10th Belmont Forum Meeting

Oslo, Norway. 14 – 16 October 2015

Meeting Report

1. Attendance

Members attending in person
- ANR/France: Patrick Monfray
- BMWFW/Austria: Irene Gabriel
- DFG/Germany: Harald Leisch
- European Commission: Kurt Vandenberghe and Paul Vossen
- FAPESP/Brazil: Gilberto Câmara
- JST/Japan: Satoru Ohtake and Yoshiko Shirokizawa
- NERC/UK: Katherine Wright
- NRF/South Africa: Gansen Pillay
- NSF/USA: Maria Uhle
- RCN/Norway: Kirsten Broch Mathisen and Eivind Hoff-Elimari
- SSEESS/Sweden: Magnus Tannerfeldt

Members' representatives
- AllEnvi/France: Patrick Monfray
- BMBF/Germany: Isabel Vogler
- CNR/Italy: Elisa Palazzi
- FAPESP/Brazil: Reynaldo Victoria
- JST/Japan: Shinji Kanayama, Yuji Kato, Sumito Shirane, Nanako Takahashi and Hiroshi Tsuda
- MEXT/Japan: Shinichi Higuchi and Akira Takagi
- MoES/India: Parvinder Maini
- NERC/UK: Sophie Hodgson
- NRF/South Africa: Andrew Kaniki
- NSF/USA: Carrie Hritz

Members-in-Waiting
- Formas/Sweden: Anna-Karin Dahlén, Ingrid Petersson
- FRQ/Québec: Maryse Lassonde
- MOST/Chinese Taipei: Yue-Gau Chen, Yu-Pin Lin

- NWO/The Netherlands: Dick van der Kroef, Renée van Kessel-Hagesteijn
- QNRF/Qatar: Philippe Freyssinet
- RFBR/Russia: Yaroslav Sorokotyaga, Alexander Sharov

Partners
- IIASA: Pavel Kabat, Chin-Min Lee, Maggie Collins
- ICSU: Heide Hackmann (teleconference)
- ISSC: Mathieu Denis

Guests
- APN: Yukihiro Imanari
- Future Earth: Thorsten Kiefer, Belinda Reyers
- MBIE/New Zealand: Bruce McCallum
- NordForsk: Marianne Røgeberg
- OWSD/TWAS: Tonya Blowers
- Sida/Sweden: AnnaMaria Oltorp
- START: Jon Padgham
- WCRP: Dave Carlson

Secretariat
- Erica Key
- Mao Takeuchi
- Kelly Watson
- Carina Leander (Host / RCN)

Apologies
- Yucheng Chai (NSFC, China)
- Dave Bowen (NSERC, Canada)
- Andrey Polyakov (Russian Ministry of Education and Science)
- Sergey Konovalov (Russian Science Foundation)
- Bente Herstad (NORAD, Norway)
- Julie Morris (USGCRP, USA)
- Robert Gurney (E-Infrastructures Secretariat)
- Carlos Martin-Novella (IPCC)

2. Welcome and Introduction

The Belmont Forum co-chairs, Satoru Ohtake and Kurt Vandenberghe, opened the meeting with welcoming remarks. They noted that the first day of the meeting would focus on Belmont Forum governance, the second day would be dedicated to past and future Collaborative Research Actions, and the last day would be reserved for discussions related to Future Earth.

Fridtjof Unander, the Executive Director of the Research Council of Norway's Division for Energy, Resources and the Environment, also gave a welcoming address. He highlighted the importance of international collaboration and leveraging resources, noting that global problems require global collaboration.

3.   Adoption of the Beijing meeting minutes

[Document BF14]

> **Decision BF10-01:** To adopt the report of the 9th Belmont Forum Meeting as a true reflection of the proceedings of the meeting held in Beijing, China on 10 October 2014.

4.   Terms of Reference

[Document BF15-2.1]

At the last meeting of the Belmont Forum and the International Group of Funding Agencies for Global Change Research (IGFA), it was decided to merge IGFA and the Belmont Forum and a new Terms of Reference document for the Belmont Forum was proposed. Since that meeting, the Terms of Reference have been modified to clarify the roles of members, partners, and observers. Additionally, the secretariat proposal was separated from the Terms of Reference document.

The discussion brought up many points:
- Although there will not be a formal working group, the Principals should provide the Belmont Forum Secretariat with the name of a person who will be the day-to-day contact for their organization.
- The statement of the Belmont Challenge currently in the Terms of Reference should be taken as an interim formulation, since the Belmont Challenge will be revisited in the coming year. It was agreed to use the following statement as this interim formulation: "to produce knowledge for understanding, mitigating and adapting to global environmental change."
- The interim Steering Committee had previously suggested that we allow proxy voting.
- The graphical figure from page 2 of the Secretariat proposal will be copied and pasted into the Terms of Reference.
- To better reflect the role of observers as funding agencies that may become members in the future, it was suggested that "observers" be replaced with a different term such as "members-in-waiting."
- Implicit in the Terms of Reference is the understanding that Partners and Members-in-Waiting (formerly Observers) can contribute to discussions but cannot vote.

