Evaluation of the AIDS International Research and Training Program (AITRP): A Feasibility Study

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Executive Summary

Goals of the Feasibility Study

The purpose of this Feasibility Study (FS) was to assess the viability of a full-scale outcome evaluation of the NIH-supported AIDS International Training and Research Program (AITRP). Our specific objectives were: to explore relevant topics and formulate follow-up in-depth questions surrounding strategic planning, program management, partnerships, and results-related issues surrounding AITRP; to examine existing data – about the grantees, trainees, and other stakeholders – to determine its sufficiency and integrity; to assess if an outcome evaluation is appropriate; to explore conventional and emerging methods that may be especially appropriate to a full-scale outcome evaluation; and, in the event a full-scale outcome evaluation is warranted, to propose a study plan and data collection approaches. The study involved a small level-of-effort – about 1,000 person-hours over a 6-month period.

Methodology

Using the four-part Fogarty International Center (FIC) evaluation framework – strategic planning, program management, program partnerships, and results – a comprehensive list of evaluation questions was developed. This framework guided the development of a Logic Model that was iteratively adjusted in the course of the study, as well as of specific questions to be addressed in the Feasibility Study. To address the questions in each of the four categories, we conducted interviews with FIC staff, NIH partners, domestic and international AIDS experts, and Principal Investigators of AITRP grants around the country. To complement information obtained through the interviews and to familiarize ourselves with the AIDS research field, we reviewed NIH and FIC documents as well as scientific and policy publications on HIV/AIDS. To examine the integrity of trainee data, we compiled a trainee roster from multiple sources. Finally, to pre-test a survey instrument, we contacted a small number of trainees (consistent with OMB protocols) with questions about their experiences.

Substantive Findings

Substantively, the Feasibility Study revealed many features of the program. The program was initiated in 1988 with primary goals to develop research capacity in the developing world in HIV/AIDS research, and to enhance international cooperation in the field. The first set of AITRP awards were made in 1988 to eleven US-based universities. The program has funded four award cohorts, and all grantees except three have re-competed successfully. Today, with grantees at twenty-three US-based universities, AITRP appears well-conceived and well-managed, responding to advice from experts, and evolving with the epidemic and its global research agenda. Since 1993, the NIH investment into AITRP has exceeded $80 million; while funding information from the program’s first five years was not readily available, NIH’s total investment in AITRP could be close to $100 million.

Review of other programs aimed at combating HIV/AIDS made it evident that while AITRP is only one of many initiatives that provide assistance to developing countries in dealing with the AIDS crisis, it is unique in two respects: first, it responded to the epidemic many years before other organizations developed programs to promote training and research in developing countries; and second, through the provision of long-term, repeating grants, the program has made a sustained commitment to developing countries.

The program has formal and informal partnerships with seven Institutes within NIH – National Cancer Institute (NCI), National Heart, Lung, and Blood Institute (NHLBI), National Institute of Allergy and Infectious Diseases (NIAID), National Institute of Dental and Craniofacial Research...
(NIDCR), National Institute on Drug Abuse (NIDA), National Institute of Mental Health (NIMH),
and National Institute of Nursing Research (NINR) — and the cross-agency Office of AIDS Research
(OAR). Program staff is involved with NIH-wide AIDS research efforts as well. Grantees partner
with each other and with other programs outside NIH.

AITRP PIs are prominent and established researchers primarily based in schools of public health or at
medical schools. AITRPs are generally interdisciplinary research and education programs involving
between five and eighty faculty members. Most AITRPs train a mix of degree-seeking and non-
degree-seeking researchers for periods ranging from days to years. The program has trained about
500 long-term, and at least 1,100 short-term, trainees. The latter figure may be as high as 10,000 –
short-term trainees are not tracked as well as long-term trainees. Long-term trainees arrive in the US
with high qualifications (over 90% have advanced degrees); two-thirds of whom receive masters or
doctoral degrees and are productive researchers during their AITRP tenure.

While PIs’ choice of countries from which trainees participate is driven primarily by personal
connections, the strategy is working well – trainees have come from almost 80 countries, represent
almost all countries hit by the AIDS crisis, and most important of all, were brought into the
program at or before the time the crisis worsened in their home countries. (Figure A) Two-fifths of
the trainees originate in Asia, a quarter in Africa, a sixth in Latin America and the Caribbean, and the
balance in Eastern Europe and Russia. There are seven countries with HIV prevalence rates of 5% or
greater that are non-participants; they all happen to be devastated by on-going or recent civil wars
making AITRP presence difficult.

The AITRPs are intensely focused on preventing “brain drain” and have developed unique training
approaches and strategies to ensure that trainees return to their countries following their AITRP
participation. Anecdotal evidence suggests that over 80% return at conclusion of training. Based on
the collective opinion of a small number of respondents, AITRP trainees are satisfied with their
training experience and the training is making a difference in their professional standing upon return.

![Figure A: Countries Involved with AITRP](image-url)
Methodological Findings

Methodologically, we learned that assembling complete trainee and grantee records – vital for any potential outcome evaluation – requires considerable effort. FIC does not maintain a complete trainee roster; program officials were able to provide multiple data sources – some paper and some electronic – that were difficult to integrate into a single roster and check for data completeness and integrity. Independently, Abt Associates contacted Principal Investigators to obtain their trainee rosters; PIs from seventeen of the twenty-three current grantees provided their electronic records. The PI records include some trainees not in the FIC database; contrariwise, some trainees are listed only in FIC’s records. Currently our roster contains about 1,000 trainee names; additional information about trainees (country of origin, length and type and period of training, title and affiliation before and after training) is available to varying degrees. In the course of the study, however, we have developed several strategies for integrating trainee related information, and are optimistic that by integrating records from PIs, FIC, and in-country collaborators, it is feasible to reconstruct a nearly complete trainee roster. Most critically for an outcome evaluation, there is contact information available for fewer than half the trainees. Financial data about the program – at the program and grantee level – is not easily available either. Using NIH databases, we were able to obtain partial data since 1993. Further efforts need to be made to obtain data from the first five years of the program.

Contacting trainees during the FS was only moderately successful. As noted above, contact information was available for about half the trainees. Of those contacted, roughly one-third agreed to participate, and of those who were sent questions, only one-third responded (since this was not a survey exercise, no reminder strategies were employed). While trainee responses were instrumental in formulating hypotheses about the program that can be tested in the future, we are not especially optimistic about a census survey of AITRP trainees.

Interview-based qualitative data collection was more successful. Our interactions with Principal Investigators, many partners at NIH Institutes, and experts outside NIH (e.g., CDC, UNAIDS) were productive, and experts shared with us many important observations about AIDS research in general and the AITRP program in particular.

Overall Findings and Recommendations

Overall, we found preliminary evidence that AITRP results in achievements that appear to go well beyond the individuals who participate in it. The study also demonstrated that:

- AITRP is a large and multifaceted program that has complex interactions with its environment, including US and foreign research institutions, policy and political entities, and other donor organizations. It is not likely that a study of AITRP in isolation would provide definite answers about its role in capacity development. It is important to examine how AITRP fits with other national and international AIDS efforts, and how it is leveraging its network to maximize impact.

- Research capacity development itself is a complex process. In order to assess it, one needs to examine not only the scholarly research produced by trainees during and following training – as done in traditional evaluations – but also the capacity for policy-makers in developing countries to use such research, and the capacity for practitioners in developing countries to produce research to inform their practice. To conduct such an assessment, it is critical to examine the role of AITRP in the countries from which trainees are chosen along the research to impact continuum. For example, the FS found that most trainees returned home. Preliminary evidence glimpsed from interviews with PIs and trainees indicates that trainees may not have sufficient funds and access to institutional infrastructure to continue productive
work in their chosen topics. A more in-depth study is needed to establish whether AITRP has been successful in creating sustainable research capacity.

- There are several unresolved programmatic questions – should the program continue to train both short- and long-term trainees or provide more in-country training; should country and trainee selection procedures and focus on “trainee return” be re-examined; and what changes in management practices could help improve the program at the FIC and grantee levels, among others – that remain to be examined deeply.

From a substantive perspective therefore, we believe that a full program evaluation would provide new and important insights into the workings and achievements of AITRP. These insights can in turn be used to provide informed guidance on the program’s policies, management, and processes. From a methodological perspective, the study must be carefully designed such that it does not rely excessively either on the completeness of trainee records or on the ability to contact a large number of trainees. But at the same time, examination of trainee experiences – before, during, and after – is critical to the study of the effectiveness of this training program.

Given these conundrums, we propose a two-phased approach to an Outcome Evaluation (OE). The OE should begin with an examination of the “universe” of AITRP, and then quickly move on to a detailed assessment within a few “constellations” of AITRP systems. The first phase will focus on the development of a complete trainee roster (including short-term trainees), statistical analyses, and conduct of a select set of interviews. The second phase will use information generated in the first to conduct a small number of carefully selected case studies in countries where AITRP has had a significant presence. Case studies will focus on country-level capacity development and examine AITRP and all its “boundary partners.” The case studies will include a survey of trainees in these specific countries (thereby cutting down the level-of-effort required to track trainees and ensure aggressive follow-up) as well as interviews with program participants and key non-participants. The case study approach will allow in-depth examination of the impact of AITRP on research capacity development. It will also enable selection of comparison groups, which exist more readily by country than by program.
1.0 Introduction

The AIDS International Training and Research Program (AITRP) began in 1988 as one of the first of a new generation of training programs sponsored by the Fogarty International Center (FIC) at the National Institutes of Health (NIH) designed to help scientists from institutions in developing countries build research and public health capacities in those countries. AITRP grants are awarded to Principal Investigators (PIs) at universities in the United States, who in turn recruit and train individuals from developing and transition countries affected by the AIDS epidemic. Those eligible for training include scientists and laboratory staff, nurses, counselors, physicians, and program administrators. The program makes provisions for long-term training in the United States as well as long-term and short-term training in trainee home countries.

To put AITRP in a proper context, we begin with a summary of the discovery of HIV/AIDS, the current state of the AIDS epidemic, and regional training needs, followed by a brief description of the study context and objectives.

1.1 Background

1.1.1 Context: The Discovery of AIDS

It is generally believed that the HIV virus was transferred from a subspecies of chimpanzees to humans sometime around 1955, but it is not known how many people had developed AIDS before the 1970s (AIDS Project Los Angeles, 2003). In 1981, physicians in New York and San Francisco noticed several aggressive cases of Kaposi’s sarcoma — a benign relatively rare cancer that usually occurs in older people—in young homosexual men (Trends in Knowledge—United States, 2003). At about the same time there was an increase, in both California and New York, in the number of cases of the rare lung infection *Pneumocystis carinii* pneumonia (PCP) (*ibid*).

An important clue about the possible cause of these diseases came from the discovery by Michael Gottlieb at University of California in Los Angeles, who noticed that the blood of patients with PCP lacked helper T cells, which are part of the immune system (Gottlieb, 1981). Around this time, a number of theories were developed about the possible cause of these opportunistic infections and cancers, such as infection with cytomegalovirus, the use of amyl nitrite or butyl nitrate "poppers," and "immune overload." (AIDS Project Los Angeles, 2003). In 1982, a 20-month old child who had received multiple transfusions of blood and blood products died from infections related to AIDS. This case provided clearer evidence that AIDS was not a ‘gay disease,’ as was assumed at the time, and that it was caused by an infectious agent. At the suggestion of Bruce Voeller, a Los Angeles researcher, the Centers for Disease Control and Prevention (CDC) gave the disease its official name: Acquired Immunodeficiency Syndrome or “AIDS” (AIDS Project Los Angeles, 2003).

In 1983, Luc Montagnier’s group at the Institute Pasteur in France reported that they had isolated a new virus, which they believed was the cause of AIDS (Montagnier, 2003), a discovery confirmed by Robert Gallo at the National Cancer Institute (Gallo, 1983). Dr. Gallo’s discovery was published in the May 4th issue of *Science*, and by the 17th of May private companies were already applying to the Department of Health and Human Services for licenses to develop a commercial test to detect evidence of the virus in blood. It took another two years for blood tests to become commercially available, reducing almost to zero the transmission of AIDS though blood transfusions in developed countries (AIDS Project Los Angeles, 2003).
In 1985 the genome of the HIV virus was sequenced \(^1\); this was followed by an identification of the protein called CD4 present on the surface of T cells as the receptor for HIV (Montagnier, 2003). By 1987, the first anti-HIV drug, AZT, which works by blocking the activity of reverse transcriptase—one of the HIV enzymes—was introduced (ibid). By then, almost 60,000 AIDS cases had been reported in the US alone; 28,000 people had died (AIDS Project Los Angeles, 2003).

In early 1993, AIDS patients started to show signs of resistance to AZT (Sonnerburg A, 1993). In 1995, the first of the new generation of anti-HIV drugs—called protease inhibitors—was approved by the Food and Drug Administration (Montagnier, 2003). 1996 brought a lot of excitement and optimism about the treatment of HIV-positive individuals. It was found that protease inhibitors could reduce the amount of virus in the blood of infected individuals to undetectable levels, alleviate suffering, and prolong survival (Cohen, 2002, Baltimore, 2002). However, it was now clear that protease inhibitors could not completely eliminate the virus, and an HIV-infected person must take medication for life (Baltimore, 2002).

Even today, dose regimens are difficult to follow, side effects are common and debilitating, and the drugs are unaffordable and unavailable in many developing countries (Baltimore, 2002). Moreover, although the existing drug cocktails can in many cases prevent the development of AIDS symptoms, they do not offer protection from HIV infection.

Increasingly, the efforts of the research community are directed toward the development and testing of an effective prophylactic and/or therapeutic vaccine (ibid)\(^2\). At present, several potential T cell-based vaccines are in early stages of clinical trials, but the initial results are not particularly promising (Cohen, 2003). Development and testing of a new vaccine is a slow process and is likely to take several years of dedicated research to produce a vaccine that is safe and effective in the prevention of HIV infection.

