

### V. ASSESSMENT AND EVALUATION PROCESS

We employ a mix of both qualitative and quantitative goals, and make use of both qualitative information and quantitative data in determining annual progress towards achieving goals. Our strategic outcome goals are generally expressed in a qualitative form, and most management goals are quantitative.

#### STRATEGIC OUTCOME GOALS

We have traditionally made use of various types of assessments and evaluations to monitor non-quantitative research and education outcomes, the quality of our investments, and the processes we use. Formalized examination takes place during merit review of proposals, COV and AC/GPA assessments, and GPRA reporting. Additionally, programs and plans are assessed and evaluated throughout the year on a continuing basis by NSF staff. Elements of GPRA reporting are highlighted in the figure below.

#### MANAGEMENT GOALS

We make use of internal data systems to monitor and report progress in achieving the quantitative management goals. For these goals, performance results are assessed and reviewed by our administrative staff and managers, with selected goals audited by external third parties. Selected results are verified and validated by a third party.

The assessment process for the quantitative goals is straightforward. We collect relevant data using internal corporate data systems and compare the result with the performance level targeted for the fiscal year. Progress towards achievement of most quantitative goals is reviewed by senior management on a quarterly basis. In FY 2000, an agency-wide GPRA module that collects data relevant to the quantitative goals was created to allow staff to track progress throughout the year. Development of that module continues.

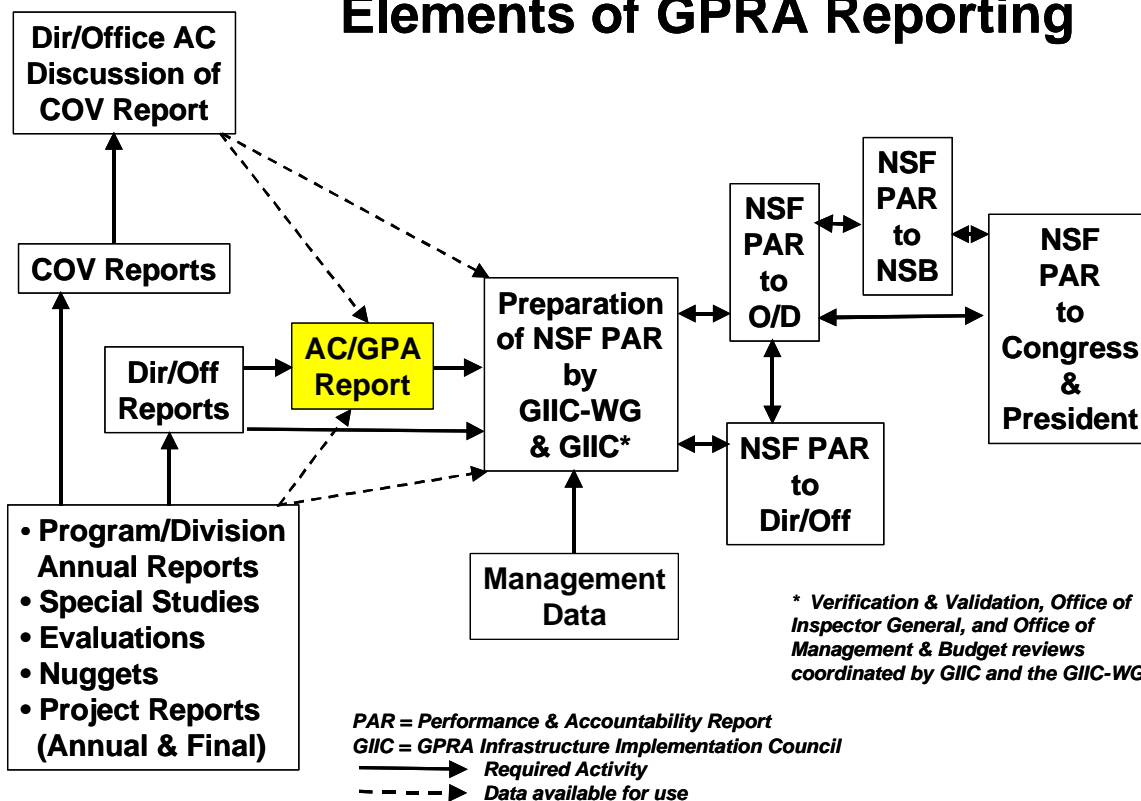
#### Project Assessment During NSF Merit Review

Applicants and grantees provide results from previous NSF support, information about existing facilities and equipment available to conduct the proposed activity, biographical information on the Principal Investigators, other sources of support, federally required certifications and certifications specific to NSF. Such information is required at the time of application, at the time of an award, and in annual and final project reports. It is reviewed by NSF staff, is utilized during merit review, and is available to external committees (COVs and the AC/GPA) conducting performance assessment. The merit review process provides a rigorous, first phase of assessment of NSF's research and education portfolio. Thus, at the onset, this process selects for support only the most competitive one-third of proposals submitted for consideration.

Program Officers review the annual progress of awards. The progress report includes information on significant accomplishments, on progress achieved in the prior year, and on plans for the next year, and points out issues that may impact progress or completion of the project on schedule and within budget. On approval of this report by the Program Officer, NSF releases funds for the ensuing year.

