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Research and Innovation Fellowship Program Review

John Duffy

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Research Technical Assistance Center

The Research Technical Assistance Center (RTAC) is a world-class research consortium of higher education institutions generating critical research for USAID to promote the development of evidence-based policies and programs. RTAC is led by NORC at the University of Chicago in partnership with Arizona State University, Centro de Investigación de la Universidad del Pacífico (Lima, Peru), Davis Management Group, the DevLab@Duke University, Forum One, the Institute of International Education, the Notre Dame Initiative for Global Development, Population Reference Bureau, the Resilient Africa Network at Makerere University (Kampala, Uganda), the United Negro College Fund, the University of Chicago, and the University of Illinois at Chicago.

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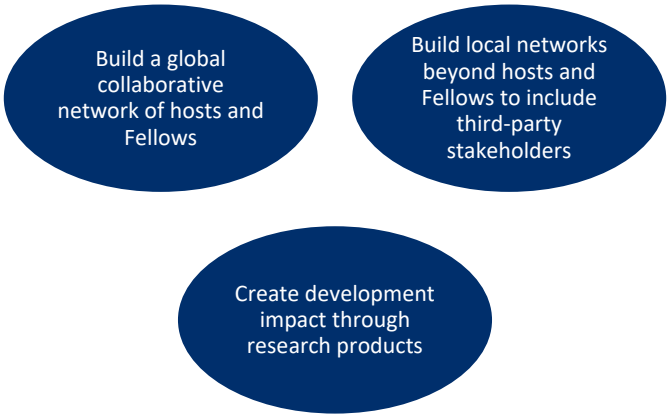
Summary

The Research and Innovation (RI) Fellowship Program was developed and funded by the United States Agency for International Development (USAID), U.S. Global Development Lab (Lab). The program was designed in recognition of the fact that strengthening research capacity and building lasting, collaborative networks are an effective means of promoting economic growth and community advancement in developing countries. The program sought to increase the use of scientific research, tools, and analysis to improve development outcomes through science, technology, and innovation and by building a truly collaborative network of institutions dedicated to international research and science. In essence, the purpose of the RI Fellowship Program was to enhance the research capacities of scientists in developing countries and help develop innovative approaches to meet the world's development challenges. The program's three overarching goals were to: 1) create a global network of hosts and Fellows; 2) strengthen, enhance, and expand the network of hosts and Fellows to include third-party stakeholders; and 3) generate positive development impact through facilitation and publication of project collaborations (see Figure 1).

USAID partnered with six U.S. universities that had successful, existing international research programs. These programs placed graduate researchers in low- and middle-income countries with the goal of conducting applied research that addressed a wide variety of development challenges, fostering collaboration, and training future research scientists. The six universities included Arizona State University; Rutgers University; University of California, Berkeley; University of California, Davis; University of Chicago; and University of Notre Dame.

This program review was conducted in the framework of the Research Technical Assistance Center (RTAC), a USAID initiative under the Higher Education Solutions Network (HESN) 2.0 portfolio of programs. The purpose of the review is to provide an overview of the USAID RI Fellowship Program and to document the program's accomplishments and key learnings from 2014–2018. The review focuses on the RI Fellowships portfolio, rather than the individual programs operated by the six universities.

Figure 1: Overarching Goals of the Program



The review found that the RI Fellowship Program did indeed achieve its strategic goals and objectives and should be considered successfully implemented. Over the course of the program's four operational years (2014–2018), 411 Fellows completed research in 53 developing countries, where they worked with 215 host organizations.[1] The work undertaken by the Fellows generated 314[2] separate project reports detailing the research that was completed and, in most cases, providing practical applications for furthering development. The cost of the program to USAID was

[1] These figures come from reports submitted by the RI Fellow partners.

[2] Some Fellows worked in teams, which explains why there are more Fellows than project reports. Additionally, some were multi-year projects working with the same host over the duration of the program.

$3,467,521. The six universities provided cost-share funding of approximately $3.0million through direct cash and in-kind contributions. USAID oversaw the program through regularly scheduled monthly teleconferences and program updates; the universities also filed financial and quarterly and annual reports describing their efforts at implementing, monitoring, and evaluating the program.

This review also identified several aspects that could strengthen future programs with similar goals and objectives:

- Building and strengthening formal collaborations between the U.S. universities and host organizations.
- Promoting collaboration between the participating U.S. universities.
- Improving the mentoring process between the universities and their Fellows.
- Enhancing the dissemination of RI Fellowship Program materials and research results in the U.S. as well as internationally.

However, as seen in Figure 2, the program did achieve its overarching goal of utilizing early-career individuals, mostly graduate students, to leverage science, technology, and innovation to address development issues and to build collaborative partnerships in developing countries. Moreover, the three program objectives of building a collaborative network between Fellows and host organizations, bringing in third-party stakeholders, and publicizing the project collaborations in country were all achieved.

Figure 2: Key Takeaways from This Review

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List of Acronyms

ASU	Arizona State University
BAA	Broad Agency Announcement
DIA	Development Innovation Accelerator
GDF	Global Development Fellows program, University of California, Berkeley
GDR	Global Development Research, Arizona State University
GRFP	Graduate Research Fellowship Program
GRIFN	Global Research and Innovation Fellowship Network
GROW	Graduate Research Opportunities Worldwide
HESN	Higher Education Solutions Network
IIC	International Innovation Corps, University of Chicago
LMIC	Lower- and middle-income countries
NAS	National Academies of Sciences, Engineering, and Medicine
ND	University of Notre Dame
NGO	Non-governmental organization
NORC	National Opinion Research Center
NSF	National Science Foundation
PALT	Procurement Action Lead Times
PEER	Partnerships for Enhanced Engagement in Research
RI	Research and Innovation
RIFA	Research and Innovation Fellowship for Agriculture, University of California, Davis
RTAC	Research Technical Assistance Center
RU	Rutgers University
STIP	Science, Technology, Innovation, and Partnership
USAID	United States Agency for International Development
UC	University of Chicago
UCB	University of California, Berkeley
UCD	University of California, Davis

1. Introduction

Building capacities in the fields of science, technology, and innovation in developing countries is one of the most effective ways of enhancing community and economic development (Harris, 2004; Moreno-Borchart, 2004). Capacity-building enhances development by creating in-country knowledge and expertise, which prepares local scientists and institutions to address development problems on their own, thus reducing dependency on outside actors.

One method for enhancing research and development capacities in developing countries is by fostering collaborations between research scientists and research institutions in developed and developing nations. Collaboration consists of two or more people working together to address the same phenomenon, a problem that each face, or the desire to create something new. Collaboration also provides the opportunity to learn new skills and methods because every person has a unique perspective; collaboration therefore allows different perspectives to be brought to bear on a common problem. Pairing researchers from different countries and cultures amplifies this aspect of collaboration and can result in the creation of innovative approaches for solving many complex development problems.

Collaboration is also an important element in the transfer of innovations. The literature notes that innovations are only transferred (diffused) through trusted relationships and rarely through academic journals, professional magazines, or "best practices" (Rodgers, 2003). Trusted relationships are required because innovations typically present risks to those trying something new, especially something that is different from established norms and customs. Therefore, an individual will only implement an innovation if he or she trusts the other party because a trusted partner would not offer advice that would result in harm. Collaboration helps build trusted relationships that allow innovations to not only be discovered but also be implemented. Scientific research collaborations do this by bringing researchers together through the creation of sustained, collaborative networks between researchers and institutions where they may jointly work on a common problem over a period of time. This collaborative work is the necessary building block for creating trusted relationships.

Effective collaboration also consists of the two-way exchange of ideas and practices. As such, it allows both parties to learn new approaches and generate innovations. Thus, when U.S. researchers and research institutions collaborate with their counterparts in developing countries, they too learn new ideas and practices.

Providing the opportunity to collaborate on an international scale allows U.S. scientists and research institutions to remain competitive, which is critical for maintaining U.S. leadership in science and technology. The U.S. finds itself competing with other nations throughout the world in the fields of science, technology, and innovation. For example, in 2018 both the European Union and China out-produced the U.S. in the number of peer-reviewed science and engineering journal articles. Leading in the production of scientific and technological knowledge leads to economic growth, higher quality-of-living standards, and higher international cooperation because other nations are attracted to the world's leaders in order to improve their own economies and standards of living but also to copy those practices that lead to high scientific and technological standing (Tollefson, 2018).

Competing globally to excel in science and technology requires the continued development of academic institutions and a workforce that has world-class research and applied skill sets. Sustained, collaborative

networks consisting of U.S. and international institutions provides a platform for developing this expertise as well as building trusted relationships. In addition, collaborative networks allow faculty and students to engage in high-quality international research with practical applications that may lead to innovations that build capacities in developing countries.

The Research and Innovation Fellowship program (RI Fellowship Program; 2014–2018) was developed and funded by the U.S. Global Development Lab (Lab), within the U.S. Agency for International Development (USAID) in recognition of the need for capacity-building of international research personnel and institutions as well as institutions of higher education. The program also acknowledges that for the U.S. to remain a world leader in science, technology, and innovation, it must continue to develop its research graduates and build a truly collaborative network of institutions dedicated to international research and science. The purpose of the RI Fellowship Program was to enhance the research capacities of developing-country scientists and help develop innovative approaches to meet the world's development challenges. As such, USAID sought to build partnerships between U.S. scientists and developing countries in order to:

- Build the capacity of institutions and researchers within developing countries
- Address critical development challenges with innovative solutions
- Utilize the expertise, investments, and resources of U.S. academic institutions to more effectively address the global challenges facing both the U.S. and developing countries
- Build strong, lasting, and trustful interpersonal relationships, which foster broader scientific progress and the diffusion of innovation
- Advance innovation by creating collaborative networks composed of research institutions and academic researchers

This document is structured in four main sections. Section II outlines the objectives and scope of this review. Section III provides information about the RI Fellowship Program, including its objectives, processes, and participants. Section IV highlights the main lessons learned from the program and finally Section V provides general recommendations to enhance the program's achievements. Additional information related to the materials used for this review, examples of success stories, and the RI Fellowship Program Results Framework is provided in the Annexes.

2. Objectives and Scope of the Review

The objective of this review is to provide an overview of the RI Fellowship Program from 2014–2018,[3] its implementation, and achievements and a summary of its challenges and future recommendations. This is not an evaluation and does not provide an assessment of whether the program has achieved all that it was designed to accomplish. Moreover, the review provides a summary of the key aspects of the program and considers the program as a whole rather than a review of each university's initiatives.

[3] This review focuses on the implementation under the six cooperative agreements established in 2014. The review does not focus on the implementation of the precursor GROW/GRIFN Fellowship program established as the first phase of the RI Fellowship program.

Information about the program's key goals and objectives, resources, activities, outputs, outcomes, and future opportunities is also presented.

The review consisted of performing several distinct tasks, including: 1) a desk review of published reports, correspondence, and documents; 2) consultations with key personnel of the six universities and USAID program managers; 3) a review of several case reports submitted by Fellows who participated in the program; and 4) an analysis of a survey questionnaire completed by a subset of the Fellows, host organizations, and program managers of the six universities that participated in the program (this is subsequently referred to as the Fellowship Program Review Survey). Additional information is available in Annex I.

The authors of the review identified key questions to frame the data collection and analysis process, detailed below.