### 1.1.2 The AIDS Epidemic Today

Despite efforts to stem the epidemic, the disease continues to ravage the planet, especially in developing countries (Figures 1.1a-d). According to recent report by UNAIDS, 42 million people worldwide are infected with HIV—a total exceeding all predictions of epidemiologists a decade ago—and the epidemic shows few signs of slowing (AIDS Epidemic Update, 2002). The epidemic has crossed all borders, robbing countries of the resources and capacities on which human security, welfare, and development depend. According to the report, in Asia and the Pacific region alone, almost 1 million people acquired HIV in 2002, bringing the estimated number of HIV-positive individuals in this area to 7.2 million. This number includes deceptively low estimated prevalence rates in India and China; in these populous countries official estimates predict a many-fold increase in the number of new infections.

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1. To date, two varieties (or ‘strains’) of HIV virus have been isolated: HIV-1 and HIV-2. Both kinds of HIV virus cause the same disease and are transmitted in the same way. However, on average it takes longer for HIV-2 than for HIV-1 to lead to full-blown AIDS, most likely because the levels of HIV-2 found in the bloodstream tend to be lower than that for HIV-1. HIV-2 is rarely found outside of West Africa.

2. The human immune system works in two fundamentally different ways: by the action of antibodies in the blood, and by the action of specialized immune cells (Mwau, 2003). Research by many groups indicates that vaccines that stimulate either arm of the immune response may be able to prevent HIV infection and progression to AIDS, and both types of vaccines are under development (ibid). So far, all tests of antibody-based vaccines have failed, because HIV evolves rapidly and learns to evade antibody killing. The second type of vaccine—targeted directly towards immune cells (cytotoxic T lymphocytes)—is considered to be a more promising approach (ibid).
The same report claims that an estimated 1.2 million people are currently living with HIV/AIDS in Eastern Europe and Central Asia. The epidemic is spreading fastest in this region, with an annual rate of increase above 25%. Without implementation of effective prevention measures, experts project that adult HIV prevalence in Russia will surge.

But by far, the worst affected region is sub-Saharan Africa, now home to 29.4 million people with HIV/AIDS. The epidemic killed 2.4 million Africans in the past year alone. In three African countries the HIV rate exceeds 30%; Botswana (35.4%), Swaziland (38.6%), and Zimbabwe (33.7%)\(^3\). In Botswana, the current life expectancy is 34 years, while without AIDS it would be 72. UNAIDS reports that fewer than 4% of people in need of antiretroviral treatment are receiving it, and less than 10% have access to medicines necessary to treat opportunistic infections.

Current projections suggest that an additional 45 million people will become infected with HIV in 126 low- and middle-income countries between 2002 and 2010, unless drastically successful global prevention efforts are mounted.

Despite the grim statistics, there are a few signs that the epidemic can be brought under control; favorable political environments combined with awareness campaigns, an increase in the availability of anti-retroviral treatments, and better testing and counseling services are slowing the spread of the disease in some countries. For example, in Uganda and Brazil—whose governments are determined to stem the epidemic—new HIV infections appear to be on the decline in some areas. Could lessons learned from these “success stories” be examined as models in other countries (political considerations notwithstanding)?

### 1.1.3 Training Needs

Although many prevention and treatment strategies—awareness campaigns, counseling and testing, accessible STD treatment—apply to all regions, the epidemic is remarkably diverse, and specific intervention approaches are required to address local needs. In order to assess if an AIDS intervention program is indeed making an impact that is region-specific, it is important to first understand regional conditions. Below is a summary of region-specific prevention priorities, adapted from the report by the international panel of experts called the Global HIV Prevention Working Group (Global HIV prevention working group, 2003):

- **Sub-Saharan Africa.** In Sub-Saharan Africa, AIDS is prevalent in the general population, not just in specific high-risk groups. In this region, key research areas are: youth targeted behavioral interventions, scaling up programs to prevent mother-to-child transmission, interventions for adults at high risk, and supportive interventions to address poverty and gender inequities.

- **Asia.** This regions’ multi-faceted epidemic requires immediate scale-up of key prevention strategies—behavioral interventions targeting especially vulnerable populations such as sex workers and men who have sex with men (MSM), harm reduction programs for drug users, programs to curb spiraling rates of STDs, interventions to address gender inequities, programs to reach out-of-school youth, infection control in health care settings, and implementation of blood safety procedures.

- **Eastern Europe and Central Asia.** The rapidly spreading epidemic in this region is primarily driven by intravenous drug users (IDU), underscoring the imperative of timely

\(^3\) Data as of end 2001 (source: UNAIDS)
scale-up of harm-reduction programs. Heightened STD control and youth-targeted awareness and behavioral interventions are also critical priorities.

- **Caribbean and Latin America.** Different parts of this region require different emphasis in scaling-up HIV prevention. In the southern cone of South America, harm reduction programs are essential to address the growth of HIV infection among IDU, while in other parts of the region, programs targeting MSM must be dramatically increased. In the Caribbean, prevention of mother-to-child transmission is a key priority, as is the scale-up of programs to curb sexual transmission.

- **North Africa and the Middle East.** While HIV prevalence in this region is still relatively low, there are signs that infection rates could increase rapidly. Harm reduction programs, as well as awareness and behavioral interventions targeting sex workers, MSM, and other vulnerable groups are urgently needed to respond to growing rates of HIV/AIDS.

International efforts to help developing countries deal with the AIDS epidemic are rapidly gaining momentum. They range from providing training to medical workers fighting the disease on the ground to educating government leaders in positions to shape their country’s public health policy. AITRP, the subject of this study, was one of the first training programs in the world to support biomedical researchers from developing countries to acquire and deepen their expertise in the field.
Figure 1.1a: HIV Prevalence by Country (2001)

Map of HIV Prevalence Worldwide

Adults (ages 15-49)
with HIV/AIDS
- 15.0% - 39.0%
- 5.0% - 14.9%
- 1.0% - 4.9%
- 0.5% - 0.9%
- 0.0% - 0.4%
- Not available


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Figure 1.1b: Asia HIV/AIDS Prevalence 1986 – 2001 (Source: UNAIDS)
Figure 1.1c: Latin America HIV/AIDS Prevalence 1986 – 2001 (Source: UNAIDS)
Figure 1.1d: Africa HIV/AIDS Prevalence 1986 – 2001 (Source: UNAIDS)

- **20 – 39%**
- **10 – 20%**
- **5 – 10%**
- **1 – 5%**
- **0 – 1%**
- **trend data unavailable**
- **outside region**
1.2 Evaluation Context and Objectives

The Fogarty International Center promotes and supports scientific research and training internationally to reduce disparities in global health.


The Fogarty International Center (FIC) forges collaborations with domestic and international partners in international research and training to enable it to achieve its mission and to: 1) develop a cadre of highly capable young foreign investigators positioned to cooperate with US scientists in areas of the world that, due to geography, population structure, or disease burdens provide unique opportunities to understand disease pathogenesis, anticipate disease trends, or develop interventions; 2) engage and assist both young and established US investigators to address scientific challenges related to global health; and 3) accelerate the pace of discovery and its application. These objectives form the conceptual basis for FIC programs related to HIV/AIDS, emerging infectious diseases, maternal and child health, population research and demographic science, medical informatics, drug discovery from biodiversity, as well as fellowship programs for young Americans.

AITRP began in 1988 as one of a new generation of FIC training programs to help scientists from leading institutions in developing countries build research and public health capacities in those countries. AITRP has now completed fifteen years of operation, and the FIC wishes to document the performance of this program, examine its overall operations, and make recommendations concerning its future. But before we itemize this study’s goals and activities, it is instructive to review the context within which this evaluation study was initiated.

FIC operates under three broad evaluation frameworks that directly pertain to this project:

- First, the NIH Program Evaluation Guide: How to Develop a Proposal for One Percent Evaluation Set-Aside Funding\(^4\) sets forth prescriptions concerning the program to be evaluated, specifications for the need for evaluation, evaluation design, data collection and analyses, and the products of evaluation.

- Second, the FIC Framework for Program Assessment - A Performance-Based Review Process sets forth a four-part conceptual framework—strategy, management, partnerships and results—that all FIC evaluations must follow.

- Finally, NIH is also subject to the requirements as set forth under the Government Performance and Results Act (GPRA) of 1993 (and now the Program Assessment Rating Tool (PART)). Each year, NIH specifies its plans for meeting various evaluation and strategic planning requirements as called for under these mandates\(^5\). In general terms, NIH is obligated to identify program strategies and objectives of its sponsored research, prepare a series of related performance measures, document progress toward those objectives, make appropriate policy and programmatic responses, and ensure dissemination of information to key stakeholders.

The approach to evaluation developed in this project is guided by the application of these requirements in the context of AITRP. Specifically, our evaluation rationale and design, proposed


data collection and analysis procedures, and reporting plans respond to these requirements. Accordingly, this Feasibility Study (FS) has five primary objectives:

- to explore relevant topics and formulate follow-up in-depth questions surrounding strategic planning, program management, partnerships, and results-related issues surrounding AITRP;
- to examine existing data—about the grantees, trainees, and other stakeholders—to determine its sufficiency and integrity;
- to explore conventional and emerging methods that may be especially appropriate to conducting evaluations in an international context;
- to assess if an outcome evaluation is appropriate; and
- to propose a study plan and data collection approach in the event that a full-scale outcome evaluation is warranted.

It is worth reminding the reader that these objectives were pursued under a FS with the goal of assessing readiness for a full outcome evaluation. The level of effort on the study is correspondingly small – less than a one-half person year over a six-month period.

### 1.3 Report Organization

This report provides background materials for an outcome evaluation of AITRP in seven chapters. In Chapter 2, we pose the questions assessed in this FS, and outline the methodology that was used to assess them. In Chapter 3, we describe the program, including its origin and evolution, organization, management, and partnerships. Chapters 4 and 5 describe AITRP grantees and trainees, respectively. In Chapter 6 we summarize our findings, and we conclude the report with Chapter 7—our recommendations for an outcome evaluation.

The report also includes seven appendices: Appendix A contains bibliographic references; Appendix B is a comprehensive list of persons consulted during the study; Appendix C is a compilation of interview protocols and a test questionnaire; Appendix D is the description of interests and accomplishments of Principal Investigators; Appendix E is the summary of grantee institutions; Appendix F describes a model predicting the distribution of trainees by geographical areas; and Appendix G is a review of literature on research capacity development.
2.0 Methodology

This chapter begins with the conceptual model and high-level questions guiding the FS followed by the methods used to collect and analyze data. Given the importance of a comprehensive list of trainees, and lack thereof, we devote a full section to describing our efforts in developing one.

2.1 Study Questions

The FS began with outlining the most important questions for the program’s evaluation, followed by an assessment of aspects that could be addressed in the course of a short-turnaround, resource-constrained FS. Our intent was to use the FS to begin to compile and organize the data required to evaluate the program, and to assess what new data may be required. We knew well that as we examined and understood the program better, the evaluation questions would likely change. However, we believed that they would be useful in organizing the study and ensuring that we stayed on track. The questions were guided by a preliminary logic model that we also assumed would be modified throughout the course of the study. Two versions of the logic model – one designed before the study, and one during – appear as Figures 2.1a-b.

The questions for any future evaluations were organized using the FIC Framework for program assessment, and articulated at the beginning of the study as follows:

- **Strategic Planning** – How do the goals of this program fit into NIH’s AIDS-related goals and priorities?

- **Program Management (NIH)** – Does the program attract top researchers in the US and developing countries? Does the peer review process integrate understanding of international issues with scientific excellence? How does the selected grantee population compare with participants in other AIDS-related training programs?

- **Program Management (FIC)** – How (and how well) does FIC manage the AITRP program? How does the management of this program compare with the management of other AIDS-related training programs in the research community?

- **Program Management (Grantees)** – How (and how well) do PIs manage their AITRPs? How do different management models shape outcomes? Are there best practices that could be disseminated? How do these projects compare with other AIDS-related training programs?

- **Partnerships** – How has the program leveraged partnerships—at the program and grantee levels? How do AITRP partnerships compare with those at other AIDS-related training programs?

- **Measuring the results: Outputs/Outcomes/Impacts** – To what extent has the program achieved its goals, as they have evolved with time? In particular: How does AITRP increase capacity of foreign scientists to deal with the AIDS epidemic, support collaborative research between the US and foreign scientists during the award period, and establish long-term cooperative relationships between US-based and foreign research groups? How does this achievement compare with other AIDS-related training programs?

In the FS, our goal was not to answer these questions, but rather to understand the context in which they are to be answered, ascertain what data would be required to answer them, and assess the quality
of the data and data sources required to address them. The specific FS questions addressed are listed
below and in Table 2.1, organized by the same categories as the evaluation questions.

- **Strategic planning** – What is the history of the AIDS crisis? How did AITRP originate
  and evolve? How does the program ensure relevance in the changing landscape of AIDS-
  related research and training? What are the (evolving) program goals?

- **Program management (NIH)** – How is the program advertised? How did the current PIs
  find out about the program? What are the other AIDS-related training programs in the
  country that focus on trainees from developing/transition countries? Is it
  possible/appropriate to observe the grantee selection process?

- **Program management (FIC)** – What is the management process and structure at FIC?
  What kinds of program data does FIC maintain for its grantees and their trainees? Are the
  data complete and accurate?

- **Program management (Grantees)** – What are the basic characteristics of the AITRP
  grantees? What type of training do they provide? In which topic areas? What data do they
  maintain on their programs and trainees? What strategies are employed to prevent brain
  drain?

- **Partnerships** – Who are the primary AITRP partners—both within and outside NIH?
  Who are the key contacts at these organizations? What can we learn about their
  relationship to the AITRP?

- **Measuring the Results** – What is research capacity development in the realm of
  HIV/AIDS research? What are the varying needs by country in terms of developing this
  critical knowledge base? What are the measures needed to assess if program goals are
  being met? What information is available about the trainees? What can we learn about
  trainee experiences during their training? What is the quality and completeness of this
  information?

- **Overall** – Given the findings in the FS, both from the point-of-view of program content
  and data availability and quality, is it appropriate to conduct a full Phase II Outcome
  Evaluation (OE)? If so, what will be the cost of a full OE? Is the cost reasonable given
  the cost of the program? What are the most appropriate questions to be asked? What is
  the appropriate approach and framework for the OE? Is there need for a comparison
  group? If so, what are "comparison" programs in the health research community? If new
  data needs to be collected, what new data instruments should be developed? What
  strategies will be employed to collect the new data such that they pose no excessive
  burden on program participants or the government?