All materials associated with the review of a proposal as well as subsequent annual reports are available to Committees of Visitors. NSF staff also prepares materials (reports, evaluations, highlights) for use by COVs and the AC/GPA in developing their reports and making their assessments.

## Elements of GPRA Reporting



November 25, 2002

### Program Assessment by Committees of Visitors (COVs)

NSF's Committees of Visitors provide program assessments that are used both in program management and in annual GPRA reporting. Included are assessments for outcome goals and associated indicators and for the two qualitative investment process goals dealing with the implementation of the merit review criteria. In the past, COVs have traditionally assessed the integrity and efficiency of the processes for proposal review. With the full implementation of GPRA FY 1999, NSF added a retrospective GPRA assessment component (both outputs and outcomes) to their responsibilities.

Each COV typically consists of five to twenty external experts who review one or more programs over a two or three day period. These experts are selected to ensure independence, programmatic coverage, and balanced representation. They typically represent academia, industry, government, and the public sector.

All COVs are asked to complete a report template with questions addressing how programs contribute to NSF's goals. Committees of Visitors are asked to address (A) the integrity and efficiency of the *processes* involved in proposal review; and (B) the results, including quality and other factors, of NSF's investments. In determining whether there has been significant achievement with respect to the prescribed performance indicators, COV members use their individual or collective experienced-based norms.

The FY 2002 COVs were asked to judge whether our programs were successful or not in achieving Outcome Goals III-1a, III-2, and III-3, and in implementing the merit review criteria Management Goals IV-2 and IV-3). COVs are asked to justify their judgements and provide supporting examples or statements illustrating success and progress toward GPRA goals.

## **V. – Assessment and Evaluation Process**

---

COVs are subcommittees of NSF Directorate Advisory Committees. As such, their reports, along with responses from the responsible Directorate addressing recommendations made by the COVs, are submitted to the parent Advisory Committee. The reports are also reviewed by NSF staff.

### **Advisory Committee (AC) Reporting on Directorate/Office Performance**

Advisory Committees advise the seven directorates and the Office of Polar Programs. They are typically composed of 18-25 external experts who have broad experience in academia, industry, and government. Advisory Committees are chartered and hence are subject to Federal Advisory Committee Act (FACA) rules. The role of the ACs is to provide advice on priorities, address program effectiveness, review COV reports and directorate responses to COV recommendations.

In FY 2001 and previous years, directorate advisory committees assessed directorate progress in achieving NSF-wide GPRA goals. With the advent of the AC/GPA (see below), advisory committees no longer assess directorate progress towards these goals.

### **Advisory Committee for GPRA Performance Assessment**

During FY 2002 NSF determined that a more effective and efficient process for the assessment of NSF performance with respect to the strategic outcome goals was to have a single external committee of experts review all Foundation accomplishments with respect to strategic goal indicators and areas of emphasis. This committee would then provide an assessment of NSF-wide performance with respect to these strategic goal indicators.

A request to create such an advisory committee, named the Advisory Committee for GPRA Performance Assessment (AC/GPA), was approved in the summer of 2002. Its first meeting was held in September. The AC/GPA had access to information provided by each of the NSF Directorates and the Office of Polar Programs. It also had access to COV reports. The AC/GPA provided NSF with a report concerning NSF performance with respect to the indicators of each strategic goal, as well as all of the COV reports (discussed above). The report also discussed NSF areas of emphasis, the quality of the NSF portfolio, balance within the portfolio, and other topics.

### **Agency GPRA Reporting**

The COV and AC/GPA reports prepared by external experts address a broad set of issues ranging from staffing and quality of merit review to specifics of a scientific project. The GPRA components of these reports are used in assessing NSF's progress toward achieving its People, Ideas, and Tools outcome goals (Goals III-1a, III-2 and III-3.) These reports also contain discussions of management goals related to use of merit review criteria by reviewers (Goal IV-2) and Program Officers (Goal IV-3). Both are stated in the alternative form. A quantitative goal (Goals III-1b) associated with the People outcome goal is evaluated using relevant quantitative data.

The criterion for success for each of the People, Ideas, and Tools outcome goals can be stated:

*“NSF is successful when, in the aggregate, results reported in the period demonstrate significant achievement in the majority of the [associated indicators].”*

This criterion is utilized for judgements about agency success for GPRA People-Ideas-Tools outcome goals. For agency assessment, all goals and indicators are relevant and all are used in determining agency

success. The agency decision for NSF is based on analysis of the statements contained within the AC/GPA and COV reports.

NSF staff examine individual ratings or statements of significant accomplishment included in COV and AC/GPA reports to ensure that ratings for the qualitative outcome goals and indicators are justified. In addition, they check for supporting evidence or examples supporting such judgements.

Principal factors contributing to NSF's decision that the agency is successful in FY 2002 for our outcome goals related to People, Ideas, and Tools include:

- The AC/GPA report found that NSF indicator portfolios documented “significant achievement” with respect to all indicators for the strategic outcome goals.
- The extensive number and quality of retrospective examples demonstrating significant achievement for the 19 indicators associated with NSF's three outcome goals.
- The NSF COV reports.

Each year, selected goals are verified and validated (V&V) by external third parties. That V&V process and this year's results are discussed in Section VI of this Performance and Accountability Report.