Program Oversight

The questions about the program's oversight assess the methods used to initiate and provide operational management of the program. For instance, what process and methods were used to inform potential host organizations of the call for proposals? How were host organizations selected? Were contracting and budgeting procedures efficient or time-consuming? How were Fellows recruited for the program? What were the criteria used to select both Fellows and hosts? What were the relationships between the key components of the program?

Program Implementation

These questions aim to understand how the program operated. For example, how many Fellows actually participated in the program, what host countries were they located in, and what did they do? Once Fellows were in-country, what monitoring and support was provided to them? What was the form of ongoing monitoring and review of the program by both USAID and the universities during its operational period? Who did the Fellows work with in their host countries? How were the Fellows received in their host countries? What institutional support was provided, and was it sufficient to meet program goals? What did the mentors[4] do? How prepared were the mentors and Fellows to participate in the program? What type of projects were undertaken?

Program Accomplishments

The questions address program achievements. For instance, how did the projects build capacity in the host countries? Did the projects create new knowledge and if so, in what fields of interest? Were the projects completed through the program sustainable? Were new partnerships formed? Is the partnership network stronger due to the program? Have the universities been able to obtain additional funding to continue the program? What were the benefits to mentors, fellows, hosts countries, stakeholders, and USAID? What were the major outputs and outcomes? Did the key outcomes occur as expected?

[4] For the purposes of the report, the term "mentor" refers to the university faculty or administrative member charged with monitoring students' fellowship activities.

This performance-related information can support decision-makers in the design of program elements to enhance future program performance. In addition, insights gained through the review can be of use to the program administrators of the six universities that participated in the RI Fellowship Program and to other potential users (including governmental, academic, and non-academic organizations) seeking to design and implement similar programs based on international collaboration in the areas of research and innovation.

3. The Research and Innovation Fellowship Program

Program Background

In 2014, USAID (also referred to herein as the Agency) established the U.S. Global Development Lab (Lab) as an innovation hub for taking smart risks to test new ideas and to partner USAID with other organizations to harness the power of innovative tools and approaches that accelerate development impact. The Lab's mission is to work collaboratively with the agency and external partners to produce breakthrough development innovations by sourcing, testing, and scaling proven solutions to reach hundreds of millions of people and to accelerate the transformation of the development enterprise by opening development to people everywhere with good ideas, promoting new and deepening existing partnerships, bringing data and evidence to bear, and harnessing scientific and technological advances.

Seeking to build upon the role that institutes of higher education and graduate students could play in increasing the use of research and innovation in development, the Lab initiated Phase 1 of the RI Fellowship Program in 2013 through an interagency agreement with the National Science Foundation (NSF). NSF and USAID created the Graduate Research Opportunities Worldwide (GROW) program as part of the USAID Global Research and Innovation Fellowship Network (GRIFN). Students with current NSF Graduate Research Fellowship (GRFP) awards were eligible to participate as GROW/GRIFN Fellows, receiving funding ($5,000 from NSF, plus $1,000 travel allowance and $1,500/month stipend from USAID) and professional resource support through NSF and USAID. Fellows were eligible to complete projects ranging from 2 to 12 months, including through multiple trips or consecutive travel. By design, these Fellows were an exceptional group of early-career scientists, engineers, and innovators placed worldwide to engage in projects with universities, private-sector organizations, research institutions, government agencies, and non-governmental organizations. USAID provided an online catalog of approved host organizations for students to select from. This agreement was effective March 2014–March 2015, and USAID sent its first cohort of Fellows to opportunities in 13 countries in the summer of 2014.

To fund these GROW/GRIFN Fellows, the Lab worked with the National Academies of Sciences, Engineering, and Medicine (NAS) through an existing partnership. Building on the model demonstrated through NAS's initial management of the Partnerships for Enhanced Engagement in Research (PEER), the cooperative agreement expanded the PEER mandate to include support of the early USAID RI Fellowship Program.

Looking to further open the fellowship opportunity and expand the RI Fellowship Program in 2014, the Lab made the first awards under the new Broad Agency Announcement (BAA) for Science, Technology, Innovation, and Partnership. Through this process, USAID sought to identify colleges and universities with existing fellowships or other relevant programs that could provide students an opportunity to use their research and technical skills in applied settings. Students were envisioned to work abroad in fields related to international development and in particular to advance collaboration with host institutions to further science, technology, and innovation partnerships. USAID partnered with six universities between 2014 and 2018 to implement this Phase 2 of the RI Fellowship Program.

Program Objectives

The RI Fellowship Program connected top U.S. student research expertise with in-country host organizations to collaboratively apply science, technology, and innovation to complex development challenges. The program aimed to be an interconnected global network comprising international students, scientists, and researchers interested in research and innovation projects focused on development. The program also fostered relationship-building between U.S. and international institutions and provided an effective means of accessing opportunities to use science and technology to tackle development challenges.

The RI Fellowship Program also sought to catalyze research collaboration, encouraging early-career researchers to leverage science, technology, and innovation and partnership (STIP) expertise to solve complex development challenges and enhance capacity in developing countries, focusing in particular on countries prioritized by USAID. The program had three objectives:

- Objective 1: Create a powerful global STIP network of well-matched, development-oriented Fellows and hosts.
- Objective 2: Partner with public and private institutions to strengthen, enrich, and expand the network of hosts and Fellows to include third-party stakeholders.
- Objective 3: Facilitate and publicize project collaborations among the network participants that result in positive development impact and the building of STIP capacity in developing countries.

The fellowships offered opportunities for U.S. graduate-level researchers to provide critical research and technical expertise to important capacity-building and development-oriented projects and initiatives with tangible and finite goals. Moreover, USAID required that the research undertaken by Fellows be relevant to solving development challenges. The fellowship program allowed for adaptive program design by encouraging Fellows to incorporate, where possible, their research to existing opportunities offered by the host organizations (see Annex II for examples of the activities carried out by Fellows). An additional goal of program was to expand collaborative research networks and improve sharing of organizational best practices under the umbrella of science, technology, and innovation for stronger development.

USAID developed a "Results Framework" that described the program's goals, objectives, and intermediate results, thereby providing a means to measure progress toward achieving each of the objectives (see Annex III). As the program progressed over time, the six universities described their progress in meeting these objectives within the monitoring and implementation plans that were submitted to USAID. In achieving these goals and objectives, USAID also sought to maintain and enhance the nation's preeminent standing as the world's leader in science, technology, and innovation.

RI Fellowship Program Partners

As noted previously, Arizona State University; Rutgers University; University of California, Berkeley; University of California, Davis; University of Chicago; and University of Notre Dame took part in the RI Fellowship Program. The Lab's initial engagement with the six university partners was implemented through cooperative agreements for the period of September 2014–September 2017. The agreements were subsequently granted no-cost extensions to operate into 2018. While all six universities implemented the RI Fellowship Program in accordance with similar requirements, each university, based on the scope of its cooperative agreement, took an individual approach to implementation. The focus areas of each partner institution are described below:

Arizona State University, AID-OAA-A-14-00068: Global Development Research Program. The Global Development Research (GDR) program at Arizona State University (ASU) mixed technical expertise and collaborative research capacity with international development. The GDR program brought ASU's wide breadth and depth of expertise to bear upon the great development challenges of the age, deploying early-career scholars around the world to take on projects related to health, education, economic growth, biodiversity, human trafficking, gender, supply chain, energy, water, and innovation and entrepreneurship. GDR Scholars actively collaborated with cutting-edge scientists, scholars, and innovators from around the globe to discover and scale new technologies and innovations. The program connected scholars with an international network of development professionals and provided practical experience in the design of sustainable solutions to the development challenges facing developing countries.

Rutgers University, AID-OAA-A-14-00071: Research and Innovation Fellowship Program. The RI Fellowship Program at Rutgers University offered scientific and technological innovations with a positive social and environmental impact to complex development challenges. Focused specifically on graduate students with an emphasis on science, technology, engineering, mathematics, and social science, Rutgers recruited students with interest and experience in applied research and/or scientific and technological innovation. The Rutgers University RI Fellowship Program involved the participation of 10 Rutgers academic units, coordinated by the Rutgers Centers for Global Advancement and International Affairs (GAIA Centers). Each academic unit identified specific development and research interests that met the needs of USAID. The focus areas included global public health, with correlated efforts in environmental and agricultural sciences; communications and public (health) information; urban planning and policy; and social entrepreneurship, with an emphasis on supporting and sustaining innovations that emerge in development efforts. Additionally students from, Rutgers New Jersey Medical School participated in the Rutgers University RI Fellowship Program.

University of California, Berkeley, AID-OAA-A-14-00072: Global Development Fellows Program. The University of California, Berkeley's Global Development Fellows Program (GDF) sought to attract the nation's best minds into the fight against global poverty. The GDF provided an opportunity for students to contribute to the search for solutions to complex global development challenges by applying technical knowledge and skills to a new context. Projects deemed to have high scientific merit and feasibility were undertaken by students from all areas of expertise in order to advance economic development in communities around the world.

University of California, Davis, AID-OAA-A-14-00070: Research and Innovation Fellowship for Agriculture (RIFA). The Research and Innovation Fellowship for Agriculture (RIFA), which continues on today and is now funded by the University of California's Global Food Initiative, allows

opportunities for students to plan, engage, and implement international projects in developing countries in collaboration with developing country host organizations. The projects address global challenges in agriculture and food systems. International host organizations define the challenges, and a Fellow's innovative techniques contribute to the success and sustainability of the projects and programs. Topics that have been addressed by RIFA projects are diverse, ranging from national-level food systems policy analysis to gender in agriculture to the impact of soil micronutrients on coffee rust.

University of Chicago, AID-OAA-A-14-00069: International Innovation Corps (IIC). The International Innovation Corps (IIC), an ongoing entity at the University of Chicago, Harris School of Public Policy, creates scalable solutions to critical development problems. Focusing on the countries of Brazil and India during the time of the RI Fellowship, the IIC program partnered with government and development organizations to create lasting impact with innovative solutions to complex development challenges. Students from this program worked alongside partners over the course of a year to overcome social and economic hurdles, teaming up in groups of up to five people: three IIC members and two host institution members. Teams functioned like social enterprise start-ups within partner institutions, identifying and solving specific problems related to urban development, energy and the environment, health care, innovation, and education. Projects were designed and implemented to meet the needs of the partner institution, and the work of each team varied based on project needs.

University of Notre Dame, AID-OAA-A-14-00073: ND Global Development Fellowships. Notre Dame's Global Development Fellowships program focused on science, technology, and social sciences, with a goal of solving development challenges through innovative research. Students worked alongside and learned from global scientists, scholars, and innovators from around the world, forming new and lasting professional networks and establishing connections to culturally and intellectually enrich both sides.

Program Processes

Each participating university held an independent cooperative agreement with USAID and implemented the programs within the scope of the individual agreements. Each program had unique characteristics with respect to recruitment pools, subject-area focus, timelines, and host countries. However, there were common operational processes that all six universities followed during implementation.

Planning and Reporting. Each cooperative agreement with USAID required participating institutions to produce regular planning documents and quarterly and annual reports. The primary planning and reporting requirements included:

- Yearly implementation plans describing the resources to be committed to the program, the year's anticipated goals and outputs, and the benchmarks/milestones to be used to measure progress. The implementation plan also required a discussion of the universities' efforts to achieve and maintain gender-integration and balance.
- A monitoring and evaluation plan describing plans to collect performance data and evaluate program performance activities throughout the implementation period.
- Quarterly and annual progress reports noting any significant achievements or challenges, as well as progress toward meeting program objectives.
- Quarterly financial reports describing the award, cost share, expenditure, and obligation amount.

