Preparing a Competitive Proposal Involving the RAPID Facility

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NSF RAPID Grants Overview

- Available as a funding mechanism in most NSF programs (see the NSF Proposal and Award Policies and Procedures Guidelines (PAPPG), NSF 18-1, [https://www.nsf.gov/pubs/policydocs/pappg18_1/index.jsp](https://www.nsf.gov/pubs/policydocs/pappg18_1/index.jsp), Section II.E.2, Rapid Response Research (RAPID))
- Up to 1 year performance period
- Up to $200,000 (some programs typically support <$50K for post-disaster reconnaissance)
- Proposals having an urgency with regard to:
  - Availability/perishability of or access to:
    - Data, facilities, or specialized equipment
- Often in response to hazard events
  - No specific submission timeframe or deadline
- NSF Dear Colleague Letters (DCL) may be used to alert community to RAPID funding mechanism
  - Generally used for major disaster
  - May have a target deadline
- PIs MUST discuss proposals with Program Officer prior to submitting or the proposal will be returned without review
- Generally, RAPID awards for geotechnical engineering reconnaissance only after completion of more immediate, NSF-supported GEER field work
NSF RAPID Grants Overview

- Program officers can make decision w/o external review
- Can take 4-6 weeks to process and award funding

Examples of NSF Dear Colleague Letters (DCL)

RAPID Proposal Preparation

- Email NSF Program Officer 2-page summary ASAP prior to submission (RAPID proposal should not be submitted unless invited by a Program – or else RWR)
  - Ask whether there is a related DCL or more appropriate program
  - Inside the U.S.: Address collaborators, logistics, protocols, equipment, adherence to laws, access to affected locations (e.g., federal, state, and local government investigators on-site, building owners), and safety
  - Outside the U.S.: Address in-country collaborators, logistics, protocols, and equipment; adherence to in-country laws; access to affected locations; U.S. State Department and country embassy contacts and notifications; and safety
  - Review criteria (typically internal NSF; rarely external review)
    - Standard criteria: Intellectual Merit and Broader Impacts
    - Any additional criteria in the DCL
    - Clear description of why proposed research is urgent
    - Why RAPID award is most appropriate funding mechanism
    - Budget consistent with project scope

- Project Description (see NSF PAPPG, NSF 18-1, for proposal preparation requirements)
  - Up to 5 pages
  - All other standard NSF formatting requirements apply
Real-World Issues with Drone Deployment in Post-Disaster Settings

- In post-disaster settings, local officials may prohibit drone flights to accommodate for increased low altitude helicopter flights.
- Rules and regulations vary by country and must be checked before deploying for a foreign mission.
- Bad weather (e.g., rain, snow, fog) can ground flights, or produce poor quality images.
- Batteries must be hand-carried on flights; international carry on rules vary.
- It is important to have a contingency plan in the event drones can not be used.

Health, Safety and Security

Numerous medical and safety concerns that have arisen during reconnaissance events including:

- Gastrointestinal illness (very common)
- Contaminated water (damaged water treatment plants)
- Dehydration
- Robbery and theft
- Culture and expectation of graft or "tipping" (customs, property access, violations)
- Car accident (with associated legal issues)
- Rabid dog bite
- Miscellaneous open wound injuries
- Chemical release from industrial facilities
- Live wires on ground
- Radioactive gas release from damaged power plant

Note that:

- Medical services, including pharmacies, are very limited or non-existent
- International medicine specialty practices are becoming increasingly available, but may operate at a reduced level of service in disaster settings.
Heath, Safety, and Security

In addition, you are encouraged to....

- Work with a travel medicine practice before leaving; ensure immunizations are up to date
- Take safety training courses through university/community
  - Basic first aid/CPR course
  - Field safety course
- Discuss plans with university risk management office or company/agency health and safety officers
- Example risk management forms will be posted on the RAPID website
- Work with in-country collaborators

Reconnaissance Research Ethics and Guidelines

- No single standard or well-recognized code of ethics for reconnaissance
- Good practice to include explicit ethics statement in work plans and proposals
- Major reconnaissance ethics issues often faced:
  - Interactions with informants and human subjects
  - Access to disaster site
  - Responsibility to informants and human subjects
  - Human subjects review/internal review boards
New Zealand Ethics Guidelines for Post-Disaster Research

Highlights

- Wear and carry clear identification – include name, organization and contact details
- Before gathering data on private property, contact the owner, inform them (what data, how will it be gathered, what will it be used for, potential risks to owner)
- Take no for an answer
- Coordinate research activity, and share data, to minimize researcher numbers/activities in the disaster impacted area
- Ensure research teams are resource-independent (food/water/tents/fuel)

What Is Human Subjects Research?

- Both social science AND engineering research studies may qualify as human subjects research
  - Potentially requires approval from institution’s internal review board
- Definition of “research” (45 CFR 46.102(d))
  - Systematic investigation, including research development, testing and evaluation
  - Designed to develop or contribute to generalizable knowledge
- Definition of “human subject” (45 CFR 46.102(f))
  - A living individual about whom an investigator conducting research obtains
  - Data through intervention or interaction with the individual, or
  - Identifiable private information
Internal Review Board (IRB)

- Mission of an IRB
  - Support faculty, staff, students to complete their research in compliance with federal and state laws and institution’s policy
  - Review, approve initiation of, and conduct periodic reviews of research projects that involve human participants

- IRB application requires
  - Nature of the project
  - Methods to be used
  - Anticipated study population
  - Evidence of how they will obtain informed consent

- Expedited review could take 2-4 weeks
  - Unless prior plan with human subjects office

Criteria for Exempt Status

- Involves survey procedures, interview procedures or observation of public behavior, unless:
  - Information obtained is recorded so that human subjects can be identified
  - Any disclosure of the human subjects’ response that could:
    - Place the subjects at risk of criminal or civil liability
    - Damage subjects’ financial standing, employability, or reputation

- Human subjects are elected or appointed public officials or candidates for public office
Criteria for Exempt Status Cont.

- When there is an existing federal statute that requires complete perpetual confidentiality
- Research involving the collection or study of existing data
  - If these sources are publicly available, or
  - If the information is recorded by the investigator so that subjects cannot be identified
- Non-federally-supported research in which:
  - Subjects are cognitively-competent adults, AND
  - Research procedures consist solely of benign interventions, interactions, or observations of behavior

Advice

- Get to know your human subjects office contact
  - Tell them about your recon research & make a plan
- Not sure if what you are doing is human subjects research? Ask your IRB/HSD.
- Take training asap
  - CITI (Collaborative Institutional Training Initiative)
- Delays often caused by
  - Failing to provide necessary information
  - Not writing for a general audience
- Approval by collaborators’ IRB(s) may be required
  - If they are also engaged in human subjects research
International Collaborations

- Participants of U.S.-based reconnaissance efforts are often seen to represent the reconnaissance organization, the National Science Foundation, and more generally, the U.S. research community.

- Having in-country collaborators is critical to a mission's success; co-author datasets and publications.

- Recognize that in-country collaborators face recovery after a disaster and may proceed at a slow pace towards publication; true "collaboration" is important.

International Missions: Government Resources

Before leaving, and after the mission, be in contact with:

- U.S. State Department
- U.S. embassy officials
- And work with in-country collaborators to obtain foreign government notification/permission