Human and Social Dynamics: Competition for FY 2004 (HSD)

Program Solicitation
NSF 04-537
Replaces Document NSF 03-552

National Science Foundation

Directorate for Social, Behavioral, and Economic Sciences
Directorate for Biological Sciences
Directorate for Computer and Information Science and Engineering
Directorate for Education and Human Resources
Directorate for Engineering
Directorate for Geosciences
Directorate for Mathematical and Physical Sciences
Office of International Science and Engineering
Office of Polar Programs

Letter of Intent Due Date(s) *(required):*

March 03, 2004

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):

March 30, 2004

Last digit of Awardee Institution's five digit zip code is 0, 1, 2, or 3

March 31, 2004

Last digit of Awardee Institution's five digit zip code is 4, 5, or 6

April 1, 2004

Last digit of Awardee Institution's five digit zip code is 7, 8, or 9

REVISIONS AND UPDATES

To avoid overloading NSF's FastLane system, the proposal deadline for HSD (NSF 04-537) has been divided over a three day period, March 30, March 31 and April 1, 2004, according to the five-digit portion of the nine-digit zip code associated with your Awardee Institution listed on the NSF Proposal Cover Sheet. See Full Proposal Deadlines listed above.

There is no restriction on submitting earlier than the deadline. Collaborative proposals must comply with this requirement as well, i.e., each institution must meet the deadline according to its Awardee Institution's zip code above.

This notice is also be posted in greater detail as an Advisory on the FastLane home page. Consult the FastLane home page regularly for updates.

General Information

Program Title:

Human and Social Dynamics: Competition for FY 2004 (HSD)

Synopsis of Program:

The Human and Social Dynamics (HSD) priority area aims to foster breakthroughs in knowledge about human action and development as well as organizational, cultural, and societal adaptation and change. Such a transformation in basic understanding would parallel the explosion of knowledge about the physical and biological worlds that characterized the twentieth century. HSD aims to increase our collective ability to anticipate the complex consequences of change; to better understand the dynamics of human and social behavior at all levels, including that of the human mind; to better understand the cognitive and social structures that create and define change; and to help people and organizations better manage profound or rapid change. Accomplishing these goals requires a comprehensive, multidisciplinary approach across the sciences, engineering, and education, including the development of infrastructure that can support such efforts.

The FY 2004 competition will include three topical emphasis areas (Agents of Change; Dynamics of Human Behavior; and Decision Making and Risk) and three resource-related emphasis areas (Spatial Social Science; Modeling Human and Social Dynamics; and Instrumentation and Data Resource Development). Support will be provided for research-focused, education-focused, infrastructure-focused, and exploratory projects.

Cognizant Program Officer(s):

- Please see the full text of this funding opportunity for contact information.

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.074 --- Biological Sciences
- 47.070 --- Computer and Information Science and Engineering
- 47.076 --- Education and Human Resources
- 47.041 --- Engineering
- 47.050 --- Geosciences
- 47.049 --- Mathematical and Physical Sciences
- 47.078 --- Office of Polar Programs
- 47.075 --- Social, Behavioral and Economic Sciences

Eligibility Information

- **Organization Limit:**

  Only U.S. organizations may submit proposals for this competition. Organizations from outside the U.S. may participate as subawardees.

- **PI Eligibility Limit:** None Specified.
- **Limit on Number of Proposals:** None Specified.

Award Information

- **Anticipated Type of Award:** Standard or Continuing Grant
- **Estimated Number of Awards:** 40 to 60 - About 40 to 60 awards will be made across all emphasis areas, including 16 to 20 research-focused awards, 8 to 14 education-focused awards, 4 to 6 infrastructure-focused awards, and 12 to 20 exploratory awards.
- **Anticipated Funding Amount:** $18,000,000 This total for new awards is anticipated to be committed across all emphasis areas, pending availability of funds. Of the $18,000,000, $5,000,000 has been reserved for infrastructure-focused projects.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Submission of Letters of Intent is required. Please see the full text of this solicitation for further information.
- **Full Proposal Preparation Instructions:** This solicitation contains information that deviates from the standard Grant Proposal Guide (GPG) proposal preparation guidelines. Please see the full text of this solicitation for further information.

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required.
- **Indirect Cost (F&A) Limitations:** Not Applicable.
- **Other Budgetary Limitations:** Not Applicable.

C. Due Dates

- **Letters of Intent** *(required)***:**
    March 03, 2004
- **Full Proposal Deadline Date(s)** (due by 5 p.m. proposer's local time):

     March 30, 2004

          Last digit of Awardee Institution's five digit zip code is 0, 1, 2, or 3

     March 31, 2004

          Last digit of Awardee Institution's five digit zip code is 4, 5, or 6

     April 1, 2004

          Last digit of Awardee Institution's five digit zip code is 7, 8, or 9

Proposal Review Information

- **Merit Review Criteria:** National Science Board approved criteria. Additional merit review considerations apply.

Please see the full text of this solicitation for further information.

Award Administration Information

- **Award Conditions:** Standard NSF award conditions apply.
- **Reporting Requirements:** Standard NSF reporting requirements apply.

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I. INTRODUCTION

The Human and Social Dynamics (HSD) priority area seeks to stimulate breakthroughs in knowledge about human action and development as well as organizational, cultural, and societal adaptation and change. Such a transformation in basic understanding would parallel the explosion of knowledge about the physical and biological worlds that characterized the twentieth century. The arrival of the twenty-first century has brought with it new hopes and possibilities for better living. Revolutionary technologies and ideas that are the product of human minds have created a more closely linked world, within which there is almost instantaneous transmission of information that feeds a global economy. But it is also a world of change, uncertainty, and disruption that leaves many uncertain about how to respond.

Research about human and social behavior is increasingly characterized by a focus on dynamics -- on how cognitive systems, individuals, formal and informal organizations, cultures, and societies evolve and change over space and time.

Scientific understanding of the dynamics of mental processes, individual behavior, and social activity increasingly requires partnerships that span the different science and engineering research and education communities.