- A final report detailing accomplishments, significant challenges/obstacles, program success stories, and a discussion of the overall performance of the program, including any targets that were not achieved.

Marketing and Recruitment. In laying the groundwork for Phase 1 of the program, USAID staff conducted 22 university campus visits to provide information sessions to eligible NAS grantees. Campus tours were also part of kicking off Phase 2; during these tours, USAID met with program managers from each of the six participating universities to socialize the program, obtain university leadership support, and discuss program implementation. Each university also conducted their own marketing efforts on behalf of the program.

Annual marketing and recruitment for the program typically included press releases, on-campus presentations and informational sessions, campus-wide distribution of email notices about program opportunities, and other digital methods. University program managers refined these approaches each year based on the most successful methods to identify strong fellowship candidates.

Identification of Host Organizations and Projects. The processes for identifying eligible host organizations for the RI Fellowship Program changed over time. Initially, USAID heavily managed this process and established the Research and Innovation Fellowship Catalog through a contract with the Department of Better Technology. This USAID catalog was operational from August 2014 through February 2017 and provided an online repository of projects proposed by host organizations. The catalog provided a platform for Fellows, universities, in-country hosts, and USAID staff to input, review, and select opportunities for the program. It also provided USAID with a formal intake process of projects and the ability to communicate with host organizations and students who were unable to establish contact with individual projects.

In Phase 1 and to initially populate the catalog, USAID reviewed, vetted, and approved all projects entered into the system. This generally included a review by staff in USAID/Washington and the relevant USAID Mission to increase the likelihood that the project and host organization would offer an effective fellowship placement. Starting in 2016, universities began to use both the USAID catalog and other university resources to identify potential host organizations and projects. When discussing the utility of the USAID catalog with university partners in late 2016, most indicated a preference for using their own systems or connections to source host organizations and projects, noting better outcomes when building off preexisting relationships. Some universities also established their own online catalogs of host organizations and projects. In preparation for closing down the USAID catalog in February 2017, USAID restructured the required application materials for universities to allow for review and approval of hosts and projects following submission of the student's application.

Application and Selection. The RI Fellowship Program required that Fellows be selected according to the criteria established in each cooperative agreement, with the large majority of Fellows being graduate-level students in good standing with their respective universities (University of Notre Dame and the University of Chicago each also worked with undergraduate students). Each university developed its own specific application criteria and process, although there were similarities among the partners. Each university employed its own application process and timeline, using materials provided by USAID to ensure all key application information was provided.

Student applicants used the USAID catalog or other university resources to identify potential hosts and projects. The Fellowships were between 2 to 12 months in duration. The application process began with

university partners developing marketing plans for their respective programs via press releases, campus websites, email lists, and campus-based informational presentations. In addition, each university established a website for prospective applicants to review the approved host catalog and for application filing. Students reviewed the catalog and selected host organizations/project(s) prior to submitting an application to the program.

The university determined both the number of applicants to be awarded and applicant qualifications. The typical application packet included:

- Enrollment in the required degree program or completion of required coursework per the requirement of each cooperative agreement terms
- Strength of applicant's academic records
- Description of a research plan, including budget, its match to scholar's skills, and its potential for success
- Letters of reference
- Letter of acceptance from host institution
- Résumé describing applicant's professional and academic experience

Applications were then reviewed by university committee that, in turn, selected candidates. Selected candidates and their application packets were forwarded to USAID for review and approval. USAID reviews included review by the USAID Mission. Approved candidates became prospective Fellows.

Upon receipt of USAID approval, the university conducted pre-departure planning, usually consisting of 8 to 16 in-class hours dedicated to refining the scope of work and work plans, completion of negotiations of work effort with host candidates, emergency planning, and cultural sensitivity. Fellows were also paired with a faculty member who shared the same research interest. Fellows and faculty arranged for at least one check-in while the Fellow was in-country.

While in-country, Fellows completed the agreed-upon work plan, which was summarized in a final report. Prior to returning to the U.S., the Fellows made at least one presentation to their host organization and other partners describing the work undertaken and completed. Host organizations could request revisions and/or follow-up if desired.

Upon return to the U.S., Fellows completed an interview with university personnel to describe their experiences. Fellows, university program managers, and host organization personnel were invited to complete an optional survey questionnaire in 2017 about the RI Fellowship Program. Some Fellows continued communicating with their respective host counterparts after the conclusion of the program.

Figure 3: General Overview of the Fellowship Process

Findings from the Implementation of the RI Fellowship Program

Establishing nurturing catalytic partnerships between Fellows and host institutions was a vital component of the program. Fellows independently communicated and collaborated with host institutions with little intervention from university program managers and faculty, thereby fostering timely and effective completion of Fellowship opportunities. Thus, Fellows designed, implemented, or researched a specific topic for host institutions that was focused largely on the hosts' priorities. Host institutions could also request a topic or project, allowing Fellows to choose areas of specialty best fitted to their expertise and interest. This much involvement by the hosts worked to ensure that the program's impact went far beyond just USAID and instead addressed local priorities. In the case of a Brazilian biodiversity effort, for example, the RI Fellows were viewed by the USAID/Brazil Mission as a resource to add to the evidence pool in a variety of research topics and to translate existing data and evidence for use by policymakers, implementers, and governments. (This was, however, the only example of such synchronization that came up in the course of this review, since Mission personnel were not contacted.)

Initially RI Fellows were limited to work with host organizations in the seven pilot countries of Brazil, Colombia, India, Indonesia, Philippines, Senegal, and South Africa, though the opportunities were subsequently expanded, although USAID-funded Fellows still only traveled to countries with a USAID presence and approved by the organization. Some Fellows wholly sponsored with non-USAID funds did travel to countries with non-USAID presences, however. Over four years, Fellows travelled to 53 countries to work collaboratively with in-country host organizations (see Table 1). While most countries were low- to moderate-income countries (LMICs), Fellows did travel to some non-LMICs when deemed appropriate for the nature of the work (e.g., traveling to Greece to study the Syrian refugee crisis).

Table 1. Fellows' Destination Countries and Number of Fellows per Country

Country	Country	Country	Country	Country
Argentina* (1)	Dominican Republic (1)	Honduras (3)	Burma (1)	South Africa (62)
Bangladesh (3)	Ecuador (1)	India (102)	Namibia (1)	Sri Lanka (1)
Benin (2)	Egypt (1)	Indonesia (6)	Nepal (8)	Taiwan* (1)
Brazil (42)	El Salvador (2)	Lebanon (1)	Panama (8)	Tanzania (3)
Bahamas (1)	Ethiopia (2)	Liberia (2)	Peru (1)	Thailand (7)
Botswana (1)	Gambia (1)	Kenya (12)	Philippines (8)	Turkey* (2)
Cambodia (3)	Georgia (1)	Malawi (2)	Rwanda (1)	Uganda (9)
Chile (8)	Ghana (2)	Mali (1)	Senegal (2)	Ukraine (1)
China* (2)	Greece* (2)	Mexico (5)	Sierra Leone (1)	Venezuela (1)
Colombia (45)	Guatemala (5)	Mongolia (1)	Singapore* (1)	Vietnam (16)
Costa Rica (1)	Haiti (2)	Morocco (1)		Zambia (4)

Note: * Denotes countries where USAID funds were not used for RI Fellowship travel or projects.
Source: Author's calculations based on program data.

Through marketing of the fellowship opportunities, the program ultimately connected USAID with major U.S. organizations concerned with development as well as with U.S. science, technology, and innovation communities. For instance, to find student applicants, universities created far-reaching marketing campaigns, sending out university-wide communication efforts. These communications increased awareness of not only the RI Fellowship Program but also of each university's center and/or research communities attached to the program, creating general exposure for these entities further afield than they otherwise would have enjoyed.

The international hosts (and their related USAID Missions, if any) also received greater exposure. In 2015, USAID/Brazil invested in three of the six fellowships programs to support RI Fellowship Program work on projects related to biodiversity conservation in the Amazon. Arizona State University; the University of California, Davis; and the University of Chicago subsequently received a total of $498,254 from USAID/Brazil to support 29 Fellows in Brazil to work on topics related to biodiversity conservation in the Amazon. The Mission's Amazon biodiversity program aimed to: 1) strengthen the government of Brazil's conservation efforts in priority protected areas; 2) enhance protection of indigenous lands and natural resources; and 3) apply science, technology, and innovation to the improvement of conservation practices. These efforts got wider U.S. notice through engagement with the RI Fellowship. In addition, they received work from the RI Fellows, who could leverage expertise from their universities as well as the private sector.

RI Fellows

A total of 411 Fellows participated in the program.[5] Women represented 63 percent of all Fellows. The breakdown by sex and university is illustrated in Table 2 below.

Each university developed its own criteria for Fellow participation, though there were similar requirements across each of the universities. For instance, most universities sought graduate-level students who were currently in master's and doctoral programs to participate as Fellows, although the University of Chicago had mostly undergraduates participate; Notre Dame also had some undergraduate participants. However, the education level for a significant number of individuals was identified as "Other;" these individuals had previously obtained their graduate degrees, were in between degrees (e.g., going from master's to PhD), or were now working in professions with a research emphasis. In the case of Rutgers University, the "Other" category included physicians (MDs). Table 3 shows the breakdown of academic standing by university.

Table 2. Fellow Sex by University

University	Female	Male
Arizona State University	48	21
Rutgers University	47	21
University of California, Berkeley	53	26
University of California, Davis	43	27
University of Chicago	45	45
University of Notre Dame	27	8
Total	263	148

Source: Author's calculations based on program data.

Table 3. Degree Status of Fellows

University	Master's	PhD	Post-doc	Recent Graduate	Under-graduate	Other
Arizona State University	19	49	1	0	0	0
Rutgers University	34	19	2	0	0	13
University of California, Berkeley	67	12	0	0	0	0
University of California, Davis	37	33	0	0	0	0
University of Chicago	9	0	0	0	0	81
University of Notre Dame	11	19	1	2	2	0
Total	**177**	**132**	**4**	**2**	**2**	**94**

Source: Author's calculations based on program data.

Additionally, universities could leverage their own funding and external funding to expand the number of Fellows beyond those fully or partially supported by USAID funding. The amount of funding generated—as stated in their narrative final reports—was at least $3 million by the University of Chicago, $260,000

[5] A total of 421 students were approved to participate in the RI Fellowship program and received training for program participation. However, 411 actually fully participated as Fellows because some Fellows did not travel due to personal reasons or because approval from the prospective host organization was not obtained.

