

## Supporting Statement for Paperwork Reduction Act Submissions

### Section A. Justification

#### A1. Circumstances Making Information Collection Necessary

General interest in the National Science Foundation (NSF)'s portfolio has sparked on-going and sustained interest in programs and/or funding opportunities supporting high-risk research and other endeavors that have the potential for considerable impact on Science and Engineering (S&E) research and education (National Science Board, Committee on Programs and Plans Task Force on Transformative Research, <http://www.nsf.gov/nsb/committees/active.htm>).

Since 1989, the Small Grants for Exploratory Research (SGER), a special grant-making mechanism, has been in place to fund activities that are judged to be small-scale, exploratory, and high-risk. This special funding mechanism allows program directors to make small grants with Division Director concurrence and without external review (NSF, Proposal and Awards Manual NSF Manual #10; NSF, Grant Proposal Guide NSF 04-23). SGER proposals are appropriate for

- Preliminary work on untested and innovative ideas;
- Ventures into emerging and potentially transformative research areas;
- Application of new expertise or approaches to "established" research topics;
- Urgent situations regarding the availability of or access to, data, facilities, or specialized equipment, including quick response research on natural or anthropogenic disasters and similar unanticipated events; and
- Efforts of similar character likely to catalyze rapid and innovative advances.

There is little aggregated information on the SGER portfolio of archived and current projects; the development, submission and review process; the impact of the SGER grant-making mechanism on S&E research and education; and the impact of SGERs on investigators and participants (e.g. undergraduate/graduate students, workshop attendees) involved in the research/activities. NSF has called for a descriptive and exploratory study of the SGER mechanism as a first step to address this lack of aggregated information.

The study covers 18 years, from implementation of the SGER mechanism in fiscal year 1990 through fiscal year 2007. Quantitative data will be collected through surveys of (1) all principal investigators (PIs) who received one or more SGER awards during this period, and (2) all individuals who submitted one or more SGER proposals during the 2002–2007 period and who *never* received a SGER award over the entire 18-year period of the SGER mechanism's existence (note: names of declinees are not available from NSF's electronic databases prior to 2002). There are two survey instruments: one for SGER awardees and one for SGER proposers who never received a SGER award.

#### A2. Purposes and Use of Information

This study is the first effort to examine, Foundation-wide, the application process, the research/activities funded, the outcomes, and the broader impacts to date resulting from SGER awards. A major component of the study is the collection of data from the PIs who have submitted proposals using the SGER mechanism. This data collection will be conducted through Web surveys of (1) PIs who received one or more SGER awards (awardees), and (2) SGER proposers who never received a SGER award (non-awardees). Information desired from each group includes:

- (1) Principal Investigators with SGER Awards:
  - PI's sources of information about the SGER mechanism;
  - PI's reasons for applying for a SGER award;
  - Helpfulness of the NSF program officer to the PI during proposal preparation;
  - Characteristic category(ies) applicable to the SGER award (as defined in the NSF Grant Proposal Guide): all applicable categories and primary category;

- Number of people who worked on the SGER grant by type and demographic characteristic: undergraduate and graduate students, postdocs, faculty/researchers, K-12 teachers; women, underrepresented minorities;
- Collaboration with industries/businesses, federal labs, state/local government entities on the SGER grant;
- Grant findings and outcomes, both expected and unexpected, related to:
  - research plan: faulty reasoning or other problems with the plan, refinement of research questions;
  - contributions to knowledge: preliminary findings about novel/untested ideas, new avenues of research/new hypotheses, sufficient data collected for use in a follow-on proposal, development of new techniques/tools/instruments or modification of existing ones, rapid and innovative research advances, potentially transformative findings, data collected on a disaster or other situation where a quick response was essential;
  - dissemination of findings: new database available to other researchers, supplement to/enhancement of existing database, published books/articles, patent applications, dissemination to the public or to professional communities at meetings/conferences/workshops;
- Follow-on, regular proposals (if any) on the same topic submitted for peer review: whether/not awarded, agencies submitted to, agency that awarded, any transformative results;
- PI's perspectives on the SGER award: influence on the PI's pursuit of a line of research, influence on the PI's access to certain equipment/facilities, sufficiency of the timing/ amount of funding and duration of the award, challenges/problems with the design of the SGER mechanism, whether/not the PI would apply for another SGER;
- Background information: type of most advanced degree (PhD, MD, etc.), sex, ethnicity, race. Gender and race/ethnicity will be used to examine the diversity of the PIs.

