CORE QUESTIONS and REPORT TEMPLATE
for
FY 2003 NSF COMMITTEE OF VISITOR (COV) REVIEWS

Guidance to NSF Staff: This document includes the FY 2003 set of Core Questions and the COV Report Template for use by NSF staff when preparing and conducting COVs during FY 2003. Specific guidance for NSF staff describing the COV review process is described in Subchapter 300-Committee of Visitors Reviews (NSF Manual 1, Section VIII) that can be obtained at http://www.inside.nsf.gov/od/gpra/

NSF relies on the judgment of external experts to maintain high standards of program management, to provide advice for continuous improvement of NSF performance, and to ensure openness to the research and education community served by the Foundation. Committee of Visitor (COV) reviews provide NSF with external expert judgments in two areas: (1) assessments of the quality and integrity of program operations and program-level technical and managerial matters pertaining to proposal decisions; and (2) comments on how the outputs and outcomes generated by awardees have contributed to the attainment of NSF's mission and strategic outcome goals.

Many of the Core Questions developed for FY 2003 are derived, in part, from the OMB-approved FY 2003 performance goals and apply to the portfolio of activities represented in the program(s) under review. The program(s) under review may include several subactivities as well as NSF-wide activities. The directorate or division may instruct the COV to provide answers addressing a cluster or group of programs – a portfolio of activities integrated as a whole – or to provide answers specific to the subactivities of the program, with the latter requiring more time but providing more detailed information.

The Division or Directorate may choose to add questions relevant to the activities under review. NSF staff should work with the COV members in advance of the meeting to provide them with the report template, organized background materials, and to identify questions/goals that apply to the program(s) under review.

Guidance to the COV: The COV report should provide a balanced assessment of NSF's performance in two primary areas: (A) the integrity and efficiency of the *processes* related to proposal review; and (B) the quality of the *results* of NSF's investments in the form of outputs and outcomes that appear over time. The COV also explores the relationships between award decisions and program/NSF-wide goals in order to determine the likelihood that the portfolio will lead to the desired results in the future. Discussions leading to answers for Part A of the Core Questions will require study of confidential material such as declined proposals and reviewer comments. *COV reports should not contain confidential material or specific information about declined proposals.* Discussions leading to answers for Part B of the Core Questions will involve study of non-confidential material such as results of NSF-funded projects. It is important to recognize that the reports generated by COVs are used in assessing agency progress in order to meet government-wide performance reporting requirements, and are made available to the public. Since material from COV reports is used in NSF performance reports, the COV report may be subject to an audit.

We encourage COV members to provide comments to NSF on how to improve in all areas, as well as suggestions for the COV process, format, and questions.

FY 2003 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)

Date of COV March 9-11, 2003
Program/Cluster: PAEMST
Division: ESIE
Directorate: EHR
Number of actions reviewed by COV[1]: Awards: NA   Declinations: NA   Other: This program does not involve jackets.
Total number of actions within Program/Cluster/Division during period being reviewed by COV[2]:   Awards: NA   Declinations: NA   Other: NA
Manner in which reviewed actions were selected: 10 states were randomly selected.

PART A.   INTEGRITY AND EFFICIENCY OF THE PROGRAM'S PROCESSES AND MANAGEMENT

Briefly discuss and provide comments for *each* relevant aspect of the program's review process and management. Comments should be based on a review of proposal actions (awards, declinations, and withdrawals) that were *completed within the past three fiscal years*. Provide comments for *each* program being reviewed and for those questions that are relevant to the program under review. Quantitative information may be required for some questions. Constructive comments noting areas in need of improvement are encouraged. Please do not take time to answer questions if they do not apply to the program.

A.1 Questions about the quality and effectiveness of the program's use of merit review procedures. Provide comments in the space below the question. Discuss areas of concern in the space provided.

QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCEDURES	YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE
Is the review mechanism appropriate? (panels, ad hoc reviews, site visits) Comments: In general, the process for review of PAEMST state submitted applications by the National Selection Committee is appropriate. The raters, however, should give some rationale or evidence for their ratings, particularly in cases where they had serious concern about recommending anyone from a state. The "comments" sections should be filled out or a summative paragraph written with evidence that supports the decision. Little information was available about the quality of the process at the state level.	Yes
Is the review process efficient and effective? Comments: See some concerns raised below	Yes
Are reviews consistent with priorities and criteria stated in the program's solicitations, announcements, and guidelines? Comments: The reviews clearly spelled out what was considered important, and these are very consistent with guidelines and announcements.	Yes
Do the individual reviews (either mail or panel) provide sufficient information for the principal investigator(s) to understand the basis for the reviewer's recommendation? Comments: The 2001 rating sheet included detailed rating rubrics and asked for final rationale. The 2002 rating sheet was not as detailed so it was more difficult to see how each reviewer was interpreting the ratings. In 2002, there was no call for any concluding comments or evidence supporting the decision although in some instances reviewers offered them. The COV feels that this information is important in order to understand why an application was given a certain rating and to support this recommendation, if necessary.	Inconsistent
Do the panel summaries provide sufficient information for the principal investigator(s) to understand the basis for the panel recommendation?	No