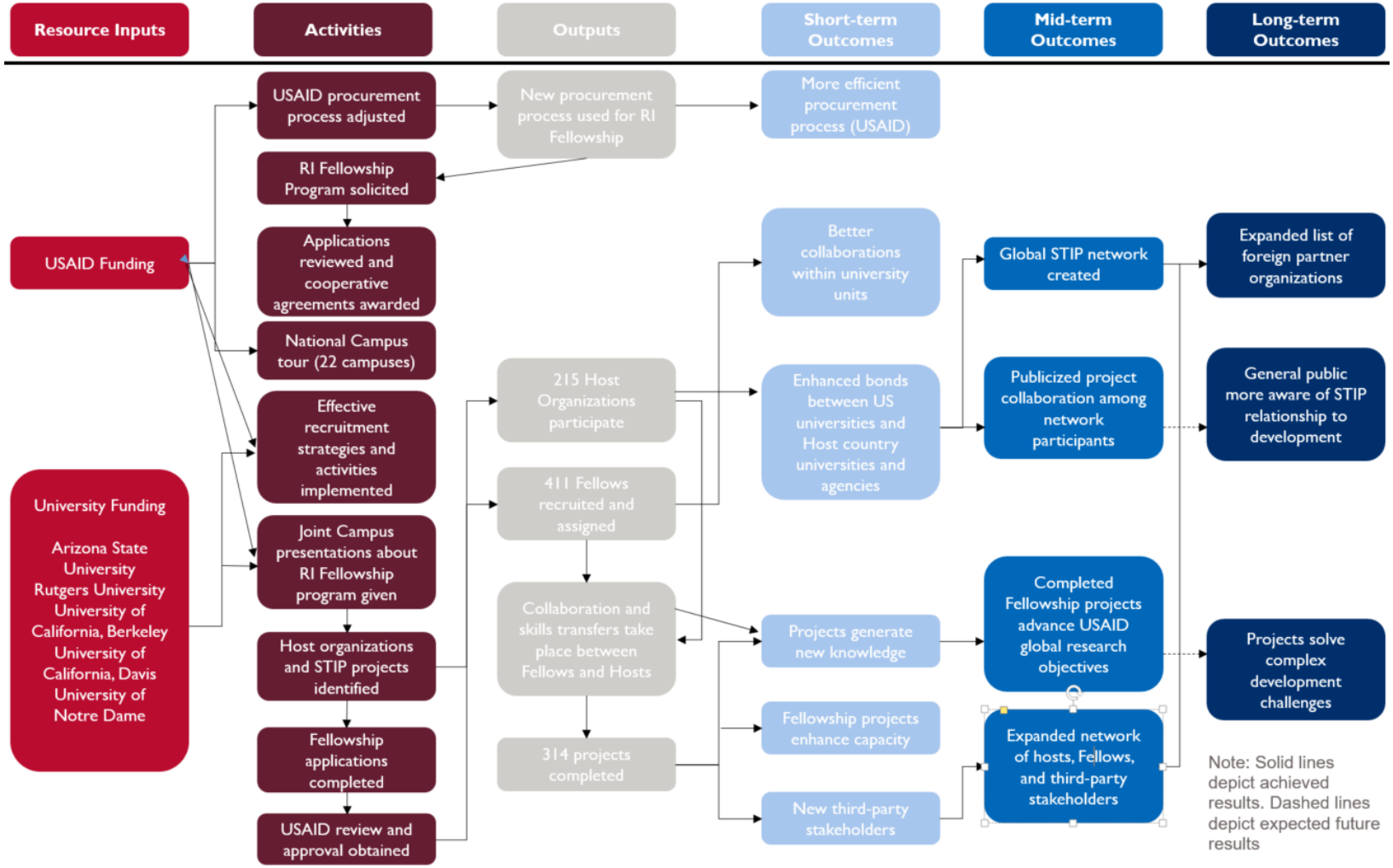
by Arizona State University, $154,120 by the University of California, Davis, and $93,050 by the University of California, Berkeley.[6]

RI Fellowship Program Logic Model

Authors of this program review developed a logic model for the RI Fellowships program. A logic model illustrates the relationships among the resources, activities, outputs, outcomes, and impact of a particular program. Logic models provide a graphical means for communicating the purpose of a program and its expected results by describing the key activities of the program and the actions that lead to the program's desired results. In addition, a logic model illustrates a program's theory of change; in other words, how invested resources create activities that in turn create results that achieve the program's goals and objectives, i.e., outcomes. One of the benefits of a logic model is that it provides a quick overview of a program's key components, such as resource inputs, the activities that the resources supported as well as the results of the activities, and lastly, the final outcomes of the program. Figure 1 presents a logic model for the RI Fellowship Program, based on the information available for this review.

[6] Because the SF-425 forms only report formal cost-sharing funds, these figures come from the narrative final reports, which use the qualified "at least."

Figure 4: RI Fellowship Program Logic Model



Source: Author's elaboration.

4. Lessons Learned from the RI Fellowship Program

The review's findings are discussed in the next section, which is divided into three subsections:

- **Program Initiation** describes the resources and activities as needed for the initiation of the RI Fellowship Program
- **Program Implementation** describes the activities related to the operational elements of the RI Fellowship Program and its outputs
- **Program Accomplishments** discusses the program outcomes

Program Initiation

Procurement Process. USAID used an innovative solicitation method to identify and ultimately select organizations to enter into cooperative agreements for the purpose of implementing the RI Fellowship Program. Rather than issuing a "Request for Proposals," USAID program personnel utilized the Development Innovation Accelerator (DIA), managed by the Lab, to announce the program through a Broad Agency Announcement (BAA). The BAA, unlike more traditional procurement methods, allows for ongoing communication and collaboration between USAID and potential applicants throughout the procurement process. The BAA is an innovative process in a number of ways.

The BAA process allows USAID personnel to directly establish communications and collaborations with potential partners at an early stage, thereby allowing for co-creation. Potential partners and USAID are able to collaboratively define the program's purpose and goals and then design it accordingly. This collaborative structure results in a more relevant scope of work. The BAA process also allows USAID to work directly with the experts in the field, and thereby potential challenges are identified early and addressed and in the end yields a more practical approach.

Moreover, the BAA process yields better budget estimates and project proposals, as evidenced by the lack of change orders due to budget shortfalls and needed changes in the scopes of work. The approach also allows for the thoughtful design of a program that is practical and well understood by potential applicants, and applicants who understand what an endeavor requires and what the endeavor's desired outcomes entails are in a better position to submit a well-thought-out application. These well-thought-out applications, in turn, mean more accurate budget estimates for completing the contemplated work and fewer change orders related to budget and operational unknowns or surprises.

Indeed, the BAA process reduces uncertainty about the program's purpose and costs. The BAA process also yields a shorter solicitation period: four months instead of the typical six or more months indicated by the USAID Procurement Action Lead Times (PALT). In essence, USAID invested time and effort in the pre-planning of the program that resulted in a program with a more realistic design in terms of its goals, objectives, and methods. As a result, universities did not have to make repeated requests to USAID to amend scopes and budgets.

Program Funding. The program awarded approximately $3.5 million in federal funds for the project (including a subsequent Brazilian biodiversity buy-in) and required each university to provide a cost

share (see Table 4); the cost shares contributions comprised direct cash and in-kind contributions, per the requirements in each cooperative agreement. USAID/Brazil provided additional funds to Arizona State University; the University of California, Davis; and the University of Chicago to support RI Fellow projects related to Brazil's biodiversity conservation efforts. The Brazilian biodiversity conservation projects did not require additional cost-share beyond that already negotiated in the agreements.

Table 4. RI Fellowship Program Funding by Source

University	USAID	Cost-Share
ASU	$661,743	$214,425
UC-Berkeley	$451,039	$544,088
UC-Davis	$601,027	$466,638
U of Chicago	$821,665	$821,665
Notre Dame	$601,567	$601,567
Rutgers	$330,480	$335,224
Total	**$3,467,521**	**$2,983,607**

Sources: The final Federal Financial Report (SF-425) was used in all cases.

Program budgets primarily went to directly support the travel and related expenses for Fellows conducting research in foreign countries. As a result, the review evidenced that the funds provided allowed a large number of Fellows being posted to foreign nations to conduct research. A limited amount of funds were used to cover administrative costs or overhead expenses of the universities, a common and allowed grant expenditure.

Host organizations did not receive any USAID funds under the program. However, in their responses to the RI Fellowship Program Review Survey, about a third of the host organizations voiced the need for some funding to address their costs associated with hosting Fellows. Managing volunteers does have real costs; for instance, supervision, materials, and infrastructure (office space) all must be provided. In addition, there is no information available to estimate the amount of associated in-kind contributions and direct expenditures made by hosts. While the host organizations do receive quality research personnel to assist in their work, identifying the financial support made by the hosts would provide a more accurate estimate of the program's true overall costs as well as provide a better understanding of the required baseline capabilities of host organizations necessary to support a successful and sustainable fellowship model.

There is a lack of information to determine the amount of funds charged to administrative or overhead expenses that were directly related to the program and the amount allocated to general university overhead.

Program Implementation

Fellow Recruitment. Each university recruited RI Fellows in accordance with the terms of the cooperative agreement. Potential participants included students, early-career professionals, and individuals having recently obtained their doctoral degrees (i.e., post-docs).

Eligible candidates willing to participate as Fellows were a critical element of the program because motivated, competent, and knowledgeable individuals were necessary to not only undertake international work but to build relationships with new, foreign hosts while doing so with minimal or, in most cases, no in-country oversight and support. It is important to note that finding qualified candidates willing to participate in an international program is not an easy task, as evidenced by responses made by university program administrators in the course of this review and the need for campus-wide marketing of the program to solicit candidates. Moreover, conversations with several of the university program managers substantiated the challenges with finding qualified candidates willing to participate in the program.

The relatively short duration of the fellowship program may have caused some hesitation on behalf of potential candidates. Also, although they live in a globalized world, many U.S. students are hesitant to study abroad as they harbor a lack of understanding of the personal benefits arising from immersion in foreign cultures, such as seeing new perspectives and understanding that most people seek the same goals in life such as adequate housing, security, food, employment, etc. Additionally, some students are anxious or fearful for their personal safety and therefore are not inclined to serve internationally. Lastly, for many graduate students, completing an overseas research assignment detracts from completing degree requirements in a timely manner since time is spent away from studies and from direct contact with faculty. In addition, the fellowship creates a "break" in studies that the Fellow must make up—that is, they must pause their university-based studies, take up research for a few months, and then return to their home university and complete their studies. This break in continuity requires that the returning students return to refresh the reasoning or rationale they were using when they began their fellowships, which in many cases is quite challenging, especially for students drafting master's or doctoral theses.

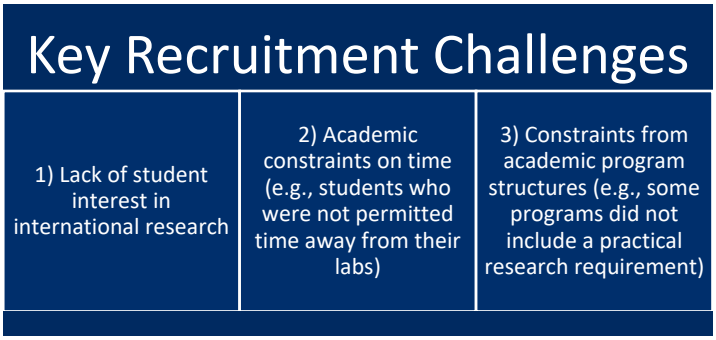
Each of the six selected universities had operational international programs with recruitment and screening processes for students undertaking research work in foreign nations. These recruitment methods were used, with modifications, to meet the particular requirements of the RI Fellowship Program and to identify potential applicants. For example, the recruitment methods informed potential Fellows of the need to select hosts and projects from the USAID catalog.

