Overview

In 2003, the Governments of Pakistan and the United States signed a comprehensive Science and Technology Cooperation Agreement that established a framework to increase cooperation in science, technology, engineering and education for mutual benefit and peaceful purposes between the science and education communities in both countries. In 2005, the United States Agency for International Development (USAID) joined with the Ministry of Science and Technology (MOST) and the Higher Education Commission (HEC) of Pakistan to support the joint Pakistan-United States Science and Technology Cooperation Program. Beginning in 2008, the United States Department of State (DoS) joined USAID as a U.S. co-sponsor of the program.

This program is implemented by the National Academy of Sciences (NAS) in the U.S. and by the Higher Education Commission (HEC) in Pakistan. It is intended to increase the strength and breadth of cooperation and linkages between Pakistani scientists and institutions with counterparts in the United States. Within NAS, the Pakistan - U.S. Science and Technology Cooperation Program is administered by the Development, Security, and Cooperation Unit in the Policy and Global Affairs Division.

Program Objectives

Projects funded under this solicitation should contribute to building research capacity in Pakistan while strengthening U.S. - Pakistan cooperative relationships in one or more of the following ways:

- Enhancing the ability of the science and technology community to spur human and economic development in Pakistan.
- Improving the quality, relevance, or capacity of education and research at Pakistani institutions of higher education in science and technical fields.
- Improving the capacity of Pakistani research institutions to support industry competitiveness.

General Guidelines

Investigators should clearly explain how the proposal, if funded, would facilitate research capacity building at the institutional level in Pakistan. Projects that would only enhance the capabilities of their individual participants, with no demonstrated broader impact, will be considered less competitive and thus less likely to receive funds. Applicants are reminded that priority is given to projects in which the main locus of activity is in Pakistan, not the United States, so budgets should be allocated accordingly.

Prospective applicants are encouraged to review the lists of projects funded in Phase 1 (2005), Phase 2 (2006), Phase 3 (2007), Phase 4 (2009), Phase 5 (2012), and Phase 6 (2015) to gain a better understanding of the types of activities supported under this program, additional weight will be given to projects that demonstrate a clear strategy for uptake or adoption of research outputs, including via further investment by the public or private sectors. Proposal submissions by female principal investigators and projects involving female scientists and students (graduate and undergraduate) are strongly encouraged.
Program Focal Areas

A. The program welcomes proposals across a wide range of topics, including but not limited to:


A special opportunity for proposals focused on technology transfer, entrepreneurship, innovation, and commercialization is designed. Proposals submitted in response to this special focus area should be designed to build the capacity of university and public sector researchers and technology entrepreneurs to:

• Connect with the private sector to support technology commercialization;
• Identify new technologies with potential market value;
• Scale up a prototype or process for full-scale production;
• Provide training and mentorship on technology transfer, administration, and other relevant functions related to technology development and commercialization.

Special consideration will be given to proposals in the field of education that advance knowledge on how:

• To increase the quality of education in Pakistan especially as it concerns early grade reading; and
• To increase the participation and education attainment of underrepresented populations in the Pakistan education system, including girls and persons with disabilities.

• Private companies may not apply or receive funding, but may participate as partners on projects.

B. Types of Activities Supported

Applicants may request support for collaborative research grants, which may be focused on any topic listed in this solicitation, but the program especially welcomes proposals relevant to technology transfer and commercialization as described above.

Each set of partners may receive no more than one grant.

Although workshops may be organized as part of proposed collaborative research projects, the program does not accept proposals solely requesting support for the costs of organizing a workshop. Researchers interested in organizing such events in Pakistan may wish to consider the opportunities offered by Pakistan Science Foundation or HEC's program of Grants for Organizing Seminars, Conferences, Symposiums, and Workshops at:


C. Eligibility Information

i. Principal Investigator (PI) Eligibility: Proposals are to be developed by partnerships that should include at least one Pakistani partner and one U.S. partner.
Pakistani partners must be based at a HEC-recognized public sector university or a HEC-recognized private sector research funding eligible university (click on following URL to view list) http://hec.gov.pk/english/services/universities/Pak-Us-stcp/Documents/PrivateUniversities-eligible-for-Public-Funding.pdf.

Each PI and each co-PI may only submit one proposal. Previous sub-awardees (PIs) from Phases 1-6 of the program are ineligible to apply.