Comments: Particularly in cases where it was determined that there was no qualified candidate from a given state, some further rationale to support the decision is needed. In a few cases this was clear by the low or limited number of ratings in the categories; in other cases the ratings were not obvious. The COV recommends that the evidence documenting decisions be recorded.	
Is the documentation for recommendations complete, and does the program officer provide sufficient information and justification for her/his recommendation? Comments: The documentation about the program at the national level is complete with the exception of that noted above regarding justification and the need to have a stronger record of evidence.	No
Is the time to decision appropriate? Comments: This has been a continual problem with this program, and NSF is to be commended for recognizing and working to improve the timeliness of the awards in relation to the application deadlines.	Yes

Discuss issues identified by the COV concerning the quality and effectiveness of the program's use of merit review procedures:

The introduction into the process of a video of the teacher's actual practice raises many new issues. One of these is related to the review process. To be sure that there is consistency in how the reviews are conducted, a training protocol was established and piloted. Revisions that would make this process more effective should be articulated and considered carefully as the program continues into the 2003 cycle. This includes adjustment of the review forms. This may have been done as part of the 2003 portfolio, which was not in the purview of this COV.

A.2 Questions concerning the implementation of the NSF Merit Review Criteria (intellectual merit and broader impacts) by reviewers and program officers. Provide comments in the space below the question. Discuss issues or concerns in the space provided.

IMPLEMENTATION OF NSF MERIT REVIEW CRITERIA	YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE	
Have the individual reviews (either mail or panel) addressed whether the proposal contributes to both merit review criteria? Comments: NA	Not applicable	
Have the panel summary reviews addressed whether the proposal contributes to both merit review criteria? Comments: NA	Not applicable	
Have the *review analyses* (Form 7s) addressed whether the proposal contributes to both merit review criteria? Comments: NA	Not applicable	
Discuss any issues or concerns the COV has identified with respect to NSF's merit review system. NA		

A.3 Questions concerning the selection of reviewers. Provide comments in the space below the question. Discuss areas of concern in the space provided.

SELECTION OF REVIEWERS	YES , NO, DATA NOT AVAILABLE, or NOT APPLICABLE
Did the program make use of an adequate number of reviewers for a balanced review? Comments: The evidence provided shows that the National Selection Committee (NSC) had an adequate number of reviewers.	Yes
Did the program make use of reviewers having appropriate expertise and/or qualifications? Comments: The members of the NSC did seem to have appropriate expertise. No evidence was available for the composition of state groups.	Yes
Did the program make appropriate use of reviewers to reflect balance among characteristics such as geography, type of institution, and underrepresented groups? Comments: The data about geography and type of institution was complete and balanced for FY 2002, but information about composition related to underrepresented groups was incomplete. There was no evidence provided about the process used at the state level.	Yes
Did the program recognize and resolve conflicts of interest when appropriate? Comments: While one member of the COV knew that the NSC was instructed about conflicts of interest and completed COI forms, this is not documented in the NSC agenda or materials that were provided.	Data not available
Discuss any concerns identified that are relevant to selection of reviewers. The COV has no evidence regarding the nature of the reviewers or the review process for the state level selection.	

A.4 Questions concerning the resulting portfolio of awards under review. Provide comments in the space below the question. Discuss areas of concern in the space provided.

RESULTING PORTFOLIO OF AWARDS	APPROPRIATE, NOT APPROPRIATE, OR DATA NOT AVAILABLE
Overall quality of the research and/or education projects supported by the program. Comments: The PAESMT is an excellent program with broad impact across the nation. The data from 2001 Horizon Research National Survey show that most awardees remain in the classroom and that they contribute to mathematics and science education at the local, state, and national level in greater numbers than teachers in general. The COV recommends that this report be disseminated broadly across the country as part of the publicity for the program and to support efforts to recruit applicants.	Appropriate
Are awards appropriate in size and duration for the scope of the projects? Comments: Change of the award amount was done carefully and in consultation with the state coordinators.	Appropriate
Does the program portfolio have an appropriate balance of: · High Risk Proposals? Comments:	Not applicable for this program
Does the program portfolio have an appropriate balance of: · Multidisciplinary Proposals? Comments:	Not applicable for this program
Does the program portfolio have an appropriate balance of: · Innovative Proposals? Comments:	Not applicable for this program
Does the program portfolio have an appropriate balance of: · Funding for centers, groups and awards to individuals? Comments: Increasing the funds to support reviewing the video component helps to compensate for the increased work at the state level	Appropriate