Overall, the recruitment processes used by both USAID and the six universities was well thought out and reasonable. For instance, the presentations given by USAID at 22 universities at the initial stage of the program is considered as success as it resulted in 79 potential Fellows who contacted about 120 hosts identified in the USAID online catalog.[7] The universities' recruitment process yielded a sufficient number of candidates for the program; indeed, 411 Fellows ultimately participated in the program. Another indicator that the recruitment process was successfully implemented is that several students from universities not signatories to the cooperative agreement participated in the program when applications from qualified students within their own student bodies were not received. This fact indicates that at least a few of the six universities showed a willingness to look beyond their own student bodies to find highly qualified applicants as allowed and supported by the universities' individual

[7] 2014 Campus Tour Report.

cooperative agreements. For example, the University of California, Davis had nine Fellows participate from universities not party to the cooperative agreements.

However, the universities indicated that recruitment was a challenging endeavor for several reasons; these being: 1) limited interest by most students to undertake international work; 2) students who were unable to take the time to complete an international assignment due to academic constraints (e.g., students whose principal investigator would not "approve" of time away from the research lab); and 3) students from academic programs that lacked a practical element, such as a required capstone in place of a theoretical thesis.



University personnel indicated that they invested considerable time and effort reaching out to various parts of their universities in search of programs that had an international element and faculty who were involved in international work to find candidates. The universities reported that returning Fellows and their success stories (i.e., word of mouth) were the strongest method of recruiting new applicants to the program.

Candidate Selection. Once applicants were recruited and applications filed, the next step in the process consisted of selecting potential Fellows.

The analysis indicates that the application process provided a reasonable and thorough review of prospective candidates' academic and employment experience, project proposal, and potential host and thus created a high likelihood for project success. Moreover, the application processes used by several universities required detailed scopes of work to be developed between the candidate and host organization, which typically required several direct telephonic and/or digital communications, often involving university program personnel as well. The resultant detailed scopes of work coupled with the active involvement of the host organization and, importantly, university program personnel with international experience, ensured that both parties—Fellow and host—understood the work expectations beforehand, thereby reducing misunderstandings and assignments loaded with "busy work" and/or unfocused work.

The review and acceptance process took place up to six months prior to the beginning of the international work. This amount of lead time presented difficulty for some hosts to provide firm commitments due to their internal planning. In addition, some candidates voiced disappointment after having invested time and effort into identifying a host and developing a mutually agreed upon project scope, only to have USAID reject the proposal. Such rejections, however, were typically due to the USAID's Mission's knowledge of issues in the field that made the proposed project unsuitable for several reasons, mostly related to in-country security matters and, in a few cases, related to the host organization selected. Although disappointing for the candidate, such rejections likely ensured that a larger future disappointment was avoided. While USAID provided clear communication to program managers about this possibility, university program administrators needed to follow suit and

communicate to applicants that field conditions of the host's country as well as the host's capacity to perform might result in rejection. This would prevent such misunderstandings in the future.

Program Components and Relationships. The program was effectively designed and implemented. The relationships between the key components of the program, such as the Fellow application and selection process and use of USAID's catalog for host and project selection, were also straightforward and implemented without any discernible problems. The funds provided met the intent of the program, and the program resulted in a reasonable participation rate of Fellows. In addition, 53 countries hosted fellows as part of the program, and the program yielded a large number of completed research work, publications and presentations over a four-year period.

Over the course of this review, the analysis of documents, questionnaires, and interviews did not reveal any major problems with program development and implementation. Projects were completed in a wide variety of fields that enhanced host country capacities as well as resulted in the development of new knowledge with practical applications. Positive testimonials (i.e., success stories) were generated by Fellows, hosts organizations, and university program personnel, verifying that the program was well received. It is important to note, however, that several host organizations noted a strong preference for a minimum duration of three months for a Fellowship, stating a two-month duration was much too short to develop a worthwhile research endeavor.

Fellow Participation and Oversight. One of the key elements that determined whether Fellows and hosts would have successful experiences was mutual agreement on expectations. Such project agreements, especially when written, were useful since they established a general understanding of what activities were to take place and the associated responsibilities of Fellows and hosts. Each university sought to expand upon this general understanding in order to ensure that each party had a clear understanding of the fellowship's expectations and that these expectations were realistic. For example, both the University of California, Davis and the University of California, Berkeley required that students prepare detailed scopes of work with host counterparts and the home university. Also, each of these universities encouraged students to identify and develop as much of their research needs/resources as possible prior to leaving for their fellowship. Other actions taken to ensure that Fellows had beneficial experiences included the University of California, Davis creating its own online catalog and placing an employee on the ground internationally to build agreements with hosts' organizations. Arizona State University and the University of Chicago also had employees in-country to meet directly with potential hosts to discuss projects, requirements, and expectations. Notre Dame, Rutgers, and the University of Chicago placed their Fellows into ongoing research and collaboration relationships the universities already had with hosts; in such cases, the project purpose, outputs, and expectations were already well determined. These three universities also were able to utilize in-country personnel and sometimes alumni for regular meetings with Fellows, allowing for supervision and consultations.

The use of fellowship teams also enhanced project deliverables, as teams allowed the Fellows to provide support for each other. For example, the use of fellowship teams fostered collaboration and joint problem-solving of research challenges since team members with similar academic training and cultural backgrounds allowed for more effective communication. In addition, the fellowship teams provided individual students the opportunity to discuss and resolve non-research-related issues with their peers. Another way fellowship teams enhanced project deliverables was by having Fellows work on projects in a sequential manner: that is, after one Fellow's assignment was over, a new Fellow would arrive and take up the work where the previous Fellow left off, allowing for more in-depth and continuous research.

Prior to traveling to their host organizations in developing countries, Fellows completed mandatory training sessions administered by their respective universities to prepare them for working in foreign nations. The minimum time devoted to the structured, pre-departure training was 8 hours, although some training efforts were closer to 16 hours in duration. These sessions addressed what to expect, how to deal with common challenges, and what steps to take due to illness, and family emergencies. Other issues, such as cultural sensitivities, appropriate behavior, and research requirements, were also discussed.

Universities also used two other methods to provide guidance and oversight: first, it was expected that faculty members of each of the six universities who were familiar with the student and/or project would have frequent discussions with Fellows while in-country. These discussions did occur and, more often than not, took place through email. However, unless the faculty member/mentor was personally interested in the research project and/or had a strong personal relationship with the Fellow, such discussions could be characterized as inconsistent, thus depriving the Fellow of important guidance and opportunity for feedback, coaching, and perhaps counseling.

The other method that was used for guidance and oversight was having each Fellow prepare and submit a report upon completion of the fellowship that summarized the key points of their activities. However, it does not appear that such reports were a requirement by all universities; indeed, some universities only "encouraged" such reporting. Additionally, Fellows were typically given the choice of how this information was transmitted to their university—for example, short, written narratives; blogs; posters; or face-to-face briefings.

Overall, the pre-departure planning for Fellows was thorough, prepared Fellows for productive fellowships, and to understand how to address most common challenges. Communications between faculty members and their respective Fellows was inconsistent, with few Fellows having regular communications with faculty. Most universities ensured that scopes of work and expectations were understood prior to the Fellow's departure. Some universities provided regular visits by in-country personnel during the Fellow's time with a host, which allowed for closer guidance and supervision. Providing in-country personnel, however, was an additional cost to the program, and it cannot be firmly established that providing personnel for in-country oversight is demonstrably better than regular communications between faculty and Fellows.

Fellowship oversight also included post-fellowship surveys, discussions, and project summaries that were provided through various formats, such as short narratives, blogs, and briefings. Although most post-fellowship reporting was spotty, many Fellows developed high-quality project/research reports in the form of narratives and videos that conveyed an engaging summary of the activities undertaken and project deliverables. Should the program be implemented in the future, a final report—even if only a short briefing paper—should be a requirement and completed prior to fellowship completion.

Mentoring. A common definition of mentoring consists of a more experienced individual providing guidance and knowledge to a less experienced individual (Anderson, Silet & Fleming, 2011). While not a requirement of the USAID cooperative agreements, some universities established a mentoring process for RI Fellows participating in the program. This mentoring primarily occurred at the university level between university faculty and the Fellow.

The information obtained from discussions with university personnel and from the RI Fellowship Program Review Survey suggests that mentoring from faculty was not the norm, and faculty-to-student

contact was infrequent in most cases. While some universities, such as the University of Chicago and University of Notre Dame, had in-country personnel who were able to visit many of their Fellows and provide some supervision and coaching, such interactions are much different than mentoring, in that mentoring seeks to provide a deeper building of knowledge that results from a regular, ongoing set of discussions between mentor and mentee. Furthermore, the failure to provide adequate mentoring meant that most faculty missed the opportunity to become familiar with specialized applied research issues.

Network and Collaboration Building. A stated goal of the program was fostering the development of a collaborative network among the participants of the program. The purpose of this goal was to build knowledge and expertise of both the Fellows and host organization participants. The collaborative networks were also to enhance the capacities of host organizations and thus support in-country development efforts.

Another aspect of network-building consisted of informing the general university population of the program. As noted earlier, some students from universities external to the cooperative agreements did participate as Fellows, thereby broadening knowledge of the RI Fellowship Program and its goals and objectives. In addition, the majority of the universities indicated that the process of recruiting qualified students for the program resulted in improved intra-university collaborations and cooperation as different departments, schools, and colleges within universities actively worked with one another. Lastly, it was reported by some of the partner universities that the program built up their internal capacity to respond to similar grant opportunities in the future as well as to undertake international research efforts.

The program did accomplish these two broad goals of networking and collaboration. At the university level, the six universities collaborated with many different host organizations; some of these collaborations were new whereas others built upon existing relationships. Moreover, the number of Fellows deployed to host organizations and their accomplishments—as documented by the numerous written reports, presentations made, and success stories shared by Fellows and hosts—and professional relationships established all demonstrate that successful collaborative networking was achieved. Furthermore, the research completed by the Fellows was multifaceted and directly linked to economic and community development matters. For example, Fellows undertook numerous agriculture-related research efforts; each of those endeavors addressed a fundamental question or problem and thus made incremental improvements to strengthen agriculture, thereby enhancing local development opportunities as a whole.

As stated earlier, the RI Fellowship Program has made considerable, positive contributions in the areas of knowledge-building while also putting this knowledge into practice. In addition, a collaborative network among universities and host organizations was enhanced. For example, Rutgers University reported that they were able to establish 10 new partnerships in countries where their presence and research network collaborations were previously weak.

There are, however, a few elements of this successful endeavor that might be improved upon. The collaboration between the U.S. institutions participating in the program could be improved, for example. While university personnel discussed the program's implementation with USAID on regular telephonic discussions, including some network-wide calls to discuss best practices, there does not seem to have been a focus on how the universities might build stronger collaboration among themselves. The meetings typically focused on status reports rather than focusing on how universities could build

stronger collaborative ties among one another. As each of the universities manages successful international programs, these meetings could have been a chance to learn from one another and form partnerships among themselves. An increased emphasis on this in future programs would be advisable.

Stronger collaboration between universities might also lead to stronger relationships between the universities and the hosts. Although a few universities (such as Rutgers) participated in the initial stages of research/project development between the Fellows and host organizations, hosts reported little to no contact with the administrative and management personnel of the universities. The evidence reviewed herein also showed little indication that the universities and host organizations were in regular contact. What little communication there was often came through the Fellow, according to host organizations. Additional emphasis on creating a firm relationship between U.S.-based universities and the host would further the goal of building a long-term collaborative network. USAID should consider developing a standard or guideline on how best to achieve this kind of relationship-building.

