



As we celebrate the first five years of funding with the Belmont Forum, we want to take a moment to recognize the tremendous teamwork that has enabled our success.

We would like to highlight the flexibility and insight of our members and partners to trust in a collaborative process. Together we have supported over $57M \notin of$ advances at the nexus of science, policy, and society. The next years are on track to greatly expand our support base through the launch of 8 new collaborative research actions, bringing in new partners, disciplinary foci, and our first projects under the open data policy.

Ensuring that the projects funded are transparent and their methods and outputs open for implementation, re-use, and future innovation is critical to the success of Belmont Forum. The efforts of the e-Infrastructure and Data Management Initiative to lead this complex, global activity have been phenomenal. The progress towards open access has increased the openness of our own members' data policies, paving the way towards new research horizons.

Without our awardees, we would not meet the Belmont Forum Challenge. These projects represent the marriage of cutting edge fundamental science with the innovation of applied and community-driven research. Stakeholders ground these projects not only in the practical, but also in the possible, making understanding, adaptation, and mitigation attainable.

We look forward to working together to continue this success.

Best regards,

Gilberto Câmara

Maria Uhle

Mana Uhle





Building community

Collaboration is central to all activities in the Belmont Forum.

It shapes our language -- even our calls for proposals are called "Collaborative Research Actions", or CRAs. In 2017, we collaborated with over 35 resource organizations on two multi-national funding opportunities. This has set the stage for 6 new opportunities to be released in 2018 and the development of an additional 2 CRAs in 2019.

Partners come from all corners of the globe and contribute a variety of resources -- money, expertise, travel and dissertation grants, access to facilities, laboratories, platforms, computing capability, and other proprietary forms of support. The contributions enable multi-national projects while also leveraging current investments in knowledge and capacity. Resources can come from any sector. The Belmont Forum is working with partner networks and through global initiatives, like the UN-Environment Science, Policy, Business Forum and the Transformations Forum to engage a broader funding portfolio. Connecting with ongoing efforts in the NGO, non-profit, advocacy, and business sectors makes for a more complete understanding, integrates new stakeholder groups into the work, and enhances the utility of outcomes produced.

As we jointly develop Collaborative Research Actions with interested investors, we learn more about shared priorities but also the different funding cultures and methods of resource administration in the science-policy-society sphere. We are dedicated to finding that common working space and building a collaborative funding community.



Networking is not only a focus of our call development, but also critical to the growth of the transdisciplinary science community.

In addition to funding transdisciplinary projects, the Forum has taken several steps to provide training, increase connectivity with stakeholders, and create a universal curriculum with common metrics in collaboration with other supporters of transdisciplinary science.

Welcoming START as a new Belmont Forum partner in 2017 was a critical step in expanding our training reach. START offers in person transdisciplinary training courses in Africa and southeast Asia and is a key interface with science and stakeholder communities currently underrepresented in Belmont Forum projects. Working with START and other Belmont Forum partners and collaborators, like ICSU, ISSC, IAI, and TD-Net, we have also supported the development of a common set of training materials and an online curriculum that would grow the TD community at a greater rate.

The modules would address not only the fundamentals of transdisciplinary approaches but cover TDaware communication and information sharing best practices. The goal is for trainees to be prepared to apply for funding, co-creating projects that not only address science-policy-society needs but communicate outcomes and knowledge broadly and make project results easily accessible in curated archives.

As the modules are finalized, we look forward to sharing these on our YouTube channel and at in person training workshops across the globe. The Belmont Forum addresses attendees at the opening session of the Global Science Forum at OECD Headquarters in Paris.

The new director of the IAI, Marcos Regis da Silva, celebrates 25 years of the IAI at their Conference of Parties meeting in Bogotá, Colombia. Also pictured are Maria Uhle, co-chair of Belmont Forum, and the meeting's host, Omar Franco Torres of IDEAM.