Projects involving participants from only one country (Pakistan or the United States) are ineligible and will not be reviewed. In developing proposals, proposing partners are urged to take advantage of the widest range of Pakistani talent capable of contributing to the achievement of objectives. In particular, partners should explain in their proposals how they will encourage the participation of women and ensure that they are provided equal opportunities for involvement in the proposed projects, whether as principal investigators, co-investigators, post-doctoral researchers, students, trainees, or workshop participants.

ii. Topical Eligibility Limit: Due to U.S. government regulations, the program cannot fund research involving "testing or breeding, feasibility study, variety improvement or introduction, consultancy, publication, or training in connection with the growth or production [of a crop] in a foreign country for export if such export would compete in world markets with a similar commodity grown or produced in the United States."

D. Award Information

i. Anticipated Type of Awards: Requests for funding can vary in amount and length but should not exceed three years. In order to achieve significant progress towards one of the program objectives, proposals are generally expected to involve multiple individuals (including women and students) and contribute to building strengths of key institutions in Pakistan. U.S. and Pakistani budgets may vary but the total combined budget request should not exceed $500,000 for the life of the project. Capital costs for the construction of new buildings, renovations, and/or purchase of vehicles will not be covered. Quarterly as well as annual narrative and financial progress reports will be required. Continuing-year funding of multi-year projects will be contingent upon a merit-based annual evaluation of progress.

Proposals should include all activities and costs necessary to achieve the results stated in the application. Leveraging of resources is encouraged; therefore, the entire cost of the project should be included. Applicants are required to disclose any other funding received or applied for from other sources that would support the proposed project.

Proposal Preparation Instructions

The text of the proposals should be in single-spaced 12-point type font. Type density, including characters and spaces, must be no more than 15 characters per inch. Type may be no more than six lines per inch. Use standard paper size (8 1/2" x 11). Use at least one-half inch margins (top, bottom, left, and right) for all pages. No information should appear in the margins. Tables and lists in the project description may be in smaller but readable type.

Proposals must be submitted using the required format. Instructions for completing each section of the application form are included below, and the application packet (in Word format) may be downloaded at:
The proposal must include the information requested. Successful proposals will address the Selection Criteria listed in Section VII and will include clear statements of the project goals and explanations of how these goals will be addressed.

1. Cover sheets. Complete all pages making sure all the required signatures are obtained. For planning purposes, August 2017 should be shown as the start date.

2. Project summary (500 words max). The summary should be succinct and clearly state the goals and resulting outcomes of the project. It should be informative to specialists in the same or related fields as well as understandable to a well-informed, non-technical reader. Include the title of the project, the names of the co-principal investigator(s), and the names of the U.S. and Pakistani partner institutions at the top of the page. Include a clear description of the project, stating its specific aims and long term goals. Briefly indicate the unique aspects of the project and interdisciplinary composition (if any).

3. Project description (ten pages max). The project description (sections 3.a through 3.j described below) is limited to the equivalent of 10 printed pages including all figures, tables, and charts but not including lists of additional participants, advisors, and supporters (if any). All applicants must use the standard proposal forms provided. The project description should be prepared with reference to the review criteria and the guidance provided in this and the preceding sections of this solicitation. Incomplete proposals, those not submitted on the standard forms, and those exceeding the established page limits may not be considered.

3.a. Background and rationale. Provide the background of, and context for, the proposed activity. Where relevant, present a critical and comparative summary review of pertinent literature, justifying the activity proposed.

3.b. Problem statement. Describe accurately the problems to be addressed and/or opportunities to be pursued by the proposed project.

3.c. Team experience/capability. Describe relevant prior efforts by applicants to address the problems identified. If you and/or your team have preliminary results, please discuss them in this section. Illustrate how the proposed work will build upon existing expertise, if applicable. Proposals intended to improve the capacity of Pakistani institutions to support technology commercialization or industry competitiveness should also explain the role that industry representatives played in developing the proposal and articulate how the proposed project builds upon other measures undertaken by industry to improve competitiveness.

3.d. Scope and objectives. Specify the scope of the project accurately and list the specific aims of the project. It is important that the specific aims be compatible with the requested proposal duration. The proposal should demonstrate that a project’s objectives are feasible to achieve within the requested project duration.