Table 2.1 also displays the mapping between FS questions and data sources (as developed at the
beginning of the study).
Figure 2.1a: Program Logic Model Before Start of Feasibility Study

**FIC Program Management**
- RFA
- Grant selection
- Networking events/workshops
- Data management

**NIH/OAR/FIC Strategic Planning**
- NIH goals/priorities
- FIC objectives
- OAR objectives
- Financial resources

**External Influences**
- Partner agency objectives
- Political, cultural, or economic factors
- Scientific discoveries
- Staffing, resource needs
- Collaborating country characteristics

**AITRP Program**

**AITRP Program Goals (Evolving) - Outcome**
Increase capacity of foreign scientists to deal with the AIDS epidemic; Support collaborative research between the US and foreign scientists; Stimulate cooperation and sharing of research knowledge by scientists combating AIDS worldwide

**AITRP Program Goals - Process**
Develop trainee return strategies; Develop support network of trainees/mentors; Develop research important to home country; Conduct research in home country

**AITRP Program Management**
- Grant administration
- Trainee tracking/monitoring systems
- Report progress

**Program Resources**
- Annual funding (FIC and IC partners)
- Supplies, equipment
- Travel

**AITRP Program/Grantee Activities**
- AIDS related research
- Trainee selection
- Short and long-term training
- Mentoring (US and foreign)
- Strategies for averting brain drain
- Re-entry grants

**Populations**
- US Universities
- Foreign collaborators
- Trainees

**Outputs**
- Journal articles/citations
- Presentations, workshops
- New discoveries, research tools
- New courses
- Mentor/trainee support networks

**Process Goals Achieved**
- Trainee return strategies
- Support network of trainees/mentors
- Research important to home country
- Research in home country

**Outcome Goals Achieved**
**Intermediate**
- Trainees return home
- New/continued collaborations, partnerships

**Long-Term**
Capacity-building at the individual, institutional, and country level
- Trainees remain in field, promoted, in high-level positions, etc
- New labs, departments, courses
- Leadership in field
- Public health structure enhanced
- Regional centers of excellence developed
Figure 2.1b: Program Logic Model (study mid-point)

Program Goals
- Build sustainable capacity of foreign scientists to deal with the AIDS epidemic;
- Support collaborative research between the US and foreign scientists;
- Stimulate cooperation and sharing of research knowledge by scientists combating AIDS worldwide

Grant-Level Activities
- Management and organization of multi-year project
- Strategies for averting brain drain
- Country and trainee selection
- Short and long-term training
- Development of research important to home country
- Allocation of resources
- Partnerships/collaboration and networking within and outside AITRP and other organizations
- Publications/presentations and other dissemination activities
- Support network for trainees/mentors upon return
- Re-entry support

Program Management
Strategy
- Facilitate research capacity development by supporting training for researchers and others from developing countries at US-based institutions

Grantee Selection
- Appropriate coverage of countries and regions, research topics, clinical/disease topics
- Selection of the best US-based organizations

Operations
- Day-to-day program management
- Administration and record-keeping
- Evaluation, data analysis and reports

Institutional Partnerships
- Establish and promote partnerships with programs at and outside of NIH

Outcomes
Intermediate
- Trainees develop skills to: conduct high quality HIV/AIDS related research, communicate with policy and other stakeholders, and apply for and secure national and international funding for HIV related activities
- Trainees staying in the medium/long-term address HIV/AIDS related issues in developing countries
- Trainees continue collaborations and leverage partnerships

Long-Term
- Increased capacity of trainees and their institutions to deal with the AIDS epidemics in their home countries
- Continued collaborative research and cooperation between foreign and US-based researchers

Outputs
- Research publications and other measures of research productivity
- Trainees trained including number and types of degrees granted
- Trainees returning home
- Partnerships or individual/institutional collaborations established

Impacts
- Improved practices in mitigating health effect of HIV/AIDS
- Better maintenance of HIV+ patients
- Reduction in number of new infections

Program Level Outcomes and Impacts
- Helped build sustainable capacity of foreign scientists to deal with the AIDS epidemic
- Supported collaborative research between the US and foreign scientists – during training
- Stimulated cooperation and sharing of research knowledge by scientists combating AIDS worldwide

Effectiveness of Program Operations
- AITRP fit within the strategic priorities of FIC and NIH
- Quality of grantees/trainees
- Program’s leverage within and across NIH Institutes – Partnerships within NIH and with other organizations
- Accuracy of the assessment of needs of countries/regions where awards are made
- Implications for changes in AITRP procedures and operations
- Implications for changes in strategy (award size, countries of interest, award duration, scientific disciplines)

External Influences
- NIH/FIC missions
- FIC program resources
- Collaborator/partner country priorities
- Scientific discoveries
- Pre-existing research capacity
- Foreign government support
- Societal state (e.g. war)
- Influence of other organizations (partnerships)
Table 2.1: Feasibility Study Questions and Data Sources that Were Used to Obtain Information

<table>
<thead>
<tr>
<th>Category</th>
<th>Questions for FS</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategic planning</strong></td>
<td>What is the history of the AIDS crisis? How did the program originate and evolve? What are the (evolving) program goals? How does the program ensure relevance in the changing landscape of AIDS-related research and training?</td>
<td>Interviews with FIC staff</td>
</tr>
<tr>
<td><strong>Program management (NIH)</strong></td>
<td>How is the program advertised? How did the current PIs find out about the program? What are the other AIDS-related training programs in the country that focus on trainees from developing/transition countries? Is it possible/appropriate to observe the grantee selection process?</td>
<td>x</td>
</tr>
<tr>
<td><strong>Program management (FIC)</strong></td>
<td>What is the management process and structure at FIC? What kinds of program data does FIC maintain for its grantees and their trainees? What is the quality of these data - i.e. is it complete and accurate?</td>
<td>x</td>
</tr>
<tr>
<td><strong>Program management (grantees)</strong></td>
<td>What are the basic characteristics of each AITRP grantee? What type of training do they provide? In which topic areas? What data do they maintain on their programs and trainees? What strategies are employed to prevent brain drain?</td>
<td></td>
</tr>
<tr>
<td><strong>Partnerships</strong></td>
<td>Who are the primary AITRP partners-- both within and outside of NIH? Who are key contacts at these organizations? What can we learn about their relationship to the AITRP?</td>
<td>x</td>
</tr>
<tr>
<td><strong>Results</strong></td>
<td>What is research capacity development in the realm of HIV/AIDS and TB research? What are the varying needs by country in terms of developing this critical knowledge base? What are the measures needed to assess if program goals are being met? What information is available about the trainees? What can we learn about trainee experiences during their training? What is the quality and completeness of this information?</td>
<td></td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>Given the findings in the FS, both from the point-of-view of program content and data availability and quality, is it appropriate to conduct a full Phase II Outcome Evaluation? If so, what will be the cost of a full OE? Is the cost reasonable given the cost of the program? What are the most appropriate questions to be asked? What is the appropriate approach and framework for the OE? Is there need for a comparison group? If so, what are “comparison” programs in the health research community? If new data needs to be collected, what new data instruments should be developed? What strategies will be employed to collect the new data such that they pose no excessive burden on program participants or the government?</td>
<td>x</td>
</tr>
</tbody>
</table>
2.2 Data Sources

Our efforts to address the questions listed above were based on a review of documents, interviews, and a series of questions administered to a small set of current and former trainees.

2.2.1 Document Review

Over the course of the study, we consulted the FIC/NIH strategy documents, NIH plans for HIV-related research, the NIH grants policy statement, FIC program announcements from 1988 to 2002, reports of two AITRP review panels, HIV/AIDS-related scientific publications, AIDS policy statements, and AITRP annual reports prepared by AITRP program staff. For a comprehensive list of documents please refer to Appendix A.

Base and supplementary award amounts were obtained from the NIH database IMPAC2 for the years 1993-2000. Since IMPAC2 only contains data from 1993 onward, we could not examine financial records for years 1988-1992, or 2000-2003 (presumably not updated in IMPAC2). We were unable to verify these data or the budget records obtained from the program’s administrative staff from the FIC Budget Office. In an outcome evaluation, if there is to be one, this support would be critical for program analysis.

We were also provided with cumulative AITRP annual reports for years 1990-1998 and 2001-2002. Annual reports for years 1989, 1999, and 2000 were available only for select AITRP grantees. Much of this data was available via hard copy reports and not electronically.

2.2.2 Interviews

Interviews were conducted with three types of experts:

1. First, in order to examine how the program is administered at the NIH level and the nature and extent of its partnership with other institutes, we spoke with the leadership at FIC including the Center Director, AITRP program officers, and senior staff at NIH partner organizations.

2. Second, to understand program management at the grantee level, we interviewed all Principal Investigators who agreed to speak with us.

3. Finally, to place the program within a wider context, we consulted experts not directly connected with the program, including experts from UNAIDS and other international donor agencies, CDC, Boston University, Abt Associates, and several members of the 1996 review panel.

A complete list of persons consulted and interview protocols are available in Appendices B and C, respectively.

2.2.3 Trainee Questions

We designed an open-ended questionnaire in order to contact trainees to get a feel for the experiences of AITRP fellows and to guide the development of a closed-ended survey instrument for the outcome evaluation. This questionnaire was pre-tested on a small number of randomly selected trainees, using appropriate protocols consistent with OMB regulations. A series of questions were sent electronically to 94 trainees who agreed to help with the FS (to review sample trainee questions, please consult Appendix C).
2.3 Developing a Trainee Roster

Given that AITRP is a training program, having access to trainee-related information is crucial for an evaluation, both to examine the characteristics of the trainee cohorts and to obtain feedback from them on the short- and long-term impact of the program on their subsequent careers, institutions, and nations. One of our goals in the Feasibility Study was therefore to assess the extent of information available about the trainees, as well as to examine it for accuracy. No trainee roster was in place when the study began, and therefore a large fraction of the project time was devoted to generating one.\(^6\)

2.3.1 Data from Grantees

Twelve out of twenty three grantees provided us with MS Word or MS Excel documents containing all information for trainees that they had available (we consider these lists complete in terms of numbers of trainees for the time being). These documents included trainee names, countries of origin, and in most cases length, period, and type of training. In some cases, we received information on trainee positions before and after training, and a list of publications. Two of the grantees provided us with partial lists of trainees, usually from one or two target countries, with details about trainees available to varying extent. A fraction of trainee names from both of these sources included email contact information (data completeness is discussed in detail below).

2.3.2 Data From FIC

The AITRP program analyst provided us with some trainee records. Trainee information was not available in a single place (such as an electronic trainee database), but the FIC shared with us five types of documents:

- Annual reports in hard copy. Annual reports were available for years 1990-1998 and 2001-2002. They contained trainee names, countries of origin, affiliations prior to joining AITRP, types and periods of training, publications, and highlights of trainee accomplishments.

- MS Excel file (FIC Spreadsheet 1) with the total number of trainees for years 1989 to 2002. The spreadsheet was broken down by country of trainee and by type of training (e.g., master’s, postdoc, short-term).

- MS Excel file with trainee information for some AITRPs for years 1-9 of the program (FIC Spreadsheet 2). The file contained trainee names, countries of origin, affiliations prior to joining AITRP and following training, types and periods of training, and name of the sponsoring AITRP. The file included information from 11 AITRPs (Berkeley, Brown, Case Western, Columbia, Cornell, Harvard, Johns Hopkins, Miami, SUNY Downstate, UCLA, Washington) – all eight from our Cohort 1 and three of four from our Cohort 2.

- Set of electronic files in MS Word which included trainee information from several centers for years 2000-2003. These files contained trainee names, countries of origin, affiliations prior to joining AITRP, types and periods of training, publications, and highlights of trainee accomplishments.

\(^6\) We continue to receive trainee rosters from the remaining AITRPs.
• Electronic list of trainees generated for the study on ‘brain drain’ (Kupfer et al, 2002). These records contained information on long-term trainees only, including their names, affiliation before and after training, countries of origin, period, type and length of training, and some publications.

It is important to note that no trainee contact information was listed in the FIC files, although partial information was available regarding positions after training.

To generate a trainee roster, we started out by manually integrating information provided to us by the grantees (12 complete lists and 2 partial lists of the 23 available to date) into a single table. To complement the roster we added data on 3 grantee institutions collected by FIC for the study on ‘brain drain’ described above (for the remaining two, our information was more complete). For brevity, data that were used to generate trainee roster will be called ‘PI data’ throughout the report, and data that were provided to us by AITRP Program Senior Analyst Ms. Mildred Hatton will be called ‘FIC data.’

In the sections below, we discuss issues related to the quality and integrity of the data.

2.3.3 Quality and Integrity of Data

The data set of trainees that we were able to generate given time and resource constraints contains approximately 1,000 names\(^7\). We have observed that the records for short-term trainees are not rigorously updated. To the best of our knowledge, no systematic records are kept on trainees who have attended courses and workshops in country.

Detailed information about trainees beyond their names, such as countries of origin, length and type of training, and contact information was available to varying degrees, with e-mail being least available (see Figure 2.2).

**Figure 2.2: Overall Data Completeness from PI Records**

\(^7\) Based on information from the Fogarty 35\(^{th}\) Anniversary Booklet—which states that AITRP has trained over 2,000 individuals—this constitutes between one-half and one-third of all the trainees; however, we cannot independently verify this number.
We also examined trainee information by funding cycle (for simplicity, we used training start date for this analysis). As expected, the number of trainees increased over time (see Figure 2.3). Note that AITRP is still in its third year of the last funding cycle (2000-2003) and that the number of trainees reported for this period represents fraction of the total trainees that would be trained.

**Figure 2.3: Data Completeness by Funding Cycle**

As Figure 2.3 demonstrates, information on trainees’ countries of origin and types of training received was available for a subset of trainees (the height of the bars indicating ‘type of training’ and ‘country’ is lower than the height of the ‘name’ bars). As with trainee names, numbers of trainees for whom these additional data were available increased over time. At the same time, the completeness of trainee data decreased slightly as time went on—fewer entries for trainee names also contained their countries of origin, and types of training.

Since e-mail was not in common use until the mid-1990s (or even later in developing countries), we expected to see a sharp increase in the number of e-mail addresses by funding cycle, which was, in fact, the case: 274 (72%) trainees have e-mails in the current funding cycle versus 80 (35%) in the first (for 66 trainees start date of training was not listed, and they were not counted).

