

Statement of Principles and Practices on Climate Change Research Funding

Preamble

Climate Change is a global threat that impacts all countries and requires strong international collaboration to meet its challenges. Action against climate change is the UN SDG 13 - Climate Action, and dialogues with several of the 17 UN Sustainable Development Goals (SDGs). A strong global coordinated research effort is needed to provide the scientific basis to offer societies alternatives and propose solutions at all levels: local, regional, and global.

Increasing temperatures, changing rainfall patterns, rising sea levels, and increasing climate extremes are a few of the numerous climate change impacts that require urgent actions to minimize the risks and consequences to our society and ecosystems (IPCC AR6 WG1, 2021). Public policies must be implemented at municipalities, states, countries, regionally and globally, based on and supported by solid scientific knowledge connecting different areas and disciplines. Climate change policies are a truly global, transdisciplinary, and multisectoral undertaking that can be more efficiently implemented if based on coproduction and international scientific collaboration. Climate change drivers, responses, and solutions fall very close to the objectives that the Global Research Council has set: "Actively facilitate and promote bilateral and multilateral collaboration between participant organizations to support the global science enterprise and the worldwide research community and address global challenges." Reducing greenhouse gas emissions in the next few decades will require profound societal transformations, and research activities should lead by example. Both, scientific and traditional knowledge is essential to developing the best strategy for every socioeconomic sector of each country, and a coordinated research approach is central to developing overarching strategies, connecting science, authorities (on all levels), and society. A clear mapping of societal vulnerabilities, identifying mitigation and adaptation strategies, and building resilience are urgent to achieve a sustainable socioeconomic pathway for our global community.

Although climate change is a global threat, its causes, impacts, and needs for mitigation and adaptation vary regionally and locally (UNEP GAP Report, 2022). While Climate Science is a global endeavor, the science related to climate change has important local, national, and regional dimensions. This is specifically relevant when articulating climate change research policies at different levels, for instance, those related to the mitigation of emissions or adaptation to climate change, including minimizing the negative socioeconomic impacts of mitigating emissions or increasing climate extremes events. Advances in scientific knowledge and effective

communication are critical to building up equitable climate policies concerning regional differences and particularities.

A concern raised recently is the bias on Global North – Global South climate change science agenda and policies. While climate change adaptation and mitigation is critical for everybody, climate actions require coordination and joint efforts. For the Global South, climate change adaptation is critical, and science plays a pivotal role in understanding the causes and consequences and advising on meaningful, viable trajectories for system transitions. Science should contribute to identify context-specific challenges and push everybody to act for a matter that concerns us all. To take up this challenge, however, science must undergo a transition of its own, and address how scientific activities can reduce their own carbon footprint.

GRC participants agree that some of the complexities outlined above create a demand and opportunity for a specific approach to funding research that can impact climate change. Principles and Practices for climate change research (CCR) funded by GRC participants are outlined below.

Principles and Practices for Climate Change Research

1. **International:** Climate Change is a global threat that impacts all countries and requires strong international collaboration to meet its challenges in a way that contributes to improving people's quality of life, achieving sustainable development and economic growth, and preserving natural resources and ecosystems.
2. **Implementation:** Many of the social, economic, and natural issues associated with climate change can be resolved, to large extents, with existing knowledge and technology. However, strategic and science-based solutions and implementation are dependent on local arrangements and proper public policies. CCR should connect with stakeholders involved in the application of the solutions.
3. **Open science and communication:** solutions, technology, and innovation should be made public and follow open science procedures. All research output obtained from publicly funded research should be open and shared as much as possible.
4. **Science Communication:** CCR should include an aspect of science communication so that society-at-large is informed and aware of science-based approaches regarding climate change.
5. **Funding strategy:** Many of the existing and upcoming challenges will require new scientific and technological developments and research methods. Respective knowledge

creation can be achieved by specific funding programs (top-down), and by allowing researchers to tackle unknown issues (bottom-up).

6. Social-economic inequality: gender discrimination, socioeconomic status and other factors make certain groups of people more negatively affected by climate change. Climate change research should specifically take these aspects into consideration, and incorporate concerns about them in the research, at global, regional, and local levels, as relevant.
7. Impact of Traditional Cultures and Community-based knowledge: Traditional cultures and indigenous populations have specific knowledge that can contribute to the solutions for a more sustainable and inclusive relation between societies and ecosystems. Scientific research should take local culture and knowledge into account.
8. Transdisciplinarity: Due to the complexity of climate change science, there is a strong need for a coordinated approach to transdisciplinary research, fostering the active participation of citizens and the implementation of a science-policy agenda with clear scientific advice for effective policy-making. Policy makers, representatives of the civil society and other stakeholders should take part in the development of the research project as much as possible.
9. Multidisciplinarity: the dimension of the challenge related to climate change requires participation of all areas of sciences. In particular, natural scientists should join forces and formulate research projects with social and economic scientists.
10. Mitigation and adaptation: Research on adaptation and mapping climate change risks are urgent and shall go along with mitigation research efforts. Interactions and mutual dependencies between mitigation and adaptation to climate change require special attention.
11. Different economies and Green Funding Mechanisms: Financial support and technology transfer are essential for countries with economies in transition (adaptation, mitigation to and of climate change impact risks). The different economic realities should be considered when addressing research on Climate Change
12. Capacity building: Considering that education and the mindset transformation of young generations is a main driver for combating climate change impacts, research projects and researchers should include, as much as possible, aspects of capacity building in science, innovation and entrepreneurship in their undertakings.

Principles and Practices for Research Funders

GRC Participants agree that some actions can be taken to create a framework or environment where research proposals funded by them will consider the Principles and Practices outlined above. These include:

1. International: implement funding mechanisms for research conducted in low- and middle-income regions/countries, promote bi- and multilateral cooperation agreements, joint calls for proposals, or lead-agency agreements that implement multilateral funding and international research.
2. Network: use the existing network of research funders to create and encourage connection between grantees and their research projects supported by these agencies.
3. Global engagement: the global nature of the climate change challenge requires that all public funding agencies be involved in climate change research, building synergies and collaborations with other initiatives on climate change research. For this effort to be effective, mechanisms must be created to assist funding agencies from countries with economies in transition.
4. Research ethics and integrity: foster a culture that integrates the responsible and ethical conduct of research into all aspects of the climate change research ecosystem.
5. Sharing best practice: to minimize overlap and optimize efforts within the international climate change research ecosystem, funding agencies should follow open science principles. This includes creating discussion fora and increasing communication between funders, sharing best practice, information, and identifying research gaps and priorities.
6. Coordinated research: strong coordinated research at regional, national and global levels is required to address climate change's challenges and propose evidence-based solutions, to improve understanding of climate change and climate related risks, to raise public awareness, and strengthening the dialogue between science and other stakeholders.