3.e. Methods. Describe the project design, conceptual framework, procedures, and analyses to be used to accomplish the specific aims of the project. The proposals should describe a methodology for determining the degree to which a project meets its objectives, both while the project is underway and at its conclusion. If relevant, include how the data will
be collected, analyzed, and interpreted as well as any data-sharing plan. Describe any new methodology and its advantage over existing methodologies. Describe any novel concepts, approaches, tools, or technologies for the proposed activity. Discuss the potential difficulties and limitations of the proposed procedures and alternative approaches to achieve the aims. Describe proposed strategy for encouraging and ensuring the participation of women in the project. As part of this section, provide a tentative sequence or timetable for the project.

3.f. International cooperation. Explain in detail which elements of the project will be carried out by which counterpart involved and why such a division of labor is appropriate both for the project and for the overall program goals of promoting capacity building in Pakistan. Activities should be designed to develop expertise, advance scholarship and teaching, promote reliable, long-term research collaboration between partner institutions. Where appropriate and to the extent possible, applicants are strongly encouraged to include participation by underrepresented groups. Applicants are encouraged to reflect all relevant forms of diversity. “Diversity” should be interpreted in the broadest sense and encompass differences including but not limited to ethnicity, race, gender, sexual orientation, caste, religion, geographic location, social-economic status, and physical challenges. This criterion should be equally important for the U.S. side and the Pakistani side. To be competitive, proposals should demonstrate that the participating institutions are committed to mutual support and cooperation in project implementation. If the proposed partnership would occur within the context of a previous or ongoing project, the proposal should outline distinct objectives and outcomes for the new project and should explain how new funding would build upon the previously funded activities.

3.g. Relevance. Indicate which of the three (may be more than one) program objectives listed in Section IB will be addressed through the project. Discuss the potential for uptake of research outputs through policy decisions, commercialization, or other means.

3.h. Results statement. Clearly and concisely state the final results expected from the activity. The ability of the project to positively impact the goal area should be obvious.

3.i. Additional benefits. Explain any other anticipated scientific, technological, or economic benefits that will accrue to Pakistan besides those already articulated in the Results Statement.

3.j. Executive matters/Budget requirements. Provide a timetable for execution of the project and budget justification. The proposal should explain how project activities will be administered both in Pakistan and the U.S. in ways that will ensure that the project maintains a focus on its objectives while adjusting to changing conditions, assessments and opportunities.

Please ensure sections of your budget are well justified. Value for the investment will be an important consideration in proposal evaluation and selection.

Equipment: Provide a detailed justification for each piece of equipment or service to be purchased for which the expected cost is more than US $2,000. In other words, why is the equipment needed and how many users do you anticipate for the equipment? Also include plans for on-going maintenance of purchased equipment.

Travel: Provide the duration, location, timing, and justification for any project-related trips planned by project participants on either side. Travel costs for U.S. participants may be
included on the U.S. side of the budget only. It is strongly recommended that travel costs for Pakistani participants be included on the Pakistani side of the budget only. The strategy for achieving project objectives could include exchange visits in both directions, but no single formula is prescribed for the duration, sequence, or number of these visits. Although strong budgetary and programmatic emphasis may be given to visits in one direction over another, the benefits of all these visits to the sending as well as the receiving sides should be clearly explained. Exchange visits for the purpose of attending conferences are not allowed except in combination with other grant activities and in support of specific educational objectives at one or more of the participating institutions. Any U.S. funds used for international travel should abide by the Fly America Act http://www.omegatravel.com/government-travel/fly-america-act.asp. Pakistani travelers should adhere to Government of Pakistan travel guidelines.

Construction: As noted above, capital costs for building construction and renovations are not to be included.

Compensation: Remuneration for PIs and co-PIs on the two sides is discouraged; however if necessary U.S. PI and Co-PI salary costs must not exceed 10% of the total U.S. budget and must be thoroughly justified if requested. Remuneration for other researchers, technical personnel, and students working on the project is allowed. For Pakistani PIs, remuneration cannot exceed US $1000 per year and for Pakistani Co-PIs, remuneration cannot exceed US $1000 total (all project years combined).

