

THE BELMONT CHALLENGE:

A GLOBAL, ENVIRONMENTAL RESEARCH MISSION FOR SUSTAINABILITY

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To address the challenges of global environmental change in the 21st Century, our societies need to be informed by high-quality research in order to take adequate measures to address global environmental challenges. In July 2009, major funders of environmental change research and major international science councils met at Belmont House, USA, to consider how best to align their action to improve our knowledge base on sustainability science.

Recognizing the need and value of international cooperation and co-ordination, the funding agencies and scientific councils created the **Belmont Forum**, an international platform that combines, under a shared vision, their resources for advancing global environmental change research.

Recognizing the importance of the United Nations Sustainable Development Goals (SDGs) as a framework for sustainable development at global level, the Forum wants to make a considerable contribution to the implementation of the SDGs under existing conditions of global change by supporting relevant interdisciplinary research.

The Forum supports multi-national and transdisciplinary collaborative research, bringing together natural sciences, social sciences and the humanities as well as stakeholders in co-creating the knowledge and solutions for sustainable development that benefit society. Funding agencies and international scientific associations from five continents are members or partners. They are listed on www.belmontforum.org.

The Challenge

In recent decades, earth system science has provided society with a valuable, basic understanding of the environment and human society as interconnected systems. Society was provided with relevant knowledge on how humans transform the global environment, and how these changes may affect human well-being. However, if society is to address environmental change in the 21st century, we must further improve our understanding of not only the impacts, vulnerabilities and risks, but also the opportunities of environmental change.

This will put us in a better position to develop and apply adaptation and mitigation strategies, as well as to benefit from opportunities in an environmentally sustainable manner. To be most valuable, this knowledge must be provided on scales of time and space that enable effective decision-making and support equitable economic and social development. To describe this need, The Belmont Forum has established the following 'Belmont Challenge':

To support international transdisciplinary research providing knowledge for understanding, mitigating and adapting to global environmental change.

To improve our understanding of environmental and societal changes, to underpin science-based approaches for preventing and mitigating negative consequences and for best adapting our societies, the Belmont Forum will support inter- and transdisciplinary research which takes account of coupled natural, social and economic systems, to promote and enhance:

- Information on the state of the environment, through advanced observing systems, and enhanced environmental information service providers to users;
- Assessments of risks, impacts and vulnerabilities, through regional and decadal analysis and prediction;

- Evaluation of policies that lead to low-carbon societies and consider how best to implement international and national commitments on emissions reductions and sustainable development;
- Analysis of alternatives that promote global well-being, considering the different needs of developing and developed economies;
- Studies on how best use and restore our natural resources on land, water and energy in a sustainable and efficient way, considering global teleconnections, and focusing on sustainable production of goods for our societies while mainstreaming strong environmental protection;
- Protection of earth's biodiversity and endangered ecosystems;
- Examination of choices for managing global urbanization and pathway towards more sustainable cities;
- Analysis of global integration and coordination mechanisms, to address interdependencies and marshal the necessary resources.

The priorities of the Belmont Forum are transdisciplinary research questions that address societal needs to manage the planet sustainably and to respond effectively to global environmental change. The Forum aims for its global efforts to be truly solutions-oriented, thereby contributing to the United Nation's Sustainable Development Goals in the context of Global Change.

The Response

To address the 'Belmont Challenge', we need to change the way we support and undertake global environmental change research. The Belmont Forum points to the priorities for knowledge building from the research funders' point of view. We expect our vision and actions to show how international resources for research can be coordinated and scoped in a cross-community framework, to serve the needs of development cooperation actors, end-users and beneficiaries, private sector stakeholders, civil society and policy makers. As environmental issues often result from a combination of impacts from many sources and changes in different areas, we advocate an overarching framework respecting gender and geographic diversity, to identify, integrate and catalyze priority actions into an environmental decision-support system.

The framework comprises:

- A transdisciplinary approach enabling inputs and scoping¹ across scientific and non-scientific stakeholder communities and, facilitating a systemic way of addressing a challenge. This includes initiatives that support the capacity building required for the successful transdisciplinary formulation and implementation of research actions;
- Systematic targeting and integration of observations, research and knowledge at local and at global scale to overcome critical limits to predictions;
- Overarching strategic, geographically and gender balanced, governance to establish key priorities among competing demands and to promote cooperation;
- A greater voice for users in informing the research priorities;
- A step-change increase in collaboration across scientific disciplines, especially those between natural, human and social sciences, and between geographical areas;
- A sustained increased collaboration across geographical regions with a special emphasis on enhancing scientific capacity and excellency in developing countries;
- Improved and flexible mechanisms for major transnational funding that overcome current constraints to cross-border support while respecting national requirements and statutes.

¹ In 2015, Belmont Forum and Future Earth jointly created room for "Belmont Forum – Future Earth co-branded Collaborative Research Actions", which would address a jointly identified priority theme and which respect the same framework.

The Belmont Forum has been funding a wide array of Collaborative Research Actions (see www.belmontforum.org), especially in the area of global environmental change, including global change-relevant policy issues or objectives such as open access to data or societal transformations to sustainability. These actions and their follow-up ask for long-term involvement, and require relationship-building and tracking of results in very complex systems. The Belmont Forum has a responsibility for maintaining connectivity with the funded projects and stakeholders to make full use of the results and promote positive outcomes.

To contribute to solutions-oriented responses, the Belmont Forum considers research to be part of a value chain that is socially and ethically responsible and that fully involves all societal actors in the co-construction towards innovative solutions.

Recognizing the crucial role of open and effective data and information exchange to this mission, the Belmont Forum adopts an Open Data Policy and Principles, which it considers essential to making informed decisions in the face of rapid changes affecting the earth's environment. The policy calls for data derived from global change research – both from natural sciences and from social sciences including humanities – to be discoverable through catalogues and search engines, accessible as open data by default and made available with minimum time delay. It shall also be understandable in a way that allows researchers – including those outside the discipline of origin – to use them, and manageable and protected from loss for future use in sustainable, trustworthy repositories.

This policy of openness will facilitate innovation and the use of scientific collaborations among nations to address common problems and to build the constructive international partnerships that are essential for developing more sustainable societies.

The Belmont Forum is committed to strong interaction with the scientific community, including the Future Earth initiative, the International Council for Science (ICSU) and the International Social Sciences Council (ISSC). Its actions will also consider the visions and initiatives of other important international organizations, networks and councils involved in sustainable development, e.g. the United Nations.

The Belmont Forum's unique position is to enrich the global environmental change science scene by supporting transdisciplinary international collaborative research actions that provide solutions-oriented contributions to global challenges affecting sustainable development, that align the goals of member nations and wider international organizations and have a leveraging effect – both in terms of scientific outcomes and financially – on national and local scientific resources and assets which maximize the value of public funding.