Given that the program has been in existence for fifteen years, we were concerned that our list of trainees could be biased to a particular time period. To address this concern, we divided grantee institutions into cohorts by the length of participation in AITRP: cohort one – all 15 years; cohort two – 10 years; cohort three – 5 years; and cohort four – 3 years. Table 2.2 summarizes the sources of data in the roster by grantee cohorts and demonstrates that our roster is fairly representative of all program periods. Further analyses of data completeness and accuracy are described in the next section.
Table 2.2: Sources of Trainee Data In Our Roster

<table>
<thead>
<tr>
<th>Number of Grantees</th>
<th>Complete Lists (PIs)</th>
<th>Partial Lists (PIs)</th>
<th>Partial Lists (FIC Brain Drain Study)</th>
<th>No Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort 1 (8 grantees)</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Cohort 2 (4 grantees)</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Cohort 3 (5 grantees)</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Cohort 4 (6 grantees)</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Lists that were provided by PIs were considered ‘complete’, unless PIs told us otherwise. Data compiled by FIC for the study on ‘brain drain’ are assumed to be partial because they include long-term trainees only.

We compared data in our roster to information compiled by the FIC for the latest AITRP annual report (Annual reports from grantee institutions, 2001 and FIC Spreadsheet 1). The report lists a cumulative number of 1,623 trainees as of the end of May 2002 (our data set, with information from only a subset of the grantees, contains 1,004 names).

When we compared these two data sources using the total number of trainees by country as a reference, we found that for some countries the numbers reported by FIC were higher than ours (e.g. Uganda: FIC=148, PI/Abt = 116; Brazil: FIC = 123, PI/Abt = 89); while for other countries FIC numbers were lower (e.g. Kenya: FIC = 63, PI/Abt = 74; Laos: FIC = 9, PI/Abt = 29). We then compared total numbers of long-term trainees only between the PI roster and FIC spreadsheet 1. Table 2.3 lists ‘top ten’ countries by the number of trainees. Results of such comparison may be more accurate because records on the long-term trainees are more reliably updated. As evident from the Table there is a fairly good agreement between these two sources of trainee information for most countries. Since our roster does not contain information from all institutions we do expect to see some discrepancies in trainee numbers by country. This may be the case for Russia and Indonesia, which in our roster were ‘displaced’ from the top ten list by Poland and the Czech Republic.

---

8 A small number of trainees in our roster were trained more than once, so a total number of ‘training experiences’ is 1044.
Table 2.3: Ten Top Long-Term Trainee Countries of Origin – By Data Source

<table>
<thead>
<tr>
<th>Country</th>
<th>FIC Spreadsheet 1</th>
<th>PI Roster</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of LT Trainees</td>
<td>Percent of Total</td>
</tr>
<tr>
<td>Thailand</td>
<td>59</td>
<td>12%</td>
</tr>
<tr>
<td>Brazil</td>
<td>42</td>
<td>9%</td>
</tr>
<tr>
<td>China</td>
<td>40</td>
<td>8%</td>
</tr>
<tr>
<td>Uganda</td>
<td>39</td>
<td>8%</td>
</tr>
<tr>
<td>India</td>
<td>36</td>
<td>8%</td>
</tr>
<tr>
<td>South Africa</td>
<td>20</td>
<td>4%</td>
</tr>
<tr>
<td>Russia</td>
<td>17</td>
<td>4%</td>
</tr>
<tr>
<td>Mexico</td>
<td>15</td>
<td>3%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>15</td>
<td>3%</td>
</tr>
<tr>
<td>Kenya</td>
<td>14</td>
<td>3%</td>
</tr>
<tr>
<td>Czech Repub.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Poland</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total (Top 10 Countries)</strong></td>
<td><strong>297</strong></td>
<td><strong>62%</strong></td>
</tr>
</tbody>
</table>

2.3.4 Identifying the sources of incompleteness

Our next step was to examine the partial roster provided by FIC (FIC Spreadsheet 2) to understand the nature of the discrepancies between it and the PI roster that we had built. There are three sources of incompleteness:

1. For the years 1989-1997, there are AITRPs for which PIs provided partial or no information, while FIC provided trainee information.
2. For the years 1998-2003, FIC Spreadsheet 2 provided no information on trainees.
3. Even for the years 1989-1997 and for AITRPs that provided complete information, there are trainees on only one of the two lists.

To assess the importance of those sources of incompleteness, we began by comparing the AITRPs from cohorts 1 and 2 with complete data with the data in FIC Spreadsheet 2. There are five such AITRPs – Case Western, Cornell, and University of Washington from cohort 1, and Columbia and SUNY Downstate from cohort 2. Table 2.4 shows the comparison of trainees using the two lists. The Table suggests several interim conclusions. First, there is considerable correspondence between the two rosters for these five AITRPs and nine years – 62% of trainees were on both lists. Second, this analysis provides confidence that a trainee roster covering all AITRPs and years can be assembled from PI and FIC data. A procedure for completing the roster is discussed in greater detail in Chapter 7.
Table 2.4: Comparison of Trainees Using Both Sources

<table>
<thead>
<tr>
<th>AITRP</th>
<th>Trainees on both lists</th>
<th>On PI list but not FIC</th>
<th>On FIC list but not PI</th>
<th>Trainees on at least one list</th>
<th>Percentage on both lists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Western</td>
<td>39</td>
<td>14</td>
<td>5</td>
<td>58</td>
<td>67%</td>
</tr>
<tr>
<td>Cornell</td>
<td>62</td>
<td>37</td>
<td>10</td>
<td>109</td>
<td>57%</td>
</tr>
<tr>
<td>University of Washington</td>
<td>53</td>
<td>31</td>
<td>4</td>
<td>88</td>
<td>60%</td>
</tr>
<tr>
<td>Columbia</td>
<td>14</td>
<td>8</td>
<td>0</td>
<td>22</td>
<td>64%</td>
</tr>
<tr>
<td>SUNY Downstate</td>
<td>20</td>
<td>5</td>
<td>1</td>
<td>26</td>
<td>77%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>188</strong></td>
<td><strong>86</strong></td>
<td><strong>29</strong></td>
<td><strong>303</strong></td>
<td><strong>62%</strong></td>
</tr>
</tbody>
</table>
3.0 About AITRP

In this chapter, we review the origin and evolution of the program, the salient features of its management at the Fogarty International Center, and its partnerships with other Institutes and Centers (ICs) at the National Institutes of Health.

3.1 Program Origin and Evolution


AITRP was launched in 1988 in response to a growing concern about the rapid spread of the AIDS epidemic; the key initiator of the program and its advocate was (and continues to be) Dr. Kenneth Bridbord, now the head of the Division of International Training and Research (DITR) at FIC. In his speech on the occasion of receiving the AAAS Award for International Scientific Cooperation in 2001, Dr. Bridbord recalls that the idea for AITRP was born during his discussions, in his role as a co-chairman, with participants of the Third International Conference on AIDS which was held in Washington, DC in 1987 (Bridbord, 2001):

“While we knew much less about infection rates and spread [of HIV] than we do today, it was clear to all of us that to really tackle the problem we would need to enter into a partnership with colleagues in countries hardest hit. That experience encouraged my personal desire to do more to combat the global HIV/AIDS epidemic.”

With the help of Dr. Roy Widdus, the Project Director for the Report “Confronting AIDS”\(^9\), Dr. Bridbord sketched out the original design of AITRP program in December of 1987.

When the program came to being in 1988 (RFA 88-TW-01), HIV had been identified as a causative agent of AIDS, the first anti-retroviral drug (AZT) was just introduced, and the scale and impact of the epidemic were slowly beginning to emerge. At the time, understanding of the natural history of HIV and its modes of transmission were areas of active investigation by the international research community. Correspondingly, the objective of AITRP was to provide training and to foster international collaborations in the field of epidemiology (Table 3.1).

\(^9\) Dr. Bridbord says in his AAAS acceptance speech that the report had a profound impact on his thinking as it powerfully described what our responsibilities should be as a wealthy nation in response to the growing epidemic in resource-poor countries.
Table 3.1: Evolution of AITRP Goals

The goals are thematically organized to underscore their change over time.

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<tbody>
<tr>
<td>Increase expertise in epidemiology through short- and long-term training at US institutions which may lead to MS or PhD degree in epidemiology</td>
<td>Establish the necessary research and medical expertise needed in countries affected by HIV/AIDS and facilitate new research efforts that supplement or complement US AIDS research</td>
<td>Establishment of critical biomedical and behavioral science expertise in developing countries affected by HIV/AIDS and TB</td>
<td>Increase the expertise of trainees in relevant biomedical, behavioral, laboratory, clinical, epidemiological, and/or social science research</td>
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<td>Increase laboratory expertise of technical assistants in foreign countries who are engaged in epidemiological studies related to AIDS through in-country, short-term, didactical, and technical training</td>
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<tr>
<td>Expand ongoing collaborative epidemiological research in AIDS between US and foreign scientists</td>
<td>Establish cooperative relationships between US and foreign research groups and support cooperation between US academic research centers and foreign scientists</td>
<td>Establishment of long-term cooperative relationships between US and foreign research groups</td>
<td>Expand and equalize collaborative scientific research interactions between developing country scientists and US, or potentially other developed country researchers</td>
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<td>Support for cooperation between US academic research centers and foreign scientists</td>
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<td>Facilitation of new prevention research efforts which supplement or complement NIH and other US AIDS and TB research</td>
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<td></td>
<td>Actively work with collaborating country institutions and government officials within the collaborating country to provide opportunities and positions for all returning trainees to maximize the use of the knowledge and skills they acquired during their training</td>
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<td>Strengthen the capacity of developing country institutions to compete for current and future NIH and non-NIH research and other grants designed for foreign institutions</td>
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<td>Fill gaps and strengthen the sustainability of HIV/AIDS and HIV-related research within developing country institution(s)</td>
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<td></td>
<td>Provide data for evidence-based decision-making related to HIV/AIDS and HIV-related conditions with respect to prevention, care, and treatment policies in the host developing country</td>
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<td>Take advantage of other sources of research and training support in the foreign country</td>
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During the first five years of the program, the focus was on training researchers and health professionals from Africa and Latin America (Request for Applications or RFA 88-TW-01); in 1993, AITRP was expanded to include Asia, Eastern Europe, and countries of the former Soviet Union to address the potential impact of the spread of HIV infection into these areas (RFA TW-92-02).

When the program began, it had two operational components: a) international training in epidemiology related to AIDS (funded through the D43 mechanism) and b) international postdoctoral research and training in AIDS (funded through the T22 mechanism). Through the programs, international training in epidemiology was offered to scientists from developing countries, and included long-term training in the US academic institutions and short-term training in the US and other countries. The program also provided support for US faculty to continue collaborations with trainees who had returned to their home countries. International postdoctoral research and training was offered to scientists who wanted to expand their expertise in epidemiology, diagnosis, prevention, and treatment of HIV/AIDS. Both US and foreign investigators were eligible to apply for the fellowship, although priority was given to researchers from developing countries.

3.1.2 Program Reviews

Changes in the AITRP goals and operations have in part been brought about by two program reviews, conducted in 1991 and 1996 by panels of experts convened by the Fogarty leadership. These reviews were not intended as traditional evaluations, but were rather meant to guide the program and suggest future directions.

When the first AITRP review was conducted in 1991, FIC had awarded almost $11 million to 11 academic institutions across the United States. According to review documents, a total of 349 trainees from 44 countries had received training in the US, and over 4,500 had attended courses in more than 20 countries (AITRP Review, 1991). Under the postdoctoral component, 11 US researchers and 39 scientists from 10 countries received support (ibid).

The first review panel in general endorsed AITRP as a unique and successful program. Nonetheless, the panel proposed several important conceptual and operational modifications:

- Expanding of training from drug trials to all intervention-oriented research, including development of infrastructure for future vaccine trials;
- Broadening of emphasis to include other AIDS-related conditions;
- Shifting the balance of training from a short-term instruction of many individuals to an in-depth long-term training of few individuals. Short-term training was ideally to be followed by long-term follow-up;
- Ensuring continuing support of trainees returning home;
- Limiting geographical expansion of the program; instead, projects involving countries already supported by AITRP were to be maintained and strengthened;
- Systematic evaluation of the efforts involving each country; and
- Strengthening partnerships with other components of the NIH and with other like-minded domestic and international organizations.

AITRP responded (RFA TW-92-02, RFA TW-92-03) to the panel recommendations by shifting the emphasis from short- to long-term training, and with follow-up advanced research training of former trainees on site. Preference was given to trainees from countries where the PI and colleagues had well-established collaborations, or from countries with a significant potential to develop such collaborations. Applicants were encouraged to develop training programs that would facilitate future...
international vaccine and drug trials in an ethical and equitable manner (RFA TW-92-02, TW-92-03). The program focus remained on HIV/AIDS and associated conditions.

By 1996, when the second AITRP review panel was convened, the AIDS epidemic had continued to have a devastating impact on the developing world, but the face of the epidemic had changed: while in the 1980s the HIV/AIDS affected mainly white homosexual men, in the 1990s women and children had become a progressively larger fraction of the HIV-infected individuals. Also, as mentioned in Chapter 1, by the mid-1990s, development and testing of protease inhibitors gave initial hope that the cure for AIDS may soon be found.

At the time, 15 AITRP grants had been awarded to 11 US institutions. AITRP continued to provide long-term training in the US and short-term training in developing countries. According to review documents through FY 1995, AITRP had trained over 1,000 foreign scientists from 77 countries in the US and 28,000 foreign healthcare professionals from 46 countries through in-country workshops and courses. The most important modification of the program to date was the establishment of funds for an advanced in-country training, frequently referred to as ‘re-entry grants’ to support research projects of trainees returning to their home countries.

As part of the evaluation, the panel revisited recommendations from the first review, and generally agreed with their content. The panel re-emphasized that the focus of the program should remain on HIV/AIDS and related conditions, agreed on the need for sustained presence in one country rather than expansion to new countries, and encouraged coordination of the AITRP activities with NIH Institutes and other government agencies. Above and beyond, members of the 1996 Panel noted that AITRP had to adapt to the changing landscape of the AIDS epidemic. The disease had now spread to all countries, making prevention essential. For prevention strategies to be effective, they must integrate biological understanding of HIV/AIDS with the social and behavioral aspects of the disease. These general statements were articulated through several specific recommendations:

- The training should be multidisciplinary; it must include one or more areas of biomedical and behavioral research, in addition to an essential component of data management and analysis;
- Greater emphasis should be given to US-based long-term training leading to the advanced degree or postdoctoral training;
- Small re-entry grants should continue to be available to the returning trainees;
- Coordination between participating AITRP programs operating in the same country should be improved;
- AITRP should be made more visible to the domestic and international scientific community;
- Grantee applications should include criteria for trainee selection and mechanisms for internal peer review of re-entry grant applications;
- FIC should ensure the dissemination of research results and translation of results into practice; and
- FIC should develop a tracking system for follow-up of the AITRP trainees.

