

**EPSCoR Responses to Findings and Recommendations
of the
Committee of Visitors
July 24-25, 2012**

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SUBJECT: EPSCoR Responses to the FY 2012 Committee of Visitors Report

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The OIA Committee of Visitors (COV) met July 24-25, 2012 at the National Science Foundation to review the EPSCoR program for the period FY 2009 – FY 2011. This review focused on:

- Quality and integrity of the program’s operations and technical and managerial matters pertaining to proposal decisions, including quality and effectiveness of merit review processes, selection of reviewers, resulting portfolio of awards, and management of the program; and
- Other aspects of the program structure and management, including EPSCoR responsiveness to recommendations from previous COVs and other external evaluations.
- Program Specific Areas identified by EPSCoR staff.

The report prepared by the COV reflects comprehensive and thoughtful examination and insightful evaluation of the program by the six-member team. Dr. Larry Dalton served as Chair of the COV and led its detailed analysis of 94 (73 projects since some actions were collaborative s) of the 1,349 actions taken during the period of review. The Chair, on behalf of the Committee, directed the staff to select forty (40) Research Infrastructure Improvement (RII) actions and twenty (20) co-funding (CF) actions. The RII sample was selected only from award and decline actions (not from continuing grant increments, supplements, or PI transfers). Care was taken to ensure a proportional

distribution on actions taken during the review period and actions were parsed by year, jurisdiction, and project type (e.g., RII Track-1, Track-2 or C2). In addition, for the co-funding sample, an effort was made to identify a proportional number of award and decline actions representative of jurisdictional and cross-Foundation activities. All of the Workshop and Conference actions (13) taken during the 3-year period were included in the sample.

The COV found no program areas in need of significant improvement or gaps within program areas. The Committee noted that the EPSCoR staff are performing exceptionally well and stated that their recommendations are minor. The seven specific recommendations follow, along with EPSCoR's responses to the findings and recommendations

COV: Implementation of Actions in Response to Prior COV Findings

"...recommends that the EPSCoR Management and Staff continue the implementation of the recommendations of COVs past and present, in particular with respect to the improved training of reviewers and future COVs. Webinars and teleconferences are viewed as particularly useful in this respect. This COV also endorses continued appointment of at least one member from previous COVs to future COVs to maintain an "institutional memory" and continuity. The current portfolio of EPSCoR funding mechanisms and performance priorities are endorsed. The COV endorses the continued promotion of broader impact through EPSCoR activities, including workforce development and enhancement of the diversity of the workforce, information dissemination and public policy impact, technology development and transfer, and promotion of improved STEM education as well as promotion of research of high intellectual merit."

EPSCoR fully agrees with the COV recommendation to continue to take appropriate actions in response to the input of COVs (past and present). EPSCoR, as does the entire Foundation, values the judgment and advice of external experts intended to ensure maintenance of high standards for program management and ensure openness to the research and education communities served by the Foundation.

EPSCoR will continue to build upon its strengthened Foundation-wide working relationship enabled by the move of the organization from the Directorate of Education and Human Resources to the Office of Integrative Activities (proposed to become the Office of International and Integrative Activities). The internal COV process calls for annual updates on actions taken in response to the COV recommendations and EPSCoR developed the needed implementation plans to address the committee's recommendation and will provide updates, as appropriate.

New EPSCoR solicitations for its RII Track-2 (NSF 13-509) and workshop opportunities (NSF 12-588) continue to emphasize elements intended to promote broader impacts through workforce development, dissemination, and engagement of diverse individuals in the national science, engineering, and education enterprises. In response to recommendations contained in the *EPSCoR 2030 Report*, the RII Track-1 and Track-2 solicitations will emphasize these elements in a more integrative manner (e.g., the FY14 RII Track-1 solicitation, is currently in preparation and will include tighter integration of cyberinfrastructure with the research).

COV: Cyberinfrastructure Development

“Given the need for cyberinfrastructure to accomplish any research development and enhancements, the RII Track-2 and RII C2 program efforts are important. The COV suggests that EPSCoR consider incorporating the goals of RII C2 into RII Track-1, given the synergy between the two. In addition, the COV encourages continuing the RII Track-2 with an incorporation of collaboration across jurisdictions that is beyond the establishment and use of cyberinfrastructure. The COV endorses the efforts of the EPSCoR program in directing the jurisdictions to seek cyberinfrastructure support from other sources outside of NSF and inside, across other Directorates and Offices.”

This COV recommendation echoes feedback from the EPSCoR community on the value of inter-jurisdictional collaborations and the desire to have flexibility on the nature of such collaborations (beyond cyber-enabled collaboration). While there is still a need for cyberinfrastructure development and enhancement in EPSCoR jurisdictions, EPSCoR agrees that now is the time to encourage collaborations beyond that enabled by cyberinfrastructure.

Collaborations can increase research capacity of jurisdictions, consortia, or regions to enable stronger competitiveness in large scale and cross-cutting competitions. Collaborations can also provide effective platforms for discovery-based science and engineering, for broadening participation, for workforce development, and for extending and enhancing external engagement.