- Some minor clarifications were suggested: remove the term "working group" from the document; and replace "partner organizations" on page seven with "members." On page five, it was suggested that the Belmont Forum ensures representivity.
- Invitations for plenary meetings should be sent by the Secretariat to the Principals to ensure proper distribution and attendance in each organization.
- There was discussion of the in-kind contributions to the Secretariat and what that means. The Secretariat Director clarified that currently, in-kind contributions are 0.2 FTE. If a Member fails to deliver an effective in-kind contribution, it will be evaluated by the Steering Committee on a yearly basis and brought to the plenary if necessary. The Belmont Forum should be flexible in allowing contributions from as many members as possible, including those organizations who cannot contribute cash. It was proposed that members providing in-kind contributions to the Secretariat sign a Memorandum of Understanding to formalize this arrangement.
- While members are research funding organizations, the Belmont Forum values the cooperation of other organizations that subscribe to the Belmont Challenge but cannot fund research. These organizations, such as ISSC, ICSU, and USGCRP will be partners. Partners can participate in CRAs in accordance with the principles of the MoU.

Decision BF15-02: To adopt the Terms of Reference with an interim statement of the Belmont Challenge: "to produce knowledge for understanding, mitigating and adapting to global environmental change."

Action BF15-01: The Secretariat will incorporate the comments and corrections from the discussion into the Terms of Reference and circulate the new document to all Principals after the meeting.

5. Secretariat Proposal

[Document BF15-3]

During the last Belmont Forum meeting in Beijing, a proposal for a professional secretariat was presented and agreed upon by the membership. The current secretariat proposal has been modified by incorporating the comments made in Beijing, streamlining the document to better fit with the Terms of Reference, removing the working group, and clarifying that the secretariat should support the work of the Belmont Forum through communication and value-enhancing activities. Instead of a working group, the Secretariat may convene task teams on specific items to develop value-added activities.

Some members raised questions about the details of contributing to the secretariat through IIASA and the timing of payments for 2015 and 2016. The Executive Director of IIASA, Pavel Kabat, explained that IIASA already has agreements with many countries to receive funds and

that their support of the Belmont Forum operations is much appreciated. In the spirit of transparency, a separate agenda item is dedicated to the secretariat accounting.

Two corrections for the document were raised by the membership. First, as with the Terms of Reference, the secretariat proposal should include a reference to the day-to-day contacts between the secretariat and each member organization. Second, the statement "when the Steering Committee finds it advisable, Members should also be consulted" should be clarified to say that all policy matters will be brought to the plenary (through e-mail or during a plenary meeting) and will not be decided by the Steering Committee. Additionally, the co-chairs noted that the spirit of the Steering Committee is that of consensus; if there is one dissenting voice, the matter in question will be brought to the full membership. The Steering Committee develops and makes recommendations only and is not a decision-making body.

> **Decision BF15-03:** To endorse the secretariat proposal with the discussed modifications.

6. Elections of Steering Committee Members and Co-chair

[Documents BF15-4.1, 4.2, 5.1, and 5.2]

It was agreed at the last Belmont Forum meeting that the current Steering Committee would be an interim committee until the Terms of Reference were adopted. The Terms of Reference indicate that the Steering Committee will be "around" a quarter of the membership. For this year, it is intended to have six Steering Committee members: two co-chairs plus four other members. Kurt Vandenberghe was elected as co-chair last year for a three year term. Satoru Ohtake will be stepping down as co-chair at the end of this year.

There is one nomination for the co-chair position, and there are six nominations for the remaining four Steering Committee positions. The co-chairs suggested that the secretariat conduct the elections by e-mail after the meeting. To implement a staggered rotation of the Steering Committee, one third of the members will propose to step down at next year's plenary meeting.

There was a discussion around the need for both gender and geographical balance on the Steering Committee. While balance is not a requirement, Members are strongly encouraged to consider the gender and location of the nominees when casting their vote. After one nominee proposed withdrawing his nomination, the co-chairs suggested that it was not unreasonable to have eight members of the Steering Committee. All seven nominees were then unanimously elected.

However, it was pointed out that one of the nominees for Steering Committee was from an organization that was to be a new member in 2016. Since a Steering Committee member could not be elected from an organization that was not yet confirmed as a Member of the Belmont

Forum, the co-chairs proposed a change of the agenda to immediately consider the new members and partners for 2016.

> **Decision BF15-04:** To unanimously elect Yoshiko Shirokizawa (JST), Maria Uhle (NSF), Kirsten Broch Mathisen (RCN), Yue-Gau Chen (MOST), Gansen Pillay (NRF), Magnus Tannerfeldt (SSEESS), and Gilberto Câmara (FAPESP) as members of the Steering Committee as of January 1st, 2016.

> **Decision BF15-05:** To unanimously elect Gilberto Câmara (FAPESP) as a Co-chair of the Belmont Forum as of January 1st, 2016.

7.   Confirmation of 2016 Members, Partners and Members-in-Waiting

[Documents BF15-2.3]

As decided during the Terms of Reference discussion, Belmont Forum Members are funding organizations that participate in CRAs and contribute to the Secretariat. Members-in-waiting are funding organizations that may become Members in the future, and Partners are organizations that subscribe to the Belmont Challenge but cannot fund research. Therefore, the membership as presented in Document BF15-2.3 will be modified to reflect ICSU and ISSC (formerly Belmont Forum Members), as well as USGCRP and IIASA, as Partners. Additionally, organizations such as Belspo, NSERC, and FRQ will be Members-in-Waiting in 2016, not Partners. All other new Members were unanimously confirmed.

After confirming new Members and Partners, the Co-chairs suggested that potential new members inform the Secretariat of their intention to join the Belmont Forum so that they can be confirmed as Members-in-waiting (formerly Observers). The Secretariat will then work with these organizations over the next few months to ensure the meet the criteria for becoming a full member at next year's plenary meeting.

