

# Evaluation Meeting for NSF Biology-Related Research and Education Centers

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## Meeting Summary

5/7/2010

This report is a summary of the Evaluation Meeting for NSF Biology-Related Research and Education Centers, which took place at the National Institute for Mathematical and Biological Synthesis (NIMBioS) April 22-23, 2010. The goals of the meeting were as follows:

- To allow participants to become familiar with the evaluation and assessment processes happening at other research and education centers;
- to learn from each other what evaluation methodologies are working well and lessons learned from using these methodologies to date;
- to identify potential projects or areas in evaluation practice where participants could collaborate to provide leadership on a national level; and
- to provide a brief summary report on current evaluation activities and draft recommendations to center directors on future initiatives.

The meeting comprised 10 participants, including two NSF program directors, six NSF-funded research center staff involved in assessment and evaluation, one external evaluator to an NSF-funded center, and one participant involved in assessment and evaluation from a biosynthesis center not funded by NSF (See Appendix A for details).

During the first day of the meeting, participants from research centers each gave a 20-minute presentation about the event structure and evaluation activities at their respective centers. While evaluation and assessment activities varied greatly across centers, all centers indicated collecting (or planning to collect) information in three broad areas: outputs (numeric measures of products and services delivered, as well as participant data), processes (development and implementation of products and services), and outcomes (the results that stem from products and services delivered). Following the presentations, Peter McCartney (NSF Program Director, Division of Biological Infrastructure) addressed the group regarding NSF's evaluation interests.

Day two of the meeting began with a demonstration of the NESCent administrative database, followed by a discussion of the types of demographic data collected by each of the centers. The organizer of the event had been asked prior to the meeting to provide to the program directors of the NSF bio-funded centers an aggregated list of participant demographic information collected across the centers. Because each center collects slightly different demographic information about its participants, meeting participants agreed upon a combined list of demographic information that included relevant data collected across centers (See Appendix B).

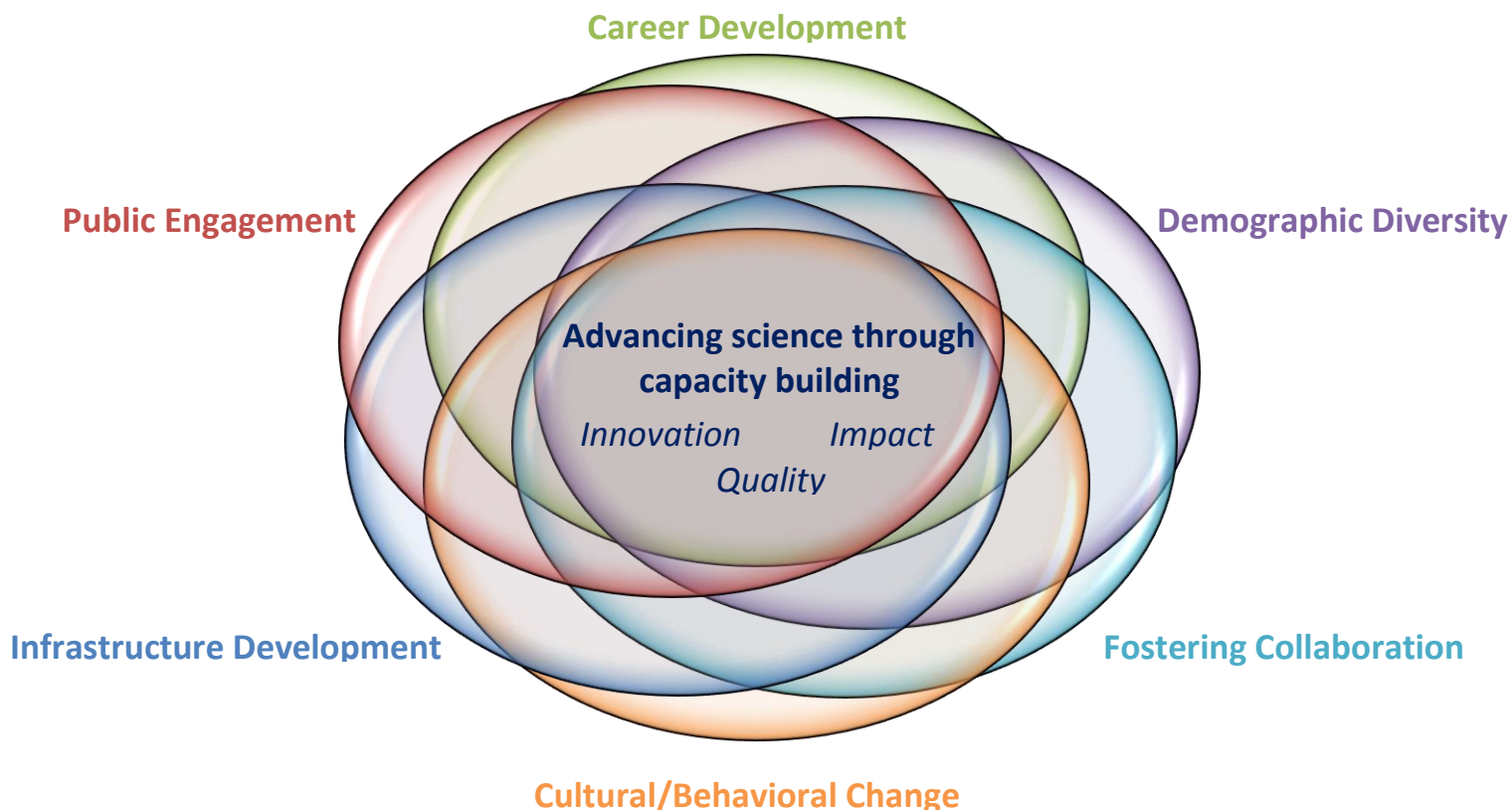
Meeting participants spent the majority of the second day discussing key elements of a potential evaluation framework that could be used to bring economy of scale to the evaluation and reporting processes across centers. Participants agreed that the focus of the framework should be defining overall impact areas that are common across all centers. Participants based the framework on the overall goal across centers of advancing innovative, high quality, and high impact science through building capacity in six key impact areas. The six areas of impact, and subcategories within these