Although the program's goal of building a collaborative network between U.S. and host institutions focusing on science, technology, and innovation was clearly achieved, it is unclear how this achievement could be maintained since strong relationships were not established between host and university. Measuring these relationships, with their minimal interactions, would be challenging. Indeed, as most of the communications between the two groups were channeled through Fellows, it is hard to determine or track if this impact will be long term.

Program Reporting. Through the requirements of the cooperative agreements, the program has a well-established set of required reports consisting of monitoring and implementation, quarterly and annual reports, final reports, and stand-alone financial documents. The reports provided sufficient information and metrics for USAID program managers to adequately monitor the program. Indeed, the challenges faced by the universities are described, as are the approaches used to overcome the challenges. In addition, the reports provide an excellent history of the program's implementation from its initial stages through its final efforts.

The numerous and well-made success stories described in narratives, brochures, and videos, often prepared by the Fellows themselves, also speak to the program's overall value. These testimonials are not only informative, they tell individual stories about actual Fellow-led research and how such research is being put into practice, all done with much enthusiasm and high-quality pictures and recordings. The testimonials provide another way of gauging the success of the program—by hearing through the words of those individuals in the field charged with describing their research, how it is being used and the practical benefits thereof.

Fellows worked on a wide range of topics, including agriculture, biodiversity, urbanization, public policy, public health, education, water and sanitation, energy, and others. However, it is difficult for the reader to place the projects into distinct categories, especially since many might realistically be placed in two or more categories. Therefore, stand-alone criteria should be developed through collaboration between USAID and the universities prior to program implementation so that a more accurate assessment of the number of projects per category may be determined—e.g., how many agricultural projects were completed, how many educational projects were completed, etc.

The program also sought to enhance the capacities of host organizations to conduct research with practical applications. The university reports and three sets of questionnaire responses make mention of capacity-building taking place and, in most cases, describe examples in a quite brief manner; instead,

these important achievements should be well presented and summarized. Therefore, USAID, partner universities, and host organizations should consider collaborating on a set of capacity-building definitions and objectives that may be focused upon as well as metrics to document work on such efforts.

Lastly, the quality of the work accomplished through the RI Fellowship Program was exceptional. Moreover, the sheer volume is large: more than 314 project reports. Yet, because the reports are in many cases comingled with reports from other programs on USAID's Development Experience Clearinghouse, it is difficult to locate them and determine that they are indeed a result of the RI Fellowship Program. A clear dissemination plan focused on research users for project reports would mitigate this challenge.

Program Accomplishments

Figure 5. RIFA Fellows at a Workshop

Source: UC Davis

Capacity Building. The RI Fellowship Program sought to build research and development capacities. The program's Fellows worked with 215 different host organizations, where they were able to conduct a wide range of activities, including applied research, establishing relationships with international researchers, participating in community meetings, presenting project findings, and preparing publications. This work allowed Fellows to exchange knowledge and research techniques with their host counterparts, thereby building research capacities. Fellows also built capacities with third-party stakeholders, such as local farmers, by meeting with them directly, learning about problems firsthand, and assisting them in applying the products of their research directly in the field. Thus, knowledge was not only created, it was transferred directly to in-country researchers and in many cases to third-party stakeholders.

Capacity-building was also accomplished through the large number of disciplines addressed by the Fellows. For example, some of the subject areas where research was undertaken included agriculture, public health, data management, mapping, ecosystems, finance, public policy, education, food security, energy, water and sanitation, and sustainability. Finding solutions to complex development problems requires the combination of reductionist and holistic approaches because of the numerous systems involved. By conducting research in many disciplines, a better understanding of how these systems interact is achieved. In addition, working directly with host personnel in applied research requires the

understanding of how work conducted in the lab may be applied in the field, another aspect of capacity-building.

Key Outputs and Outcomes. The analysis showed that over the course of four years, 411 Fellows completed research in 53 different developing countries where they worked with 215 different host organizations. The work undertaken by the Fellows generated 314 separate project reports detailing the research that was completed and, in most cases, the practical applications for furthering development.

Figure 6. RIFA Fellow with SaveAct in South Africa

Source: UC Davis

In addition, collaborations were strengthened between U.S.-based universities and host organizations in two ways: first, existing research partnerships were continued, allowing for the continued growth of previously established collaborative efforts. Second, new host partnerships were formed, allowing a larger network of collaboration to occur. Moreover, the research conducted yielded important findings, an expansion of knowledge, and practical results. Also, the RI Fellowship Program Review Survey, conducted by USAID toward the end of the program, evidenced high satisfaction for the Fellowship program by the six universities, Fellows, and host organizations.

In summary, the review found that USAID developed and implemented a program that achieved its overarching goal of utilizing early-career individuals, mostly graduate students, to leverage science, technology, and innovation to address development issues and to build collaborative partnerships in developing countries. Moreover, the three program objectives of building a collaborative network between Fellows and host organizations, bringing in third-party stakeholders, and publicizing the project collaboration were all achieved. While the review also identified some program shortcomings, these should be viewed not as inadequacies but as opportunities to enhance a very good program.

5. Recommendations for Enhancing the RI Fellowship Program's Achievements

During a four-year period and at a cost to USAID of $3.5 million, 411 Fellows completed research that broadened their research skills and international awareness while resulting in practical applications, as described in 314 research reports. The six participating universities also provided cost-share contributions of approximately $3.0 million and nurtured an enhanced collaborative network fostering science, technology, and innovation, which heightened the development capacities of some 53

developing countries. The benefits of RI Fellowship Program significantly enhanced international networking and collaboration as well as development capacity-building. How could these achievements be enhanced?

Incorporate both direct cash and matching funds from participating institutions into the program design. The RI Fellowship Program could request that its cost-shares required both direct cash and in-kind contributions. Sole reliance on in-kind matching funds may diminish the focus since it is not a direct expenditure. Thus, requiring cost-shares consisting of both direct cash and in-kind contributions would likely enhance institutional planning and oversight to help ensure their resources are used wisely.

Promote collaboration between U.S. universities participating in the program to enhance program effectiveness. Promotion by USAID of stronger ongoing collaboration between participating U.S. universities is likely to result in a stronger program from mutual learning. In addition, such collaboration should be documented. The collaboration should address: 1) how to make U.S.-funded international fellowship programs more valuable to both U.S. researchers and host institutions; 2) how to encourage more U.S. graduate students to participate in the program; and 3) how to maintain collaborative efforts between U.S. universities and host institutions.

Strengthen student oversight and mentoring. The program should ensure that participating U.S. universities actually provide, and document, regular and meaningful oversight, counseling, and coaching to their student Fellows while in-country. All too often, Fellows work with their faculty adviser while completing the initial program application and then many Fellows rarely, if ever, communicate with them during the in-country experience. Such non-communication robs Fellows, especially aspiring researchers new to the international scene, with valuable mentoring. Just as important, faculty members lose valuable insight into the workings of international research as well as missing the opportunity to identify new, consequential research topics. Requiring a more formal mentoring process would strengthen this aspect of the program.

Promote and support the dissemination of research activities and findings. Consider additional methods to strengthen widespread knowledge of RI Fellowship Program research. While USAID did host one symposium where Fellows shared research findings, additional national or regionally-based symposiums where Fellows could present papers or posters summarizing their research findings would enhance dissemination of the Fellow's research efforts. In addition, Fellows might also present their findings at other USAID-based and university-based conferences that are focused on international topics. Another method would be to conduct annual conferences focused on Fellow alumni where paper presentations and posters could be made. A Fellow alumni conference would also serve as a vehicle for Fellow-to-Fellow collaborations, as well as serve as a venue for recruitment of future Fellows.

Support the reintegration process of Fellows in their home countries and institutions. Consider developing a webinar or video that addresses post-fellowship re-entry to standard academic life. Some Fellows reported difficulty with the readjustment to academic life upon return to the U.S. or just wished to discuss their experiences abroad. A voluntary, and perhaps informal, post-fellowship interview would allow returning Fellows to express their thoughts about their experiences and identify if any additional assistance is necessary. The post-fellowship interview could also serve as a method of closure. The webinar or video could be included as part of the pre-departure training seminars that are already being implemented.

Extend the minimum fellowship term to three months. The minimum length of time for fellowship was two months. A two-month term is rather short because almost two weeks of that time is spent becoming familiar with the local context and host co-researchers/staff and addressing basic logistics, e.g., travel, living quarters, food, and unpacking. Thus, a two-month term actually results in about six weeks of research effort, which is quite minimal. A minimum term of three months would be more effective. This recommendation echoes the responses made by some of the host organizations.

Provide financial support to host organizations to accommodate and manage Fellows. Consider providing hosts with a minimal stipend to defray some of the costs associated with accommodating the Fellow. While it is true that the host is receiving the benefit of "free" research assistance, the researchers are in the nascent stages of their careers and, though bright, do have much to still learn both in terms of research as well as interpersonal relationships. Moreover, there are real costs associated with managing personnel, such as providing supervision, materials and supplies, resolving conflict, work-related travel, and adequate research facilities.

6. Conclusion

In short, the RI Fellowship Program was a successful research and innovation fellowship program, achieving not only its overarching goal of utilizing early-career individuals to address development issues and build collaborative partnerships but also succeeding in its three previously described objectives. As a program within USAID, it accomplished its goals and objectives and strengthened development opportunities while also exposing U.S. researchers to the challenging, and rewarding work of international development; and by doing so, these helped further USAID's support of international development.

As with any human endeavor, some improvements could be made to the program. For instance, the publication of the collaborative results could be improved upon through a stronger outreach effort. Strengthening the collaborations between U.S.-based universities could also be improved upon and would likely result in strengthening their existing international programs. Also, stronger collaborations between U.S.-based universities and host organizations would result in a stronger and more lasting collaborative network and likely enhance capacity-building over time.

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Annex I. Methods and Sources of Information

The review consisted of performing several distinct tasks, including: 1) a desk review of published reports, correspondence, and documents; 2) consultations with key personnel of the six universities and USAID program managers; 3) a review of several case reports submitted by Fellows who participated in the program; and 4) an analysis of a survey questionnaire completed by a subset of the Fellows, host organizations, and program managers of the six universities that participated in the program. These tasks are detailed below.

Desk Review

A large number of documents were produced over the course of the RI Fellowship Program by both the six universities and USAID. Examining these documents provided an understanding of the program's purpose, goals and objectives, implementation, monitoring, and results. From the information obtained from the documents, and other data sources, it was possible to identify the key outputs and outcomes of the RI Fellowship Program. The documents analyzed included:

- Quarterly and annual reports filed by each university
- Quarterly and annual monitoring and implementation reports filed by each university
- Financial award documentation
- Final reports filed by each university (three were under review by USAID at the time of the review)
- Various posters, flyers, brochures, and presentation materials used to describe the program
- Various "success stories" from Fellows describing their projects and the program's benefits that were shared in fliers, brochures, and videos
- Excel spreadsheets containing descriptive information about the Fellows from each university

Consultations with Key University and USAID Personnel

An initial telephonic meeting was held with USAID personnel to discuss the review's objectives and schedule. At the initial meeting, the purpose of the review and schedule was discussed as well as availability of program documents. Several telephonic meetings were conducted during the review to provide updates and give the opportunity for questions and answers between USAID and NORC.