Experiences of EPSCoR jurisdictions in RII Track-2 collaborations have shown the benefits of inter-jurisdictional cooperation and have led to broader acceptance of the practice. The current RII Track-2 solicitation (NSF 13-509) broadens the scope of such collaborations among EPSCoR scientists and engineers and allows collaborations in any area of science and education supported by the Foundation. In addition, initial discussions have begun with leaders the Foundation’s Offices and Directorates to explore collaboration with non-EPSCoR communities. NSF EPSCoR will carefully explore options on how to best effect the broader collaboration.

In FY 2012, EPSCoR support of collaborative research projects accounted for ~64% of the co-funded awards. While the majority of that investment is in collaborations within and among EPSCoR jurisdictions, approximately 37% of the collaborative awards involved non-EPSCoR partners and international collaborations (42%).

COV: Pool of CI Reviewers and ‘early career’ reviewers

“Given the importance of cybertechnology to the EPSCoR Program, the COV recommends increasing the pool of CI reviewers and the increased utilization of CI expertise as reviewers across EPSCoR funding mechanisms. The COV also encourages the participation of more early-career reviewers.”

In FY 2009, EPSCoR began a comprehensive approach to reviewer selection and preparation. The identification includes a step to solicit reviewer recommendations from the Foundation’s domain-specific representatives and an assessment of NSF reviewer service history. Reviewer preparation includes dialogue on program’s goals and objectives at the time of panelist recruitment, and culminates with a more extensive panel charge during the merit review session. In FY 2013, EPSCoR plans to initiate pre-panel webinars for the FY 2013 RII competitions. These steps will continue to address issues including RII program breadth and its state-based character, RII merit review in an NSF-wide context, and the potential impact of implicit bias. NSF EPSCoR takes the responsibility to ensure that all reviewers fully understand EPSCoR goals and objectives. This is discussed with reviewers when we invite them to serve, during calls/memoranda prior to the panel sessions, and as part of the panel charge during the merit review sessions.

While EPSCoR makes every effort to ensure that reviewers have expertise in all of the required program elements, there were Reverse Site Visit panels in 2010 that lacked reviewers with significant cyberinfrastructure expertise. On those panels, reviewers listed as ‘generalists’ provided the cyber assessment. In the future, EPSCoR will ensure that there are an appropriate number of reviewers with cyberinfrastructure expertise serving on review panels and will more explicitly identify reviewer expertise within the ‘generalists’ categories. The merit review panel for the FY 2013 RII Track-1 competition scheduled for November 14-16, 2012 has two reviewers (of the 24 panelists) who have significant cyber expertise.

Due to the complex, state-wide, multi-faceted nature and scope of RII Track-1 projects and the fact that RII Track-1 awards can provide up to \$20M for up to 60 months, feedback from the Director’s Review Board has continually reflected the need for merit review panelists who are well-known contributors to their technical fields and have a well-established NSF review and funding record. Thus, there are a few ‘early career’ reviewers on these panels, and the RII Track-1 merit review panels will continue to be comprised of mostly well-established researchers. However, EPSCoR will seek to involve more ‘early career’ investigators in review of other program investments (RII Track-2 and workshop opportunities).

COV: Engagement of new investigators in the project

“The COV recommends that the EPSCoR Program encourage project leadership to engage new investigators as part of the team that implements the project. In this manner, early career investigators will gain experience in developing a project of such expanse, as well as learn how large programs are managed and implemented.”

EPSCoR agrees that the project leadership should continue to engage new investigators as part of the project team. Many RII projects (Track-1, Track-2, and C2) involve recruitment and retention of new investigators and have successful mentoring initiatives for these new hires. In addition, beginning in 2010, the Programmatic Terms and Conditions for the RII awards included a specific condition on the development of succession plans that are intended to prepare new investigators for leadership roles. Also, the America COMPETES Reauthorization Act of 2010 contained language that calls for reporting the number of new investigators in EPSCoR projects. EPSCoR revised its standard guidelines to include reporting on new investigators and will continue to review and provide feedback on project succession plans.

COV: Data Collection and Data Mining

“The COV recognizes that data collection and subsequent data mining could be an important tool for documenting the critical successes of the EPSCoR program. In that regard, it would be opportune to have an on-line data collection system readily accessible to EPSCoR grantees to facilitate collection and accuracy of data required by NSF EPSCoR and amenable to data mining by the EPSCoR staff. An attractive route to the development of such an on-line data collection system would be the collaboration of several EPSCoR jurisdictions and NSF in the development of a prototype data base. The RII Track-2 could be a mechanism to implement the pilot system.”