areas, that emerged from the discussion were necessarily broad, as specific metrics will be defined differently for each center. The six impact areas are summarized as follows:

1. Science career development
  - a. Professional development of researchers
  - b. Educating the future generation of researchers
  - c. Educational materials for science community
  - d. Courses, curricula, and workshops
2. Increasing demographic diversity
  - a. Racial and ethnic
  - b. Gender
  - c. Geographic
3. Fostering collaboration
  - a. Cross-disciplinary
  - b. New collaborations
  - c. Non-traditional
  - d. Synthetic research
4. Cultural/behavioral change (changing the culture of science)
  - a. Open access to data
  - b. Culture of collaboration
  - c. Culture of sharing data
  - d. Increasing use of secondary data
  - e. Increasing cross-disciplinary collaboration
5. Infrastructure development
  - a. Open access to data
  - b. Tools (use and development)
  - c. Software
  - d. Visualizations
  - e. Cyberinfrastructure
  - f. Facilitating science
6. Public engagement
  - a. Educational materials and programs for non-scientists
  - b. Public outreach
  - c. Awareness of science
  - d. Attitude towards science
  - e. Access to science

Meeting participants agreed that these six areas were not mutually exclusive, as represented in the following diagram of the impact framework (Figure 1).

Figure 1. Center Impact Diagram



The meeting concluded with discussion of the possibility of future meetings and discussion of tasks and timelines for reporting the meeting summary. Craig McClain (NESCent) indicated he plans to propose an evaluation working group for the purpose of developing visualization software specific to the types of data being collected by the centers. Several participants agreed this could be very useful in reporting of evaluation results. The meeting organizer, Pam Bishop (NIMBioS), indicated she hoped the evaluation meeting could become an annual event (possibly hosted at a different center each year) to continue to discuss the dynamic evaluation processes taking place across the centers, and also to further develop the idea of an evaluation framework across centers. No date has yet been set for a second meeting, although this will likely be discussed among participants during the fall of 2010.

## Appendix A List of Participants

<b>Name</b>		<b>Institution</b>	<b>Position</b>
<b><i>Last</i></b>	<b><i>First</i></b>		
Aronowsky	Audrey	Encyclopedia of Life	Scientific Program Manager, Biodiversity Synthesis Center
Bishop	Pamela	NIMBioS	Evaluation Coordinator
Donahue	Debbie	NCEAS	Program Information Manager
Gram	Wendy	NEON	Chief of Education & Public Engagement
Heath	Barbara	iPlant	Lead Consultant, East Main Educational Consulting
Horn	Mary Ann	NSF	Program Director, Division of Mathematical Sciences
McCartney	Peter	NSF	Program Director, Division of Biological Infrastructure
McClain	Craig	NESCent	Associate Director of Science
Nance	Tony	MBI	Assistant Director
Shields	Chris	NESCent	Assessment Coordinator

## Appendix B

### Demographic Data Collected by Centers

- **Name:** Last, First, MI, Nickname/Preferred name, Salutation
- **Contact information:** Address, Email, Secondary email, Phone, Fax, Personal website
- **Gender:** Male, Female
- **Ethnicity:** Hispanic/Latino, Not Hispanic/Latino
- **Race (check all that apply):**
  - American Indian or Alaska Native
  - Native Hawaiian or Pacific Islander
  - Asian
  - Black or African American
  - White
  - Other:
- **Disability status (check all that apply):** Hearing, Visual, Mobility , Other:
- **Citizenship:** Citizenship country
- **Permanent U.S. resident:** Yes, No
- **Highest degree:** Type and year of degree
- **Type of participant:** participant, organizer, speaker
- **Status (pick from list):**
  - K-12 student
  - K-12 teacher
  - Undergraduate student
  - Graduate student
  - Postdoctoral researcher
  - Assistant professor
  - Associate professor
  - Professor
  - Professor emeritus
  - Research scientist
  - Staff scientist
  - Resource manager
  - Administrator/manager
  - Other:
- **Institution name:** pick from list preferred, with “other” option
- **Type of institution:**
  - Academic
  - State Government
  - Federal Government
  - Business/Private
  - NGO
  - Other:
- **Description of academic institution:** 2-year only, 4-year only, Comprehensive, Women’s only, Minority serving
- **Department (if from an academic institution):** open-ended
- **Primary, secondary, and tertiary fields of study, and concentrations within fields:** Pick from list (one center uses taxonomy from NSF Survey of Earned Doctorates)