> **Decision BF15-06:** To confirm the Belmont Forum membership for 2016 and unanimously welcome three new members: QNRF (Qatar), MOST (Chinese Taipei), and NWO (The Netherlands).

> **Decision BF15-07:** To unanimously welcome four Partners to the Belmont Forum: ISSC, ICSU, IIASA, and USGCRP

> **Action BF15-02:** The Secretariat will work with new "Members-in-waiting" to ensure they meet the requirements to become Members of the Belmont Forum in 2017. This includes "Members-in-waiting" present at the meeting and those expressing interest through e-mail.

8.   Partnership Mechanisms for Engaging with Other Organizations

[Document BF15-29]

While the Belmont Forum has now included Partners in its governance structure, there are other options for partnering with outside organizations without necessarily making them part of the governance. Maria Uhle (NSF) gave a presentation where she proposed a process for engaging with outside organizations in a way that would leverage Belmont Forum Members' investments while enabling them to reach communities that they have trouble supporting. The proposed mechanism would follow the Belmont Forum rules of multilateral, transdisciplinary research, allowing each organization to engage according to their own policies. The mechanism would allow the Belmont Forum to partner on a rolling basis outside of the annual plenary meeting. The existing CRA mechanism with its MoU principle would not change.

The membership was generally supportive of the proposed mechanism, noting that with a stable Steering Committee and Secretariat, the Belmont Forum now has the opportunity to allow this kind of activity between plenary meetings. Maria clarified that if a non-Member organization has an idea for a funding opportunity, they could propose a CRA through the existing yearly CRA mechanism. Indeed, one of the advantages of becoming an official Partner of the Belmont Forum is the ability to propose CRAs. On the other hand, if an organization comes to the Belmont Forum with resources in hand, the new mechanism would allow Belmont Forum Members to support and join the activities of another organization. Along these lines, it was suggested that the Belmont Forum specify two different types of partnering scenarios: one for scientific organizations that are not funding organizations (e.g. ISSC), and another for foundations that can supply funding but are not necessarily scientific organizations.

Additional clarification was sought on the number of partnering requests the Belmont Forum could expect to receive, as well as the value added for NGOs and other organizations that use the proposed mechanism as opposed to setting up bilateral agreements with individual Belmont Forum members. Maria explained that the proposed mechanism allows for Belmont Forum branding because the involved Members would have GPC governance and a TPO-link representative that reports back to the Secretariat and the membership.

Concerns were raised by some members who wanted to ensure that the full membership was kept informed of the partnership activities between and during plenary meetings. The Steering Committee and Secretariat must be careful to not make decisions about endorsing a program, but rather do the background work that would allow the Members to make an informed decision about joining a partnership. A final concern was that some Members may need Memoranda of Understanding with partner organizations before they can engage.

> **Decision BF15-08:** To pilot the proposed mechanism for engaging outside organizations for one year.

Action BF15-03: NSF(?) and the Secretariat(?) will prepare a full proposal for incorporating the proposed partnering mechanism into the Belmont Forum governance (e.g. as an amendment to the Terms of Reference), to be evaluated at the 2016 plenary meeting. This proposal will formalize the rules of engagement for the Belmont Forum to engage with outside organizations.

9. Belmont Forum Challenge White Paper

[Document BF15-1]

The Co-chairs and Steering Committee proposed creating a task team to revisit the Belmont Challenge white paper. This document is essentially the constitution for the Belmont Forum. While it is still very inspirational, it dates from 2011 and many references are out of date. Additionally, it does not currently facilitate an easy expression of the Belmont Forum goals and ideals. The co-chairs invited reactions from the membership and expressions of interest in joining the task team.

Many people volunteered to participate in the task team. There was discussion about how the relationship with Future Earth would be incorporated into the white paper. It was accepted that Future Earth is important to the Belmont Forum; however, the Belmont Forum has priorities and interests that are separate from Future Earth. As part of the governing council for Future Earth, the Belmont Forum is dedicated to making Future Earth successful. The history of the white paper was also discussed, including its roots in the ISSC and ICSU earth system visioning processes and the historical need to better align national and regional programs.

Some suggestions for the new white paper were to make it short, crisp, and clear, as well as resilient, relevant and responsive. Since the white paper is how the Belmont Forum will carve out a niche for itself, the task team should actively consult with other organizations. There was also support for incorporating the UN's Sustainable Development Goals and other wider developments into the new white paper. One suggestion was to have a permanent, short section of the white paper and a more flexible part that could change over time.

Concerns were raised about ensuring that the full membership has ownership of the white paper. This means that the task team must validate their progress with the membership as they progress throughout the next year.

In conclusion, the co-chairs suggested that the task team focus on articulating the leverage effect of the Belmont Forum, the solutions-oriented research as a unique selling point of the Belmont Forum, and how to better valorize results of Belmont Funded research.

Decision BF15-09: To create a task team that will revisit the white paper between now and the next plenary meeting. The task team will solicit feedback from the full membership as the paper is developed.

Action BF15-04: The Secretariat will facilitate the work of the task team. Volunteers for the task team include: Gilberto Câmara, Paul Vossen, Pavel Kabat (advisory role), Maria Uhle, Sophie Hodgson/NERC, JST, and NRF. The role of Partners in Task Teams will be clarified. Maria Uhle agreed to prepare a first draft outline, as a starting point for the work of the task team.