Not surprising but notable is that while the 1991 review panel recommended mostly strategic changes to AITRP, then still in its formative years, recommendations of the second panel to the matured program five years later were largely managerial in nature (Table 3.2).
Table 3.2: Recommendations of Review Panels (Years 1991 and 1996)

The comments of experts are organized by themes to illustrate parallels and foci.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Management</th>
<th>Partnerships</th>
<th>Results</th>
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<td>1991</td>
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<td>- Expanding of training from drug trials to all intervention-oriented research, including development of infrastructure for future vaccine trials</td>
<td>- Systematic evaluation of the efforts involving each country</td>
<td>- Strengthening partnerships with other components of the NIH and with other like-minded domestic and international organizations</td>
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<td>- Ensuring continuing support of trainees returning home</td>
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<td>- Limiting geographical expansion of the program; instead, projects involving countries already supported by AITRP were to be maintained and strengthened</td>
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<td>1996</td>
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<tr>
<td>- The training should be multidisciplinary; it must include one or more areas of biomedical and behavioral research, in addition to an essential component of data management and analysis</td>
<td>- Small re-entry grants should continue to be available to the returning trainees</td>
<td>- Coordination between participating AITRP programs operating in the same country should be improved</td>
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<td>- Greater emphasis should be given to US based long-term training leading to the advanced degree or postdoctoral training</td>
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<td>- AITRP should be made more visible to the domestic and international scientific community</td>
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<td>- Grantee applications should include criteria for trainee selection and mechanisms for internal peer review of re-entry grant applications</td>
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<td>- FIC should ensure the dissemination of research results and translation of results into practice</td>
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<tr>
<td>- FIC should develop a tracking system for follow-up of the AITRP trainees</td>
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The 1998 Request for Applications (TW-98-002) reflected recommendations of the 1996 panel. In addition, suggestions from the NIH AIDS Research Program Evaluation Task Force (an ad hoc panel of more than 100 distinguished experts from the US and around the world) contributed to the RFA. As evident from Table 3.2, the most important change in the program was the shifting of focus from research training in epidemiology to training in multidisciplinary prevention research (this change of emphasis was recommended by the 1991 review panel but had not been sufficiently realized). The program expanded to include research in tuberculosis (TB), not only because TB continued to be a serious threat in countries worldwide, but also because HIV-positive individuals are at high risk of developing the disease.

The program still provided short-term and long-term training, but the emphasis was given to US-based long-term (a minimum of 2 years) training leading to an advanced degree or postdoctoral. Operationally, the epidemiology (D43) and postdoctoral (T22) training programs were combined into one program funded through the D43 grant mechanism. The change took place because these two arms of AITRP had overlapping functions.

### 3.1.3 Current Period

Now in its fourth funding cycle, AITRP continues to expand its activities. Six new institutions were awarded AITRPs in the last competition cycle, bringing the total number of programs to twenty-three. Re-competing AITRP applicants are eligible for so-called ‘supplements’—additional FIC funds that are most frequently used for expansions into new countries.

AITRP is now training individuals from 78 countries in Africa, Eastern Europe, Asia, and Latin America. The program has become increasingly integrated into broad international HIV/AIDS efforts of the NIH. AITRP links to: the Vaccine Trials Network funded by the National Institute of Allergy and Infectious Diseases (NIAID); the Prevention Trials Network funded by NIAID in collaboration with other NIH ICs; and community-level prevention programs funded by the National Institute of Mental Health (NIMH).

In 2002 the FIC changed the mode of AITRP proposal solicitation from a Request for Application (RFA) to a Program Announcement (PA-03-018); this modification is expected to make the program more flexible by enabling the applicants to submit or re-submit applications before the end of a 5-year funding cycle. In addition to applying for basic funds, grantees are invited to submit competing supplement applications. If awarded, the supplementary funds may be used to expand into new geographical areas, to focus on specific target groups, and to assist in the re-integration of former trainees when they return home.

Another important change in the AITRP operations is discontinuation of internally reviewed (by a committee at grantee institution) re-entry grants. This change was brought about by a growing concern that research conducted by former trainees in their home countries was not peer reviewed and may not fulfill NIH scientific standards and ethical guidelines. Instead, a Global Health Research Initiative Program for New Foreign Investigators (GRIP) was launched to promote a re-integration of NIH-trained foreign investigators into their home countries (PAR-03-118). GRIPs use the R01 funding mechanism and are subject to the standard NIH external peer review process. The first RFA for GRIP was issued for FY 2003, with an expectation that similar announcements will continue to be issued annually for the next several years (the competitiveness of GRIP is discussed below).

The program continues to emphasize prevention research, but is expanding to include approaches that combine prevention with care and treatment of infected individuals. As stated in the latest Program Announcement (PA-03-018), the current objective of AITRP is to offer multidisciplinary training to a wide range of professionals. The program aims to facilitate re-integration of returning trainees by securing positions for them in their countries and by strengthening the capability of foreign
institutions to compete for NIH funds. Finally, AITRP trainees are encouraged to take advantage of research expertise and new training opportunities that are becoming available in their countries (Table 3.1).

3.2 Program Management at FIC

At Fogarty, Dr. Jeanne McDermott, the program officer, manages AITRP with support from Ms. Hatton. Dr. Bridbord continues to champion the program, and he and Dr. McDermott are the main strategic planners of AITRP. Over the years they have developed partnerships with other NIH institutes; key staff from these partner institutions are actively involved in important programmatic activities, such as identifying gaps and opportunities in ongoing AIDS research and designing program announcements to target them. Dr. McDermott addresses scientific inquires from potential applicants and receives letters of intent to apply for AITRP funds. PIs submit their applications to the Center for Scientific Review at NIH, which distributes them to FIC and participating partner institutions. In addition, as implicit in its name, the Center for Scientific Review selects peer reviewers; when these experts convene to review applications, the FIC management team observes the proceedings and provides all necessary procedural assistance. The number of applicants, and therefore application success rate, varies significantly by funding cycle.

During the award period, the program managers guide PIs in selection of target countries and determine the size and allocation of individual awards. Drs. Bridbord and McDermott participate in PI network meetings (which take place roughly every 18 months) and review grantee annual reports. Ms. Hatton organizes and maintains all program materials.

Given that just three individuals perform all these activities—each requiring substantial commitment of time and effort—the program seems understaffed. The problem can be expected to exacerbate going forward, as applicants can now submit and/or re-submit applications yearly, rather than on a five year cycle—a change that will undoubtedly put additional administrative demands on the program managers.

It is remarkable that despite these numerous responsibilities, grantees find Dr. Bridbord and Dr. McDermott easily accessible, supportive, and always willing to provide help and guidance. Many PIs praised their flexible management style and told us that program leaders appreciate the complexity of international training and are always open to innovative ideas.

3.3 Program Partners

During this study we discovered that one of the important features of AITRP is its integration with many other AIDS-related activities at and outside of NIH. Due to time limitations we have mainly focused on program partners within NIH; interactions between AITRP and other like-minded initiatives are mentioned briefly throughout the report and need to be further explored.

As detailed in Table 3.3, in addition to the FIC, AITRP funds are provided jointly with seven other NIH institutes—the National Cancer Institute (NCI); the National Institute of Dental and Craniofacial Research (NIDCR); the National Institute for Drug Abuse (NIDA); the National Institute of Mental Health (NIMH); the National Heart, Lung, and Blood Institute (NHLBI); the National Associates Inc.
Institute of Nursing Research (NINR); an the National Institute of Allergy and Infectious Diseases (NIAID)—and by the NIH Office of AIDS Research.

To understand the nature of this partnership, we conducted interviews with key individuals at NCI, NIDA, NICHD, NINR, as well as at the Office of AIDS Research, the locus within the Office of the Director of NIH responsible for the scientific, budgetary, legislative, and policy elements of the NIH AIDS research program (for a list of interviewees and interview questions, please see Appendices B and C).

The partners told us that since AITRP inception, the program management team has sought out and cultivated collaborations across the NIH. All partners believe that cross-institute cooperation is one of the program’s strengths and consider themselves active participants in AITRP activities. They routinely contribute to program announcements, read grant applications, attend FIC meetings, and exchange ideas with Drs. Bridbord and McDermott.

Partner institutes provide funds for applications that focus on aspects of HIV/AIDS that are relevant to an institute’s area of interest. Through this mechanism of co-funding, NIH institutes add new research and training areas to AITRP. For example, last year the National Institute of Nursing Research provided supplementary funds to two AITRP programs to facilitate training of nurses and midwives.

For partners, AITRP is a great source of information about what is feasible to achieve in the developing world and how low-income countries differ in their research infrastructure. Further, AITRP is an opportunity for the partner institutes to extend their agenda internationally and to collaborate with researchers around the world.

Table 3.3: AITRP Program Partners within NIH ICs

<table>
<thead>
<tr>
<th>Partner Name</th>
<th>Nature of Relationship</th>
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<tbody>
<tr>
<td>1. National Cancer Institute</td>
<td>Funding for AIDS-related malignancies</td>
</tr>
<tr>
<td>2. National Institute for Drug Abuse</td>
<td>Funding for research related to IDU</td>
</tr>
<tr>
<td>3. National Institute of Dental and Craniofacial Research</td>
<td>Funding for oral manifestation of AIDS</td>
</tr>
<tr>
<td>4. National Institute of Mental Health</td>
<td>Funding for research on behavioral interventions</td>
</tr>
<tr>
<td>5. National Heart, Lung, and Blood Institute</td>
<td>Funding for research related to blood safety</td>
</tr>
<tr>
<td>6. National Institute of Nursing Research</td>
<td>Funding for training of nurses and midwives</td>
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<tr>
<td>7. National Institute of Allergy and Infectious Diseases</td>
<td>Funding for the development of HIV vaccines</td>
</tr>
<tr>
<td>8. Office of AIDS Research</td>
<td>Assistance with scientific, budgetary, legislative, and policy elements of the NIH AIDS research program</td>
</tr>
</tbody>
</table>
4.0 About AITRP Grantees

Once NIH has made AITRP awards, furthering the program mission falls on the shoulders of the grantee institutions, and the Principal Investigators who run the individual AITRP projects. It is therefore essential to understand the individual AITRPs’ structure and activities, in order to examine their role in meeting program goals. In this chapter, we present information on the process of grantee selection, funding on awardees, and organization and operations of programs.

4.1 Selection

As mentioned in the chapters above, AITRP funds are awarded as international research training grants. A grant application is developed by a Principal Investigator, and is submitted to NIH by a PI’s home institution on his or her behalf.

As Table 4.1 demonstrates, the number of recipients of the AITRP grants increased from 11 in the first funding cycle to 23 in the last funding cycle. Decisions on AITRP proposals are made by a scientific peer review panel that evaluates each application in terms of significance, approach, innovation, and environment—a standard set of criteria guiding the NIH peer review process (FIC has its own definitions of the terms).

US applicants must apply with developing country institutions with which they have a demonstrable history of HIV-related collaboration. Other special requirements include a description of specific linkages that applicants can leverage to strengthen research capacity of the target foreign institutions. Applications must be accompanied by letters of support from foreign collaborators, foreign institutions, and developing country officials. These letters should indicate foreign institutions’ or governments’ willingness to provide financial support as well as assistance in the form of positions, laboratory space, etc for trainees who return.

Since the beginning of the program, AITRP grants have been awarded to top universities in the United States with a long history of excellent education and of training of researchers. Figure 4.1 describes their location on a map of the United States. Table 4.1 lists these universities with US News and World Report rankings, their PIs (and changes in PIs), and the years of participation. Having been awarded, most AITRP grantees successfully re-compete in the next funding cycle, with three exceptions to date: Tulane, which participated from 1988 to 1993; UCSD, which participated from 1988 to 1993; and Emory, which participated from 1988 to 1993 and rejoined in 1998.
Table 4.1: AITRP Programs and Their Principal Investigators (In Alphabetical Order of the Name of the Institute)

Institutions at the bottom in *italics* are the International Postdoctoral Research and Training in AIDS, also part of AITRP in prior years.

<table>
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<tr>
<th>Name of Institution (and US News Rankings)</th>
<th>Year 1</th>
<th>Year 2</th>
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<td>Albert Einstein College of Medicine (34)</td>
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<td>Brown University (43) / Miriam Hospital</td>
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<td>Cornell University Medical College (13)</td>
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<td>Harvard School of Public Health (1)</td>
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<td>University of Miami</td>
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<td>Mount Sinai School of Medicine (29)</td>
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<td>NYU School of Medicine (28)</td>
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<td>SUNY Health Sciences Center</td>
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Abt Associates Inc. AITRP FS Final Report 32
Figure 4.1: Location of Current Grantee Institutions

<table>
<thead>
<tr>
<th>Grantee Institution</th>
<th>State</th>
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</thead>
<tbody>
<tr>
<td>Albert Einstein College of Medicine</td>
<td>NY</td>
</tr>
<tr>
<td>Baylor College of Medicine</td>
<td>TX</td>
</tr>
<tr>
<td>Case Western Reserve University</td>
<td>OH</td>
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<tr>
<td>Columbia University</td>
<td>NY</td>
</tr>
<tr>
<td>Cornell University Medical College</td>
<td>NY</td>
</tr>
<tr>
<td>Emory University School of Medicine</td>
<td>GA</td>
</tr>
<tr>
<td>Harvard University School of Public Health</td>
<td>MA</td>
</tr>
<tr>
<td>Johns Hopkins University</td>
<td>MD</td>
</tr>
<tr>
<td>Brown University / Miriam Hospital</td>
<td>RI</td>
</tr>
<tr>
<td>Mount Sinai School of Medicine</td>
<td>NY</td>
</tr>
<tr>
<td>New York University</td>
<td>NY</td>
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<td>NY</td>
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<tr>
<td>University of Alabama Birmingham</td>
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<td>CA</td>
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<td>FL</td>
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<tr>
<td>University of Nebraska Lincoln</td>
<td>NE</td>
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<tr>
<td>University of North Carolina Chapel Hill</td>
<td>NC</td>
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<tr>
<td>University of Pittsburgh</td>
<td>PA</td>
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<tr>
<td>University of Washington</td>
<td>WA</td>
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<tr>
<td>Yale University School of Medicine</td>
<td>CT</td>
</tr>
</tbody>
</table>

3. Cohort 3 (5 years): UAB, U Maryland, UNC, U Pittsburgh, Yale U
4. Cohort 4 (3 years): Albert Einstein, Baylor, Mount Sinai, NYU, UIC, U Nebraska
4.2 Grant Funding and Allocation of Resources

From 1993 to date\textsuperscript{12}, the total NIH investment (including FIC and partner Institutes) into AITRP is almost $80 million dollars. This amount includes base funds committed through 2005. We do not know program expenditures for the period prior to 1993\textsuperscript{13}. Figures 4.2a and 4.2b present the award amounts, totals, by cohort, and by institution.

