Response from The Physiological Society to the Call for Evidence: European Climate Resilience and Risk Management Initiative

To	European Commission - Directorate-General Climate Action, Unit E1: Preparedness and Adaptation
From	The Physiological Society
Date	15 August 2025

Background:

The Physiological Society welcomes the European Commission's initiative to develop a comprehensive framework for climate resilience and risk management. We strongly support the recognition of human health as a central pillar of resilience and recommend that **physiological resilience**, which is the body's ability to adapt to, withstand, and recover from environmental and physical stressors, is explicitly integrated into EU resilience planning and risk assessment frameworks.

Physiological resilience:

At the heart of all that is done to protect human health and well-being, from mitigating climate extremes and preventing disease to new urban planning, lies **physiology** and the objective of maintaining **normal physiological function (physical and perceptual)**. Key to this is understanding physiological resilience and its variance.

Physiological resilience determines how individuals respond to hazards such as extreme heat, air pollution, flooding, and infectious disease. It is shaped by factors including age, pre-existing health conditions, nutrition, hydration status, fitness, and acclimatisation. High physiological resilience increases the thresholds at which environmental stress leads to discomfort and harm; low resilience reduces that threshold, increasing vulnerability to the same hazard. This makes physiological capacity a direct and quantifiable determinant of climate-related health risk.

Current gap in EU risk assessment

The European Climate Risk Assessment identifies multiple climate-sensitive health risks, including heat stress, reduced labour productivity, and increased disease transmission. However, it does not explicitly account for differences in physiological resilience across populations. As a result, current adaptation planning risks overlooking:

- Variations in vulnerability within populations (such as older adults, children, those with chronic conditions, pregnant women, outdoor workers).
- The limits of human adaptation, beyond which harm is unavoidable without structural change.
- The opportunity to use physiological data to refine climate risk models and prioritise interventions.

Practical applications

Incorporating physiological resilience into the initiative could:

- Improve the accuracy of climate risk assessments by integrating measures of human functional capacity and tolerance thresholds.
- Inform targeted adaptation strategies, such as occupational safety standards, public health alerts, and urban design for thermal comfort.
- Support resilience-by-design approaches in infrastructure, work environments, and emergency planning.
- Strengthen cross-sector preparedness by linking health, labour, urban planning, and climate policy.

Recommendations:

1. Explicitly include physiological resilience as a dimension in EU climate risk and resilience frameworks.
2. Fund research to establish and refine physiological thresholds for key climate hazards, linked to health outcomes.
3. Develop guidance for Member States on integrating physiological data into adaptation planning and monitoring.
4. Ensure that health system preparedness includes strategies to assess, protect, and enhance physiological resilience in vulnerable groups.

By embedding physiological resilience into the European Climate Resilience and Risk Management Initiative, the EU can ensure that adaptation strategies are grounded in the realities of human capacity, protect those most at risk, and make resilience planning more effective and equitable.

About The Physiological Society:

Founded in 1876, The Physiological Society is Europe's largest network of physiologists, representing scientists and clinicians worldwide. Our members study how the body functions in health and disease, including how it responds and adapts to environmental stressors such as extreme heat, air pollution, and poor nutrition. We work across research, education, and policy to ensure physiological science informs climate adaptation and health protection, supporting evidence-based decisions that safeguard lives and livelihoods in a changing climate.

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