10. Secretariat Communications and Added-Value Analysis

[Document BF15-25 and BF15-27]

The Director of the Secretariat, Erica Key, gave a presentation on the Secretariat's communication initiatives. She highlighted the need for an "elevator speech" to better communicate the goals of the Belmont Forum to a variety of audiences, as well as grounding the Secretariat's work in the awards made to PIs. Increasing transparency will also be a key initiative of the Secretariat. She reviewed the platforms and tools available to the Secretariat for their external communications. Erica also presented the results of a preliminary analysis of Belmont Forum awards. The results of this analysis are intended to inform the work of the Secretariat, including where they target their external communications and capacity building.

Members were invited to comment on the Secretariat's value-added activities. The co-chairs noted that internal communications are improving—Steering Committee meeting minutes are now circulated to all members. External communications, including the website, also need to be significantly improved to raise the visibility of the Belmont Forum in member countries; this is why it is important to have a liaison between the Secretariat and all Members.

Opportunities for highlighting the added-value of the Belmont Forum were suggested. For example, if the Belmont Forum is able to provide links to publications and data on their website, Members can take this to their own organizations and hopefully increase national capacities for data sharing. Also, there may be opportunities within Collaborative Research Actions to fund PIs to do some of the synthesis work (i.e. to include synthesis activities in the budgets).

11. Proposal from IIASA for an International School of Excellence

Pavel Kabat presented IIASA's proposal for an International School of Excellence. The vision for the School is to escape from discipline-focused research and develop a new generation of

systems-oriented researchers. The participants would collaborate on a multi-year transdisciplinary project. He noted that the proposed implementation is based on a workshop held in Vienna in September and attended by several Belmont Forum Members. Two phases were presented: a pilot phase working with individual funding organizations, and the development of a full Belmont Forum CRA.

Several members expressed interest in participating in the pilot phase, noting that it would be very doable using the partnership mechanism proposed by Maria earlier in the meeting. However, a full CRA would be more difficult and would require more discussion.

> **Decision BF15-10:** To proceed with the pilot phase option, working under the previously discussed partnering mechanism. The CRA phase is still under discussion

> **Action BF15-05:** IIASA will work with the Secretariat and NSF to begin the partnership.

12. Updates of ongoing Collaborative Research Actions

12.1 Coastal Vulnerability

[Document BF15-6]

The Theme Program Office for this CRA (NERC) gave a brief overview of the work packages and progress so far. The mid-project meeting was held last year in Rotterdam and the final meeting will likely be held at the end of 2016. Members discussed the need for synthesis and valorization, including the impact on society, of both the projects and the CRA as a whole. It was suggested that the TPOs and GPCs make a plan for these synthesis activities. The Secretariat also noted that it would be helpful to receive a list of lessons learned by the TPOs to incorporate into the CRA handbook.

> **Action BF15-06:** The TPO and GPC will plan end-of-project synthesis activities and prepare a list of lessons learned for the Secretariat.

12.2 Freshwater Security

[Document BF15-7]

Like the Coastal Vulnerability CRA, the Theme Program Office (NSF) held a mid-project meeting in San Francisco last year. One important take-away from this meeting was that the PIs would have liked to meet at the beginning of the projects, not just halfway through and at the end, to encourage synergies between projects.

Action BF15-07: The TPO and GPC will plan end-of-project synthesis activities and prepare a list of lessons learned for the Secretariat.

12.3 Food Security and Land Use Change

FAPESP was the TPO for this CRA, and they noted that it was very difficult for a small organization to lead the CRA on its own. At least some of the projects are progressing very well, including reaching out to projects funded by other CRAs. FAPESP proposed holding a CRA meeting and a special session at the 3rd Open Science Meeting of the Global Land Project in Beijing.

Action BF15-08: The TPO will plan a CRA meeting in 2016, possibly at the 3rd Open Science Meeting of the Global Land Project in Beijing.

12.4 Scenarios of Biodiversity and Ecosystem Services

[Document BF15-10]

DFG gave an overview of the Biodiversity and Ecosystem Services CRA. One issue for this CRA has been that not all of the projects started simultaneously, and some are still waiting for funds. Additionally, the CRA was designed to include a follow-up call for proposals in 2017.

Action BF15-09: The TPO will prepare a proposition for a follow-up joint call with Eranet Biodiversa.

12.5 Arctic Observing and Research for Sustainability

[Document BF15-11]

NSF presented the outcomes of the Panel of Experts and the funding decisions of the GPC. Maria noted that this was the first time the Belmont Forum solicited support from funding organizations that were not part of the Belmont Forum. The TPO went to great lengths to ensure stakeholder and social science involvement.

12.6 Mountains as Sentinels of Change

[Document BF15-12]

CNR-DTA and NSF make up the joint TPO for this CRA, which is still in the process of accepting and reviewing proposals. The community-driven scoping part of the CRA will be implemented next year, and interested organizations would be asked to nominate one or two people to

participate in this phase. BMWFW noted that Austria was very interested in this call, but was unable to participate for structural issues.

> **Action BF15-10:** The TPO and BMWFW will work together to connect the Austrian projects with the Belmont Forum-funded projects.

12.7 Climate Predictability and Inter-Regional Linkages

[Document BF15-13]

While this call is still in the process of evaluating the applications, ANR gave an overview of the CRA goals. There was some debate about the role of the Panel of Experts in evaluating the budget, with some members arguing that panelists are confused and distracted by large multi-national budget proposals, and other members arguing that the panel can accurately judge whether a budget request is appropriate. Additionally, some agencies regularly renegotiate the proposed budgets after the funding decisions are made. Participating organizations also have the opportunity to cap their budgets in the national annex. The CRA Handbook was proposed as a mechanism for sharing best practices in these situations.