Cooperation was a key meeting theme in 2017 as more and more organizations recognize the value and return on investment of multi-lateral partnerships. The Belmont Forum was invited by the OECD to present its model for international partnership at a meeting in Paris of the Global Science Forum. The exchange increased awareness of the Forum's approach but also connected us with other cooperative programs, made ties with new programmatic disciplines including health, and received valuable feedback from the OECD's Committee on Scientific and Technological Policy.

> **Joining** the Forum as a member-in-waiting in 2017, the Inter-American Institute for Global Change Research (IAI) greatly expands our connectivity in the Americas.

> It also leverages 25 years of experience of the IAI in developing north-south partnerships, building transboundary science capacity, and demonstrating the added value of IAI supported science to regional and global policy, including relevance to UN activities.

The Forum is pleased to announce that the Secretariat offices will be located at IAI's headquarters in Montevideo, Uruguay starting in June 2018. **Bridging** science, policy, and business concerns is key to achieving many of the Sustainable Development Goals (SDGs). The 3rd UN Environment Assembly in Nairobi, Kenya, provided an opportunity for the Belmont Forum to reach out to the private sector, NGO's, and non-profits both within Africa and around the globe. The Forum's flexible partnering platform and virtual pot financing scheme were featured as attractive, practical methods of cross-sectoral, multi-national support for sustainable development.

> Erica Key, Executive Director of the Belmont Forum, participates in a live-streamed discussion on cross-sectoral partnership opportunities at UNEA-3, moderated by Reuters.



Unifying efforts to be able to meet all 17 of the SDGs requires a systems approach. The Transformations Forum brings together diverse perspectives in the sciences and humanities with technology and business, educators and communicators, and funders from charity, aid, philanthropic, soveriegn wealth, and government sources to build systems' thinking and actionable items to address the SDGs. Continued discussion with this Forum has provided Belmont with insights into the

The Transformations Forum workshop in Dundee, Scotland stressed the scale of activity, funding, and cooperation required to achieve the SDGs.

broader funding ecosystem.

Growing partnerships



Our partnerships are also expanding, allowing us to better connect with like-minded regional and global organizations to leverage our joint interests in transdisciplinary science, open data access, training and capacity development, and stakeholder engagement.



Cheikh Mbow of START, a Belmont Forum partner, leading a session on priorities at UNEA-3.

Ibrahim Thiaw and Fatima Denton on the Belmont Forum - START panel at UNEA-3.

Regional Information Days

The Australian Roundtable Meeting talked about effective partnership mechanisms to engage the diversity of Australian knowledge.

Yue-Gau Chen of MOST leads the opening of the Asia-Pacific Info Day.

Dr. Haruo Hayashi, President of the National Research Institute for Earth Science and Disaster Prevention, addresses the audience.

> The Belmont Forum members welcomed interested organizations to its Americas Info Day in São Paulo, Brazil.

Erica Key and Maria Uhle meet with Imran Ahmad of the Australian Academy of Sciences on the steps of the Australian parliament. Member of Parliament Ricardo Serrão Santos addresses the Belmont Forum co-chairs at the European Info Day.

> **Building** multi-national, cross-sectoral partnerships begins with listening and learning. Through discussion we learn about priorities and perspectives, challenges and opportunities, and pathways for further discussion and collaboration.

SERRAO SANTOS

As an organization, the Forum is committed to connecting with resource organizations across the globe who are interested in supporting transdisciplinary science for understanding, mitigating, and adapting to global environmental change. The themes we address have their origins in conversations of shared priorities, areas where current and planned resources can be leveraged, international partnership is welcome, and outcomes are optimized by the joint efforts of natural scientists, social scientists and humanities, and stakeholders.

Over the past year, the Forum has engaged in open discussion with a broad cross-cut of organizations at regional information days and roundtables in Europe, Australia, Asia-Pacific, the Americas, and Africa. These productive events have broadened our learning of current research, stakeholder, and administrative priorities and provided partnership opportunities to continue to expand the reach of multi-national funding. Over 100 attendees participated in the European Info Day at the European Commission.

The next steps in our regional engagement will focus on further developing these relationships to create international funding opportunities that resonate with a global cross-cut of organizations and attract both in kind and monetary investment.