Grouping the awards by cohorts (which reflect the length of participation in the program) leads to an interesting insight. Grantees start off with roughly the same amount of total funding (cohort 4, FY2000), but it appears that the size of the awards within a cohort begins to diverge as time goes on. For example, University of Miami has received $2.7 million since 1993 while Johns Hopkins University, in the same cohort, has received over $10 million. These differences in funding are due to the number of competitive supplements, links to other NIH AIDS initiatives (e.g. Prevention Trials Network, Vaccine Trials Network), levels of co-funding from participating NIH partners, and specific needs in target countries.

The figure also provides breakdown of funding by base and supplemental amounts, and shows that the amount of supplemental funds also differs within a cohort – from $461,000 (27\% of total award) for the University of Pittsburgh, to $1.3 million (72\% of total award) for Emory University. Since only the institutions that have already been awarded basic grants are eligible for supplements, none of the new grantees (cohort 4) has received supplemental awards in 2000.

Internal to the grant, most of the AITRP funds are used to cover tuition, medical insurance, travel and living expenses, and in some cases, computers, for the trainees. Administrative expenses account for the rest, typically covering salary for an assistant and some compensation for the PI. In our interviews, some of the PIs were able to roughly apportion funds between trainee and administrative expense; for the six PIs who did (out of 17 with whom we spoke), between 70 and 88\% of the funds are spent on trainees.

\begin{footnotesize}
\begin{enumerate}
\item The amounts for the first and last funding cycles were not available at the time of writing.
\item Assuming that each of the 11 grantees in the first cohort received $250,000 per year, the total grant expenditure is closer to $100 million.
\end{enumerate}
\end{footnotesize}
Figure 4.2a: Base and Supplementary Funding – Total and by Cohort

Note: Funding between 1993-2000 only. Therefore funding for the first cohort is an underestimate

Figure 4.2b: Base and Supplementary Funding by Grantee Institution

Note: Funding between 1993-2000 only. Therefore funding for the first cohort is an underestimate
4.3 AITRP Principal Investigators

The role of PIs is not to be underestimated in an evaluation of the program. The AITRP is their vision and legacy. Even though grants are awarded to institutions, PIs are responsible for planning, directing, and executing the projects. As might be expected, all PIs are acknowledged leaders in their research fields, have significant experience in AIDS-related research and a strong commitment to international development (Appendix D summarizes their prominence and position in the international AIDS research community). During this Feasibility Study, we spoke with 17 out of the 23 current Principal Investigators (see the Appendix B for a complete list of PIs interviewed). The remaining six PIs did not return our calls or emails. This was an appropriate response rate for a Feasibility Study whose function was to collect preliminary data for a potential future outcome evaluation.

Most PIs were already heavily involved with international research when their participation with the program began. Many learned about AITRP while working with counterparts in developing countries, through participation in other Fogarty programs, or from their colleagues (Table 4.2). Interestingly, in one case, the PI learned about the program while on an AITRP trainee’s thesis committee.

Table 4.2: PIs Learning about AITRP (N=11)

<table>
<thead>
<tr>
<th>Number of PIs</th>
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<tbody>
<tr>
<td>Through other FIC programs</td>
</tr>
<tr>
<td>From work in a developing country</td>
</tr>
<tr>
<td>Through review of RFA</td>
</tr>
<tr>
<td>Through AITRP trainee in the US</td>
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<tr>
<td>From other researchers</td>
</tr>
</tbody>
</table>

Because of the nature of PIs’ research interests, most of them have primary appointments in medical schools (11 out of 23) or schools of public health (7 out of 23); the remaining five are affiliated with other academic departments.

4.4 Project Organization and Operations

Grantee institutions appear to have similar organizations, with an established faculty member as the Principal Investigator or program director, a program administrator(s), often part-time, who keeps trainee records and helps with day-to-day activities, and an in-country program collaborator(s), who is responsible for identifying and recruiting qualified trainee candidates.

In all cases, other faculty members, both from the PI’s university and other academic institutions, are involved in the AITRP. Depending on the program size, their number ranges from 5 to 70 (with a median of 20). The level of faculty participation varies from helping a PI with trainee selection to playing a primary role as a trainee mentor and principal contact. According to the PIs, involvement in AITRP requires significant commitment from faculty members who are not compensated for their efforts (incidentally, several PIs remarked that some salary support would make it easier to draw additional faculty into the program).
It will be impossible to examine the program without having an in-depth understanding of the individual AITRPs, their research focus and target countries, and organizational characteristics. Based on PI interviews and available information, we generated individual profiles for all grantee institutions (Appendix E). We observed that while the general organizational structure appeared similar across all institutions, operationally the programs are quite distinct. To illustrate the point, we discuss two AITRPs below – at Case Western Reserve University (CWRU) and at Yale University – below.

**CWRU** was awarded the AITRP in 1988. The AITRP is based in the Department of Epidemiology and Biostatistics within the CWRU Medical School, but faculty members from several other departments participate in its activities. The program provides training in anthropology, virology, pathology, biostatistics, and nursing. The main research interest of Professor Whalen, the Principal Investigator, and therefore, the primary focus of this AITRP, is in HIV-TB interactions. The program currently receives $500,000 a year in basic funds; CWRU AITRP does not have supplementary grants. Between 1993 and 2000 (for years that data were available), the program has received a total of $3,748,953.

The primary country focus of the program was and continues to be Uganda. The involvement of Case Western in Uganda began when the University was invited by the Ministry of Health to evaluate the AIDS situation in the country. When CWRU shifted its research focus to studies of interactions between AIDS and tuberculosis in 1998 (reflecting the research interests of Prof. Whalen), it expanded into Mexico and Thailand while continuing to target Uganda.

The process of trainee selection at Case Western has changed over the years: at the beginning of the program, trainees were nominated by the Ministry of Health in Uganda, and the training focus was on administration rather than research; now, trainee candidates can be recommended by their mentors in college, research program directors, supervising physicians, and other individuals professionally familiar with a nominee. The candidate is reviewed by a committee, which includes a representative from the Ministry of Health, and several faculty prominent members and senior administrators from Makerere University in Uganda. The committee selects roughly 20 highly qualified individuals and assigns a score to each one. Professor Whalen then interviews 3 to 4 candidates with highest scores and passes their application materials on to the participating departments at Case Western to find prospective mentors. If nominees cannot be matched with any faculty member at CWRU, they are sent for training at other AITRPs.

Each year, the program accepts 2-3 trainees into a master’s program and 1-2 trainees into a doctoral program. In addition, the program supports individuals currently in a degree program in Uganda, for “sandwich training” (see the section on training models), and provides technical expertise in specific laboratory techniques and in data management (these are usually 1 to 5 months in duration).

A unique aspect of the CWRU AITRP is the establishment of a scientific society in Uganda – modeled after scientific societies in the United States – called the Uganda Society for Health Scientists. The society (similar to professional societies in the US) sponsors annual scientific conferences with talks and poster presentations and provides an opportunity for trainees to share research results, discuss new ideas, and make contacts with other AIDS experts.

Unlike CWRU, the program at **Yale University** is relatively new, established in 1998 with Michael Merson as the Principal Investigator. Professor Merson learned about AITRP through his work at the World Health Organization. Including a large contribution from NIDA, Yale has received $10,000,000 in total funds (of which the AITRP share up to year
2000 is $4,798,598). The Yale AITRP chose Russia as a primary target country, because the epidemiological patterns of HIV infection there – mostly through the intravenous drug use – are similar to that in New Haven. As a result of its long isolation, Russia has a weak biomedical research infrastructure, and few people with training and expertise in public health. In Russia, Yale University has two collaborating sites: St. Petersburg State University, and a research institute called the Biomedical Center, also in St. Petersburg.

Yale provides expertise in epidemiology, biostatistics, behavioral interventions, and HIV prevention in high-risk populations. In collaboration with a special committee in Russia, Professor Merson personally selects trainees who generally come to Yale for master’s level degree training in public health. The Yale AITRP does not recruit students for Ph.D. training, because the Yale doctoral program is highly competitive. In the last funding cycle, the AITRP was awarded several supplementary grants to offer short-term training in specific technical skills to researchers from China, India and South Africa.

Through training a dozen Russian scientists, the AITRP has nucleated the first and only School of Public Health in Russia (which currently has 10 faculty members). Encouraged by its success in Russia and with the help of supplementary funds from NIH, Yale is setting up nascent Public Health schools in other countries in Eastern Europe.

Appendix E summarizes the salient features of all 23 programs.

### 4.5 Trainee Country Selection

An important decision for a given AITRP is to select appropriate countries from which to bring trainees into the program. Country selection is not a science, rather it is a convergence of many factors including serendipity, NIH guidance, and, occasionally, strategic choices (Table 4.3). It is hardly surprising that personal connections of PIs were the most commonly mentioned reason (and explains a somewhat random geographical pattern). In some instances, PIs themselves had lived and worked in a country before their participation in AITRP began, have developed professional and personal contacts, and are familiar with the country’s political atmosphere, government structure, and cultural norms (e.g. Professor Beyrer, PI of Johns Hopkins AITRP spent many years in Thailand). As Table 4.3 demonstrates, fewer PIs cited strategic considerations (e.g. Professor Merson at Yale chose Russia based on similarity of the mode of HIV transmission). Occasionally Dr. Bridbord suggests an expansion into a country where the AIDS epidemic is rapidly gaining pace (e.g. Russia, India, and China). Because such expansions are usually funded through competitive supplements awarded to continuing AITRPs, none of the new grantees (cohort 4) cited recommendations from program staff as a method of country selection. Countries are occasionally dropped, usually because of unfavorable political circumstances, insufficient infrastructure, or if it becomes “crowded” (more than one other AITRP covers it). Professor Prasad of the Albert Einstein AITRP gave an example of poor infrastructure – the PI could not get the program off the ground in Eritrea due to complete lack of the most basic equipment (including a working telephone) and finally abandoned it.

We did not notice many differences in country selection approaches between AITRP cohorts; recent PIs tend to rely a bit more on pre-established connections because they have not yet developed strong ties with FIC.
Table 4.3: Target country selection (N=14)

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<tr>
<td>Total</td>
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Note that most PIs use more than one approach.

Table 4.4 below is an inventory of countries by grantee institutions by funding cycles. The Table shows that the number of countries has increased substantially over time; it also underscores the expansion of AITRP into Asia, Eastern Europe and countries of the former Soviet Union. Countries are occasionally dropped, usually when they become ‘crowded’—too many AITRP target them. For example, the UCLA AITRP, has recently ceased recruiting trainees from Brazil, now targeted by several other AITRPs, including Cornell, UC Berkley, and UW. In one instance, the grantee institution has discontinued training of students from India and China because a large fraction of trainees did not return home (China was later added back with a requirement that trainees sign a document stating their intent to return).

Figure 4.3a presents the same list with additional information about the severity of the HIV/AIDS crisis in the approximate year of selection. Comparing Figure 4.3a with Figures 1.1b-d demonstrates an important point worth emphasizing – that AITRP was not only timely in country selection (note inclusion of Haiti, Thailand and Uganda in the first cohort already) but prescient (Russia and India in the second cohort).

Figure 4.3b shows the status of AITRP presence in all countries that have an HIV prevalence rate of >5% – not at all (in red), short-term trainees only (green), and degreed candidates (yellow).
### Table 4.4. Target countries by grantee institutions.

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<tr>
<td>Geographic Area</td>
<td>First Funding Cycle</td>
<td>Second Funding Cycle</td>
<td>Third Funding Cycle</td>
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<tr>
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<td>Harvard, Miami</td>
<td>Harvard</td>
<td>CWRU, Emory, Berkeley, Baylor</td>
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<tr>
<td>Peru</td>
<td>Miami</td>
<td>Washington</td>
<td>Miami, Washington, Cornell, Berkeley</td>
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<td>Miami</td>
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<td>University of Maryland</td>
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<td>Suriname</td>
<td>University of Maryland</td>
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<td>University of Maryland</td>
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<tr>
<td>The Caribbean</td>
<td>Miami</td>
<td>Miami</td>
<td>UAB, University of Maryland</td>
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<td></td>
<td>UAB</td>
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<tr>
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<td>JHU, UCLA, Berkeley, Brown, UAB, Pittsburgh, Yale, Einstein, NYU</td>
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<tr>
<td>Pakistan</td>
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<td></td>
<td>UAB</td>
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<td>The Middle East</td>
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<td>UAB</td>
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<td>Cambodia</td>
<td>UCLA</td>
<td>UCLA, Brown</td>
<td>UCLA, JHU, UAB, UNC, Yale</td>
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<tr>
<td>China</td>
<td>Cornell, Harvard, UCLA</td>
<td>UCLA</td>
<td>UCLA, JHU, UAB, UNC, Yale</td>
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<td>Brown, UIC</td>
<td>UCLA, JHU, UAB, UNC, Yale</td>
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<td>UCLA, UAB</td>
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<td>Myanmar</td>
<td>UCLA</td>
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<td>UCLA</td>
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<tr>
<td>Philippines</td>
<td>UCLA</td>
<td>UCLA, Brown</td>
<td>Brown</td>
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<td>Singapore</td>
<td>UCLA</td>
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<td>UCLA</td>
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<td>Taiwan</td>
<td>Harvard</td>
<td></td>
<td>UCLA, JHU, Washington</td>
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<td>Vietnam</td>
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<td>UCLA, Emory</td>
<td>UCLA, Emory</td>
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<td>Romania</td>
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<td>Baylor</td>
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<tr>
<td>Russia</td>
<td>Washington</td>
<td>JHU, SUNY, UAB, UNC, Yale</td>
<td>SUNY</td>
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<tr>
<td>The Baltic States</td>
<td>SUNY</td>
<td></td>
<td>SUNY</td>
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</tbody>
</table>

Note: Countries in the Caribbean: Anguilla, Aruba, Bahamas, Barbados, Grenada, Dominican Republic, Trinidad, Turks & Caicos, St. Lucia, St. Vincent, The Baltic States: Latvia, Lithuania, Estonia
Figure 4.3a: Countries by Cohort (Color Coded by Severity of AIDS: Percent Population that is HIV Positive in 1986, 1991, and 2001, respectively)
Sources: UNAIDS/WHO and Abt Associates Analysis
**4.6 In-country Collaborators**

During our conversations with PIs, we learned that in-country collaborators are usually established researchers (department chairs, deans of universities) or high-level administrators (officers in Ministries of Health or other government organizations). PIs emphasized that in-country partners are essential for AITRP’s success. While exact details vary by country and grantee institution, it appears that in general in-country collaborators play a dual role in the operation of individual programs—they recruit trainee candidates and they provide assistance and/or mentorship to returning trainees.