Does the program portfolio have an appropriate balance of: Awards to new investigators? · Comments:	Not applicable for this program
Does the program portfolio have an appropriate balance of: ·　　Geographical distribution of Principal Investigators? Comments: By design, the program represents every state and jurisdiction; a careful and thoughtful process was established when states had few or no qualified candidates	Appropriate
Does the program portfolio have an appropriate balance of: ·　　Institutional types? Comments: The National Selection Committee has representatives from a diverse and appropriate set of institutions.	Appropriate
Does the program portfolio have an appropriate balance of: ·　　Projects that integrate research and education? Comments: As the program continues, investigation into how the awardees might become part of a research project to identify and disseminate successul teaching practices should be pursued.	Not applicable for this program
Does the program portfolio have an appropriate balance: -　Across disciplines and subdisciplines of the activity and of emerging opportunities? Comments: The program is structured to balance participants in math and science and at elementary and secondary grade levels. A recommendation was made by one advisory group to change the award levels from two to three; possibly due to concern over lower elementary as a separate level. This recommendation should be considered in future planning.	Appropriate
Does the program portfolio have appropriate participation of underrepresented groups? Comments: Based on the information available to the COV, there is a continuing concern about how effectively the program reaches teachers from rural, inner-city urban, and lower socio-economic schools. Careful monitoring of data on those who	Data not all available

apply now that the video tape is required will be important to ensure this representation. A few states have had a very large number of applicants. The COV would like to see the strategies these states have used shared with other states, particularly if any of the strategies have successfully increased the participation of underrepresented groups.	
Is the program relevant to national priorities, agency mission, relevant fields and other customer needs? Include citations of relevant external reports. Comments: The program supports the mandate for high-quality teachers by identifying those who can serve as models, mentors, and leaders in improving STEM instruction.	Appropriate

Discuss any concerns identified that are relevant to the quality of the projects or the balance of the portfolio.

The COV has serious concerns about the continued lack of evidence for good quality control in the review and selection process at the state level.

A.5 Management of the program under review. Please comment on:

Management of the program.

Comments:
NSF has carefully and thoughtfully implemented the recommendations of the previous COVs related to the PAEMST program.

The plan to outsource more of the work to competent and effective contractors providing a structure to monitor their performance is a good strategy to free up program officers for other priorities. This should also enable increased consistency in the program and its management as program officers rotate assignments.

Responsiveness of the program to emerging research and education trends.

Comments:
The program has over the years evolved to include attention to standards and has recently added a video component and scoring rubric to gather convincing evidence of excellence in teaching. This is in keeping with the emerging use of video, technology, and assessment strategies in the broader field of education.

Program planning and prioritization process (internal and external) that guided the development of the portfolio under review.

Comments:
The PAEMST program continues to move in positive directions with adjustments made in response to the external evaluation of the program by Horizon Research, COV reports, and the advocacy of program officers who were committed to the need for stronger evidence about the quality of teaching in the program applications. In particular, NSF is to be commended for making decisions based on evidence and for bringing about changes in a well-designed and thoughtful way. Recognizing certain problems within the program, program officers carefully planned and implemented a process to bring about changes. They began by collecting data about the number of participants and trends across states and, based on these data and input from the field, made recommendations to address the issues they identified. The changes were processed within NSF in consultation with the White House and phased in from 2001 to 2002, with full implementation slated for 2003. This provided time for a pilot of the key elements (the use of video), its evaluation, and the revision of the process enabling the field to learn about and adjust to the changes gradually.

Discuss any concerns identified that are relevant to the management of the program. NA

PART B. RESULTS :   OUTPUTS AND OUTCOMES OF NSF INVESTMENTS

NSF investments produce results that appear over time. The answers to questions for this section are to be based on the COV's study of award results, which are direct and indirect accomplishments of projects supported by the program. These projects may be currently active or closed out during the previous three fiscal years. The COV review may also include consideration of significant impacts and advances that have developed since the previous COV review and are demonstrably linked to NSF investments, regardless of when the investments were made. Incremental progress made on results reported in prior fiscal years may also be considered.

The following questions are developed using the NSF outcome goals in the FY 2003 Performance Plan. The COV should look carefully at and comment on (1) noteworthy achievements of the year based on NSF awards; (2) the ways in which funded projects have collectively affected progress toward NSF's mission and strategic outcomes; and (3) expectations for future performance based on the current set of awards. NSF asks the COV to provide comments on the degree to which past investments in research and education have contributed to NSF's progress towards its annual strategic outcome goals and to its mission:
· To promote the progress of science.
· To advance national health, prosperity, and welfare.
· To secure the national defense.
· And for other purposes.