After a perusal of the program's documentation, a list of questions was developed and sent to the key contact officials at the six universities as well as USAID program personnel. The questions sought further information about the program's implementation. Discussions took place with program managers from University of California, Davis (two discussions), University of California, Berkeley, and the University of Notre Dame. Although the other three universities were contacted, no discussions were arranged. Finally, two meetings between USAID and NORC personnel were conducted to discuss the review drafts as the review process proceeded.

Project Reports

A review of project reports was undertaken to understand the program's outputs and outcomes as well as the benefits to host organizations and university Fellows; the review also helped to assess the achievement of USAID's overarching goal. Over the four-year period that the RI Fellowship Program operated, a total of 314 research projects were undertaken by the Fellows—many of which resulted in written project reports. The project reports describe the work that was completed by the Fellows and their host counterparts. The reports cover a very wide subject matter: for example, projects were undertaken in the fields of agriculture, health, education, public policy/affairs, water and sanitation, data management, and mapping, as well as other fields.

Surveys

USAID conducted a survey of the Fellows, host organizations, and university administrative units charged with managing the program to gauge various attributes of the RI Fellowship Program. The surveys were distributed by the university partners in 2017. Participation was optional, and no incentives were provided for completion. Three separate surveys were prepared to solicit feedback from three different stakeholder groups: former Fellows, university administrators, and host institutions that participated in the RI Fellows Program since the establishment of the six cooperative agreements in 2014. Questions were asked in a way so that answers would provide USAID with insight to Fellow, host institution, and university experience and perception of the RI Fellowship Program. In several cases, participants were asked to explain their answers.

Because the survey was optional, respondents have the potential to be biased towards the program in one way or another; there may be opinions, experiences, and perceptions that we are missing without an incentive to respond to the survey. Likewise, this program review was conducted internally (e.g., by USAID) and not by an independent third party. Additionally, USAID was compelled to rely on the university program administrators to send the surveys and was not in direct contact with the Fellows, university administrators, or host institutions in requesting completion of the survey. This method was implemented based on feedback from the university program administrators, as well as necessitated by incomplete contact records inherited by the current USAID management team. This may have impacted the response rates from these groups.

Annex II. Success Stories

The following "Success Stories" were prepared by the Fellows participating in the program. (The stories presented below have been slightly edited for clarity, style, and brevity; however, usage of first person in the original publication has been retained where necessary to protect the integrity of the message conveyed.) The stories offer a look at the types of projects undertaken by the Fellows and also describe the purpose and goals of the efforts, the accomplishments achieved, and host and partner involvement. The stories provide an overview of the wide scope of projects that were completed as part of the RI Fellowship Program.

Arizona State University

The projects highlighted in this section took place between 2017 and 2018.

Achieving Sustainable Development Goals: Multi-Actor Perspective on Climate-Smart Sustainable Agricultural Practices—Indonesia

This project looked at the vulnerability of farm livelihoods in light of climate change and adaptations that are currently taking place to tackle the climate risks. The main activities undertaken in the research included: literature review and in-depth interviews, followed by data analysis and report writing. Overall, 26 interviews were conducted with different stakeholders, including researchers/academics, NGOs, local regency official and local farmers. Interviews were conducted to understand drivers of climate change vulnerability and coping mechanisms. The analysis of the findings is underway. All of the collected interview data are collated to provide a comprehensive understanding of livelihood situation in the study region.

The main outcomes include improved understanding of local livelihood vulnerability and shared learning facilitated across different stakeholders. The knowledge created will be shared in order to increase the use of scientific research for better development outcomes, in line with the objectives of the primary stakeholder and USAID. Similarly, outcomes can also contribute toward knowledge base of the policy making and implementation unit of local government.

The collaboration with the University of Mataram (the local partners) will continue as we move along towards dissemination and publication of the research study. Also, Global Institute of Sustainability from Arizona State University and North Lombok Regency share a Memorandum of Understanding to work on sustainable development goals (SDG)s.

All the inputs, associated activities, outputs and outcomes directly and indirectly impact various SDGs including SDG 2 (No Hunger), SDG 1 (End Poverty), SDG 13 (Climate Action), and SDG 17 (Partnership for the Goals).

Energy for Development: Synergies in SDGs—Indonesia

Energy is crucial for development, and this fact was well learnt in the region. The biogas program that initially only looked to solve the energy problem later evolved into integrating use of bio-slurry as fertilizers for horticulture. Learnings come across as we moved along the path of sustainable development. An official from the non-governmental organization (NGO) highlighted, "Our initial

learnings were crucial for us and was a step-by-step process. We had to integrate the energy program with livelihood aspects so that communities can see value in the intervention and can take this forward once we step back. The benefits from bio-slurry can be easily integrated into farming aspects thereby creating acceptability of the intervention." When officials realized how unavailability of water was hindering the use of biogas digestor, they then integrated water-tanks into the biogas interventions. Hence, the NGO went across to build 100 water tanks at the household level to leverage rain water harvesting for biogas plants. This experience teaches two things—one, there are synergies (and trade-offs) along all the actions taken for SDGs, and two, all interventions are step-by-step learning.

Youth and International Development: Shared Learning—Indonesia

Today's youth are defining the global landscape of development. Youth groups were one of the key stakeholders in defining the SDG agenda and also taking local actions. We as GDR scholars have this wonderful opportunity in Indonesia not just to share our knowledge but also to learn from local intellectuals who are part of international community. Amplifying young local voices is very important, and it came across during our presentation at the local university. A student asked us an important question, which we ourselves have pondered—"What is the benefit of you coming here for us and how do you think your solutions can facilitate climate actions here?" We have been taught during our GDR prep work that we cannot act as the saviors for global south. The student's question is very crucial in a sense on how we promote ourselves. We need to be cognizant of the fact that this process is based on experience of shared learning. Programs like GDR allow a space for such conversation to take place where various scholars from different parts of the world can interact, learn, and share knowledge regarding international development.

Rutgers University

Three highly impactful and cohesive multi-year projects emerged organically from collaborations through the RI Fellowship Program. Those projects—in South Africa, Colombia, and Indonesia—involved 28, 15, and 14 Fellows, respectively, and had significant impacts on Rutgers, the participating Fellows, and the host institutions with which these collaborative projects were carried out.

Collaboration with Community Chest of the Western Cape and with the Mamelodi Campus of the University of Pretoria—South Africa (2015 – 2018)

In South Africa, a wide range of interdisciplinary, community-engaged, mostly social-science research projects were carried out by Rutgers Fellows from various schools of the Graduate School of Rutgers-Newark, under the guidance of and with the support of staff of the Community Chest of the Western Cape in Cape Town. The projects were mostly meta-analyses that benefited the program development efforts of the Community Chest, and fell roughly into four general areas:

- Fostering efficiencies and the adoption of best practices in business and entrepreneurship programs and efforts, as well as enhancing the assessment metrics and practices of local NGOs
- Researching and assessing programs and opportunities aimed at women's empowerment in the context of poverty, under-education, and significant health disparities
- Assessing the relative success of various projects aimed at adolescent education, after school engagement, and career development

- Generating baseline data on public health issues and programs developed to address them, including tuberculosis, HIV/AIDS, and gender-based violence

The success and impact of these projects caught the attention of several university partners in South Africa—in particular the newly energized Mamelodi Campus of the University of Pretoria, a former community college that is in the process of developing a uniquely community-centered pedagogy for students facing significant socioeconomic and cultural barriers to success in higher education. The interest on the part of Mamelodi leadership in the projects carried out by the Rutgers-Newark fellows, many of whom come from backgrounds analogous in the U.S. context to those of the Mamelodi students, led to a formal partnership and collaborative institution-building projects between Rutgers-Newark and the Mamelodi Campus of the University of Pretoria. The two institutions have pledged to co-develop anchor institution strategies for community capacity-building in Pretoria and in Newark.

In turn, the larger partnership between the University of Pretoria and Rutgers-Newark led to the two institutions co-founding the U.S.-South Africa Higher Education Network focused, to a large extent, on boosting the production of PhDs. The first phase of the collaboration is the University Staff Doctoral Program, which garnered a grant of R76 Million, roughly USD 5.4M, from the South African Ministry of Education.

Assessment of Trauma Infrastructure and Emergency Response Capacity in Southeast Colombia—Colombia (2015 – 2018)

This ground-breaking project assessing medical infrastructure on a regional basis in Colombia was initiated by faculty of the Global Surgery program of the Department of Surgery of the Rutgers Robert Wood Johnson School of Medicine, and carried out by RI Fellowship Program Fellows, in collaboration with the School of Medicine of the Universidad del Valle in Cali, Colombia.

The Fellows projects aimed mainly at development of a trauma registry, specific to the Hospital Universitario del Valle, in accordance with standards promulgated in the "Resources for the Optimal Care of the Injured Patient" by the American College of Surgeons Committee on Trauma. Such a registry will make it possible for a trauma hospital like the Hospital Universitario del Valle to quantitatively and qualitatively assess its standard of trauma-systems care and to do so through performance improvement measures.

One highlight of this collaborative project was Rutgers participation in the Pan-American Trauma Society Congress (November–December 2017). Dr. Carlos Ordonez, the host and sponsor of the Rutgers RWJMS RI Fellowship Program Fellows in Cali, Colombia, was then President of the Pan-American Trauma Society. The work was published in the medical journal *Lancet*. Thus, the Rutgers-USAID RI Fellowship Program was in a strong position to influence the direction and priorities of trauma infrastructure development in the region.

The project is ongoing and has spurred an additional institutional relationship with Harvard's Program in Global Surgery and Social Change, a world leader in academic Global Surgery. Together Rutgers and Harvard have played a leading role in refining the Latin American Lancet Commission on Global Surgery guidelines and in helping to shape the national surgical planning work with Ministries of Health in Latin America.

Research Collaborations with Leading Indonesian Universities—at the Intersection of Biomedicine, Pharmacology, Public Health, and Climate Change—Indonesia (2015, 2017, 2018)

Under the leadership of Rutgers RBHS Graduate School of Biomedical Sciences (now part of Rutgers newly consolidated School of Graduate Studies) several very productive research projects have been designed and implemented over the past four years. Fourteen Rutgers RI Fellowship Program Fellows have participated in these research projects, which encompass several fields.

One collaboration with the Faculty of Pharmacy of Universitas Padjadjaran (UNPAD) focuses on isolation of the active compounds of indigenous plants to test their pharmacological properties and potentials. In this second most biologically diverse nation on earth, these compounds, which have proved to be among the most promising and efficacious, have the potential for enormous public health and economic impact.

Another collaboration at UNPAD focuses on assessing the extent and nature of antibiotic resistance in Indonesia, a major public health problem that has the potential to significantly increase rates of morbidity and mortality if not checked. The resistance results in large measure from the unsupervised and medically irrational overuse of antibiotics, a problem whose scope, profile, and medical nature can only be assessed by the kind of careful research being carried out at UNPAD, with the assistance of the Rutgers Fellows.

A third project, hosted by the Universitas Indonesia Faculty of Medicine, specifically focuses on the effects on human biology of climate change. Four Rutgers Fellows assisted local faculty in assessing the impact of oxidative stress on red blood cells as a consequence of increasing levels of atmospheric CO2 caused by unregulated industrial and agricultural practices.

The success of these projects has led to other collaborative research proposals with Universitas Airlangga and Universitas Nasional. In addition, the mutual respect, trust, and productive dynamics engendered by these collaborative projects have made it possible for Rutgers to participate with our Indonesian partners in the development of several major grant proposals (including for USAID's SHERA program.) While we have yet to secure major funding for these proposed collaborations, the experience of working together to develop such proposals makes future success increasingly likely.