For example, the convergence of biology, engineering, the cognitive and social sciences, and computer and information sciences facilitates basic knowledge about the evolution and limits of human, group, and organizational behavior at levels never before possible. At the same time, it offers computer scientists and engineers more realistic models of human learning and of the organizational space in which their tools are employed. Bridging these fields creates new possibilities for those engaged in teaching, learning, and educational systems to transform practice in science, technology, engineering and mathematics classrooms.

Likewise, geographic information systems and related technologies together with advances in multilevel modeling of complex systems and network analysis from the mathematical and physical sciences have opened new frontiers for understanding such diverse subjects as crime, environmental management, epidemics, and linguistic behavior. These understandings inform problem-solving research in the social and behavioral sciences as well as the biological, physical, and information sciences and engineering.

Through the HSD priority area, NSF seeks to promote research and education activities that will enable the nation to better understand the causes and ramifications of myriad forms of change that have altered the world in which we live. HSD aims to increase our collective ability to anticipate the complex consequences of change; to better understand the dynamics of human and social behavior at all levels, including that of the human mind; to better understand the cognitive and social structures that create and define change; and to help people and organizations better manage profound or rapid change.

The challenges posed by the need to understand individual and group behavior in the context of natural, human-built, and social environments are immense. They require research that breaks down disciplinary boundaries and embraces interactions that range in time from nanoseconds to millennia and across scales ranging from the internal workings of the human mind to the interplay of global social and cultural systems. Accomplishing the goals of the HSD priority area requires a comprehensive, multidisciplinary approach across science and engineering research and education including the development of an infrastructure that can support such efforts.

In its first year, the HSD priority area will support research and education within and across three topical emphasis areas and three resource-related emphasis areas. The three topical emphasis areas focus on substantive issues associated with the dynamics of change, behavior at different scales, and human responses to changing situations. The three resource-related emphasis areas focus on methods, tools, and resources needed to advance research and educational capabilities and to help realize the potential of the priority area. All six emphasis areas encompass topics for which interdisciplinary synergies hold special promise for important breakthroughs.

The three topical emphasis areas are:

- **Agents of change.** Examination of large-scale transformational changes over different scales, such as globalization, democratization, economic transformations, migrations, and epidemics; the reciprocal relationship between individual and social action, including its role in educational settings; the evolution of culture and society and its interaction with climate, geography, and environment in settings ranging from high-density cities to sparsely populated polar regions; the implications of cultural variation for conflict and assimilation; the implication of large-scale transformational changes for diversity and equality; and adaptation and resistance to technological change and new science- and engineering-based knowledge.
- **Dynamics of human behavior.** Explorations into the dynamics of change in human behavior over time, including links between mental processes and human behavior; the dynamics through which individuals and collective entities form, grow, learn, change, and act under the impetus of internal and external stimuli; and explorations of cognitive, computational, linguistic, developmental, social, economic, organizational, cultural, biological, and other processes as dynamic, evolving systems.
- **Decision making and risk.** Explorations of changing risks and risk perception and of how these changes affect decision making and help shape human and social behavior; individual and societal responses to risk, such as translation and interpretation of complex scientific information for decision making; decision making under uncertainty associated with many factors, including environmental change, and responses to hazards and extreme events; research on how educational processes or systems respond to changes in risk and risk perceptions; and basic understanding about chronic risks, especially in the areas of environment, energy, and health.

The three resource-related emphasis areas are:

- **Spatial social science.** Exploration of how recent technological advances (such as embedded sensors, global positioning systems, and geographic information systems) that provide tools and techniques for acquiring geospatial information can be combined with behavioral, demographic, political, health-related, historical and other social data to advance fundamental understandings of the spatial dimensions of human and social dynamics and/or to expand the utility and accessibility of those tools.
- **Modeling human and social dynamics.** Advances in modeling theory and techniques as well as research involving innovative combinations of empirical and theoretical models designed to specify causal relationships, despite confounding factors, in human and social dynamics; the development and application of innovative approaches for improved understanding of complex interactions, such as stochastic agent-based modeling, social network analysis, and new techniques for modeling human behavior and interaction using innovative information and engineering technologies.
- **Instrumentation and data resource development.** Development of instrumentation and software that takes advantage of advanced technologies and development of data resources, including new and extended longitudinal databases, collaboratories, and mechanisms for preserving confidentiality in databases that incorporate sensitive biological, behavioral, and social information.

HSD projects within and across these emphasis areas will break down barriers that separate the social and behavioral sciences from one another, from other science and engineering disciplines, and from education. The cross-fertilization and synergies that mixing disciplines makes possible will yield new approaches to collaboration both substantively and through the interplay of models drawn from many fields. The knowledge generated by HSD projects can lay the groundwork for innovations in education, including science, technology, and engineering curricula. Incorporating international cooperation, developing an integrated community of HSD researchers, and strengthening education and training opportunities with an HSD focus have the potential to create not just new understandings of the complexities of human and social life, but also new modes of synergistic collaboration for science and engineering research and education.

II. PROGRAM DESCRIPTION

NSF invites proposals for innovative research on human and social dynamics and related educational activities. HSD encourages the development of integrative and diverse interdisciplinary teams, the creation and/or use of shared resources (data, instrumentation, methodologies, etc.), and international collaborative partnerships (when appropriate). Proposed activities should branch beyond narrow disciplinary perspectives and contribute to building interdisciplinary communities of researchers and educators prepared to meet the challenges of this exciting area. Because the HSD priority area seeks to stimulate research that contributes to fundamental knowledge across disciplines, team proposals and other collaborative arrangements through which individuals work together in synergistic ways are encouraged. Inclusion of more junior researchers as team members also is encouraged.

HSD awards will enable researchers and educators to pursue different kinds of activities:

- **Research-focused projects**, which aim to advance fundamental understanding about important facets of human and social dynamics across multiple disciplinary communities. In addition to advancing fundamental knowledge, projects should integrate education with research and/or have other kinds of positive broader impacts. NSF anticipates that most research-focused projects will range in duration from three to five years and have total award sizes ranging from $250,000 to $750,000.
- **Education-focused projects**, which aim to improve the knowledge, capacity, and capabilities of individuals and groups to develop and use new approaches for the study of human and social dynamics and to strengthen efforts in communicating associated research findings in the classroom and other learning environments. NSF anticipates that most education-focused projects will range in duration from one to four years and have total award sizes ranging from $50,000 to $150,000.
- **Infrastructure-focused projects**, which will provide critical resources for many different research communities and facilitate the conduct of human and social dynamics research and education. NSF will provide support for major activities to improve instrumentation and to develop data resources and other forms of infrastructure. The outcomes and products of infrastructure-focused projects should make significant, long-term contributions to research across a broad range of disciplines. NSF anticipates that most infrastructure-focused projects will range in duration from three

to five years and have total award sizes ranging from $1,500,000 to $6,000,000.