Administrative/Overhead: In addition, contingency costs are not allowed as line items on either side of the budget. U.S. institutions with a federal Negotiated Indirect Cost Rate Agreement (NICRA) can use this rate when calculating indirect costs. U.S. institutions without a federally-negotiated NICRA may elect to charge a de minimus rate of 10% of modified total direct costs (MTDC). On the Pakistani side, indirect costs are limited to 15 percent if the applicant's university has an Office of Research, Innovation and Commercialization (ORIC) functional as per HEC criteria, or 2 percent if the university has no ORIC. (Indirect costs, also known as overhead expenses, are costs supporting overall operations and management of an institution—for example accounting and auditing fees and general institutional management.) For further details on allowable costs on the Pakistani side of the budget, Pakistani applicants are advised to refer to HEC's standard financial guidelines (Appendix I).

3.k. Budget forms (four pages max). Provide an itemized budget for the project separately for U.S. and Pakistani partners, using the budget forms provided. Projects may last no more than three years. The total combined budget should not exceed $ 500,000 for a maximum of 3 years. Proposals for multi-year projects must provide separate budgets detailing the resources required for each year of implementation.

Failure to do so will result in the proposal being returned without review.

Co-funding, Fund Leveraging, In Kind Donations, etc.: If applicable: please indicate any other sources of funding for the project. Please discuss if these funds are provided as co-funding, in kind contributions, or as leveraged funds to ensure the funding for this research does not duplicate other efforts.
3.l. Facilities and Other Resources (two pages max). This information is used to assess the capability of the organizational resources available to implement and/or develop your project. Identify the facilities to be used (Laboratory, Animal, Computer, Office, Clinical and Other). If appropriate, indicate their capacities, pertinent capabilities, relative proximity and extent of availability to the project. Describe only those resources that are directly applicable to the proposed work.

3.m. Curricula vitae (one to two pages per investigator max). Provide brief CVs (no more than 2 pages each) for all Pakistani and U.S. Principal Investigators, co-Principal Investigators, and project personnel. Please do not include extended CVs, lengthy publications lists, or copies of publications as they will not be forwarded to reviewers. Failure to comply with this may result in your proposal being disqualified from funding considerations.

3.n. Bibliography and References Cited (as needed). Provide a bibliography of any references cited in the Research Plan. Each reference must include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication. Make sure that only bibliographic citations are included. Be especially careful to follow scholarly practices in providing citations for source materials relied upon when preparing any section of the application.

**Funding Criteria**

The core values of the peer review process drive this program. It is intended to encourage the highest level of ethical standards in a process that is fair, equitable, timely and free of bias. The first level of review is carried out by scientists and other experts who provide their expertise within the program’s focal areas. This first level peer review process is organized independently and in parallel by the Higher Education Commission in Pakistan and by the U. S. National Academy of Sciences along with USAID and DoS according to the following criteria:

**A. RELEVANCE TO PROGRAM OBJECTIVES (25 points max)**

The extent to which the proposed project furthers one or more of the following objectives:

1) Improving the quality, relevance, or capacity of education and research at Pakistani institutions of higher education in science and technical fields;

2) Increasing the capacity of science and technology to improve the well-being of the Pakistani people, including (but not limited to) such topics as basic education, health, health security, nutrition, water/sanitation, environment, and economic development;

3) Improving the capacity of Pakistani institutions to support industry competitiveness through public/private partnership and entrepreneurship.

Note: Projects deemed not relevant to any of the program objectives will be ineligible for support and need not be evaluated further.

**B. SCIENTIFIC AND TECHNICAL MERIT (25 points max)**

1) Scientific importance, clarity, and specificity of the proposed project;
2) Technical feasibility of carrying out project in proposed timeframe and likelihood of achieving objectives;

3) Compliance with environmental, human subject, animal study, and/or chemical hazards protocols as applicable.

C. CAPABILITIES OF PARTNER INSTITUTIONS AND INDIVIDUALS (20 points max)

1) Professional background and achievements to date, including significance of publications;

2) Demonstrated ability to carry out proposed project based on past activities;

3) Recognition from peers, professional societies, and other institutions;

4) Potential for future scientific achievements and/or commercialization.

D. NATURE OF COLLABORATION (20 points max)

1) Expected benefits to the Pakistani and U.S. participants and their institutions;

2) Prospects for long-term collaboration following the completion of the current project;

3) Appropriateness of match between the expertise and backgrounds of the participants;

4) Demonstrated commitment of the proposing partners to ensuring the participation of women in the project.

E. COST EFFECTIVENESS OF PROJECT (10 points max)

Appropriateness of the proposed budget.

