

## **DIVISION OF SCIENCE RESOURCES STATISTICS 2006 COMMITTEE OF VISITORS-LIKE REVIEW**

SBE wishes to thank the members of the SRS “COV-like” Committee and their Chair, Dr. Shirley Malcom, for the impressive report and review that they produced on the SRS Division. The members had an especially difficult task because SRS performs unique functions that are quite different from other NSF Divisions. The Committee was faced with the considerable challenge of assessing SRS’s progress towards several recommendations of an NRC report of 2000. Further, the Committee was asked to evaluate SRS’s readiness for achieving increased interaction with the other SBE divisions to better integrate the data-related mission of SRS with the research missions of the other divisions in the development of Science Metrics.

SBE also wants to express great appreciation for the willingness of the members of the Committee to review the voluminous quantity of materials that SRS provided to them in preparation for the meetings.

In accordance with NSF procedures, this response will describe actions to be taken on the major recommendations made by the Committee in their report.

### **MAJOR RECOMMENDATIONS**

#### **1. “SRS should enhance continuous review and renewal.”**

SBE notes that SRS engages in an extensive process of interaction and outreach to researchers, policymakers, and respondents through a variety of mechanisms, but can do more in this area. SBE agrees that SRS can articulate more clearly its priorities for data collection, analysis and publication. SBE notes that the Division does provide goals and target deadlines for data release that are posted on the SRS website (see: <http://www.nsf.gov/statistics/release.cfm>) but will move to increase the prominence of this information. SRS will pursue additional means to inform the user community about its products and data collections. Implementing a comment made by the Committee, SRS will add to its website the overview chart of its surveys, prepared for the Committee, to provide a quick reference for users as to what data are currently available. SBE notes that the Division has a subscription base of over 6,000 customers who receive email notification of every SRS publication release and the website recorded an average of over 8,500 page views each day in the last six months.

SBE appreciates the Committee’s assessment that SRS has improved the quality of its data through a broad range of statistical methodologies and should now further strengthen its relationships with data users. The new Industry Experts Panel, developed in response to the 2005 CNSTAT report on the R&D portfolio, includes two policy users and researchers. As additional follow-up, SRS will propose to the SBE Assistant Director

additional policy users and researchers as members of the SRS Breakout Group of the SBE Advisory Committee.

SBE thinks the suggestion to establish a dissertation grants program and a summer institute to grow new, young users of SRS data is an extremely valuable one that fits very well with the aim of building a Science Metrics policy community. SBE has requested that the Division explore ways to convert the existing SRS grants program into a dissertation grants program and anticipates that this can be accomplished very soon. SRS will consider ways to re-engineer the existing joint summer database institute with NCES so that it will better serve research and policy users of SRS data including dissertation grantees and their advisors. SBE will follow the Committee's advice to pursue strategies to enhance the visibility and knowledge about SRS's products and data collections. The Division has been successful in making its website more prominent and easily accessible from the NSF home page. SRS will continue to implement ways to increase the usability and accessibility of the SRS website, subject to the constraints of NSF guidelines for all NSF websites and NSF's technology infrastructure.

SRS has a very structured and extensive program of interactions with data users and respondents through focus groups, record-keeping interviews, workshops, conferences and site visits. For the 2003 SESTAT surveys SRS developed brochures on how the data are utilized that were included in structured experiments in contact letters with respondents. (The result of that effort revealed that including the brochures did not increase response rates, and in some cases, may have had a slight negative effect on response rates.) Respondents are also offered copies of SRS reports. SBE will strongly encourage the Division to enhance its ongoing efforts to strengthen outreach to respondents in ways that will contribute to maintaining or improving response rates. SRS has embedded experiments in its surveys to learn about emerging issues such as occupation and training. In order to provide sufficient information for occupation coding, SRS implemented and refined a method to collect open-ended information on fields of degree and occupation for every respondent in the SESTAT surveys.

SBE appreciates the Committee's commendation of SRS's data initiatives, especially the Division's new policy for linking the Human Resources data to other databases. SBE notes that, in this effort, SRS has had to be very cognizant of the confidentiality issues involved and the potential impact this may have on respondents if there is a misperception that their personal information is being released to researchers. Additionally, SRS is actively promoting standards on data matching, data release, and data availability that adhere to national and international standards.

SBE shares the Committee's concern for the need to monitor how well the module on public attitudes toward and knowledge of science and technology on the General Social Survey (GSS) serves user needs. A number of meetings with users and researchers in this field were held prior to undertaking the GSS module, and it is expected that SRS, in conjunction with researchers and policy users, will pursue continuous improvement in the module, while maintaining crucial variables which researchers and policy users have indicated are necessary to retain for trend analysis. SRS recognizes that its stand-alone

survey of public attitudes had lacked a process of continuous review and renewal over the years, and SBE is committed to ensuring that this will not be the case for the GSS module.

## **2. “SRS as a statistical agency should balance improved data quality with analysis.”**

SBE appreciates the Committee’s commendation for the improvements that SRS has made in the past five years in strengthening its processes, staff expertise and standards in order to produce high quality data on the S&E enterprise. The Committee cited timeliness as an area where SRS should make improvements and made three recommendations in this area-- establishing survey release dates, instituting a timeliness indicator, and releasing preliminary data. SRS already posts the next data release dates for its surveys on its website at <http://www.nsf.gov/statistics/release.cfm>, but will explore ways to make that information more visible to users. The Division does maintain internally a timeliness indicator for data release from its surveys (a PART measure for statistical agencies). SRS will examine how that information can be conveyed to users. The length of the data collection period is a major contributor to the time between reference date and release of data for many of SRS’s surveys. The Division is currently implementing efforts to reduce the data collection period for the current survey cycle for the annual surveys of academic institutions. The Committee also suggested releasing preliminary data followed by updated and corrected information, and SBE will have SRS actively evaluate how that might be done, without delaying release of the final data. SRS has been considering the possibility of releasing a key indicator per survey as preliminary data--such as the total industrial expenditures for R&D by broad source of funding.