Following the positive response at the UNEA-3 meeting and our Africa Info Day Sessions there, we hope to work with a team of regional coordinators and bodies, including START, the African Technology Policy Studies Network, the Science Granting Councils Initiative, the SDG Centre for Africa, Afri-GEOSS, and others, to develop local funding potential for an Africa Regional call for proposals.

In Asia-Pacific, we are planning several engagements at the Asia Oceania Geosciences Society, the SPARC 2018 General Assembly, and the GEO Plenary Meetings. These events provide us the opportunity to engage with both Belmont funded awardees in the region as well as new scientists and funders and to talk about advances in our open data policy.

Our connectivity in the Americas and the Global South will be greatly improved by the positioning of the Secretariat in Uruguay in June. We will work closely with IAI and our Americas partners and members to identify areas of co-investment.

We continue to reconnect with our colleagues in the Gulf Region and look forward to participating in the UN World Data Forum in Dubai.

The European engagement calendar for 2018 is very busy, with funding events planned around the RDA Plenary and 2nd Arctic Science Ministerial Meetings. Activities in Europe culminate in the London hosting of the 2018 Belmont Forum Plenary Meeting.



Advocating Flexibility

Negotiating across boundaries and between sectors requires a flexible framework that can adapt to different working environments. Each Collaborative Research Action (CRA) is built with this maneuverability in mind. The collective investors in each CRA develop the call text and implementation plan together, creating a partnership based on a mutual understanding of the assembled group's policies and practices.

This openness means there is no one road map to success. Each CRA is created and executed slightly differently from the last, depending on the partners involved. The requirements for the Belmont Forum branding are few, providing the maximum amount of latitude to attract a diversity of partners and resources interested. Recogonizing that detailed official agreements and commingled funds can complicate the process and deter some partners, the Forum pares down the paperwork to a minimum: each partner agrees to uphold the negotiated review process for the CRA and resources are kept under the control of the providing partner.

When funding is unavailable or programming timelines don't align with CRA release dates, the Forum works with interested partners to explore other options. In kind resources can be identified and alternative partnerships can be discussed to ensure that as many partners as possible come together to make the most of the opportunity, supporting excellent multi-national, transdisciplinary projects.



Schematic of a Collaborative Research Action's governance, highlighting the flexible multi-national partnerships that make Forum projects possible.

Leveraging Resources

Adding value to Belmont Forum projects is the connectivity of investments, infrastructure, networks, and knowledge. Investment partners join CRAs with varying research and stakeholder support budgets, but also with access to high performance computing, laboratory facilities, and proprietary data, connectivity to existing awardees and working groups, or an ability to translate research into decision making tools and policy.

Working with large international networks like the Joint Programming Initiatives, ERA-Nets, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), and Integrated Research on Disaster and Risk (IRDR), the Forum links into large programmatic activities to avoid duplication and make outcomes possible that are greater than could be achieved by a single funder or activity. The diversity of resources available spurs innovative project designs and reimagines the utility of infrastructure already supported by different means. Projects can often leverage in field expertise built up over decades in a region, connecting this with other researchers and stakeholders to scale outcomes to a much broader application.

By the close of 2017, the Belmont Forum had awarded through its CRAs over 75 million euros of funding to over 400 principal investigators. That value will only increase, as we estimate the in kind contribution of scientists and stakeholders who leveraged current awards or volunteered their time on projects. The value of the project outcomes, to business, cost savings to government and citizenry, and the re-use of data and developed tools, inflates that number well beyond the original investment.



Beyond the total project cost, there is the leveraging aspect of being involved in a multi-national funded project. The virtual pot allows resources to be presented as a whole without monies losing agency oversight. Funding does not cross borders unless the resource organization explicitly authorizes it.

An organization may be as broad or as narrow in their pledged support as is necessitated by their leadership. All resource information is contained within an organizational annex that each investor provides at the launch of the CRA. This statement lays out each organization's commitment -- funding or otherwise -- to the CRA, its individual interests in one or more themes, who is eligible for their resources, program contact information, and any limits to cost or duration of project.