12.8 General Discussion of CRAs

Members that had not yet signed the MOU were invited to do so. It was noted that any funder participating in a CRA should sign the MOU, without necessarily becoming a Member or Partner of the Belmont Forum.

Further discussion focused on ways the Belmont Forum connects research from different disciplines. Some tools used in the past include the Belmont Forum's research matching website, webinars, "classified ads," early career research matching at meetings, and two-phase CRAs with seed funding for networking. To build communities between CRAs, it was suggested that the Belmont Forum could hold a biannual workshop, perhaps around plenary meetings, where funding organizations could exchange best practices and learn from PIs.

> **Action BF15-11:** TPOs, GPCs, PoE (vice-)Chairs, and the Secretariat will work together to develop plans for synthesis and valorization of funded projects.

> **Action BF15-12:** The Secretariat will ask organizations participating in CRAs to sign the Belmont Forum MOU if they have not done so already. This includes partners for the 2015 calls (Climate and Mountains) and a few from previous years.

> **Action BF15-13:** The Secretariat and TPOs will continue to develop the CRA handbook as a friendly mechanism for sharing best practices, including holding workshops with PIs

around plenary meetings, lessons learned for CRA award management, and planning end-of-term analysis and reporting of CRA awards.

Action BF15-14: The Secretariat and TPOs will work to improve researcher matching.

13. E-Infrastructures and Data Management CRA

[Document BF15-8.1 and 8.2]

Maria Uhle (NSF) and Sophie Hodgson (NERC), the TPO leads for the E-Infrastructures and Data Management CRA, gave a presentation on the CRA's background, progress, and proposed actions. Specifically, the membership was asked to adopt the proposed Data Principles, decide if the CRA should continue, and determine which members will participate in and lead the proposed activities.

The ensuing discussion of the CRA and the Data Principles began on the first day of the meeting and was continued on the second day. This report summarizes the discussion from both days.

The main debate focused on whether to adopt the data principles with or without modification, and more specifically, how prescriptive the principles should be. One proposal was to make the principles more concrete by requiring funded PIs to deposit data in accepted repositories, submit data to journals, and make data accessible by default. It was pointed out that open data is not a technical problem—many repositories are available. Rather, the problem is a behavioral one. Many people agreed that the eventual aim of these principles would be to have all data in repositories or catalogues. However, most agencies would have no way of enforcing requirements to publish data. The Belmont Forum secretariat would also not have the resources or authority to enforce that kind of policy.

Members further cautioned that the Belmont Forum should not be the arbiter of which repositories or journals are acceptable. Additionally, scientists are not professional data managers; the suggestion in the original data principles for "professional" data would be a key reminder for researchers, even if extra resources would have to be provided for projects to implement professional data.

Many members brought up the general importance of adopting some set of data principles given the wide attention that data issues are currently receiving in high-level forums, as well as upcoming open science initiatives from ICSU and ISSC. This area is a place where the Belmont Forum could make a difference and lead the way for change at the national and regional level. If scientists received data principles from scientific organizations, as opposed to policy makers, it could go a long way toward encouraging more open data.

Eventually it was agreed that some of the proposed principles, especially the point about professional data, were not actually principles, but policy. The goal in having the Belmont Forum adopt some set of principles was to provide a vision for establishing interoperable e-infrastructure both for big data and "small" data collected in everyday scientific research. It was agreed that the policy, including the need for a skilled workforce and training, should be separated from the other principles. A new set of "Data Policy and Principles" was presented and agreed upon by all members:

> *The Belmont Forum adopts this data policy and the following principles to widen access to data and promote its long-term preservation in global change research; help improve data management and exploitation; coordinate and integrate disparate organizational and technical elements; fill critical global e-infrastructure gaps; share best practices; and foster new data literacy.*

> *The Belmont Forum recognizes that significant advances in open access to data have been achieved and implementation of this policy and these principles requires support by a highly skilled workforce. The Belmont Forum recommends a broad-based training and education curriculum as an integral part of research programs and encourages researchers to be aware of, and plan for, the costs of data intensive research. The Belmont Forum's ambition is that this policy and these principles will take positive steps toward establishing a global, interoperable e-infrastructure based on cost-effective solutions that can help enable actionable and societally beneficial science.*

> *Data should be:*
> - *Discoverable through catalogues and search engines*
> - *Accessible as open data by default, and made available with minimum time delay*
> - *Understandable in a way that allows researchers—including those outside the discipline of origin—to use them*
> - *Manageable and protected from loss for future use in sustainable, trustworthy repositories*

> *The Belmont Forum and its members will support and promote this data policy and principles with the intent of making these data principles enforceable over time.*

In response to questions about what it would mean to adopt these data principles, three different levels were proposed. The first level would consist of simply adopting the data principles and policy. The next level would be to implement those principles in multilateral initiatives, making them enforceable over time while allowing individual funders to enforce their own requirements. Finally, individual agencies could push to adopt data principles within their own organizations, making them enforceable at the national level.

Additional questions were raised about the possibility of connecting this CRA to private cataloguing efforts from companies such as Google and FaceBook. The TPOs noted that indeed, this CRA is not intending to set up data repositories and that the CRA is more concerned with cataloguing. While several members of the CRA's Steering Committee have connections to private companies, some members asked for caution in partnering with companies in light of sensitivities in the scientific community to commercial interest in data analytics.