- **Exploratory projects**, which will enable teams or individuals to conduct preliminary work on specific research, education, and/or infrastructure projects or broader-ranging efforts like workshops that aim to increase awareness, capabilities, and networks within and across scholarly communities. Exploratory projects should result in tangible products or other ways of communicating findings that can be disseminated across a range of disciplines through appropriate outlets in order to help facilitate and strengthen HSD-related scholarly communities. Exploratory projects may have durations of up to two years and have total award sizes of up to $200,000 in the Instrumentation and Data Resource Development emphasis area and up to $100,000 in all other emphasis areas.

A. AREAS OF EMPHASIS

During Fiscal Year 2004, all proposals submitted to the Human and Social Dynamics priority area competition **must** focus on one or more of the three following topical emphasis areas:

- Agents of Change (AOC)
- Dynamic of Human Behavior (DHB)
- Decision Making and Risk (DMaR)

Proposals that address more than one of these topical emphasis areas are encouraged.

The HSD priority area also is interested in encouraging the development of resources (methods, tools, and research infrastructure) that facilitate or enable innovative research in the substantive emphasis areas. Proposals submitted to HSD may place emphasis on the development of methods, tools, instrumentation, or data resources in one or more of the resource-related emphasis areas:

- Spatial Social Science (S3)
- Modeling Human and Social Dynamics (MOD)
- Instrumentation and Data Resource Development (IDR)

Proposals related to one or more of the three resource-related emphasis areas **must** also advance knowledge in at least one of the topical emphasis areas (AOC, DHB, or DMaR). By requiring relationships with topical emphasis areas, HSD seeks to facilitate the development and adaptation of methods, tools, and/or infrastructure in conjunction with advances in topical knowledge.

The three topical emphasis areas are:

Agents of Change (AOC)

The Agents of Change (AOC) emphasis area focuses on the dynamics of large scale changes in humanity and society. Such changes often transcend national and physical boundaries and range over various temporal scales. AOC projects should focus on events and processes that relate to human, institutional, and social transformations. These events and processes can be of natural or human origin. Globalization, democratization, migrations, and epidemics exemplify large-scale transformational change. These and other transformations usually involve cascading interactions of human beliefs and behaviors and social and economic institutions with environmental and technological forces, including science-based knowledge. In addition, they often raise new ethical questions or require that new attention be given to questions previously thought settled.

Following are examples of topics that might be the basis for AOC research-focused projects:

- How regional or global political, economic, or educational institutions affect each other and are influenced by technological change and science- and engineering-based knowledge.
- Relationships between human or social evolution and cultural, environmental, educational, and/or technological change.
- Forces affecting diversity and equality or inequality among individuals, groups, nations, or global regions.

- Factors that lead to conflict or foster cooperation among people.
- Reciprocal relationships among education, national economies, and population growth.
- Ethical and social transformations accompanying changes in organizations or other groups and ways in which new findings in science and engineering or new technologies are embraced.
- Social and organizational influences on the success or failure of technology adoption.
- The effects of weather and climate change or the implications of war and social conflict on the growth and dispersion of civilizations and linguistic communities.
- Global market transformations in relationship to natural systems and major societal change, such as migration and dislocation.

Projects should generate new knowledge about the dynamics of human and social transformations.   Projects involving collaborative teams of social or behavioral scientists with natural or physical scientists, computer scientists, engineers, or educational researchers are especially welcome, as are projects including specialists in the history, philosophy, or ethics of science, engineering, and technology. Results should have significance for the research literature and have the potential to shed light on important global or regional transformations of human and social behavior.

As one part of the AOC emphasis area, NSF encourages proposals that examine the role of national education policy or national institutions as agents of change. (See Section IX, "Other Programs of Interest," for more information.)

Dynamics of Human Behavior (DHB)

The Dynamics of Human Behavior (DHB) emphasis area focuses on the dynamics of change in human behavior over time. It seeks to unravel links between mental processes and human behavior as well as the dynamic processes through which individuals and collective entities (especially groups, firms, and other organizations) form, grow, learn, change, and act under the impetus of internal and external stimuli. Increasing knowledge about the behavior of humans requires understanding of biological, computational, cognitive, linguistic, social, and cultural processes, often interacting with each other. Individuals often act through collective entities like organizations, which have interests and behave in ways that are distinct from and often not easily predicted by the behavior and interests of the individuals that constitute them. The dynamics of human behavior also involves exploration of how humans interact with other systems, be they natural or artificial.

Understanding these interrelationships requires input from many disciplines, including mathematics, computer science, biology, the physical sciences, engineering, physiology, neuroscience, and the social and cognitive sciences at all levels of abstraction and scale. For example, mathematical models, such as network models employed in the biological and physical sciences, are important tools for understanding both human cognition and organizational action. Nanotechnology opens up new pathways for exploring the human mind, and engineering and information technologies make possible new forms of organizational intelligence and coordination.

DHB projects that promote partnerships across scientific, engineering, and education-related disciplines to better understand how the dynamics of human, group, and organizational behavior are encouraged. Theoretical, methodological, and technical approaches all contribute to this goal. Examples of research that might be supported in this emphasis area include:

- Inquiries that employ formal concepts about dynamics from mathematics, the physical sciences, information science, and engineering to characterize dynamic behavior at the individual or organizational level, such as work that draws on complexity theory, dynamical systems theory, and bifurcation analysis.
- Studies of dynamic interactions among social institutions, human biology, and the environment over time, including historical perspectives.
- Efforts that draw on the convergence of the biological sciences, computer and information science, engineering, nanotechnology, and robotics to better understand human cognitive development or the nature of skills, such as the human facility for language acquisition.
- Augmenting cognitive capabilities by addressing human biases and limitations through the use of information technology, nanoscience, and engineering.
- Studies that explore the capacities of organizations (whether public or private) to assimilate information and the effects of new technologies on these capacities.
- Efforts to explore empirically changes in the survival and growth of organizations and other groups using network, agent-based, evolutionary, or other dynamic process models.
- Studies of moment-by-moment interactions among humans using embedded and distributed sensors and related information technology to capture the ongoing interactions in the context of environmental changes.