When projects are funded, the investing organizations synchronize their support to optimize project success. Since each project has a minimum of three supporting organizations, each resource partner is leveraging the investment of the other two or more investors in the project. While a return on investment of 1:7 is typical, in some cases this can grow to 1:20.

Committed Project Funds

Coastal Vulnerability	11 M €
Freshwater Security	8.9 M €
Food Security and Land Use Change	8.2 M €
Biodiversity and Ecosystem Services	1.6 M €
Arctic Observing and Science for Sustainability	8.7 M €
Mountains as Sentinels of Change	6.5 M €
Climate Predictability and Inter-Regional Linkages	14.5 M €
Food-Water-Energy Nexus	25 M €
With the new project reporting system w	

With the new project reporting system, we will be able to estimate the in kind value to these projects to provide a true resource value.



Advancing

The driving force behind the Belmont Forum is the Belmont Challenge:

providing knowledge for understanding, mitigating, and adapting to global environmental change

The Forum meets this challenge through supporting multi-national, transdisciplinary (TD) projects focused on themes of critical regional and global importance.

To maximize the potential of outcomes of Belmont Forum funding, each project must be co-designed and co-implemented by a multi-national team, including at least one natural scientist, one social scientist or humanities researcher, and a stakeholder. Stakeholder is left to be broadly interpreted to provide the opportunity for creative, adaptive approaches. Past categories of stakeholders on successful Belmont Forum projects have included farming cooperatives, government ministers, fishing villages, workers' unions, city officials and administrators, indigenous villagers, UN organizations, and maritime industry, among many, many others.

The multi-national partnership allows new perspectives to be developed and increases both the scalability of the results as well as the growth of transdisciplinary approaches in distant parts of the globe. From a practical standpoint, it reduces the limitation on funding partners, as multi-lateral agreements are more easily sought than bilaterals. Requirements for consultation amongst scientists and stakeholders, starting at the first steps of the design process and carrying throughout the project, builds a more holistic understanding of very complex systems and increases the likelihood that the outcomes will be used and the study continued beyond the grant period.

The Belmont Forum is not alone in its encouragement of transdisciplinary approaches to current concerns about food and freshwater security, biodiversity and ecosystem services, ocean health, coastal vulnerability, climate, environment, and health, climate predictability, sustainable pathways, and urbanizing centers. In collaboration with many of our partners and organizations such as TD-net and Future Earth, we are exploring opportunities to develop global transdisciplinary training curricula, build research community support for transdisciplinary journals, meetings, and career tracks, and to organize an annual transdisciplinary science for sustainability meeting to exchange best practices, lessons learned, and spur cross-thematic, system-wide thinking for tractable solutions.

The TD community continues to grow, and the Forum is committed to expanding the available resources, training, networking, and career recognition to nurture that growth.

Transdisciplinary Science



The Collaborative Research Action themes have strong linkages that together inform sustainable development, management, and long-term planning. Cross-thematic events will be held to encourage awardee interaction and add further value to funded projects.



Map of Belmont Forum project participants for 2012-2017. The size of the circles is proportional to the number of named participants at a given organization.

The Belmont Forum project participant network spans six continents with a number of strong multi-continental consortia. Projects connect not only regions facing similar conerns, but also different expertise and knowledge. Expanding this network into new geographic areas and new sectors to make Belmont Forum opportunities more widely available and outcomes more broadly applicable is a key goal of our global engagement.



The Belmont Forum website and Grant Operations page now offer functions to highlight project materials and outcomes and provide details about the overall award portfolio. Potential proposers can also connect with other experts and stakeholders through networking feeds on the main site. The Forum also encourages bottom up ideas for future funding calls. Working with Future Earth as a boundary organization that interfaces with a wide range of scientists and stakeholders, the Forum membership invites a potential theme for support each year. The result is CRAs on Food-Water-Energy Nexus, Oceans, and Climate, Environment, and Health.