SBE appreciates the concern of the Committee that there may be steps in the SRS review process that “do not clearly add substantial value.” The publication/product review and approval process was re-engineered by a committee of staff and managers. Since its implementation in January 2004, several adjustments have been put in place to speed production and review of products, such as use of an external contractor to do data checking for Detailed Statistical Tables (DSTs) and the elimination of the professional edit for methodology reports. SBE will ask SRS to re-examine the process once the new efforts have been in place long enough to have an impact in order to determine what further improvements can be made to speed up the process.

SBE will follow the suggestion of the Committee to balance staff training on survey methodology with similar efforts to further enhance the substantive expertise of staff about the S&T enterprise. For staff training on survey methodology, SBE notes that the Division purchased specialized training modules by experts for SRS staff (and others in SBE who were interested in attending). This was a highly successful model for SRS. SBE will ask SRS to consider whether such a model or some other approach is most appropriate to provide training related to policy issues and analysis.

SBE strongly agrees with the Committee’s recommendation for the need for staff to actively analyze data, attend conferences, present papers and generally represent SRS to

external users. SRS does have an active program to do this, but that it is constrained by its limited resources for travel and training. As the Committee correctly indicated throughout the review, SRS has limited staff resources, which must be devoted to essential data collection, analysis, and production of products. As opportunities open to recruit additional staff, SRS can strengthen its analytical capacity and provide opportunities for both existing and new staff to engage in additional analytical activities.

### **3. “SRS should enhance data collections on the S&E workforce, especially postdoctorates.”**

SBE agrees strongly with the Committee’s sentiment that the data collections on the S&E workforce should be enhanced and notes that this will be very important for Science Metrics. As the Committee notes, SRS has begun this process with enhancements to the Survey of Doctorate Recipients by following individuals with U.S. doctorates who have left the country and is moving toward adding a starting salary question to the Survey of Earned Doctorates in the 2008 survey. SRS explored the possibility of matching names of employers from Dun & Bradstreet with the SESTAT non-academic respondents and found that the data were of very low quality. Understanding the needs of researchers and policy users, for the non-academic respondents to the 2003 SESTAT surveys, SRS has released for the first time, the Census industry codes on employers reported in the SESTAT surveys. The industry codes are those used for these employers by Census in their demographic surveys.

Over the past two years SRS has conducted extensive activities related to enhancing data collected about those in postdoctorate positions (postdocs). There have been a number of researcher, policy user and respondent workshops and other efforts to ascertain the need for information about postdocs and the feasibility of collecting it, both to inform SRS’s next steps and to develop the justification to OMB for new or enhancing current data collections. The most difficult problem is developing sampling frames of postdocs—many of whom come to this country after receiving a foreign doctoral degree. SRS has just received a commissioned report recommending several approaches to developing frames and gathering information. SRS will implement a feasibility study of some of the proposed approaches to developing sampling frames by the end of this year. If these prove to be feasible, SBE will direct the Division to move quickly to implement a postdoc data collection strategy.

SBE will have SRS implement the Committee’s recommendation to establish an advisory panel for its Human Resources surveys, to be heavily populated by policy and research users of these data. Discussions are already underway with a member of the COV-like Committee on appropriate names of individuals for the advisory panel. In the past, SRS may not have been attentive to providing feedback to members of its ad hoc advisory groups. It already has in place a feedback loop for its SBE Advisory Committee Breakout Group and will develop similar mechanisms for its newly established Industry Experts Panel and the planned Human Resources Experts Panel.

**4. “SRS should consider a number of improvements in workload balance and the need for additional staff.”**

SBE agrees with the Committee that SRS staff and management are stressed—the Division’s budget has grown over 70% in 5 years (2000-2005) but the staffing levels have remained essentially flat. The problem has been exacerbated by the fact that in recent years NSF has decentralized down to the division level many administrative procedures that used to be done centrally and introduced new procedures, which have increased the workload of all staff. To alleviate some of these pressures, SRS is hiring an additional administrative staff member to assume some of the administrative burden from the professional staff. The Division has three other hiring actions in the pipeline at present, which will also alleviate the burden on staff. SBE anticipates that SRS will gain an additional slot in FY07 and experience some retirements over the next several years. As these vacancies occur, SRS will determine how to address the recommendations for a chief social scientist/economist, junior staff, and more substantive expertise.

SRS has already started looking at the issues of succession management and how to cope with unanticipated workload crises --which become significant during the Indicators cycle. A partial solution to the pattern of having one staff member per survey that SRS has been employing over the past several years is a matrix management approach to major new undertakings, such as major redesigns of SRS surveys. This approach has several advantages -- broadening the range of skills and expertise brought to bear on such efforts, better utilizing the particular skills of individual staff members by applying them to multiple projects, and expanding familiarity across the division of major projects, which will be advantageous for succession management. This approach has been highly successful for the biennial analytical activity of Indicators. SBE notes, however, that the transition may increase stress on some employees, as they adjust to the new work patterns.

Finally, regarding the Committee’s last point, SBE is pleased to note that SRS is already well engaged in the development of the Science Metrics initiative and is, for example, working with the other SBE divisions in a series of workshops on innovation as well as representing NSF on various task forces related to the initiative. The Division is expected to be a strong force in implementing the initiative and appreciates the recommendations of the Committee that will help maximize the contributions of SRS.