- Studies of how humans navigate through natural and built environments and efforts to design environments that incorporate this knowledge.
- Studies of similarities and differences in individuals and organizational motivations or of the effects of organizational embeddedness on individual perceptions and motivations.

Decision Making and Risk (DMaR)

The Decision Making and Risk (DMaR) emphasis area supports projects that focus on the processes through which people, groups, and organizations make decisions under conditions of risk and uncertainty. Perceptions of risk vary with human, cultural, and social systems. Individual and group responses to risks vary with how information is generated, structured, analyzed, and presented. Technological change, information access, and uncertainty also influence risk perception and decision- making. Risk perceptions are affected by the nature, frequency, and magnitude of the sources of risk. Responses to chronically occurring conditions, such as obesity and the presence of radon, are different from responses to risks associated with phenomena that usually vary within moderate limits, such as weather conditions or market prices, and these differ from responses to extreme events like earthquakes or cascading system failures in electric power grids. Responses also vary depending on the sources of risk, as people respond differently to natural hazards than they do to human factors, such as terrorist attacks or underinvestment in education or in critical infrastructure. As emphasized in the *Integrated Research in Risk Analysis and Decision Making in a Democratic Society* report to NSF following a 2002 workshop, the kinds of research necessary to address responses to risk and their influence on decision making depends on the nature of the risk.

During FY 2004, NSF encourages research-focused proposals that focus on the nexus of risk and decision making, including chronic risks, risks from vulnerabilities in critical infrastructure systems and networks, and risks from extreme events. NSF encourages integrated and interdisciplinary research that brings together relevant theory, methods, and findings from the social and behavioral sciences, the physical and natural sciences, and engineering as well as scholarship in ethics and law. NSF expects proposals to explain how the research will draw from these fields to explain the roles of information, prior experience, emotion, and/or organization in supporting problem solving and decision making in new situations. It encourages proposals to develop tools and interfaces that can help individuals, groups, and organizations (whether public or private) cope with changes in decision-making contexts and compare and choose from among competing courses of action. Examples of topics that DMaR research might address include:

- The role of technologies in decisions concerning risk management and how this has changed over time.
- New approaches to market designs that integrate concerns about risk and efficiency in complex systems, such as utility systems like electric power grids.
- The changing role of ethical factors in risk perception, communication, and management.
- The ways that private- or public-sector actions amplify or diminish risk from chronic circumstances or extreme events.
- How prior experience informs problem solving and decision making, and how it can be used or adapted for new situations.
- Decision tools and related technologies to assist in risk estimation and decision making given differences in risk perception across individuals and populations.
- Predicting and representing uncertainty associated with extreme natural hazards, such as earthquakes, landslides, hurricanes, tornadoes, and magnetic storms.
- Individual or organizational strategies to cope with changes in decision-making contexts.
- How social, economic, political, cultural, and psychological factors interact with the natural and built environment to influence risk and vulnerability.
- How cognition and emotional judgments interact to affect perceptions of and responses to risk.
- How the provision, dissemination, and translation of scientific information shapes perceptions of and responses to risk.

Projects may consider decision making and risk as dependent or independent variables, but they are strongly encouraged to link social scientific analyses with engineering or/and natural system analyses. Collaborative efforts using interdisciplinary teams are preferred. At least one member of a team should have expertise in relevant social or behavioral science disciplines, including history, philosophy, or ethics of science, engineering, and technology.

Education projects associated with DMaR are encouraged to improve education in decision- making and risk analysis. Education-related proposals may involve any or all levels of education and should include rigorous evaluations of education activities.

The three resource-related emphasis areas are:

Spatial Social Science (S3)

The Spatial Social Science (S3) resource-related emphasis area focuses on the development and use of new spatial techniques and approaches to study human and social dynamics. Through interdisciplinary collaborations, new topically relevant knowledge about the spatial dimensions of human and social dynamics and/or the development of new tools can advance spatial social science.   Recent technological advances have significantly altered the kinds of spatial information that can be gathered and analyzed to increase understanding of human and social dynamics. Among the new tools are global positioning systems, which provide highly precise locational specification; geographic information systems, which help gather, analyze, and present spatial data; spatial decision making tools; mobile sensors and transmitters; and advanced environments for information access and transmission. Advances also have occurred in spatial analytic methods, including the development of new spatial statistics.

These new tools have increased the use of locational variables in analyses of human and social dynamics along with spatial aspects of other relevant variables. As a result, NSF is encouraging new lines of inquiry that use these tools in investigations across a broad range of cognitive, behavioral, demographic, economic, social, cultural, political, legal, and environmental topics. Examples of research topics that will benefit from enhanced use of spatial perspectives and approaches include:

- Neighborhood effects on social activities.
- Community contexts within which social, educational, economic, and political processes occur.
- The growth of regional and global networks that defy traditional geographic and spatial boundaries.
- Spatial dimensions of reciprocal interactions among historical and contemporary science, engineering, and technology developments and human behavior.
- Spatial aspects of human biological and cultural evolution.
- Interactions among different social, economic, cultural, political, and legal processes and natural environmental systems in different locales and geographic contexts.

Projects involving spatial social science should integrate expertise on the processes and phenomena of human and social dynamics with expertise in the development, adaptation, and use of spatial analytic techniques. NSF is particularly interested in encouraging the development of research teams of two or more individuals who collectively have expertise in both the substantive HSD topics to be explored and in spatial analytic methods, but not every team member needs to have had experience in the practice of spatial social science.

The core of an S3 project should be research on a well-defined topic that will advance basic understanding of human and social dynamics. An S3 project must also relate to at least one of the topical emphasis areas (AOC, DHB, or DMaR).

