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## Belmont Forum Collaborative Research Action on Transdisciplinary Research for Pathways to Sustainability

The Belmont Forum, in collaboration with Future Earth, is launching a call for proposals on “Transdisciplinary Research for Pathways to Sustainability”. The call aims to support transdisciplinary networks to innovate solutions and/or synthesize positive and negative inter-linkages between the economy, technology, institutions and the environment, climate, biodiversity, and human well-being. This will support the co-design of sustainable development pathways.

### Background and rationale

The Sustainable Development Goals (SDGs) were unanimously adopted by all member states of the United Nations in September 2015 (UN GA 2015). These goals encompass a broad range of economic, social, and environmental dimensions of sustainable development and set specific targets for the implementation of these ambitious goals. If the timeframe set by the UN to achieve these ambitious goals by 2030 is to be realized, there will need to be unrivaled international collaboration over the next ten years within the political, scientific, and civil societal realms. Furthermore, if humanity is to meet these goals, then clear pathways must be identified to achieve these goals for an equitable society within a sustainable Earth system. The pathways must account for environmental boundaries, critical drivers of human capacity, demographic changes, opportunities for technological and social innovation and diffusion, sound institutions and transformative governance capabilities, sustainable diets, and other critical socio-economic developments. While all SDGs and targets contain important challenges for both developed and developing countries, the international scientific community is urged to address the pressing problems of the least developed countries to support more rapid progress towards the goals.

It is imperative to deliver sound, science-based pathways useful to policy- and decision-makers to enable them to make the difficult choices regarding sustainable development. These comprehensive pathways should help decision-makers identify and exploit synergies and anticipate and manage trade-offs among different SDGs. To be more decision and policy-relevant, governments, businesses, and civil society need to know what implications different sustainable development pathways might have at both global and regional scales. The available projections must be provided for different world regions so that decision-makers can understand what global pathways imply for their region and what the costs and benefits of action are relative to business as usual. Policymakers from around the world will need fact-based and integrated, global and regional, transformational pathways to craft long-term strategies.

Although substantial progress has been made in our fundamental understanding of how some of the goals, such as the energy transition (SDGs 7 and 13) or health for all (SDG 3), can be achieved, we currently lack an integrated understanding of how all the goals can be achieved at global and regional levels. From a research perspective, this raises important questions on how to fill major gaps in our understanding of and capacity to project changes

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in areas such as governance, biophysical processes (e.g. oceans), and social transformations. For example, long-term projections for the world economy rarely, if ever, account for the impact of climate change or different demographic developments. Models for climate change mitigation tend to be poorly integrated with models for biodiversity as well as the use of land and water resources. We lack a proper understanding of the interrelations between policies aimed at material welfare, energy access, and environmental sustainability and we need to better understand how these areas interact with one another by overcoming the fragmentation that characterizes most research and modeling efforts today.

The Belmont Forum and its partners recognize that we currently lack a truly integrated, comprehensive qualitative and quantitative understanding of sustainable development pathways that account for the inter-linkages between the economy, technology, institutions, environment, climate, biodiversity, and human development and that are anchored within the constraints of a sustainable Earth system.

### Goal and objectives

To help provide a science base for achieving sustainability goals, the Belmont Forum and partners are supporting 1-2 years of collaborative research that focuses on integrated qualitative and quantitative approaches to develop Earth-system-based transformation pathways for sustainable development. The initiative invites its participants to consider all important interactions among the sustainable development goals, and address cross-cutting issues among at a minimum three or more explicitly identified SDGs. Projects are free to prioritize the interactions to be explored, based on their own local, national, regional, or global context as long as they address the Belmont Challenge providing knowledge for understanding, mitigating, and adapting to global environmental change. Participants are required to implement a transdisciplinary approach to ensure engagement of society at large to ensure ownership of science outcomes, relevance to policy- and decision-makers, social acceptance and empowerment.