Enabling Solutions

Finding an informed approach takes the concerted efforts of experts from many specialities. Each Belmont Forum project team works not only across disciplines but in partnership with local knowledge holders and managers to co-create workable solutions. It may take many years for implementers to see the full benefit of these approaches and decisions. Recognizing this, we are working on a number of opportunities to assess and enhance the legacy of our funded projects beyond the award timeline.

While Belmont Forum project teams work across different geographies and in varied thematic areas, they often share similar lessons learned when it comes to the development and implementation of solutions. Communicating these experiences with one another during the project timeframe could help find new pathways to success. Starting in 2019, the Belmont Forum will support this knowledge sharing for project participants across CRAs and with other TD practitioners.



Photos from selected Belmont Forum supported projects addressing key themes of Food Security, Freshwater Security, Coastal Vulnerability, Biodiversity and Ecosystem Services, Arctic Sustainability Science, Mountains as Sentinels of Change, and Climate Predictability and Inter-regional Linkages.







Carrie Seltzer from Belmont Forum discusses open data access at a meeting hosted by the Open Research Funders Group.



Belmont Forum is collaborating with the American Geophysical Union to support FAIR data principles.



Working with the LUX team, Belmont Forum and e-IDM have developed an online reporting tool and visualization package to communicate about our portfolio of projects and their impacts.

Valuing Transparency

The first policy adopted by the Belmont Forum was in 2015 in support of open data sharing. The policy was the culmination of two years of consultation with the broad information science and data management communities. It laid out a series of data principles and recommended a number of actions for the Forum membership to best support transparency. Upon adoption of the policy by the members, the e-Infrastructure and Data Management (e-IDM) initiative was formed to support activities that would enhance coordination, data planning, e-infrastructure, and capacity building for Forum projects.

This activity is not only grand in scope, it is ground-breaking. While many organizations have an open data sharing policy, not all do. In the Forum, we must apply this to a breadth of funding partners with different levels of interest and familiarity in open data.

Transdisciplinary information and outcomes may take novel or nonnumerical formats and span disciplines, requiring new avenues or approaches for long-term archiving. The need for Forum outputs to be understandable and reusable by others, including non-experts, underscores the need for intelligible metadata and accessible formats.

Training plays a vital role in both the development of information management plans but also in the creation of a knowledgeable reviewer community familiar with TD approaches and available archives and standards.

Even robust data management plans may be revised by changes in project approach or serendipitous outcomes. e-IDM is working with granting organizations to discuss the life cycle of management, including the flexibility for changes during the award phase itself. Compliance checking is probably the most cutting edge aspect of open data management as few organizations have successfully tackled this critical aspect of access. As the Belmont Forum embarks on its approach to compliance, the e-IDM team is working closely with other organizations, like the Open Research Funders' Group, to learn from their experiences.

This level of collaboration extends to all of the e-IDM activities. Our co-coordinators hail from the ICSU World Data Service and formerly of the Group on Earth Observations, bringing a strong global perspective and interconnectedness to our work. We have developed partnerships on emerging policies and principles that will further strengthen open access, such as the AGU FAIR data principles, and the efforts of the Research Data Alliance, CODATA, OECD, and the UN World Data Forum.

In early 2018, an e-Infrastructure based CRA will be released that encourages cyber-enabled research to maximize the outcomes and information in key Belmont Forum thematic areas. Proposals can leverage both previously funded Belmont Forum projects as well as other available and relevant information to enhance decision support and actionable solutions.





Sharing progress and outcomes requires an understanding of your audience and how they access information. Traditional outlets, such as journal articles and press releases, may only reach a fraction of those interested. When such a diversity of stakeholders and implementers, languages and vocabularies are involved, communications planning takes on a much more prominent role.

Past projects have utilized radio addresses and billboards, translated materials -- both printed and virtual -- into local languages, developed decision support gaming and demonstrations, and otherwise created an atmosphere of openness. This relationship building with stakeholders and other interested audiences not only enhanced awareness but increased buy-in to jointly devised solutions. As part of an integrated curriculum development, we are including communications planning in our modules. Appropriate communication planning is directly related to transdisciplinary engagement and information management for a well-rounded and competitive proposal.