Modeling Human and Social Dynamics (MOD)

The Modeling Human and Social Dynamics (MOD) resource-related emphasis area focuses on the development and use of innovative models in the study of human and social dynamics. Recent advances in knowledge, resources, and technology allow fundamental breakthroughs in modeling complexity and enable the transformation of modeling practices through a merging of theoretical and empirical approaches in ways that can integrate static and dynamic analyses and help identify causal relationships. MOD will support research on modeling approaches that enhance understanding of human and social behavior at multiple scales. Collaborations that involve disciplines that use models extensively, such as physics, mathematics, information science, the geosciences, biology, and engineering are likely to provide opportunities for significant advances. Partnerships involving substantive experts and those who have expertise in model development and validation can generate modeling approaches that stimulate new lines of inquiry regarding HSD topics, while the questions of HSD researchers drive the development of new modeling tools.

The unifying goal of the MOD resource-related emphasis area is to develop approaches for better understanding the causal linkages and other critical relationships associated with human and social dynamics. Both empirical and formal-theoretical approaches are relevant, as are models that combine approaches.

To encourage synergies of this sort, MOD will emphasize modeling in the context of HSD research and educational themes.

Working with the other areas of emphasis to support new interdisciplinary partnerships, MOD aims to support scientific advances in modeling tools and methods that are available for human and social dynamics research. It also seeks to enhance the transparency and increase the accessibility of these tools. MOD is particularly interested in interdisciplinary HSD research activities that incorporate at least one of the following modeling approaches:

- Theoretical approaches that build on mathematical representations that include (but are not limited to) ideas from game theory, adaptive (least squares) and Bayesian learning, structural equation models, dynamic stochastic modeling, and dynamical system approaches.
- Innovative empirical approaches that include (but are not limited to) applied statistical procedures or experimental procedures. "Hybrid" techniques, such as agent-based modeling, also are welcome.
- The direct linking of theoretical approaches with experimental or empirical tests. This includes the development of new and better models through an interactive and iterative use of the component theoretical and empirical approaches.

During FY 2004, projects related to the MOD emphasis area must advance knowledge in at least one of the topical emphasis areas (AOC, DHB, or DMaR). Possible lines of inquiry include the development and application of stochastic agent-based modeling, complex social network analysis, and techniques for modeling human behavior and interaction using innovative information and engineering technologies. Proposals should make clear the expected contributions of projects both to the state of the art in modeling and to substantive understandings in other emphasis areas.

Instrumentation and Data Resource Development (IDR)

The Instrumentation and Data Resource Development (IDR) resource-related emphasis area focuses on the development and use of shared instrumentation and data resources for human and social dynamics research and education. The goal of the IDR emphasis area is to create or extend innovative, large-scale infrastructure projects that are likely to facilitate major advances in the understanding of human and social dynamics.

New and improved infrastructure is necessary to support and enhance the broad range of human and social dynamics research and education activities. Development of instrumentation and data resources will take advantage of information technology, microelectronics, nanotechnology, photonics, robotics, sensing systems, modeling, data mining, and meta-analysis techniques to address fundamental questions associated with human and social dynamics. Data resources are expanding in a variety of formats, including new and extended longitudinal databases and mechanisms for preserving confidentiality in databases that incorporate sensitive biological, behavioral, and social information. New kinds of instrumentation will continue the process of opening new lines of inquiry that build on technological advances, such as functional magnetic resonance imaging (fMRI), global positioning systems, and tools for genetic analysis and neuroinformatics.

Infrastructure provides critical data and observational capabilities to support many different projects, especially when the costs of data-acquisition or instrumentation would be far greater than the benefits that might be associated with a specific project. Infrastructure facilitates both collaborative and comparative research as well as more effective and efficient use of instruments and data resources. The development of new forms of instrumentation and data broadens the range of questions that scientists and engineers can try to answer.

Infrastructure-focused projects may be in one or more of the following categories:

- Projects that support the collection, dissemination, and quality enhancement of data from surveys, experiments, administrative records, case studies, historical records, objects of investigation (such as DNA or archaeological items) or other sources in order to answer important scientific and engineering questions associated with the study of human and social dynamics.
- Projects that support or extend facility infrastructure, archives, and other knowledge systems and tools that enable world-wide access to interoperable digital libraries, databases, repositories, and collections of physical objects that incorporate innovative capabilities for the creation, use, and archiving of information with, where necessary, data confidentiality protection.
- Projects that support collaboratories to enable real-time controlled experimentation in ways that allow researchers to share the use of expensive experimental equipment and/or to share widely the process and results of research in progress.

- Projects that support the development and/or deployment of instrumentation and techniques that can be brought to bear on key HSD questions.
- Projects that create and/or extend longitudinal databases or mechanisms for preserving confidentiality in databases or that develop and deploy mechanisms for preserving confidentiality in databases that incorporate sensitive biological, behavioral, and social information.

During FY 2004, projects supported in the IDR resource-related emphasis area must advance knowledge in at least one of the topical emphasis areas (AOC, DHB, or DMaR). All infrastructure proposals should make clear how the larger community will gain access to and otherwise be served by the proposed infrastructural development.

B. GENERAL INFORMATION REGARDING ALL EMPHASIS AREAS

NSF has special interest in proposals that develop and employ innovative approaches in the study of human and social dynamics. All HSD proposals will be evaluated with respect to their intellectual merit, their broader impacts, and their responsiveness to the goals of the HSD competition. Special consideration will be given to the extent to which projects are likely to contribute to understanding of human and social dynamics across a range of disciplines. Proposals therefore should describe expected contributions across relevant disciplines. Multidisciplinary advisory panels will evaluate all proposals. (Projects of $100,000 or less in size may be evaluated solely by a multidisciplinary panel of program officers without external review.) When appropriate, international collaborative partnerships are encouraged.

In addition to conducting the work outlined in their proposals, principal investigators are expected to attend a biennial meeting of HSD awardees. This meeting will enable awardees to communicate with each other, share project results, discuss issues of common interest, and participate in activities designed to facilitate the integration of research and education.

III. ELIGIBILITY INFORMATION

The categories of proposers identified in the Grant Proposal Guide are eligible to submit proposals under this program announcement/solicitation.

IV. AWARD INFORMATION

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds. (See Section II of this solicitation for additional information.)

