

## The International Opportunities Fund for Global Change Research

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Earthquakes, floods, and weather extremes are among a range of societal hazards that are increasingly studied by national and international researchers, but the absence of international collaboration and coordination is increasingly leading to inefficiencies and lost opportunities. The world's major funders of global change research are considering how best to align financial and human capital toward delivering the relevant knowledge that society will need in the 21st century. The Belmont Forum (named after the group's first meeting venue in Maryland in 2009) meets twice a year and is composed of funding executives from Australia, Austria, Brazil, Canada, China, France, Germany, India, Japan, Norway, South Africa, the United Kingdom, the United States, and the European Commission, together with the executive directors of the International Council for Science (ICSU) and International Social Sciences Council (ISSC); a full list of members is on the Belmont Forum Web site, <http://igfagcr.org/index.php/belmont-forum>.

The Belmont Forum is also the Council of Principals for the larger International Group of Funding Agencies for Global Change Research, which includes the funding executives listed above as well as those from more than 20 additional countries. Action by the international funding community to form the Belmont Forum was initiated and led by Tim Killeen, then at the U.S. National Science Foundation, and Alan Thorpe, of the United Kingdom's Natural Environment Research Council (NERC). The Belmont Forum, which is currently led by Killeen and Steven Wilson, of NERC, will transition this summer to new leadership under Patrick Monfray, of France's National Research Agency, and Albert van Jaarsfeld, of South Africa's National Research Foundation. This coordinated movement represents a commitment to a collective action agenda

to codesign, codevelop, and codeliver research programs to examine the complex relationship of humans with the planet. In particular, the group aims to provide knowledge that can be used to confront the most significant challenges society faces in managing an increasingly congested and resource-hungry world.

These goals are captured by the Belmont Challenge, which aims to deliver knowledge needed for societies to take action to mitigate and adapt to harmful environmental change and extreme hazardous events. This mission will require the following:

- information on the state of the environment through advanced observing systems;
- assessments of risks, impacts, and vulnerabilities through regional and decadal analysis and prediction;
- provision of environmental information services to decision makers and end users;
- interdisciplinary and transdisciplinary research that takes account of coupled natural, social, and economic systems; and
- integration and coordination mechanisms that address interdependencies and harness the necessary resources.

The Belmont Forum emphasizes research collaborations among developed and developing nations in both the Northern and Southern hemispheres. Thus, its members include not only countries typically seen in collaborations on global change research but also large, emerging economies, such as Brazil, India, Russia, and South Africa. There is also a specific effort to harness the perspectives of both the social and natural sciences. This integrated approach is apparent both in the forum membership, which includes ISSC and ICSU, and in the emphasis on codesigned research projects. Central to this activity is the mobilization of international resources for the study of global environmental change.

The first call for proposals under the Belmont Forum's International Opportunities Fund (IOF) was launched at the Planet Under Pressure conference in London at the end of March 2012. The focus themes of this first round are coastal vulnerability and freshwater security. The freshwater security program targets the identification and characterization of the interactions between natural processes (physical and biological/ecological processes) and human (including cultural, social, economic, technological, transfer, and water reuse) practices that govern water budgeting in selected regions. It also targets the development of approaches that support the evolution of resilient communities/regions through improved seasonal (months to multiyear) forecasting of droughts, taking into account natural and socioeconomic drivers. The coastal vulnerability program targets the characterization of natural processes and human (including cultural, technological, and socioeconomic) interactions that govern coastal vulnerability and resilience and the development of predictive frameworks and adaptive coastal management strategies that support the evolution of resilient coastal communities. Proposals require the involvement of at least three Belmont Forum member countries and are 2–3 years in duration, with funds in the range of €1 million to €2 million each (approximately U.S. \$1.3–\$2.6 million); details can be found at <http://www.igfagcr.org/iof-home-page>.

The design of IOF programs relies heavily on input from the international research community about goals and about refining the larger themes. In the first set of calls for proposals, as with future IOF themes, the aim is to catalyze research by providing a mechanism to support codesigned, international, cross-disciplinary and transdisciplinary collaboration. Planning of subsequent rounds of proposals for IOF programs are under way, focusing on Arctic change, hazards, biofuels, information technologies, food security, and rural-to-urban transition, each with internationally coordinated funding opportunities.

The Belmont Forum's international partnership among research funding

organizations aims for active coordination of global change research funding, integration of relevant stakeholders (including industry, policymakers, and end users), and cross-disciplinary collaboration. To be most valuable, the knowledge generated from these research collaborations must be provided on temporal and spatial scales that enable effective decision making and support equitable economic and social development. IOF programs support new partnerships and

research opportunities for science communities; promote cross-fertilization of ideas based on region-specific resources; and provide access to international expertise, facilities, and data. Harnessing complementary international global change research efforts will remain a challenge, but success will lead to better coordination, leveraging, and, especially, advancement on pressing science issues. The Belmont Forum's new IOF calls for proposals that aim to offer the

support needed to work toward achieving these goals.

—TIM KILLEEN, State University of New York at Albany; formerly at Directorate for Geosciences, U.S. National Science Foundation, Arlington, Va.; MARIA UHLE, Directorate for Geosciences, U.S. National Science Foundation, Arlington, Va.; and BEN VAN DER PLUIJM, University of Michigan, Ann Arbor, and Directorate for Geosciences, U.S. National Science Foundation, Arlington, Va.; E-mail: bvanderp@nsf.gov