The CRA will support inclusive collaboration across different sectors and across expertise, including, but not limited to natural and social sciences, humanities, engineering, traditional and local knowledge. In recognition of limited mobility, we strongly advise projects to utilize or innovate virtual collaborations using good practices for inclusion in recognition of the digital divide. Awards will foster continued relationships and build novel networks with stakeholders for this CRA. The definition of stakeholder here is exceptionally diverse and is not limited to academics, government agencies, funder and development partners, the private sector, Non-Governmental Organisations (NGOs), traditional authorities (royalty/chiefs), district assemblies, Civil Society Organisations (CSOs), religious organizations, think tanks, the media, or parliamentary committees.

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## Call Topics

This is a call for international consortia that address one or more of the following topics:

**Topic 1 – Development of novel networks and communities of practice that address the inter-linkages, synergies, and trade-offs among three or more of the sustainable development goals.**

**Topic 2 - Synthesis of positive and negative inter-linkages among three or more sustainable development goals using quantitative and/or qualitative methodologies.**

Projects can address either or both of these topics. We encourage leveraging existing networks and syntheses as well the creation of new activities. We recommend use of virtual platforms for collaboration and digital networking approaches.

All proposals will be required to identify at least one project deliverable, including but not limited to:

- synthesis and scaling up place-based project outcomes through consolidation of knowledge on transformation pathways, synergies, and trade-offs among specific SDGs
- assessment of local indicators using comparative approaches within or between regions
- pathway and scenario development using participatory approaches
- interference/coherence assessment and visualization
- semantic ontology maps of data sets, archives, web services, and decision-support tools
- synthesis of potential methodological approaches for inclusive and integrated pathways
- assessment of SDGs interactions across spatial scales
- policy and management analysis documents
- assessment of the applicability and transferability of prioritization guidelines
- feasibility studies
- stakeholder and project maps across various scales
- documentation of lessons learned for developing and implementing pathways that involve multiple SDGs
- establishment of novel research collaboration networks that bring new perspectives and identify research gaps for future competitive transdisciplinary projects on multiple SDG's

Belmont Forum stresses inclusivity in the development of project teams, recognizing the need to reduce inequalities. Projects are encouraged to involve a diversity of perspectives and to include professional development opportunities for early career scientists, practitioners, and underrepresented groups.

## Project requirements

### Eligibility criteria

The development of consortia, supported by at least three participating partner organizations established in three different countries, is mandatory. We encourage global

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geographic diversity to increase the scalability and applicability of the project outcomes. Consortium partners that are not eligible for funding from any of the participating funding agencies can participate in the research project at their own expense, nonetheless, this type of participation does not count towards the minimum of three supported partners criterion. Research consortia must address one or both topics described above. Consortium partners shall identify a consortium lead (CL) for each proposal for management and communication purposes. The CL is officially responsible for all communications with the Theme Program Office, including submission of the proposal.

Given the complexity and scope of the challenges, research consortia must be truly transdisciplinary, thus including researchers from: a) social sciences/humanities and b) natural sciences, as well as c) societal partners (i.e. decision-makers, managers, industry, civil society organizations, etc.), using a co-design, co-development and co-implementation approach. Transdisciplinarity of the research consortium and the active role of stakeholders in the project is a key criterion and should be clearly demonstrated in the application, including the allocation of responsibilities, workload and funding among the consortium partners.

### Communication and connection

In close collaboration with the Belmont Forum Theme Programme Office and the Group of Programme Coordinators for this CRA, the Future Earth Secretariat will support global coordination and facilitation of the CRA with the goal to create synergies among the funded projects.

All funded projects are expected to attend kick-off and end-term meetings organized by the Theme Program Office for joint discussions and dissemination. The funders may decide on clustering these meetings with others. All projects will also provide an annual integrated update on their project accomplishments, using the BFgo reporting interface. The CL for each award will receive log-in credentials from BFgo to complete these reports. The reports are due each year on June 15<sup>th</sup> for the lifetime of the project.

Keeping in mind that these are transdisciplinary projects, communication and dissemination plans for results and outcomes should consider both academic and non-academic outlets for exchange. Belmont Forum encourages the use of digital tools for internal and external communications using accessible platforms to maximize connectivity.

