to support the capacity and preparedness of the health sector in the EU to deal with climate change impacts, as part of broader disaster and emergency risk strategies, including surveillance, monitoring and assessment.

Recommended policy actions:

Strengthen the health sector itself:

- Support the education and training of personnel in the health and social care sector (for instance with regard to relevant risks and emergencies);
- Organise availability of critical components such as stocks of equipment, medicines, vaccines and testing capacity within Europe and support member states and other entities in acting towards such a goal in order to mitigate any health-care crises;
- Support improving basic infrastructure, and amend policies for building and design to include infrastructure adjustment, in relation to heat waves and other risks to health.

Infrastructure adjustments should be undertaken whilst considering energy costs and alternative cooling/heating solutions, capturing synergies supporting health systems in different ways.

Provide support to the health services by improved infrastructures at EU level by:

- Considering the creation of a disaster risk and climate change and health knowledge centre or coordinating mechanism that can interact with operational bodies of civil protection, policy makers, the health services and provide timely information to them;
- Extending capabilities of the EU to deal with cross-border threats, based on formal competence, in relation to for example infectious diseases, and

reviewing ways for the EU to address international dimensions of health risks;

- Further developing the European climate adaptation platform Climate-ADAPT and Copernicus services and C3S, in particular in terms of health adaptation;
- Supporting surveillance, monitoring and assessment, as well as predictive modelling and early warning systems for climate-sensitive processes and diseases. This includes the integration of environmental and health (epidemiology) datasets, as well as interactions between environmental and health agencies and policy makers.

Recommendation 3

Design policies to support the most vulnerable social groups and geographical areas

Particular focus should be placed on reinforcing adaptation actions in geographical areas that are particularly vulnerable to health-relevant hazards resulting from climate change, such as heat waves, vector-borne infectious diseases, floods and droughts.

Socially just adaptation measures should aim to cater for the social groups that are the most vulnerable to climate-related health impacts.

Recommended policy actions:

- Seek synergies with health-related preventive adaptation policies, e.g., in building and infrastructure design and with policies to support the resilience of the health sector in designing the policy interventions;
- Examples include the design of elderly care homes (preventive measures), and dedicated measures for the elderly in heat-health plans and in preparedness for disease outbreaks;
- Support an understanding of multiple vulnerabilities and how this may impact groups (such as for instance chronic disease amongst elderly or socio-economically disadvantaged groups, in relation to heat waves)
- Promote the integration of socio-economic data sets into adaptation planning at all levels as it is likely to help in addressing social vulnerability to climate-related health impacts;

- Monitor the implementation progress and request thorough evidence-based assessment of all policies, with attention to vulnerable groups and areas;
- Support local policies and initiatives and promote peer learning and assessment for policy transfer and scaling-up potential. Relevant initiatives may include e.g. existing urban initiatives to identify groups that are socially vulnerable to climate change and to plan and implement socially just adaptation actions.

GROUP OF CHIEF SCIENTIFIC ADVISORS

Janusz Bujnicki (until 15 May 2020)	Professor of Biology, International Institute of Molecular and Cell Biology, Warsaw
Pearl Dykstra (deputy Chair until 15 November 2020)	Professor of Sociology, Erasmus University Rotterdam
Elvira Fortunato (until 15 November 2020)	Professor of Materials Science at the Faculty of Science and Technology, NOVA University, Lisbon
Nicole Grobert (Chair as of 16 November 2020)	Professor of Nanomaterials at the Department of Materials in the University of Oxford
Rolf-Dieter Heuer (Chair until 15 November 2020)	Former Director-General of the European Organization for Nuclear Research (CERN), Geneva
Carina Keskitalo	Professor of Political Science, Department of Geography, Umeå University
Éva Kondorosi (after 16 May 2020)	Research Director Institute of Plant Biology, Hungarian Academy of Sciences Centre of Excellence, Szeged
Paul Nurse (deputy Chair as of 16 November 2020)	Director of the Francis Crick Institute, London

CONTACTS:

EC Group of Chief Scientific Advisors (GCSA)

E-mail: EC-SAM@ec.europa.eu

#SAMGroup_EU

Website: [Group of Chief Scientific Advisors](#)



© European Union, 2021

Reuse of this document is allowed, provided appropriate credit is given and any changes are indicated (Creative Commons Attribution 4.0 International license). For any use or reproduction of elements that are not owned by the EU, permission may need to be sought directly from the respective right holders.

All images © European Union, unless otherwise stated. Images: © kirasolly, #183289474 ; ©1xpert, #277503676; 2020. Source: stock.adobe.com

ISBN 978-92-76-36174-9, doi: 10.2777/65529, KI-02-21-938-EN-N