Research-focused projects. NSF anticipates making 16 to 20 awards for research-focused projects across the AOC, DHB, DMaR, S3, and MOD emphasis areas. The awards will be made as standard grants.

Education-focused projects. NSF anticipates making 8 to 14 education-focused awards across the AOC, DHB, DMaR, S3, and MOD emphasis areas. The awards will be made as standard grants.

Infrastructure-focused projects. NSF anticipates making 4 to 6 infrastructure-focused awards, each of which is related to the IDR emphasis area and at least one of the topical emphasis areas. These awards most likely will be made as continuing grants or as cooperative agreements.

Exploratory projects. HSD expects to make 12 to 20 exploratory awards across all six emphasis areas. The awards will be made as standard grants.

The amounts of funding for other types of projects will depend on the number, range, and quality of proposals submitted for the HSD competition.

A. Proposal Preparation Instructions

Letters of Intent *(required):*

Letters of Intent (LOI) are mandatory and must be submitted via a web-form available at http://www.nsf.gov/home/crssprgm/hsd/ by no later than March 3, 2004. The LOI should include all relevant information for all institutions as discussed below. The PI should include the following information on the web-form:

- The HSD emphasis area(s) for which the proposal is relevant. (Note that proposals relevant for the S3, MOD, and IDR resource-related emphasis areas must also be relevant for at least one of the topical emphasis areas (AOC, DHB, or DMaR).)
- Designation of the project as a research-focused, education-focused, infrastructure-focused, or exploratory project.
- The title of the project (up to 100 characters).
- A brief project description (up to 2,500 characters).
- The names and affiliations of the Principal Investigator, co- principal investigators, and other senior personnel from all institutions involved, including paid consultants and subawardees.
- The e-mail address of the Principal Investigator.
- The submitting organization and any other organizations likely to be subawardees.

NSF will acknowledge the receipt of the LOI via an e-mail message, which will include a copy of the information that was submitted. An acknowledged LOI provides the eligibility for submission of a Full Proposal. Proposals submitted without an acknowledged LOI will be returned without review. If an e-mail acknowledgement is not received, please notify NSF immediately at hsd@nsf.gov. Please save your e-mail acknowledgement, because you will need to upload it into the supplementary documentation section of the Full Proposal.

For collaborative projects, submit only one letter of intent. One copy of the e-mail acknowledgement should be included in the supplementary documentation section of the Full Proposal for the project.

Full Proposal Instructions:

Proposals submitted in response to this program announcement/solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF *Grant Proposal Guide* (GPG). The complete text of the GPG is available electronically on the NSF Website at: http://www.nsf.gov/cgi-bin/getpub?gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.

Proposals not in conformance with the proposal-preparation requirements of the NSF Grant Proposal Guide will be returned without review.

This program solicitation requests material about the personnel involved in the project. Please use the following definitions to provide the corresponding information.

- ***Principal Investigators*** -- Individuals (including both the Principal Investigator and all co-principal investigators) who would assume responsibility for an award resulting from this competition, who would manage the award, and who are listed on the cover sheet of the proposal.
- ***Senior Personnel*** -- All principal investigators, any other named senior personnel who will receive salary support (including paid consultants and subawardees), and non-salaried senior investigators who will play lead roles in the conduct of the project.
- ***Project Participants*** -- Every person involved with the research project, including students.

Cover Sheet

Prepare the cover sheet first. Check that the Awardee and Performing Organizations are correct. Highlight the Program Solicitation Number NSF 04-537 and click the "Select" button. Next highlight one or more of the six relevant emphasis areas (AOC, DHB, DMaR, S3, MOD, IDR) listed in the Program Box and click the "Select Program" button. (Please remember that any proposals that relate to the S3, MOD, and IDR resource-related emphasis areas must also relate to at least one of the topical emphasis areas (AOC, DHB, or DMaR).) Your proposal will automatically be assigned to the correct directorate and division based on your selection of the emphasis areas. Prepare the remainder of the cover sheet in accordance with instructions in the GPG and on FastLane.

If the project involves human subjects, check the Human Subjects box on the cover sheet. If the Institutional Review Board (IRB) of the submitting organization has certified that the proposed project is in compliance with the Federal Government's "Common Rule" for the protection of human subjects, list the date of IRB approval on the cover sheet. If IRB certification has not yet been obtained, specify "Pending" on the IRB Approval Date line.

Project Description

All project descriptions are limited to 15 pages in length.

If appropriate, the project description must include a section on Results from Prior Support for the Principal Investigators and co-principal investigators who have received NSF funding in the last five years. Refer to the GPG for more information. (This section may contain, but does not require, up to five pages to describe the results.)

All proposals submitted for the HSD competition **must** contain a section titled "Expected Project Significance." This section should address both the intellectual merits and the broader impacts of the project. The section must identify how the project will add to the fundamental knowledge base across relevant fields related to human and social dynamics and how it will enhance the capabilities of people who engage in research and/or education in these areas.

Research-focused project proposals should clearly identify the theory that motivates the project, the research methods to be used, plans for disseminating the research results, and the contributions that each of the researchers will bring to the project. Proposals should also specify the contributions to understanding human and social dynamics that are expected across relevant disciplines.

Education-focused project proposals should outline clearly the individuals or groups toward whom the proposed activities are directed, the goals of the activities, the methods that will be used to attain those goals, and the evaluation methods that will be used to determine how effective the methods have been. Proposals should also specify contributions that are expected across relevant disciplines.

Infrastructure-focused project proposals should include clear articulation of the research and education needs to which the activities are oriented; specification of how resources will be developed, maintained, and disseminated; and the contributions that each of the members of the project will make to the conduct of the activity. Proposals should also highlight educational components and, if relevant, international collaboration. Proposals should include specific suggested criteria for

evaluation of the project at both intermediate and final stages of the grant as well as post-award plans for continuation or termination of the project. Proposals should also specify how the multidisciplinary communities will gain access to and otherwise be served by the proposed infrastructural development.

Exploratory project proposals should include a description of the theory that motivates the project, the activities to be conducted, plans for disseminating outcomes of the project, and the contributions that each of the participants is expected to bring to the project. Proposals should also specify the contributions to understanding human and social dynamics that are expected across relevant disciplines.