B. Please provide comments on the activity as it relates to NSF's Strategic Outcome Goals. Provide examples of outcomes (nuggets) as appropriate. Examples should reference the NSF award number, the Principal Investigator(s) names, and their institutions.

B.1 NSF OUTCOME GOAL for PEOPLE: Developing "a diverse, internationally competitive and globally engaged workforce of scientists, engineers, and well-prepared citizens."

Comments:
There is a growing body of evidence that the PAEMST program continues to be one of the gems of the ESIE portfolio. It is less clear how the K-12 STEM community can utilize the expertise of the program's cadre of excellent educators. The COV is pleased to see the efforts to improve the PAESMT based on the recommendations from the previous COV. The introduction of a video component, changing the amount of the reward, eliminating the state award, and increasing funding for state coordinators to manage the increased complexity of the review process at the state level were necessary and welcomed improvements.

Continued concerns that the COV would like to see addressed in the future are:
1. Consider the alignment of the award categories to appropriate grade clusters;
2. Provide appropriate direction to national and state selection committees as to grade appropriate content and pedagogy;
3. Carefully m
onitor the number of applications now that a video is required, both for total number of applicants and those from underrepresented groups.
At the national level, the COV is concerned about the documentation of evidence for the decisions made with respect to rating the candidates' applications.
The COV would like to see much more detailed reports from the state coordinators describing all aspects of the state selection process including the criteria used, the training process for judges, descriptions of judges, and demographic information about candidates. Efforts to enhance and support the PAEMST program at the state level should also be included, e.g.., what states have done to increase application by minority candidates.

The COV would like information about the effect of the Public Relations firm. Is the firm still involved? In what ways, and what benefits have they brought to the program?

The
COV feels that there are still concerns about how the awardees are identified at the state level, and that the awardees are untapped resources to improve STEM education. What is the value added that these people bring to state or national efforts? In relation to NSF, it is not clear that PAs are really used to inform NSF efforts. While COV would assume that this is taking place, there was no documentation or indication that this is, in fact, happening.

B.2 NSF OUTCOME GOAL for IDEAS: Enabling "discovery across the frontier of science and engineering, connected to learning, innovation, and service to society."

Comments: Not relevant to program goals.

B.3 OUTCOME GOAL for TOOLS: Providing "broadly accessible, state-of-the-art and shared research and education tools."

Comments: Not relevant to program goals.

PART C. OTHER TOPICS

C.1 Please comment on any program areas in need of improvement or gaps (if any) within program areas.

At the national level, the COV is concerned about the documentation of evidence for the decisions made with respect to rating the candidates' applications.

The COV feels that there are still concerns about how the awardees are identified at the state level, The COV would like to see much more detailed reports from the state coordinators describing all aspects of the state selection process including the criteria used, the training process for judges, descriptions of judges, and demographic information about candidates. Efforts to enhance and support the PAEMST program at the state level should also be included, e.g., what states have done to increase application by minority candidates. In particular, states that have a large pool of applicants should be encouraged to share their recruitment strategies.

The COV would like information about the effect of the Public Relations firm. Is the firm still involved? In what ways and what benefits have they brought to the program?

C.2 Please provide comments as appropriate on the program's performance in meeting program-specific goals and objectives that are not covered by the above questions.

The program is an excellent addition to the NSF portfolio, and in most respects it is well done. The major concerns were covered in the above questions.

C.3 Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.

The COV is concerned that the awardees are untapped resources in NSF's efforts to improve STEM education. What is the value added that these people bring to state or national efforts? In relation to NSF, it is not clear that PAs are used to inform or support NSF work. While COV would assume that this is taking place, there was no documentation or indication that this is, in fact, happening.

C.4 Please provide comments on any other issues the COV feels are relevant.

Continued concerns that the COV would like to see addressed in the future are:
1. Consider the alignment of the award categories to appropriate grade clusters;
2. Provide appropriate direction to national and state selection committees as to grade appropriate content and pedagogy;
3. Carefully monitor the number of applications now that a video is required, both for total number of applicants and those from underrepresented groups.

C.5 NSF would appreciate your comments on how to improve the COV review process, format and report template.

The NSF staff was unfailingly helpful and responsive to every need or question raised during the process. The materials gathered for examination by the COV were extensive and for the most part, complete.

Completing the template as a way to prepare the report facilitated the process although interpretations from staff were often required. This COV found it more effective to address issues and concerns throughout the template rather than at the end of each section. The template might be streamlined a bit as some of the questions seem to overlap, as can be noted in the responses.

Time spent setting the context for the review was invaluable for the COV but additional time to examine the evidence and prepare the report might have been more useful to the COV.

[1] To be provided by NSF staff.

[2] To be provided by NSF staff.