The curriculum will be disseminated when possible in person, but more broadly through the Forum's YouTube channel. This electronic offering makes it possible for interested takers to stop and start modules to fit their schedule using globally available technology. In future CRAs, we plan to require the integrated training as a prerequisite for proposing to a call.

Communicating Broadly

The Belmont Forum recognizes the value of in-person communication and optimizes this engagement at large workshops and meetings, using special sessions, booths, and town hall exchanges to interact with current and future project participants and partners. We endeavor to attend meetings on each continent annually to make it possible to meet with local organizations and persons who would not otherwise be able to travel at distance.

Social media does feature strongly in the Forum's communication strategy. Twitter, LinkedIn, and Constant Contact are used to push out critical information about the Forum and the e-Infrastructure intiative as well as our quarterly newsletters. The communication outlets of our members and partners is another strength. Our awardee accomplishments are often featured in highlights and strategic presentations that broadcast project advances to high level decision makers and organizations not yet involved in Forum activities.

As the Forum continues to grow in membership, connecting with new partners and supporting more projects, we will continually evaluate the efficacy of our communications plan to ensure that we are maintaining our reach. Perhaps our most critical communication is the conversation and learning that takes place within and among our awarded projects. The effort to weave together knowledge and different perspectives to create informed and inclusive approaches to sustainability has value far beyond the original investment.





The projects develop a common language and working familiarity that transcends disciplines, expertise, culture, and geography. The results they build together resonate not only within the stakeholder communities involved in the project but within academic circles, creating new learning pathways and career possibilities.





Project teams funded in our first call have found new ways to keep collaborating, to reach out to new audiences, and reach across projects and CRA themes to develop a richer, more synthetic understanding. Their work is not just transdisciplinary; it is transcendant.



We welcome you to please visit the Belmont Forum and e-IDM websites as well as the following project pages:

www. belmontforum.org www.bfe-inf.org

AFGROLand http://www.afgroland.net/Pages/default.aspx

Arctic-ERA http://www.agence-nationale-recherche.fr/ Project-ANR-14-AORS-0002

ARTISTICC http://www.artisticc.net/

Band-AID http://belmont-bandaid.org/

ClimateWIse http://environment.umn.edu/discovery/gwi/ our-work/climatewise/

COPERA http://www.arc.hokudai.ac.jp/en/international-join-research/copera/c-summary/

DEVIL http://deliveringfoodsecurity.org/consortium/

ECCAP http://www2.dnr.cornell.edu/kassam/ecological_calendars.html

FICESSA https://supportoffice.jp/ficessa/

FuturAgua http://futuragua.ca/ubc/home/

GOTHAM http://gotham.web1388.com/

HIWAVES3 http://www.jpi-climate.eu/2015projects/hiwaves3 IHDBS http://www.bv.fapesp.br/en/auxilios/88727/impact-of-human-drivers-fire-agriculture-and-grazing-on-biodiversity-in-savannas/

JWP http://globalfreshwater.stanford.edu/research/jordan-water-project

METROPOLE http://metropole.marine.usf.edu/team.php

P3 https://www.p3mountains.org/

PACMEDY: http://gtr.rcuk.ac.uk/projects?ref=NE%2FP006752%2F1

Pan-Arctic Options http://panarcticoptions.org/

PREREAL http://www.prereal.org/index.htm

TAMANI http://tamani-project.com/wp/

TLSCC http://pulitzercenter.org/reporting/cambodia-giving-flood

TRUC http://www.bel-truc.org/index.php

TSUNAGARI https://www.researchgate.net/publication/322221716_ TSUNAGARI_a_new_interdisciplinary_and_transdisciplinary_study_toward_conservation_and_sustainable_ use_of_biodiversity_and_ecosystem_services

VULPES https://www.vulpesproject.com/

XINGU http://www.bv.fapesp.br/en/auxilios/81988/xingu-integrating-land-use-planning-and-water-governance-in-amazonia-towards-improved-freshwater-s/ Photo Credits:

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