Biographical Sketches

A biographical sketch prepared according to specifications in GPG must be provided for each investigator and each person identified as senior personnel.

Current and Pending Support

Each person identified as a principal investigator or as senior personnel (as defined above) must submit information regarding current and pending support in accordance with specifications in GPG. This proposal is considered a pending support activity.

Supplementary Documentation

The e-mail message from NSF that acknowledges submission of a letter of intent must be included in this section.

Other appropriate items for inclusion are specified in GPG, Section II.C.2.j. For example, this section should contain documentation of collaborative arrangements of significance to the proposed project as expressed in letters of commitment from collaborating organizations, including foreign organizations. (The "commitment" expressed in these letters does not need to be financial in character. Cost-sharing is not required for HSD awards, and letters of commitment provided as supplementary documentation will not be auditable.)

Documents associated with the use of human subjects should also be included in this section.

Proposals that include materials in this section that belong in the project description may be returned without review.

Appendices

Appendices are not permitted in proposals submitted for the HSD competition.

Conflicts of Interest

No special action is needed beyond identification of collaborators and advisors/advisees in biographical sketches.

Proposals Involving Multiple Organizations

Proposals involving multiple organizations may be submitted in one of two ways: (1) as a single proposal with one organizations serving as the lead organizations and with support to other organizations provided through subawards, or (2) "collaborative" proposals may be submitted by each organization. See GPG Section II.D.3 for instructions regarding the preparation of collaborative proposals and carefully follow on-line instructions regarding their preparation in FastLane.

Proposals Involving Collaborators at Foreign Organizations

Proposers are reminded they must provide biographical sketches of all senior project personnel, including those at foreign institutions. In addition, as supplementary documentation, proposals involving foreign collaborators should provide documentation of a willingness to collaborate through letters of commitment from the international counterpart organizations. Please note that although eligibility for this competition is restricted to U.S. organizations, as described in the GPG, collaborations with foreign organizations may be considered.

Human Subjects

If the project involves human subjects, the Institutional Review Board (IRB) of the submitting organization must certify that the proposed project is in compliance with the Federal Government's "Common Rule" for the protection of human subjects. If IRB approval has been obtained and the date of approval is listed on the cover sheet, no other certification is required. If IRB approval is still pending, submit certification of IRB approval in electronic form as soon as approval is obtained to the cognizant program officer. (The name of cognizant program officer will be listed in the Proposal Status module of FastLane.) Delays in obtaining IRB certification may result in NSF being unable to make an award. For more information regarding the protection of human subjects, consult http://www.nsf.gov/bfa/dga/policy/guidance.htm#human.

Pre-Submission Checklist

HSD proposals must be in compliance with GPG and special requirements in the solicitation in order to be considered for review. Proposals not in compliance with these requirements will be returned without review. Please refer to the following checklist to address some of the items for which proposals often are non-compliant:

- Font and margin requirements
- Paginated pages
- Project summary that includes a brief description of broader impacts
- Project description that is 15 pages or less, includes a separate section for Results from Prior Support (if appropriate) and a section on "Expected Project Significance"
- Biographical Sketches for all principal investigators and senior personnel
- E-mail message from NSF acknowledging submission of a letter of intent must be included in supplementary documentation
- Current and Pending Support statements or all principal investigators and senior personnel

Proposers are reminded to identify the program announcement/solicitation number (04-537) in the program announcement/solicitation block on the proposal Cover Sheet. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

B. Budgetary Information

Cost Sharing:

Cost sharing is not required in proposals submitted under this Program Solicitation.

Budget Preparation Instructions:

Principal investigators of HSD awards should set aside funds in their budgets to attend a biennial HSD awardees meeting. This meeting will enable them to communicate with each other, to share project results and discuss issues of common interest, and to participate in activities designed to facilitate the integration of research and education.

C. Due Dates

Proposals must be submitted by the following date(s):

Letters of Intent *(required):*

March 03, 2004

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):

March 30, 2004

Last digit of Awardee Institution's five digit zip code is 0, 1, 2, or 3

March 31, 2004

Last digit of Awardee Institution's five digit zip code is 4, 5, or 6

April 1, 2004

Last digit of Awardee Institution's five digit zip code is 7, 8, or 9

D. FastLane Requirements

Proposers are required to prepare and submit all proposals for this announcement/solicitation through the FastLane system. Detailed instructions for proposal preparation and submission via FastLane are available at: http://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program announcement/solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this announcement/solicitation.

Submission of Electronically Signed Cover Sheets. The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Proposers are no longer required to provide a paper copy of the signed Proposal Cover Sheet to NSF. Further instructions regarding this process are available on the FastLane Website at: http://www.fastlane.nsf.gov

VI. PROPOSAL REVIEW INFORMATION

A. NSF Proposal Review Process

Reviews of proposals submitted to NSF are solicited from peers with expertise in the substantive area of the proposed research or education project. These reviewers are selected by Program Officers charged with the oversight of the review process. NSF invites the proposer to suggest, at the time of submission, the names of appropriate or inappropriate reviewers. Care is taken to ensure that reviewers have no conflicts with the proposer. Special efforts are made to recruit reviewers from non-academic institutions, minority-serving institutions, or adjacent disciplines to that principally addressed in the proposal.

The National Science Board approved revised criteria for evaluating proposals at its meeting on March 28, 1997 (NSB 97-72). All NSF proposals are evaluated through use of the two merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

On July 8, 2002, the NSF Director issued Important Notice 127, Implementation of new Grant Proposal Guide Requirements Related to the Broader Impacts Criterion. This Important Notice reinforces the importance of addressing both criteria in the preparation and review of all proposals submitted to NSF. NSF continues to strengthen its internal processes to ensure that

both of the merit review criteria are addressed when making funding decisions.

In an effort to increase compliance with these requirements, the January 2002 issuance of the GPG incorporated revised proposal preparation guidelines relating to the development of the Project Summary and Project Description. Chapter II of the GPG specifies that Principal Investigators (PIs) must address both merit review criteria in separate statements within the one-page Project Summary. This chapter also reiterates that broader impacts resulting from the proposed project must be addressed in the Project Description and described as an integral part of the narrative.