In terms of continuing with the proposed activities, the membership was very supportive and many agencies volunteered to participate or lead the various actions. ANR gave a presentation on their proposed activities for theme 3, including workshops and call scoping. NSF elaborated on their proposed activities for themes 1 and 2, including supporting at least two FTE, coordinating with the Belmont Forum Secretariat and other international organizations, supporting the advisory boards of the other themes, and drafting data plans.

> **Decision BF15-11:** To continue with the four proposed actions for the E-Infrastructures and Data Management CRA. The following agencies are interested in contributing:
> - Theme 1: NSF (lead), EC, ANR, JST
> - Theme 2: NSF (lead), EC, NRF, JST
> - Theme 3: ANR, JST (co-leads), NSF, FAPESP, EC
> - Theme 4: NERC?

> **Decision BF15-12:** To adopt the revised "Data Policy and Principles"

14. Financial Report of Current CRAs

[Document BF15-20.1 and 20.2]

Erica Key presented an analysis of the funds committed and obligated for the seven ongoing CRAs. There was a discussion of what to do when some funding partners are oversubscribed, which has happened in several past CRAs. In many cases, the GPC can find solutions on a case-by-case basis or by capping requests in the National Annex. Some organizations were able to point to oversubscription as a reason for putting more money into Belmont Form activities. The Secretariat also will work on quantifying with the GPCs of each CRA the in-kind contributions committed to Belmont Forum awards. To date there has been no estimate on the value of the leveraged participation by PI's with no budget request.

> **Action BF15-15:** The Secretariat will work with the GPC's to valorize in-kind contributions leveraged by PI's in CRA awards for a more complete accounting of CRA finances.

15. Secretariat accounting

[Document BF15-28.1, 28.2, and 28.3]

The Deputy Director of the Secretariat, Mao Takeuchi, gave a presentation on the Secretariat accounting, highlighting the importance of transparency. IIASA noted that, as a Partner of the Belmont Forum, they will need to set up an MOU with the Secretariat before they can receive contributions from members and in turn support the Belmont Forum Secretariat. There was some discussion of the tax implications, but IIASA and ANR assured the membership that everything was above-board. The co-chairs then polled the members to get a sense of how many planned on contributing directly to ANR and how many to IIASA. Many members needed to clarify with their organizations before making a decision.

The co-chairs clarified that cash contributions are the preferred method of contributing to the secretariat, with in-kind FTE (20% at least) as a second choice. Only if those two are not possible should an alternative be considered. It was suggested that in-kind contributions, including hosting the plenary meeting, be documented with some paperwork.

As the number of Belmont Forum Members increases, it is possible that the subscription amount may decrease; however, for this year and 2016, the membership agreed to continue contributing at the previously-agreed level of 20,000 euros to cover the expected increased activities of the Secretariat.

> **Decision BF15-13:** To set the Belmont Forum subscription for 2016 at 20,000 euros.

> **Action BF15-16:** ANR, IIASA, and the Secretariat will prepare documents and invoices, to be distributed to cash contributors in time for them to make payments by the end of December 2015.

16. Final reporting

[Document BF15-26]

Members were invited to look at and comment on the final reporting template provided in the meeting documents. It was suggested that the report include questions about the value-added of being funded by the Belmont Forum and whether the PIs learned anything from the other projects.

> **Action BF15-17:** The Secretariat will continue working with the TPO's to refine the final reporting template to ensure integrated data is captured for future portfolio analysis.

17. Information Exchange

Note: this section of the report includes presentations that were made throughout the first two days of the meeting. Several presentations were moved to accommodate time constraints and presenter availability.

17.1 Organization Updates

[Documents BF15-21 series]

Members, Partners, and guests presented examples of funded projects, background of their organizations, and research trends. The following organizations gave presentations: WCRP, FRQ (Québec), CNR (Italy), DFG (Germany), BMBF (Germany), RCN (Norway), MEXT/JST (Japan), European Commission, NWO (The Netherlands), MOST (Chinese Taipei), NRF (South Africa), BMWFW (Austria), NERC (UK), NSF (USA), MBIE (New Zealand), FAPESP, and QNRF (Qatar).

17.2 Transdisciplinary Training Initiative

[Document BF15-22]

Mathieu Denis from ISSC presented an update on the progress of the Transdisciplinary Training initiative and asked that the TD initiative become one of the pilot partnerships being considered under the Belmont Forum's new partnership mechanism. In response to questions, he clarified that this is not a request for new funding, but for partnering, as well as an opportunity to gauge interest of individual agencies in hosting introductory and advanced workshops.

NRF noted that the curriculum for the TD training was distributed in Beijing, where several organizations expressed interest in hosting trainings. South Africa has already run a pilot training. Other members noted that the Belmont Forum continually asks PIs and reviewers to include transdisciplinarity in their projects or evaluations, but it is difficult to require this without also teaching them how to "do" transdisciplinarity.

One suggestion was to include the TD training in the pre-proposal phase of the Urbanization/Nexus CRA.

> **Action BF15-18:** The Belmont Forum will incorporate this curriculum into the two potential CRAs (Urban/Nexus and Transformations to Sustainability).

> **Action BF15-19:** ISSC invites agencies interested in hosting TD trainings to work with the ISSC.