Trainee selection begins with advertisement through local newspapers or by word of mouth. In-country collaborators often manage the steering committees, which convene to consider incoming applications. Top candidates are interviewed by the Principal Investigator, who may travel to the country for this purpose.

In addition to their role as “gatekeepers” to entering AITRP trainees, in-country collaborators also assist returning trainees—this may range from helping them with job placement to acting as surrogate mentors. For example, in one target country all trainees are nominated by the same faculty member and following training they return to his ‘shop.’ In other cases, trainees are senior faculty members who came to the United States for sabbatical; such trainees often do not need a mentor upon return. Many trainees (in some cases almost all) were personally known to in-country collaborators prior to their involvement with the program; while such system is not entirely objective, it ensures that trainees will have jobs and other support when they return.

For AITRPs that have been in operation for a long time, many in-country collaborators are former trainees. PIs of recent AITRPs take advantage of their pre-existing connections, but in the future they plan to appoint some of returning trainees as in-country collaborators.

While there is no formal mentorship system in-country, PIs assured us that there is a plan for every trainee who returns. If faced with a problem, such as lack of funds or supplies, or if in need of advice,
trainees would get in touch with in-country collaborator or seek help from the PI. In addition, most AITRPs collaborate with a small number of institutions in each country and trainees returning to these institutions would not find themselves in isolation.

4.7 Trainee Selection

Selection of trainees is performed jointly by PIs and in-country collaborators. They can make informed judgments about candidates’ background, credentials and professional situation, which are important predictors for their success during training and the likelihood that they will return home once the training is complete. In most cases the final selection of trainees is made by a committee usually composed of a PI, a few participating faculty members in the US, and in-country collaborators.

PIs informed us that the process of selection is in general based on three criteria: trainee qualifications; availability of a faculty member who could mentor them in their chosen topic; and, likelihood that the trainees will return home (factors influencing trainee return are discussed below).

Fluency in English is a critical qualification, especially for trainees who are enrolling into a graduate program and must have high scores on standardized tests. Some PIs select trainees and try to match them with a suitable faculty mentor (for example, Case Western AITRP); others identify what faculty needs are and then select the trainees (for example, Berkeley AITRP).

4.8 Training Focus

During the interviews, many PIs were reluctant to categorize research training that they provide as basic, clinical or behavioral and specified more than one type of training as being a focus of their institution. Since AIDS is a complex disease that requires a combination of approaches, most programs try to expose trainees to different aspects of AIDS research. For example, at one AITRP, trainees came mainly for behavioral training, but were also actively involved in clinical activities.

4.9 Appropriateness of Training

Do trainees return home adequately prepared to address local needs in their countries? While only a comprehensive study would address this question, we attempted to examine it for a small set of the AITRPs. Clearly these results cannot be generalized across all AITRPs.

We examined the titles of scientific articles and captions of presentations by trainees and mapped them on to training priorities described briefly in Chapter 1 (and summarized in the Table 4.5 below). As test cases, we chose one country each in Africa, Asia, and Eastern Europe respectively, that either has or had been particularly hard-hit by the epidemic or where the epidemic is spreading rapidly: South Africa, Thailand, and Russia.

South Africa has 4.8 million HIV-positive individuals—more than any other country in the world. Columbia University began recruiting trainees from South Africa in 1993 (Johns Hopkins University and Yale University have expanded in South Africa in 2000). Since then, the University has trained dozens of students in epidemiology, biostatistics, ethics, and public

14 This appears consistent with NIH priorities. Through its ‘Roadmap’ initiative, (http://nihroadmap.nih.gov/) NIH aims to promote an interdisciplinary approach—a methodology that integrates the analytical strengths of two or more (often disparate) scientific disciplines to solve a given biological problem—to scientific research.
health. In addition, Columbia trainees are active in conducting intervention trials in rural areas, studies of newborn cell-mediated immune responses and mother-to-child HIV transmission, epidemiological work on the interactions between HIV infection and TB, and several other areas.

Though Thailand’s HIV/AIDS epidemic has stabilized in recent years, it continues to be one of the worst affected countries in Asia, with 2.2 percent of adult population being HIV positive. Over the years, Thailand has been targeted by a number of grantee institutions, including Emory University, University of California at Los Angeles, Johns Hopkins University, Harvard University, University of California at Berkeley, and University of Alabama. Among these universities, dozens of Thais have been trained in epidemiology, microbiology, research methods, and public health. Trainees gave presentations and published their work on behavioral risk factors, TB preventive therapy, vaccine candidates, and the establishment and propagation of self-help groups for the HIV-infected individuals. Examples of trainees’ presentation headings and scientific publication titles include “Accessibility Acceptability of HIV testing and Counseling among young persons in Northern Thailand”, “Behavioral risk factors for prostitute use among Northern Thai men and association with HIV infection”, “HIV-related risk factors of blood donors in Northern Thailand before and after knowing HIV test results”, “The epidemiology of HIV and syphilis among male commercial sex workers in Northern Thailand”.

Russia’s HIV/AIDS epidemic has spread rapidly since 1996 and is now considered one of the fastest growing epidemics in the world. The pool of HIV infection among injecting drug users—a population estimated at 3 million nationwide—is now large enough to pose a serious risk to a general population. University of Washington, Johns Hopkins University, State University of New York, University of North Carolina, and Yale University recruit and train individuals from Russia. Scientific publications co-authored by the AITRP fellows include the following: “The molecular epidemiological characteristics of the HIV-1 variants circulating among injection drug addicts on the territory of the CIS Nations”, “Characteristics and predictors of HIV risk behaviors among injection-drug-using men and women in St. Petersburg, Russia”, and “Predictors of HIV risk behavior among Russian men who have sex with men: an emerging epidemic”, just to name a few.
### Table 4.5: Mapping of Training Needs to Trainee Research Interests

<table>
<thead>
<tr>
<th>Areas of Training</th>
<th>Need (from Global HIV Prevention Group)</th>
<th>Excerpts from publication titles</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Africa</td>
<td>Youth targeted behavioral interventions; Programs to prevent mother-to-child transmission; Interventions for adults at high risk;</td>
<td>“Improving quality of care for sexually transmitted infections in resource-limited settings”, “Reducing women’s vulnerability to HIV infection: are men the missing link”, “Untreated STDs among women in rural South Africa”</td>
</tr>
<tr>
<td>(sub-Saharan Africa)</td>
<td></td>
<td></td>
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<tr>
<td>Thailand</td>
<td>Behavioral interventions targeting vulnerable populations, such as sex workers and MSM; Harm reduction for drug users; Programs to curb rates of STDs; Infection control in health care settings; Implementation of blood safety procedures</td>
<td>“Accessibility Acceptability of HIV testing and Counseling among young persons in Northern Thailand”, “Behavioral risk factors for prostitute use among Northern Thai men and association with HIV infection”, “HIV-related risk factors of blood donors in Northern Thailand before and after knowing HIV test results”, “The epidemiology of HIV and syphilis among male commercial sex workers in Northern Thailand”</td>
</tr>
<tr>
<td>(Asia)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Russia</td>
<td>Scale-up of harm reduction programs for IDU; STD control; Youth-targeted behavioral interventions</td>
<td>“The molecular epidemiological characteristics of the HIV-1 variants circulating among injection drug addicts on the territory of the CIS Nations”, “Characteristics and predictors of HIV risk behaviors among injection-drug-using men and women in St. Petersburg, Russia”, and “Predictors of HIV risk behavior among Russian men who have sex with men: an emerging epidemic”</td>
</tr>
<tr>
<td>(Eastern Europe)</td>
<td></td>
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</tbody>
</table>

As Table 4.5 above demonstrates, at least in these test cases, priority needs in a given geographical region map fairly well to trainees’ research topics. However, to make generalizations about the program, each program should be evaluated in detail.

### 4.10 Modes of Training

AITRP program announcements make a provision for short-term training and long-term training in the US, as well as in-country training. Short-term training in the US (approximately 6 months in duration) is intended for individuals with master’s or doctoral degrees and is usually reserved for learning specific laboratory procedures and techniques. Short-term training in country (up to 3 weeks in duration) is offered to a wide range of health care professionals and is most frequently used to prepare them for participation in institutional review boards, data and safety monitoring boards and community advisory boards. Individuals with or without previous research experience are eligible for long-term training (generally 2 years in duration), which includes both postdoctoral and advanced degree training.
Our conversations with a subset of the PIs revealed that although all AITRPs provide long-term and/or short-term training as stipulated by the program announcement, most programs have developed unique training strategies, many of which are designed to ensure trainee return to home countries. This diversity of styles is due in part to the level of research infrastructure and general economic and political conditions in a target country, and in part to the flexibility built into the program. The conversation revealed many “models” of training:

- Grantee generally selects individuals with medical degrees, who come to the US for mini-sabbaticals (e.g., Brown). Such trainees usually come from secure professional situations, have families, and are likely to return home.

- PI has developed an extensive network of AIDS researchers within and outside the university (e.g., Mount Sinai, NYU). Trainees are brought in and matched with a mentor who offers a skill or expertise in an area of interest to the trainee (in some cases a laboratory techniques, in others a particular research topic).

- ‘Sandwich’ training, which supports students who are enrolled in a degree program coming to the US for a year or two and then returning home to complete their degrees (e.g., CWRU). While ‘sandwich’ training will certainly decrease ‘brain-drain’, it may be disruptive for trainees to have to move countries and change mentors in the middle of their training.

- ‘Farm system’—trainees are brought in for short-term training (one or two months) and they subsequently apply for long-term training. The advantage of such a system is that during their short-term training, AITRP fellows can demonstrate their commitment to return home, their skills and abilities as researchers, etc. The disadvantage is that it may be cost-ineffective to bring many short-term trainees to the United States.

- Grantee sponsors trainee education in a country within the trainees’ geographical area rather than in the United States (e.g., Cornell). Such an approach could be more cost-effective; moreover, if the host country is in the same region and culturally similar, trainees may find it a lot easier to adjust and develop connections. Such training could be long-term or short-term.

### 4.11 Partnerships at the Grantee Level

During interviews we asked Principal Investigators if they interact with other grantees and what is the extent and nature of this interaction. Not surprisingly, collaborations among AITRPs seem to be more common among ‘older’ grantee institutions, both within and outside of NIH (Figure 4.4). Likewise, two out of three PIs who have noted that partnerships were lacking, were the most recent AITRP awardees.

Through AITRP-AITRP collaborations, PIs send their students to take a course, learn a technique, or in rare cases, to do graduate work at another AITRP institution. Such exchanges are most frequent in New York City, a home to six AITRP programs, but sometimes take place between geographically distant universities. For example, Emory University, State University of New York, and Yale University have sent their trainees to the Summer Institute at University of Alabama. Tuition at the Summer Institute is fairly low and it offers a variety of courses, which are translated into Russian and Chinese. A few trainees from University of California at Los Angeles have gone to Yale to acquire expertise in vaccine research.
Collaborations between grantees extended beyond exchanging students. For example, PIs working in the same country share resources and sometimes work with the same in-country collaborators. PIs with substantial AITRP experience advise their colleagues with new grants. Parenthetically, PIs mentioned that their interactions with each other transcend AITRP, as they often participate in several other AIDS initiatives, such as International Vaccine Network or AIDS International Trial Group.

As discussed in the ‘PI feedback’ section below, despite these multi-layered interactions, PIs feel that AITRP partnerships can and should be strengthened.

**Figure 4.4: AITRP Partnerships**

![Number of Partnerships Chart]

*Cohort 1: 15 years; Cohort 2: 10 years; Cohort 3: 5 years; Cohort 4: 3 years*

### 4.12 Trainee Return to Home Countries

All PIs are concerned about “brain drain,” and all take elaborate measures to ensure trainee return. When asked to estimate what fraction of students return to their home countries, PIs quoted very high numbers—ranging from roughly 80% to 100%. However, with trainee contact information being available for less than 60% of all AITRP participants, these claims will be difficult to verify.

We had two other sources for trainee return rates. The PI database that included 1,004 trainees had return information for 729. The return rate across the board for these 729 trainees was close to 90%. As might be expected, longer-term trainees (i.e. those in doctoral or master’s programs) were more likely to stay in the US. Among countries, Chinese students were the most likely not to return. Our third source for return rates confirmed the data in the first two. Recently FIC has conducted a study of brain drain for trainees from five of the longest running AITRPs (Kupfer, 2002). This analysis included only long-term trainees and the return status was based on the trainee position immediately following training (this definition of return leads to an underestimate of brain drain, because trainees who leave their country within a short period after returning will be falsely counted). The result of the study was that on average 80% of trainees had gone back home. According to AITRP directors, such high rates of return could be attributed to the effective use of a set of strategies.