### Data management

All proposed projects will require a data management and digital objects plan (DDOMP), templates are available from the Belmont Forum website. The plan should include information about types of data, information, models, software, workflows and code, or other digital products being generated by the project. It should outline the accessible archives or other open repository where these products and accompanying metadata will be housed.

Belmont Forum Open Data Principles are intended to improve and promote the dissemination of knowledge, the access to the data and their reuse thereby improving the efficiency of scientific discovery and maximizing the return on research funding. The funded

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CRA Pathways projects are expected to make their best efforts to ensure open access to data as soon as possible. Awarded projects will be checked for compliance to open data procedures at the mid-term and end-term valorization events using information provided to the BFgo reporting system.

### Call procedures

A one-step process will apply, full proposals must be written in English and submitted electronically via the Belmont Forum Grant Operations website: <http://bfgo.org>.

Proposals will be evaluated according to criteria of (i) scientific excellence, (ii) policy relevance and societal impact (which includes stakeholder engagement), and (iii) quality and efficiency of the project implementation.

A total of 13 funders from multiple countries and international partners have committed in total *circa* 4.0 M€ of cash and in-kind resources for this call: FWF (Austria), FAPESP (Brazil), MOST (Chinese Taipei), ANR (France), AllEnvi (France), DFG (Germany), REGIG (Ghana), TUBITAK (Turkey), NRF (South Africa) and NSF (USA). Additionally, through Future Earth participants from any country in Africa, through GEO (Group on Earth Observations) participants from countries that are GEO members and through IAI (Inter-American Institute for Global Change Research) participants from the Americas are eligible for this call.

This call aims to support networking and synthesis activities of 1-2 years duration. Note that some contributions are in-kind. See organizational annexes for specific constraints and requirements of your funding organization(s). Awardee activities are expected to start in early 2021.

### How to apply

All call documents, including guidelines for applicants and national/regional requirements, and the submission portal can be found at the Belmont Forum Grant Operations website: <http://bfgo.org>.

Details of the call and the application process are presented on the Belmont Forum web site: <http://www.belmontforum.org>, where you can also find links to training modules for proposers on the Belmont Forum YouTube channel.

Before starting to prepare proposals, applicants are advised to contact their Contact Points as listed in the annex documents for the call.

### Call timeline

23 July 2020	Opening of call
31 October 2020	Closing of call
Early 2021	Awards announced
Early - Mid 2021	Start of projects



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## Participating organizations

<b>Country</b>	<b>Funder name, website</b>
Austria	FWF - Austrian Science Fund <a href="http://www.fwf.ac.at">www.fwf.ac.at</a>
Brazil	São Paulo Research Foundation, FAPESP <a href="http://www.fapesp.br">www.fapesp.br</a>
Chinese Taipei	Ministry of Science and Technology, MOST, <a href="http://www.most.gov.tw">www.most.gov.tw</a>
France	The French National Research Agency, ANR <a href="http://www.anr.fr">http://www.anr.fr</a>
France	French National Alliance for Research on the Environment, AllEnvi, <a href="http://www.allenvi.fr">www.allenvi.fr</a>
Germany	Deutsche Forschungsgemeinschaft, DFG, <a href="http://www.dfg.de">www.dfg.de</a>
Ghana	Research and Grant Institute of Ghana, REGIG, <a href="http://www.regig.org">www.regig.org</a>
International/Africa	Future Earth, <a href="http://futureearth.org">http://futureearth.org</a>
International/Global	GEO - Group on Earth Observations <a href="http://www.earthobservations.org">www.earthobservations.org</a>
International/Americas	Inter-American Institute for Global Change Research (IAI) <a href="http://iai.int/">http://iai.int/</a>
South Africa	National Research Foundation, NRF <a href="http://www.nrf.ac.za/">http://www.nrf.ac.za/</a>
Turkey	The Scientific and Technological Research Council of Turkey, TÜBİTAK –
USA	National Science Foundation, NSF <a href="https://www.nsf.gov/">https://www.nsf.gov/</a>