17.3 Research in and for Developing Countries

Two presentations highlighted the opportunities and needs of involving scientist from low income countries in global research. First, Anna Maria Oltorp gave a presentation of behalf of Sida, the Swedish International Development Cooperation Agency, and its ongoing support to local researchers to develop regional scientific leadership in low income countries. Tonya Blowers then gave a presentation on behalf of The World Academy of Science (TWAS) and the Organization for Women in Science for the Developing World (OWSD) that highlighted support for gender balance and diverse perspectives in research. They noted that the Belmont Forum funds many projects in low income countries, but not necessarily research by scientist in those countries. Sida encouraged the Belmont Forum to engage with other aid organizations due to their inherent transdisciplinary and often interdisciplinary portfolios.

> **Action BF15-20:** The Secretariat will continue CRA portfolio analysis to share with the members the statistics about low-income country participation in proposals and awards as well as gender balance.

17.4 Update on the Sustainable Development Goals

Kurt Vandenberghe gave a brief update on the Sustainable Development Goals. He explained that the UN goals are no longer for the developing world only, but that they are global goals. The SDGs will be central in the European Commissions' Horizon 2020 program. He recommended that the Belmont Forum use the SDGs as a reference framework in reworking the Belmont Challenge, in launching new CRAs, and in the synthesis and valorization of CRAs.

He also suggested that the Belmont Forum could recommend to the S&T Alliance that the Alliance could play the role of the global forum that steers the agenda for international cooperation in science and technology innovation in support of the SDGs. The membership was supportive of both of these proposals.

> **Decision BF15-14:** The Belmont Forum will suggest to the S&T Alliance that the Alliance steers the agenda of the international cooperation of science and technology innovation in support of the SDGs.

18. Potential CRAs

18.1 Transformations to Sustainability

[Document BF15-15.1 and 15.2]

Mathieu Denis (ISSC) gave a presentation on the background and progress of the activity, including the announcement of three newly funded projects. Renée van Kessel (NWO) then presented a plan for turning this activity into a Belmont Forum CRA that would leverage both EC and NORFACE investments. Heide Hackmann (ICSU) added that when Sida originally agreed to support this ISSC project, there was an understanding that their investment would leverage support from other funders, and indeed NORFACE is now involved. Additionally, when the scientific community asks what is new about Future Earth, this T2S activity could be it.

The co-chairs noted that this proposal was a direct result of the Beijing meeting, where the Belmont Forum asked ISSC to come back with a developed CRA. Many members were supportive of the CRA and were able to propose support, either directly or through NORFACE. Other organizations that could not immediately make a commitment were interested in drafting the call text.

Many organizations raised concerns about the role of natural science in this CRA. If the Belmont Forum aims to support interdisciplinary and transdisciplinary research, the T2S activity may not meet these criteria without strengthening the natural science aspect. Additionally, social science is outside the remit of some organizations, so there would need to be a clear role for natural science in the projects if these organizations were to participate. ISSC clarified that the projects should be inter- and transdisciplinary. Additionally, while the lead PI had to be a social scientist for ISSC's T2S program, the Belmont Forum-Norface program does not have to implement this requirement. There was also concern about ensuring that the CRA focused on solutions-oriented research.

> **Decision BF15-15:** To continue with the Transformations to Sustainability activity as a Belmont Forum-Norface CRA. The TPO for this CRA will be NWO. The following agencies are interested in further scoping, and possibly in financial support: NERC/ESRC?, NordForsk, BMBF, RCN (~1M€), JST (0.5M€), FAPESP (0.4M€ for small grants), BMWFW, European Commission, NSF, SSEESS (VR through NORFACE), ANR (~0.5M€ through NORFACE), and MOST (~0.8M€).

18.2 A Nexus Approach to Urbanization

[Document BF15-14.1]

Carrie Hritz and Maria Uhle presented the implementation plan for the CRA, which was developed at a scoping workshop in July 2015. Maria additionally proposed to link the first phase of the CRA with the TD training.

Many agencies were interested in supporting the CRA and provided indications of their level of support for the first two phases. Since the final phase would not begin until 2020, members

were not able to indicate support for that phase. Some members indicated that they would participate through JPI Urban Europe.

> **Decision BF15-16:** To continue with the Nexus Approach to Urbanization activity as a Belmont Forum CRA. The TPO for this CRA will be NSF. The following organizations are interested in supporting the CRA for phases 1 and 2: JST (0.5M€), FAPESP (0.4M€ for phase 1), RCN (1M€), Formas (1M€ for phase 2), CNR (TBD), BMBF (1.5M€ through JPI), NERC (TBD), MOST (1M€), NWO (1.5M€ through JPI), QNRF (1M€), BMWFW (TBD), NRF (TBD), ANR (up to ~2M€ assuming JPI Urban Europe participates), NSF (1M€ for phase 1, 2M€ for phase 2).

18.3 Future Earth

[Document BF15-16]

Patrick Monfray (ANR) presented a proposal that would allow the Belmont Forum to support some Future Earth activities on a yearly, competitive basis. While several ongoing Belmont Forum CRAs already overlap with Future Earth priorities and proposed Knowledge Action Networks (KANs), the proposed mechanism would allow the Belmont Forum to support additional KANs. The discussion of this proposal was reserved for the last day of the meeting, when the entire relationship with Future Earth would be discussed.

18.4 Inter-Sectoral Impact Model and Intercomparison Project (ISI-MIP)

[Document BF15-19.1, 19.2, and 19.3]

Isabel Vogler (BMBF) presented a proposal on behalf of JPI Climate for an ISI-MIP CRA, which would enable quantitative synthesis of climate change impacts at different levels of global warming. While the topic is not ready to become a CRA this year, she proposed a scoping workshop in the first half of 2016 in order to explore possibilities of launching a joint CRA in the coming year, to be approved at the next Belmont Forum meeting. She also encouraged individual members to align their national programs in this area. While participation in the ISI-MIP initiative initially had a European bias, it was always intended as an internationally open project, as the challenges addressed by ISI-MIP are of a truly global nature. Several members were interested in additional scoping for this topic.

