

Warsaw communiqué on climate change in Europe

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Climate change is happening. It is affecting the entire planet from local to continental scale and in many spheres, notably the environment, society and economy. Humankind, especially in its activities related to energy and the environment, is caught in a difficult dilemma: it is both one of the main factors of climate

change and one of the most vulnerable components of the system Earth. This dilemma is still far away from being solved, however, we already see that climate change means profound impacts and transformations, and that these differ regionally. Pursuant of the Anthropocene concept, the man-made climate change has a game-changer effect on the system Earth. By its magnitude and impact, climate change is most probably the global challenge of the century, not halting at state borders. This impact is already in the focus of many aims and measures, combining strategies of mitigation and adaptation. National governments, the European Union, the United Nations – all have put forward ambitious plans towards sustainability. However, there is no guarantee that such efforts will succeed. **The European Climate Conference (ECC)** was organized by the Polish Academy of Sciences PAN and Leopoldina



Nationale (Deutsche) Akademie der Wissenschaften, was held in Warsaw 15-16 May 2023. ECC had a clear focus on science. Leading experts from across the European continent shared latest insights on climate research and discussed related transformations through sectoral lenses. The ECC was venue where bridges between interdisciplinary research and society – assessing climate change in Europe were made, considering the continent's regional diversity and the resulting regionally differing approaches. It was my privilege to participate in this important conference on behalf of the Croatian Academy for Sciences and Art. Conclusions of the conference were summarized in communiqué aiming to improve the public literacy on climate changes.

WARSAW COMMUNIQUÉ ON CLIMATE CHANGE IN EUROPE

The inaugural European Climate Conference has convened 90 scientists from 45 countries across Europe and Central Asia to assess climate change and the progress towards reaching climate neutrality. The assembled scientists hereby present the ensuing communiqué.

1. Climate change is happening, and planet Earth is in the age of the Anthropocene. Global warming and its consequences are caused by human activities, and this is one of the most pressing challenges of our time. Climate change impacts lives, businesses, settlements, and ecosystems. No individual and no planetary component remains unaffected.
2. The extreme manifestations of climate change include: heat waves, droughts, forest fires, heavy rain, floods, severe storms and cyclones. Additionally: changing seasonality, longer atmospheric pressure blocks, loss of glaciers and sea ice, sea level rise, ocean acidification and warming, and changes in ocean circulation. All these are highly likely to amplify by 2050.
3. The principal ecological manifestations are aggravated by climate change, but are primarily driven by deficient land, soil and water management. These include: loss of biodiversity, loss of ecosystem functions and services, soil degradation and desertification, and deterioration of freshwater resources.
4. The range of risks and the magnitude of transformations must be considered systemically and sequentially (phasing-in-phasing-out). Transformations need to be just, both within and among societies. The impetus for transformation is still not ambitious enough. We need to act faster and more comprehensively. Handling climate change requires harmonising mitigation and adaptation strategies, always in a cross-sectoral approach.

5. For energy and industry, the following measures are a priority: (a) accelerate the decarbonisation of energy production mainly through renewables, considering wide-scale electrification, cost and consumption efficiency, and negative emission solutions; (b) develop the Super Smart Grid (Europe, Central Asia, North Africa), combining engineering and market solutions to manage the variability of electricity from renewables with AI-based grid management; (c) invest in large-scale, long-term electricity storage (e.g. chemical storage through hydrogen); (d) support innovative approaches to de-fossilise industry and enable circular and low-carbon economy.
6. For biodiversity and ecosystems, the following measures are a priority: (a) significantly limit the causes of biodiversity loss and ecosystem degradation, especially deforestation, intensive agriculture (monocultures and overuse of pesticides) as well as overfishing, pollution, landscape fragmentation and land use conflicts; (b) opt for nature-based solutions to support climate mitigation and adaptation of species (e.g. by increasing genetic diversity); (c) implement the 2022 Kunming-Montreal Global Biodiversity Framework.
7. For agriculture and water, the following measures are a priority: (a) avoid soil degradation and carry out soil restoration; (b) integrate the management of land, soil and water, including water conservation, efficient irrigation and renaturation, and climate stress-resilient crops and livestock species; (c) limit resource-consuming agricultural production, especially for livestock (also to reduce methane emissions), and minimise food loss and food waste.
8. For infrastructure and mobility, the following measures are a priority: (a) follow new principles of integrated, resilient and responsive infrastructure planning, by connecting it to smart grids, resource-efficient mobility development, and low-carbon footprint building; (b) invest in electric mobility of people and freight, and simultaneously expand public transport; (c) consider climate risk management in business development and industrial policy, and in public administration and civil defence.
9. The regional diversity of climate (change) should receive more attention and be used as a strength in mitigation and adaptation actions. Local and regional knowledge should



be translated into national- and continental-level action for maximum effect. Using inherent potentials in Europe and the neighbouring Central Asia and North Africa, particularly for climate-neutral energy and food systems, should be prioritised and done in a fair, cooperative manner.

10. Policies and market-based instruments – especially game-changer, such as the European Green Deal, national green investment packages and national or supranational CO₂ pricing – should never work against each other. Climate and biodiversity policies should not be decoupled. Regulations should be used wisely to stimulate and scale technological and social innovations to achieve transformation. Research-based and transparent communication between politicians, citizens and scientists should become the norm to increase acceptance and reduce negativism and denialism. Generational equity and participative policymaking should be a matter of course.

SUMMARY

The scientists participating in the inaugural European Climate Conference, representing 45 European countries, acknowledge that evidence-based scientific advice should be the basis for political and personal decisions for climate neutrality, and that scientists should engage more to increase climate change literacy of their fellow citizens. Effective actions for climate neutrality mean deep transformations of most aspects of the economy, the energy system, international markets, and the global cooperation framework. These measures should harmonise mitigation and adaptation strategies, and resolve transnational, national and regional trade-offs. Regional climate change and the global-local relationship should be more in the focus. Neither science, nor politics, nor collective civil action, nor education, nor public or private investments alone are enough. The window of opportunity for reaching the Paris Agreement goal is closing, and this leaves very few realistic options open.

The primary recommendation is to accelerate mitigation measures aligned with the Paris framework, while simultaneously deploying adaptation measures. Regulation and financial instruments, such as CO₂ pricing, should be used to stimulate climate neutrality. This also includes incentives for openness toward green technologies, for rigorous reduction of greenhouse gas emissions, and for counteracting environmental pollution and ecosystem degradation, especially deforestation and biodiversity loss. Europe and Central Asia should make better use of their inherent potential to manage climate change: renewables, connectivity, market economy, people, knowledge, and innovations. Let us embrace these far-reaching potentials to accelerate the pace of transformation towards a climate-neutral future for our continent and for our planet.

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