Effective October 1, 2002, NSF will return without review proposals that do not separately address both merit review criteria within the Project Summary. It is believed that these changes to NSF proposal preparation and processing guidelines will more clearly articulate the importance of broader impacts to NSF-funded projects.

The two National Science Board approved merit review criteria are listed below (see the Grant Proposal Guide Chapter III.A for further information). The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which he/she is qualified to make judgments.

What is the intellectual merit of the proposed activity?
How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?
How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

NSF staff will give careful consideration to the following in making funding decisions:

Integration of Research and Education
One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

Integrating Diversity into NSF Programs, Projects, and Activities
Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

Additional Review Criteria:

In addition to the NSB-approved review criteria, reviewers and panel members will evaluate proposals based on the degree to which they help meet one or more of the general Human and Social Dynamics goals:

1. To advance fundamental understanding about important facets of human and social dynamics across multiple disciplininary communities.
2. To improve the knowledge, capacity, and capabilities of individuals and groups to develop and use new

approaches for the study of human and social dynamics and to strengthen efforts in communicating associated research findings in the classroom and other learning environments

3. To provide critical resources for many different research communities and facilitate the conduct of human and social dynamics research and education.

4. To conduct preliminary work on specific research-focused, education-focused, and/or infrastructure-focused projects or conduct broader-ranging efforts like workshops that aim to increase awareness, capabilities, and networks within and across scholarly communities.

B. Review Protocol and Associated Customer Service Standard

All proposals are carefully reviewed by at least three other persons outside NSF who are experts in the particular field represented by the proposal. Proposals submitted in response to this announcement/solicitation will be reviewed by Ad Hoc and/or panel review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Director. In addition, the proposer will receive an explanation of the decision to award or decline funding.

In most cases, proposers will be contacted by the Program Officer after his or her recommendation to award or decline funding has been approved by the Division Director. This informal notification is not a guarantee of an eventual award.

NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the date of receipt. The interval ends when the Division Director accepts the Program Officer's recommendation.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program Division administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See section VI.A. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (NSF-GC-1); * or Federal Demonstration Partnership (FDP) Terms and Conditions * and (5) any announcement or other NSF issuance that

may be incorporated by reference in the award letter. Cooperative agreement awards also are administered in accordance with NSF Cooperative Agreement Terms and Conditions (CA-1). Electronic mail notification is the preferred way to transmit NSF awards to organizations that have electronic mail capabilities and have requested such notification from the Division of Grants and Agreements.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/home/grants/grants_gac.htm. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.

More comprehensive information on NSF Award Conditions is contained in the NSF *Grant Policy Manual* (GPM) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/cgi-bin/getpub?gpm. The GPM is also for sale through the Superintendent of Documents, Government Printing Office (GPO), Washington, DC 20402. The telephone number at GPO for subscription information is (202) 512-1800. The GPM may be ordered through the GPO Website at http://www.gpo.gov.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period.

Within 90 days after the expiration of an award, the PI also is required to submit a final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for the PI and all Co-PIs. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project reporting system, available through FastLane, for preparation and submission of annual and final project reports. This system permits electronic submission and updating of project reports, including information on project participants (individual and organizational), activities and findings, publications, and other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system.

VIII. CONTACTS FOR ADDITIONAL INFORMATION

General inquiries regarding this program should be made to:

General inquiries regarding the Human and Social Dynamics priority area should be made to:

- Individuals listed on the chart accessible at http://www.nsf.gov/home/crssprgm/hsd/contacts.htm.

For questions related to the use of FastLane, contact:

- Alicia E. Harris, Program Technology Specialist, Directorate for Social, Behavioral & Economic Sciences, Division of Behavioral and Cognitive Sciences, 995 N, telephone: (703) 292-7423, fax: (703) 292-9068, email: aeharris@nsf.gov

- Geri Farves, Program and Technology Specialist, Directorate for Social, Behavioral & Economic Sciences, Division of Social and Economic Sciences, 995 N, telephone: (703) 292-7309, fax: (703) 292-9068, email: gfarves@nsf.gov

IX. OTHER PROGRAMS OF INTEREST

The NSF *Guide to Programs* is a compilation of funding for research and education in science, mathematics, and engineering. The NSF *Guide to Programs* is available electronically at http://www.nsf.gov/cgi-bin/getpub?gp. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter.

Many NSF programs offer announcements or solicitations concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices. Any changes in NSF's fiscal year programs occurring after press time for the *Guide to Programs* will be announced in the NSF E-Bulletin, which is updated daily on the NSF Website at http://www.nsf.gov/home/ebulletin, and in individual program announcements/solicitations. Subscribers can also sign up for NSF's Custom News Service (http://www.nsf.gov/home/cns/start.htm) to be notified of new funding opportunities that become available.

The ROLE Program in the Division of Research, Evaluation and Communication in the EHR Directorate encourages the submission of proposals to HSD that are responsive to the general goals of the FY 2004 AOC emphasis area and to the specific goals of ROLE (see http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf03542), especially Quadrant 4. Proposals should aim to study the use of national educational policy or national institutions as an agent of change. These proposals will be jointly reviewed in REC and HSD. They must satisfy the ROLE research and budget guidelines.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Awardees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities and persons with disabilities to compete fully in its programs. In accordance with Federal statutes, regulations and NSF policies, no person on grounds of race, color, age, sex, national origin or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF, although some programs may have special requirements that limit eligibility.

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the GPG Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at http://www.nsf.gov

- **Location:**   4201 Wilson Blvd. Arlington, VA 22230

- **For General Information**   (703) 292-5111
  (NSF Information Center)**:**

- **TDD (for the hearing-impaired):**   (703) 292-5090

- **To Order Publications or Forms:**

Send an e-mail to:	pubs@nsf.gov
or telephone:	(703) 292-7827
• **To Locate NSF Employees:**	(703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to applicant institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies needing information as part of the review process or in order to coordinate programs; and to another Federal agency, court or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to an information collection unless it displays a valid OMB control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Suzanne Plimpton, Reports Clearance Officer, Division of Administrative Services, National Science Foundation, Arlington, VA 22230.

OMB control number: 3145-0058.