In FY 2009, EPSCoR introduced mandatory, standardized data capture and reporting for RII Track-1 awards. Utilizing templates developed jointly with the EPSCoR community, RII Track-1 awardees provide, as an additional component of annual and final reports, qualitative and quantitative data reflecting highlights of notable accomplishments in research and education in science and engineering; publications, patents, and extramural funding; collaborations; faculty hires and departures; engagement of postdoctorals, graduate students, and undergraduates; diversity of participants and institutions; external engagement; and cost sharing and cost contributions. Dialogue has continued with the EPSCoR community on the usefulness of the data made available via the templates and how those data are used to demonstrate EPSCoR success. Most recently, the templates have been modified to capture data on new investigators as called for in the America COMPETES Reauthorization Act of 2010. Also, in 2010, staff was added to the program to address the data capture and analysis needs of the Office

and the team is developing the means to capture longitudinal data reflecting outcomes of EPSCoR from its inception.

To aid in the collection and mining of data reported in annual/final reports, a supplemental award was made in FY 2012 to UT EPSCoR to develop an online system that can be used by the EPSCoR community. Five EPSCoR jurisdictions (Alaska, Hawaii, New Hampshire, New Mexico and Utah) are working to design a common, web-based data input / reporting output portal that would be suitable for adoption across all EPSCoR jurisdictions and projects. The overarching goal is to provide a web-based EPSCoR data input and report output package that would meet the NSF EPSCoR reporting and data management requirements. The working group determined that the Drupal open source Content Management platform provides a powerful tool for managing data inputs and reporting outputs via the existing EPSCoR websites. The Drupal Content Management system was chosen for a variety of reasons. First, Drupal is one of the fastest growing free-access content management systems in the world. It was developed from a community-based initiative much like the R statistical package. As a result, there is a very large community of users and programmers that work together to create new options and to offer advice on implementing novel programming directions. The Drupal-user community continues to grow, making programming expertise more readily available. Second, a number of large data initiatives currently underway employ facets of the Drupal system. This includes the input and storage of sensor-network data, something many EPSCoR jurisdictions either currently or soon will employ. Third, the platform allows assembly and archive of all forms of data (not just reporting data) that will allow EPSCoR scientists and educators to fully engage with other, activities such as DATAONE, LTER and NEON.

A pilot demonstration of the data portal is planned for the January, 2013 Project Directors and Project Administrators meeting to be held in Delaware and targeted for use by the larger community later in 2013.

COV: Critical Need of STEM Professionals- Broadening Participation

“The COV feels strongly about broadening participation as a critical National need in STEM professions. This lies at the very heart of generating and maintaining an effective domestic STEM workforce. Any change to the language of the Broader Impacts criterion that diminishes the importance of broadening participation may have a distinctly unwanted effect. The COV strongly encourages the continuation of EPSCoR’s efforts focused on broadening participation and maintenance of language in EPSCoR solicitations that emphasize the importance of broadening participation. The COV encourages the development of data bases that permit tracking of progress in broadening participation. The COV also supports the expanded participation of MSIs in EPSCoR programs and projects, including in leadership and full partner roles. The COV recommends that EPSCoR partner with EHR (HRD) and the SBE directorates

to identify practices to inform and support senior leadership of PUI (including two-year institutions) and MSI institutions to develop the administrative infrastructure necessary to fully participate in EPSCoR project activities, and build capacity for continued growth.”

EPSCoR will continue its emphasis on involvement of diverse populations (demographic, institutional) in programs and activities. Currently, RII award terms and conditions require tracking and reporting of data on project participants and continued funding is contingent on demonstrating year-over-year increases of female and underrepresented minority groups in research projects. However, changes to NSF reporting guidelines intended to ensure compliance with the Privacy Act will become effective in January 2013 and will limit what NSF can request and track. The EPSCoR program is reviewing the new guidelines to further understand what, if any impact, this will have on what is currently requested to demonstrate progress in the areas of broadening participation. It is anticipated that this will be done prior to January 2013 when the new guidelines become effective. This analysis will inform any needed action plans in this area.

Also, EPSCoR will continue its support of NSF Days and Regional Grants Conferences that are intended to assist institutions strengthen their administrative infrastructure. Further, through its outreach investment mechanism, EPSCoR provides travel support to NSF staff who can provide administrative guidance to Sponsored Research Office personnel in jurisdictions.

COV: EPSCoR Staff

“Given the magnitude and range of responsibilities that must be executed by EPSCoR, the COV recommends increasing the size of the EPSCoR staff.”

When fully staffed, the EPSCoR team consists of ten individuals in the following roles: Head, Senior Staff Associate, Administrative Manager, Program Specialist, Program Analyst, and five Program Officers. In addition, EPSCoR is supported by a student (part-time) who provides general office and managerial support. At the time of the COV review, three of these positions were vacant and the Senior Staff Associate was serving as the Acting Head of the Office. Active recruitment efforts to identify individuals who could fill these positions were underway. In early September 2012, the two Program Officer positions were filled and a Program Specialist joined the team in early October 2012. Also, the Senior Staff Associate was selected, contingent upon Office of Personnel management approval, as Head of the program in October 2012.

The COV panel commended the program’s efforts to strengthen the technical diversity of the team due to the program’s complexity; the new hires build on the team’s strengths in physics and add expertise in cyberinfrastructure, oceanography, Information Technology, and communications. All of the new hires are talented, competent individuals who can help EPSCoR develop, implement, and manage its portfolio. Workload and staffing will continue to be reassessed annually.