(2) Declinees (non-awardees):

The non-awardees will be asked many of the same questions, as relevant. In addition, the following information specific to non-awardees will be collected:

- PI's view on why the proposal was declined: too risky, not risky enough, program officer changed, etc.;
- PI's submission of the declined research idea in a regular (peer-reviewed) proposal: whether/not awarded, agencies submitted to, agency that awarded, any transformative results.

**A3. Use of Information Technology to Reduce Burden**

Web-based questionnaires will be the primary data collection mode. A hard copy of the questionnaire will be sent to survey participants who do not have Internet access. Web surveying provides thorough editing as data are entered for completeness, validity, and consistency. Web-based surveys employ user-friendly features such as automated tabulation, data entry and error messages for easy online correction, standard menus, and, for analysis, predefined charts and graphics. All of these features facilitate the reporting process, provide useful and rapid feedback to the data providers, and reduce the cost of data collection.

**A4. Efforts to Identify Duplication; Why Similar Information Cannot Be Used**

This is the first time a study of the SGER mechanism has been conducted. This study and the survey questionnaires do not duplicate information collected by other NSF efforts from the same respondents.

**A5. Impact on Substantial Number of Small Businesses or Other Small Entities**

No respondents are from small firms.

## **A6. Consequences of Not Collecting the Information**

If the information is not collected, NSF will be unable to report on the results and effectiveness of the SGER awards Foundation-wide. Without this data collection it will not be possible to determine if anything should be modified in the design or implementation of the SGER mechanism to enhance its effectiveness.

## **A7. Special Circumstances that Require Information to be Conducted in a Manner Inconsistent with Guidelines in 5 CFR 1320.6**

The data collections will comply with 5 CFR 1320.6.

## **A8. Consultation with Persons Outside the Agency**

A notice of this study was published in the Federal Register on October 18, 2007 [Volume 72, Number 201] [Page 59116] [DOCID:fr18oc07-80]. A copy of the notice is included as Appendix A to this submission. No public comments were received.

Information-gathering interviews were conducted over the telephone with eight PIs who had received SGER awards. Their comments were used to develop the Survey of SGER Principal Investigators (awardees).

## **A9. Explanation of Payments or Gifts to Respondents**

There will be no payments or gifts to PI respondents..

## **A10. Assurances of Confidentiality**

Respondents will be advised that any information on specific individuals will be maintained in accordance with the Privacy Act of 1974. Specifically, it has been policy in similar NSF studies conducted by SRI that only SRI staff have access to data that can be linked to individuals. No data that can identify an individual will be provided to NSF staff in any form. Reports from this study will include only aggregate data so that no individual respondent or his/her organization can be identified. In the cover letter for the survey and on the questionnaire's cover sheet, respondents will see the project's confidentiality statement.

## **A11. Questions of a Sensitive Nature**

No questions of a sensitive nature are included.

### **A12.1. Number of Respondents, Frequency of Response, and Annual Hour Burden**

The study will be conducted in large part through two surveys of: (1) 3,778 PIs who received one or more SGER awards in the 1990–2007 period, and (2) 580 SGER proposers in the 2002–2007 period who have never received a SGER award.

The names and contact information for the respondents were obtained from two NSF databases: (1) the Program Officer Interface System (POIS), and (2) the NSF publicly available award information at <http://www.nsf.gov/awardsearch/>. The information for SGER awardees came from both databases; the information for the non-awardees came from POIS. Names of non-awardees are not available electronically prior to 2002.

The awardee survey will be sent to the 3,778 PIs who received one or more SGER awards between 1990 and 2007. The non-awardee survey will be sent to the 580 SGER proposers in the 2002–2007 period who have never received a SGER award. Assuming a 75% response rate for each survey, 2,834 awardees and 435 non-awardees will respond to the relevant survey. Each individual will respond one time.