F. COMMERCIAL VIABILITY AND TECHNOLOGY (10 bonus points max)

1) The type and strength of patent claims;

2) Significance of market need and opportunity;

3) Is there a clear path to a commercially viable product or technology transfer;

4) Probability of attracting additional funding from other sources (industry, government, investors, etc.).

Strategies to achieve project objectives should be feasible and realistic within the projected budget and timeframe. Proposals should include plans for effective dissemination of project findings to researchers, policymakers and relevant stakeholders (for example: industry, business community, etc.).

Policy on Plagiarized Data

Applicants to the Pakistan - U.S. S&T Cooperation Program are advised that both the U.S. and Pakistan have implemented a zero-tolerance policy regarding the submission of fraudulent or plagiarized data, reports and/or any documents. Any such cases discovered by our staff or brought to their attention by program sponsors, review panelists, U.S. and/or Pakistani partners, or members of the public will be investigated immediately. If the presence of fraudulent or plagiarized materials in a proposal submission is verified, the following actions will be taken:
• The application in question will be removed from consideration for funding.

• Representatives from USAID, U.S. Department of State, Pakistan Higher Education Commission, Pakistan Ministry of Science and Technology, and NAS will be notified immediately

Progress Reports


All funded investigators are required to submit a variety of reports, which are due at specific times during the life cycle of a grant award. Program managers will inform the investigator teams of specific dates. All reports must be accurate, complete, and submitted on time.

The formal evaluation reports should include an assessment of the current status of each participating research team at the time of funding with specific reference to project objectives.

The final project evaluation should provide observations about the project's influence within the participating institutions as well as their surrounding communities or societies.

Financial Guidelines (Appendix 1)

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<thead>
<tr>
<th>SR.#</th>
<th>Items</th>
<th>Total Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Equipment</td>
<td>As per requirements of the project</td>
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<tr>
<td>2.</td>
<td>Chemical/Glassware (with full justification and details of quantity required for the project)</td>
<td>As per requirements of the project</td>
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<tr>
<td>3.</td>
<td>Accessories</td>
<td>As per requirements of the project (with full justification)</td>
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<tr>
<td>4.</td>
<td>Journal Publication fee/on line material</td>
<td>As per requirement of the project up to Rs. 50,000/-</td>
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<tr>
<td>5.</td>
<td>Honorarium for PI</td>
<td>Rs. 100,000/- each year</td>
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<tr>
<td>6.</td>
<td>Honorarium for Co-PI (if justified) One month initial basic pay of scale once in entire project life on</td>
<td>Rs. 100,000/- Final year (once in project’s life)</td>
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<td>7.</td>
<td>Studentships</td>
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<td></td>
<td>• MS/M.Phil. students</td>
<td>@ Rs. 20,000/- per month</td>
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<td></td>
<td>• Ph.D. students</td>
<td>@ Rs. 25,000/- per month</td>
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<tr>
<td>SR.#</td>
<td>Items</td>
<td>Total Allocation</td>
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<td>8.</td>
<td>Local Travel (if required and fully justified)</td>
<td>Maximum Rs 0.2 million (02 lac) per year or as per actual expenditure if field work/survey is involved; Moreover, students would be allowed only to reimburse actual expenditure incurred during their field visit, if any.</td>
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<td>(Tentative schedule of visits for all the years of project life along with full justification and rates/calculations as per actual expenditure)</td>
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<td>9.</td>
<td>Secretariat Staff (if required)</td>
<td>Rs. 18,000 per year</td>
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<td>10.</td>
<td>Stationary/Contingencies</td>
<td>Rs. 10,000 per year</td>
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<td>11.</td>
<td>Any type of entertainment</td>
<td>Not Allowed</td>
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<tr>
<td>12.</td>
<td>Audit/Accounts</td>
<td>Rs. 20,000 (maximum)</td>
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<td>13.</td>
<td>Other specific requirements</td>
<td>Depending upon the nature of the project, if fully justified</td>
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<td>14.</td>
<td>University overhead</td>
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<td></td>
<td>If ORIC is fully functional as per HEC criteria</td>
<td>15% of total direct cost to meet office support and utilities etc. of ORIC</td>
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<tr>
<td></td>
<td>If ORIC is not established</td>
<td>02% of total direct cost to meet research office support and utilities, etc.</td>
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