> **Decision BF15-17:** To encourage interested agencies to scope and develop a CRA around the ISI-MIP topic. The following organizations are interested: RCN, NERC, FAPESP, NRF, ANR, and MoES.

18.5 Return for a Second Round of Interested CRAs

[Document BF15-17]

Erica Key discussed the desire of some ongoing CRAs, especially those that had type 1 networking or capacity-building funding categories, to run a second round of calls and whether there should be any requirements before that second round can take place. The Arctic and Biodiversity CRAs were particularly interested in a second round. FAPESP noted that the Food Security CRA also considered a second round at one point, but that the topic is now embedded in the Nexus/Urbanization CRA.

The European Commission noted that if the Biodiversity CRA has a second round, the Commission would be able to do a co-fund. RCN and RFBR both indicated interest in a second round of Arctic calls, but other organizations needed more time to consider.

> **Action BF15-21:** Organizations interested in participating in a potential second round of CRAs should e-mail the appropriate Theme Program Office (NSF for Arctic or DFG and ANR for Biodiversity) by the end of 2015.

19. Relationship with Future Earth

19.1 Update on Future Earth Activities

Thorsten Kiefer, the Global Hub Director of the Paris Secretariat office, and Belinda Reyers, Vice chair of the Science Committee, gave a presentation on the history, design, agenda, and structure of Future Earth. They also proposed some catalyst funding ideas for individual Belmont Forum members to consider supporting if they are interested.

There was some discussion of what the term "Knowledge Action Network" means. Belinda Reyers clarified that the Future Earth Governing Council recommended this term and that Future Earth is currently clarifying the term. Another point of discussion was where Future Earth falls on the science-action spectrum and what it means to do solutions-oriented science. While there is a diversity of opinion in the Science and Engagement Committees, Future Earth is clearly a knowledge partner involved in research that informs decisions, but it is not involved in decision making or social action.

There was general agreement that the Belmont Forum wants Future Earth to succeed, but that members could use some help communicating about Future Earth, especially about Future Earth's added value. There was also a request for Future Earth to provide some results of the first round of Fast Track Initiatives and Clustering Activities (supported by NSF) before funding agencies considered a second round.

Decision BF15-18: To request a clear, concise guide from Future Earth about their activities, goals, and value added.

19.2 Future Earth Governance

[Document BF15-23]

The Belmont Forum co-chairs gave an overview of the governance structure for Future Earth. In brief, the Governing Council, of which the Belmont Forum co-chairs are a part, will be the ultimate policy-making body of Future Earth. However, the Governing Council will not assume any legal liabilities. A separate Board of Directors, incorporated under Canadian law, will be the legal entity for Future Earth. Individual Belmont Forum members are invited to join the Board of Directors, though they would not represent the Belmont Forum. The roles of the two separate bodies will be further explained during the Governing Council meeting next month in Tokyo.

To ensure transparency within the Belmont Forum membership, the governing council meetings will be discussed during Belmont Forum Steering Committee meetings. The Steering Committee meeting minutes will subsequently be circulated to the full membership.

It was suggested that the Belmont Forum could have an observer participate in the Board of Directors meetings. However, other members cautioned about becoming too involved and creating an expectation that the Belmont Forum would fund all Future Earth activities.

Decision BF15-19: To have the Belmont Forum co-chairs be part of the Future Earth Governing Council and to keep Belmont Forum members informed of Governing Council discussions.

Decision BF15-20: To not participate as the Belmont Forum in the Future Earth Board of Directors.

19.3 Proposal to Support Future Earth Activities

This discussion was a continuation of the presentation by Patrick Monfray earlier in the meeting. Patrick presented an additional slide (see below) clarifying two proposed options for engaging in bottom-up mobilization via Fast Track Initiatives and Clustering Activities, either through multilateral actions or national support on a voluntary basis (i.e. at the discretion of individual members and not as a Belmont Forum action). He also clarified that Belmont Forum members would not be required to channel funds through the Future Earth Secretariat, although in the case of synthesis and outreach activities, the Future Earth Secretariat would need to be involved.

Some members questioned the need for a new mechanism, since Future Earth can already propose CRAs to the Belmont Forum through its established mechanism. However, it was clarified that the proposed mechanism concerned the Belmont Forum's role in the bottom-up activities *before* a CRA is proposed.

The membership eventually agreed that the Belmont Forum was ready to consider a CRA proposal from Future Earth at every annual plenary meeting. It was suggested that there be some entry requirements for these CRA proposals, including demonstrated value added of the KAN and bottom-up mobilization such as workshops and webinars. Future Earth noted that it is also developing similar entry requirements and that it will share those with the Belmont Forum. Beyond additional entry requirements, the CRAs would follow the usual Belmont Forum procedures (go/no-go). They would still be Belmont Forum CRAs, but inspired by Future Earth. This co-branding would benefit all parties.

There was additional discussion around how many CRA proposals the Belmont Forum could expect from Future Earth. While the Belmont Forum would welcome multiple proposals from Future Earth, they should not expect the members to be able to fund more than one in a given year due to limited resources.

> **Decision BF15-21:** To adopt the proposed mechanism for supporting Future Earth activities.