The estimate of burden per respondent, based on previous similar surveys and internal pretests, is 20 minutes for PIs who received a SGER award and 15 minutes for individuals who never received a SGER award. The total estimated response burden for the study, calculated by multiplying the number of respondents to each form by the burden per respondent for that form, is 1,429.50 hours. (See table in Section A12.2, below.)

### A12.2. Hour Burden Estimates by Each Form and Aggregate Hour Burdens

There are two data collection forms: one survey questionnaire for PIs who received a SGER award, and one survey questionnaire for individuals who never received a SGER award. The table below shows the number of respondents for each questionnaire, the respondent burden for each individual per questionnaire, and the aggregate hour burden per questionnaire.

<b>Study of SGER Mechanism: Estimated Respondent Hour Burden</b>			
<b>Form Type</b>	<b>Number of Respondents</b>	<b>Burden Hours Per Respondent</b>	<b>Aggregate Hour Burden</b>
Awardee questionnaire (1990–2007)	3,778	0.34	1,284.50
Non-awardee questionnaire (2002–2007)	580	0.25	145.00
<b>TOTAL</b>	<b>4,358</b>	<b>--</b>	<b>1,429.50</b>

### A12.3. Estimates of Respondent Cost Burden

The overall cost to the respondents for the study is estimated to be \$45,173. The estimated hourly wage rate for PIs is based on 2005–06 faculty salary data from the Department of Education's National Center for Educational Statistics Integrated Postsecondary Education Data System, published in *The Condition of Education*, Table 44-1a (<http://nces.ed.gov/programs/coe/2007/section5/table.asp?tableID=743>).

<b>Study of SGER Mechanism: Estimated Respondent Cost Burden</b>				
<b>Form Type</b>	<b>Number of Respondents</b>	<b>Burden Hours Per Respondent</b>	<b>Estimated Hourly Rate</b>	<b>Estimated Respondent Cost</b>
Awardee questionnaire (1990–2007)	3,778	0.34	\$31.60	\$40,590.83
Non-awardee questionnaire (2002–2007)	580	0.25	\$31.60	\$4,582.00
<b>TOTAL</b>	<b>4,358</b>	<b>--</b>	<b>--</b>	<b>\$45,172.83</b>

### A13. Estimate of Total Capital and Startup Costs/Operation and Maintenance Costs to Respondents or Record Keepers

There is no overall annual cost burden to the respondents other than the time spent completing the questionnaires (see Appendix B).

### A14. Estimates of Costs to the Federal Government

The estimated cost to the government of all data collection, analysis, and reporting activities for this study is \$557,047 over 2 years and 4 months. (Base Contract Number: GS10F0554N NSFDCS06D1186) In addition, an estimated 380 hours of NSF staff time will be expended during the study. Using an average \$55 hourly rate covering administrative, program manager/COTR, and advisory panel time, the estimated cost of NSF personnel effort is \$20,900.

The estimated costs include:

**Study of SGER Mechanism: Estimated Cost to Federal Government**

<b><u>Contractor Costs</u></b>	
<u>Personnel</u>	\$ 535,827
<u>Other Direct Costs</u>	
Materials and Services	\$ 2,338
Staff Travel & Per Diem	\$ 400
Support cost burden	\$ 116
G & A on support costs	\$ 765
<u>Total Contractor Costs</u>	\$ 539,447
<b><u>NSF Costs</u></b>	
<u>Personnel</u>	\$ 20,900
<u>Total NSF Costs (not contracted to SRI)</u>	\$ 20,900
<b><u>Total, All Costs</u></b>	<b>\$ 560,347</b>

**A15. Change in Burden**

There is no change in burden.

**A16. Plans for Publication, Analysis and Schedule**

Time Schedule for Study:

September 2006 to February 2008

- Prepare study design
- Interview PIs
- Develop questionnaires
- Submit package to OMB
- Pre-test questionnaires

March 2008 to December 2008

- Receive OMB clearance
- Conduct surveys
- Analyze survey data
- Prepare interim and final reports

There will be no complex analytical techniques used, such as imputation and sampling.

**A17. Approval to Not Display Expiration Date**

Not applicable

**A18. Exceptions to Item 19 of OMB Form 83-1**

No exceptions apply.