University of California, Berkeley

Apples in Nepal (2016)

One Fellow participating in the program was as an eight-year veteran, who served her country as an Army's Civil Affairs officer from Bosnia to Baghdad. Upon her return to civilian life in 2004, she completed her bachelor's degree in botany and plant biology while immersing herself in farming. She found that farming helped her move beyond the more traumatic military experiences, and she became a leader in a movement of female vets promoting farming as a path to recovery. She entered into UC Berkeley's Master of Development Practice program in 2015 and was a Global Development Fellow in the Summer of 2016.

Her host was Aythos, a small U.S.-based economic development nonprofit working in Nepal. Her initial assignment was to analyze apple growing in the remote Helambu Region and to develop a training guide to improve growing practices. As an apple grower herself, she seemed ideal for the task. But within only

a few days of interacting with the apple farmers of Helambu, she realized that a farmer from North Carolina had little to suggest to farmers in a very different context who have been raising apples for generations.

Not willing to leave it at that, she began asking questions about where and how the local farmers sold their apples. She discovered that not only had market channels been interrupted by damage to roads and paths caused by the earthquake the previous year but that lower-cost, though inferior, apples from China had been filling the vacuum in the major markets of Kathmandu, the capital.

In consultation with Aythos' leadership, she pivoted her scope of work to focus instead on a supply chain study and the outline of a new marketing strategy. In the process, she identified organizational weaknesses in Aythos that would make it difficult to follow her recommendations. She identified staff training of local staff as critical and suggested that future Fellows be recruited less for horticulture skills than for their expertise in project management and marketing.

She went to Nepal to teach how to grow apples but used her cross-disciplinary and analytical skills to identify a greater need and opportunity. In the process, she laid the groundwork for increasing the human and organizational capacity needed to improve the livelihood of Helambu farmers far into the future.

Communicating in Kenya (2018)

A first-year PhD student in the School of Information saw in GDF an opportunity to undertake research in the emerging fields of digital Natural Language Processing (NLP) and text analytics, a subfield of Artificial Intelligence (AI) that, its proponents contend, holds tremendous promise to better understand attitudes, perspective, and opinions coming from communities in developing countries. Her host was the African Voices Foundation, an organization specializing in the use of mixed-methods research using digital technologies (mobile phones, radio, social media). In Nairobi, African Voices is supporting Well Told Story (WTS), a communications research and production company. One of WTS's projects focuses on understanding youth attitudes toward contraception and how the discourse about it is changing over time.

University of California, Davis

The following highlights demonstrate student achievement in the different impact areas. A further 14 Fellow spotlights and more detailed stories can also be found on the UC Davis website at https://ip.ucdavis.edu/scholars-and-students/RIFA/.

Agricultural Knowledge Generation—South Africa (2015)

A 2015 RIFA Fellow from UC Davis studied the incidence and severity of maize foliar disease in KwaZulu-Natal, South Africa. She analyzed the genetic diversity of Grey Leaf Spot (GLS), a fungal disease of maize, helped a lab at the University of Pretoria establish lab and fieldwork protocols for future research, and co-organized a symposium to promote knowledge sharing at the university. The Fellow is now a doctoral student in plant pathology at the University of Wisconsin-Madison.

Capacity Development Highlight: Building Organizational Capacity—Nepal (2016)

Two 2016 fellows from UC Davis worked with Aythos, a small NGO in Nepal, to build both farmer and staff capacity. With staff, they identified training and professional development needs and worked on skills that staff needed to run projects on their own, without relying on international volunteers. Staff members build confidence in their ability to manage projects, as well as learning concrete project planning, management, and training skills.

Enabling Environment—Vietnam (2017)

Two RI Fellows were hosted by CIAT in Vietnam. The Fellows worked on a sustainable diets framework designed to help the Vietnamese government implement evidence-based food systems policy. Part of this work included facilitating a stakeholder workshop to identify indicators for this framework. This work is ongoing at CIAT: one Fellow returned to Vietnam after the fellowship ended to continue working on the framework.

University of Chicago

The following projects took place in 2016 and 2017.

The team's impact resulted in establishing high credibility with the officials in the Department of Education of Rajasthan, India. In the words of the secretary of the department: "These are brilliant people who are ready to work hard. They are committed and willing to engage with everybody. Working in the government, you begin to think on a particular line, but the IIC team helped us bring in new ideas and expose me to opportunities I never knew existed."

Another team, working with the Department of Irrigation and Command Area Development, in the state of Telangana, were similarly able to accomplish high impact in their policy research project, directed at improving the management of 64,000 water tanks across the state. The team conducted an iterative research process to transition a top-down government-led management system to a bottom-up system, centered on Water User Associations. The team provided strategies for the selection process for these associations and created the necessary incentive structures to facilitate their work.

The team's project partner, the Special Chief Secretary to the Department, said the following about the team's work: "On behalf of the people and the government of Telangana, I would like to thank the International Innovation Corps (IIC) and the University of Chicago for their valuable collaboration with the Irrigation and Command Area Development (I&CAD) Department over the last year. The young and enthusiastic team attached with the Department was ever eager to analyze several issues from different perspectives. I found their detailed report and recommendations very useful in ushering in certain reforms in Telangana's irrigation policy in the near future. Moreover, the emphasis placed on implementation-oriented research was novel and innovative. We hope to cherish our association with the IIC and the University of Chicago team and look forward to working with them in the future as well."

University of Notre Dame

The following examples describe the experiences of RI Fellows at the University of Notre Dame. The first example relates to fellowship work on social movements and peacebuilding in Colombia, and the second is related to politics, government structures, and development in Argentina.

Collaboration and Capacity-Building—University of Cartagena, Colombia (2016 – 2017)

"The possibilities for fieldwork through the University of Cartagena are numerous, with long-term relationships that help to facilitate the research. I would note that it is best to have someone who, once oriented/connected, is also able to work independently—for me, this was absolutely perfect.

Finally, I just want to express that this was a productive, rich, deep experience of fieldwork that has contributed in innumerable ways to my professionalization, dissertation, and career. I am grateful for the ways that USAID and NDIGD facilitated this opportunity as well as the University of Cartagena."

Building Research Skills—Argentina (2017)

"One of the greatest skills I developed was further learning how to act and communicate professionally when interacting with government officials, both in Spanish and in English. I interviewed high-level officials in the National Congress, the Casa Rosada, and in a number of foreign ministries.

I not only practiced communicating my research to a non-technical audience, but I also got better at expressing why my research question is important—why and how direct investment by presidents can spearhead development in cities, despite resistance from governors.

I gained a deeper understanding of the role that academics, practitioners, and politicians play in international development. There were times that my interviews with political scientists contradicted my interviews with government officials, which makes sense as actors interpret development issues through different lenses.

An experience that other female researchers have gone through and that I shared was that I had to learn how to navigate fieldwork as a young, American woman primarily interviewing older men. The gender and power dynamics of my interactions was both extremely frustrating and a great learning experience. Despite being faced with the near-constant struggle of trying to be taken seriously and avoid objectification, I became much more assertive, confident, and strategic during my time in Argentina. I got better at reading people in interviews and doing my best to best to direct politicians to answer my questions while recognizing that they have their own interests as well (whether they genuinely want to help you and introduce you to new people; want to be patronizing and "teach" you; want to brag about their policies; or are guarded and do not want to provide much information or time). This is a skill that I will continue to use and a situation that I will deal with for the rest of my life."

Annex III. Program Results Framework
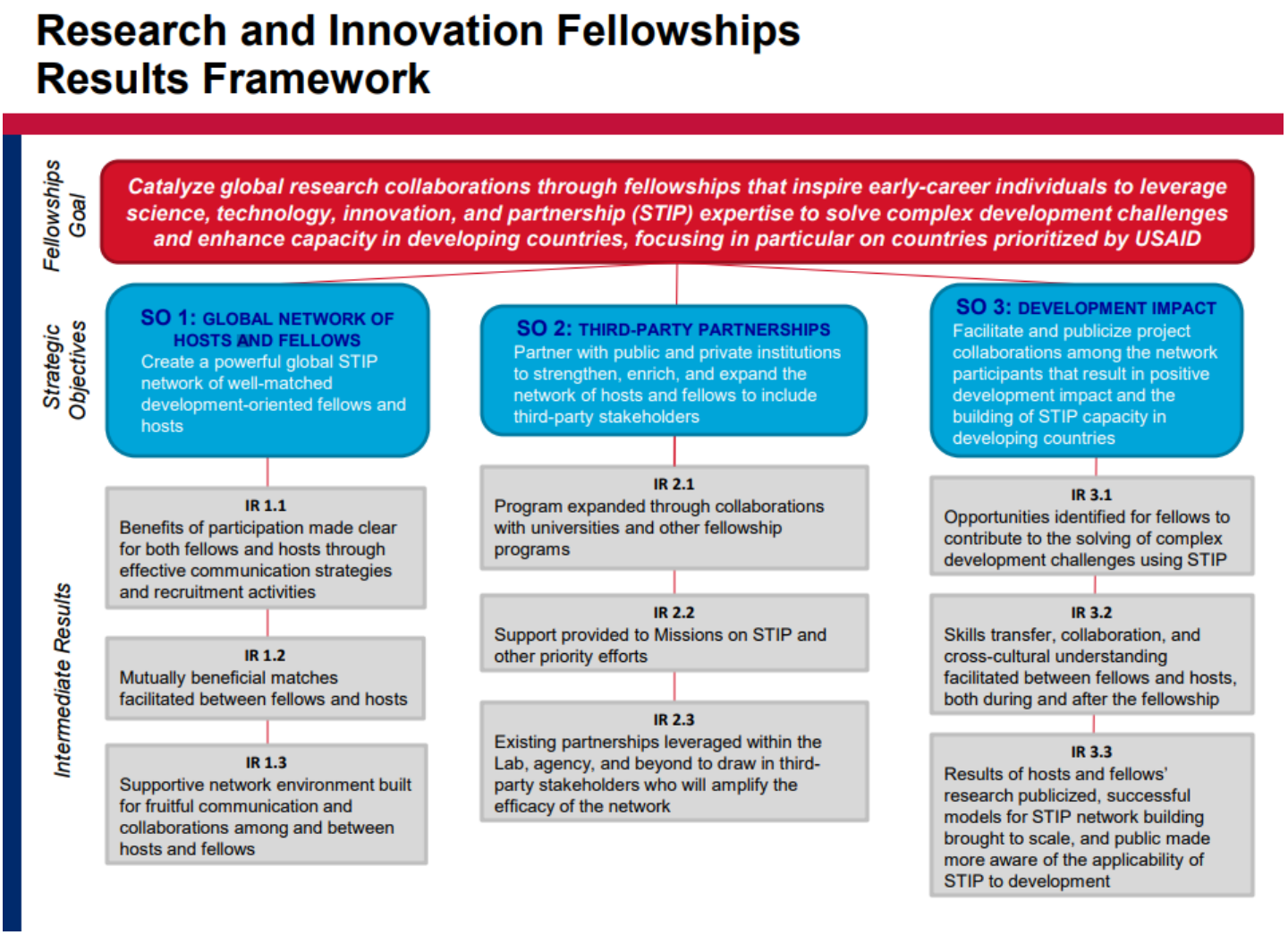
Figure 7. Program Results Framework