We found that PIs paid particular attention to the process of trainee selection. As discussed above, most of them work with in-country collaborators to recruit candidates—often professionally established individuals with incentives to return to their places of work. Another important factor that determines whether trainees go back is the availability of financial support which most of the former

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15 The POPIN Dictionary of Demographic and Reproductive Health Terminology defines “brain drain” as “the migration stream of highly trained or skilled persons out of one country or other (usually developing) into another (usually developed), thus limiting the former’s capacity for development.”
fellows desperately lack at home. In fact, 8 out of 17 PIs said that they try to help their former students purchase necessary equipment, get salary supplements, etc.

As described by the Fogarty “brain drain” study and confirmed during interviews, PIs also use disincentives for trainees to remain in the US. For example, some project directors require guarantees of post-training employment from trainees’ home institution or a written statement from trainees themselves stating their intent to return. PIs admitted, however, that the effectiveness of these measures in the long-term is limited—trainees who have returned home may leave their country in a year or two, and intent of return statements are unenforceable.

PIs also helped us identify additional strategies not mentioned in the ‘brain drain’ study (which only built on data from five institutions). Two PIs noted that they prefer to bring in trainees who are in the process of earning a degree in country (‘sandwich’ training)—such individuals will be more likely to return to complete their studies. Another PI admits students into a master’s program, with a possibility to continue training towards a PhD if they demonstrate a commitment to go home. Several PIs help place their former students.

4.13 PI Feedback on Program Strengths and Challenges

PIs were informed about the preliminary nature of the evaluation study. They were not given much time to prepare for the interviews. Finally, only 17 out of the 23 PIs were available at the time of the FS. With these caveats, we would like to summarize PI feedback about the program. As might be expected from grantees of a major NIH program, without exception and hesitation, the PIs endorsed AITRP. One PI remarked that participation in AITRP has been the most significant and rewarding experience of his long career. PIs appreciate NIH long-term commitment to infrastructure development in low-income countries and they genuinely appear to believe that AITRP is accomplishing its stated goals.

However, in course of our conversations with PIs, a few issues arose that they believe need to be addressed by NIH. The issues broadly fall into three categories: funding, grant administration, and partnerships. These are discussed here in brief:

- **Funding.** The most common source of concern – voiced by 7 out of 17 PIs – was a recent termination of internally reviewed funding for advanced in country training (“re-entry grants” discussed above.). PIs are concerned that the consequences of this policy, if not felt yet, will inevitably have a substantial negative impact on trainees’ capacity to carry out independent research. While trainees are still eligible to obtain financial assistance from NIH via the supplementary grants or through GRIPs, PIs were skeptical about the effectiveness of these sources. GRIPs are very competitive; the waiting period between submission of an application and the access to funds (if awarded) is too long. The resulting lack of support will jeopardize trainees’ capacity to launch independent research projects in their countries; instead they will return to old jobs or assume administrative positions. Program directors also brought to our attention that GRIPs and supplementary grants, even if available to trainees, do not include funding for equipment, which is critical in countries with minimal research infrastructure. As a possible solution, PIs suggested an establishment of “core awards” for AITRP (and NIH does sponsor these types of initiatives), which may be used to support facilities at a foreign site.

To follow up on PIs’ concerns about the competitiveness of GRIPs, we investigated whether trainees have so far been successful in receiving them (note that to date just one round of awards has been completed, and the numbers must be interpreted with caution). Last year, overall, just under a third of all the applicants received an award. Importantly,
we found that fewer than 17% of AITRP trainees (6 out of 36) were awarded GRIPs, compared to 52% of non-AITRP applicants (13 out of 25).

Due to time and resource limitation, we were unable to examine success rates among trainees who have applied for R01 grants, but it is common knowledge (confirmed by several PIs we spoke with) that these grants are highly competitive and difficult to win even for a US junior faculty member, making these sources of support unlikely for most AITRP trainees\textsuperscript{16}. Without doubt, some former fellows have applied for and received other national and international research awards, and this point needs to be further explored. However, lack of funds may seriously limit the effectiveness of the program.

- **Grant administration.** PIs shared with us some procedural difficulties that they have experienced in running the program. They pointed out that the requirement to write progress reports annually is a substantial administrative burden, and that bi-annual reporting would be sufficient and time-effective. Secondly, program directors would like the Institutional Review Board (IRB) to expedite the process of approval for international work. Currently, the procedure is very slow and causes delays in carrying out research projects for Principal Investigators and their students. Finally, after September 11 it has become very difficult for trainees to obtain entry visas to the United States; it would be very helpful if NIH provided PIs with a letter of support that could be sent to US embassies abroad to expedite the process of visa approval. If, despite all efforts, trainees are unable to enter the United States, a mechanism should be in place that would allow them to receive training in their home country or elsewhere.

- **Partnership.** Several PIs suggested that FIC should take additional steps to facilitate collaborations between AITRPs and to extend existing interactions between program directors. Currently, FIC sponsors PI meetings held roughly every year and a half in Washington, DC. PIs found the format of these meetings was not always conducive to sharing of ideas and experience, in particular for recent AITRP awardees. Many former trainees maintain a strong identity as ‘Fogarty Fellows’ and FIC could do more to strengthen their ties with each other, for example, by sponsoring meetings of AITRP alumni. Similarly, PIs put forward an idea of establishing a system of regional meetings for people from the same geographical area. Such meetings could uncover opportunities for local training and facilitate sharing of resources and ideas on how to resolve region-specific difficulties.

### 4.14 Other HIV/AIDS Related Training Programs

Based on our conversations with PIs, NIH partners, and outside AIDS experts, it appears that there may not be another program that equals AITRP in size, scope and outreach. Among the many initiatives that provide assistance to developing countries in responding to the AIDS crisis, AITRP does indeed appear unmatched in two respects: it responded to the epidemic many years before it became a primary concern in the international community, and it has made the long-term commitment to developing countries which the goal of building research capacity entails. This finding is important because it suggests that a valid comparison group against which the program can be evaluated may be difficult to find.

It is however possible to identify several smaller-scale AIDS initiatives, listed in Table 4.6 below. We did not attempt to catalog all programs currently in operation around the world--such a list would

\[16\text{ First time success rate for an R01 application across NIH institutes in 2001 varied from 29% for PhD researchers to 50% for MD/PhDs (Nathan, 2003).} \]
include dozens of entries— but rather to get a rough idea on the scope and breadth of domestic and international activities. While none of these initiatives are analogous to AITRP as a whole, few can be used to compare AITRP operations in a given country. For example, the KITSO AIDS program which targets Botswana can be compared to the Harvard AITRP’s Botswana activities, and the Wellcome Trust, that provides training to researchers from developing countries (not restricted to HIV/AIDS only) could be used to examine AITRP’s success in capacity development.

Table 4.6: Domestic and International AIDS Initiatives

<table>
<thead>
<tr>
<th>Name of the Program</th>
<th>Sponsor</th>
<th>Goals</th>
<th>Target Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>KITSO AIDS training program</td>
<td>Government of Botswana, the Bill &amp; Melinda Gates Foundation, and the Merck Company Foundation</td>
<td>To train health care professionals in the latest HIV and AIDS health care practices; To increase a leadership capacity and to develop a sustainable AIDS-training program.</td>
<td>Botswana</td>
</tr>
<tr>
<td>Secure the Future</td>
<td>Bristol Myers Squibb</td>
<td>Development of model programs for the management of HIV/AIDS in the resource-limited settings; Training of African physicians and other health care professionals to facilitate better medical care of people with HIV/AIDS; Training of US physicians who will go to African countries and help build capacity in these countries</td>
<td>South Africa, Botswana, Namibia, Lesotho and Swaziland</td>
</tr>
<tr>
<td>The Rockefeller Foundation</td>
<td></td>
<td>Domestic and international projects related to combating HIV/AIDS and a wide range of programs in TB control</td>
<td>Africa, Southeast Asia, Thailand</td>
</tr>
<tr>
<td>International Clinical Epidemiology Network</td>
<td>Canadian non-profit organization</td>
<td>Improving the health of the people by promoting clinical practice based on the best evidence of effectiveness and the efficient use of resources.</td>
<td>Cameroon, China</td>
</tr>
<tr>
<td>Canadian International Development Agency</td>
<td>Government of Canada</td>
<td>To combat HIV/AIDS in developing countries</td>
<td>Cambodia, Thailand, Vietnam and the Laos, Burma, Nigeria</td>
</tr>
<tr>
<td>The Global Fund to Fight AIDS, Tuberculosis &amp; Malaria</td>
<td>Organizations and individuals from countries all over the world</td>
<td>Sustainable and significant contribution to the reduction of infections, illness and death, thereby mitigating the impact caused by HIV/AIDS, tuberculosis and malaria in countries in need</td>
<td>Developing countries</td>
</tr>
<tr>
<td>The Wellcome Trust (International Programmes)</td>
<td>Private endowment</td>
<td>1) Support research into the major diseases affecting the developing and restructuring world, as well as the basic biomedical sciences</td>
<td>Developing countries</td>
</tr>
</tbody>
</table>
underpinning their causes.

2) Build research capacity in these regions, so that countries are better equipped to tackle their own health problems.

| The Gates Foundation (India AIDS Initiative) | Private endowment | 1) Reduction in HIV and Sexually Transmitted Infection (STI) transmission in select core populations in areas characterized by population mobility; and 2) Increased leadership and improved enabling and learning environment for effective HIV/STI prevention and care. | India |
5.0 About AITRP Trainees

In this Chapter, we summarize our findings about AITRP trainees – where they come from, what they do during training, and their pre- and post-training experiences. The Chapter begins with the general analyses of trainee universe using FIC data on trainees as well as the roster we have generated for this study. Because FIC data has more trainees than the roster we put together using grantee records (1,623 versus 1,004 trainees), we use this source whenever possible; if information on a given trainee characteristic is not available from the FIC documents, we resort to our roster (sources of data for each analysis are marked as clearly as possible). A comparative analysis of the two sources is included throughout the discussion. We close the Chapter with the description of preliminary questions that we asked a small group of trainees and what we learned directly from them.

5.1 Geographical Distribution

AITRP trainees have come from 78 countries; as mentioned above, the number of countries has more than doubled since the first competition in 1988. According to the FIC data, six countries--Thailand, Brazil, China, Uganda, India, and South Africa--contributed 236 long-term trainees, half the total trained population.

In order to understand the program, it is equally important to know which countries severely affected by the epidemic are not AITRP participants. Figure 5.2 highlights countries with adult HIV prevalence of more than 5%, which have no AITRP trainees. They include Burkina Faso, Sierra Leone, Congo, Namibia, Angola, Togo, and Burundi – all war torn countries in Africa. While the program does not purport to include every country affected by the crisis, recruiting trainees from these areas, if feasible, may potentially help the countries begin to address their AIDS epidemic.
Figure 5.1: Countries with AITRP presence (FIC Data Source)

Source: Abt Associates Analysis of FIC data

Figure 5.2: High HIV Prevalence countries with no AITRP trainees

Source: Abt Associates analysis of FIC data

Prevalence rates (UNAIDS, 2001)
5.2 Prior Training

Trainees are a highly educated and distinguished group of people: according to the roster assembled from PI data, (the aggregate FIC table did not contain this information for trainees) – prior to joining AITRP, 91% of them had one advanced degree (beyond baccalaureate) and 5% had two (for breakdown of degrees, see Table 5.1).

Table 5.1: Trainee Education Levels Prior to AITRP

<table>
<thead>
<tr>
<th>Level of Training Prior to AITRP</th>
<th>Number of Trainees</th>
<th>Percent of Trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD</td>
<td>264</td>
<td>50</td>
</tr>
<tr>
<td>MS or MMed or MPH or MBChB</td>
<td>108</td>
<td>20</td>
</tr>
<tr>
<td>PhD</td>
<td>47</td>
<td>9</td>
</tr>
<tr>
<td>BA or BS</td>
<td>30</td>
<td>6</td>
</tr>
<tr>
<td>MD &amp; PhD</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>Other advanced degree</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>RN</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>MD &amp; MS or MD &amp; MPH or DDS &amp; MS</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>DDS</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>MD or Ph.D. student</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Unclear cases</td>
<td>19</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>529</strong>*</td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

(*No information about prior degree available for the remaining); ‘Other advanced degrees’ include PharmD and DVM; ‘Unclear cases’ include title like ‘chief consultant’ or ‘co-director; Data from PI records

5.3 Type of Training Received

The 2002 AITRP annual report tabulates the type of training and geographic origin of the 1,623 trainees who participated in AITRP between its inception and May 31, 2002. More than half of these (53%) attended only short courses, but 29% received advanced academic training at the master’s (14%), doctoral (6%) or post-doctoral (10%) level (Figure 5.3). Broken down by length of training, about two-thirds of the long-trainees receive master’s (46%) or doctoral (20%) degrees. Of the short-term cohort, three-quarters spend less than three months as AITRP trainees.

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17 In the roster assembled using PI records, types of training received were available for 784 individuals (87%). Of these, roughly half were long-term trainees (as mentioned elsewhere, records on short-term trainees are not well maintained), including current and former masters, doctoral, postdoctoral students, and individuals receiving or having received other unspecified training.
The distribution of training type from the PI roster is remarkably different than the distribution above, most likely because the PIs failed to include information about the short-term trainees.

*Source: Abt Associates analysis of FIC Data*

Figures 5.4 - 5.7 depict the breakdown of type-of-degree by country-of-origin of the trainees. Each dot represents a single trainee.

**Figure 5.4: Distribution of Trainees who Received a Ph.D. from AITRP**

*Source: Abt Associates Inc. analysis of AITRP 2002 annual report*
Figure 5.5: Distribution of Trainees who Received a Master's Degree from AITRP

Source: Abt Associates Inc. analysis of AITRP 2002 annual report

Figure 5.6: Distribution of Trainees who Received Postdoctoral Training from AITRP

Source: Abt Associates Inc. analysis of AITRP 2002 annual report
5.4 Training Accomplishments

Dissemination of results is an important activity in scientific research. To determine whether AITRP trainees make their findings visible to the research community, we examined their publication records (for this analysis we combined FIC and PI data for completeness). Preliminary findings suggest that AITRP participants are productive researchers: for example, current and former fellows from University of Washington collectively published 45 papers in a single year (Table 5.3). However, since the total number of publications per grantee institution was not available for all AITRPs we could not directly compare outputs from different programs.
Table 5.3: Number of Available Trainee Publications by Grantee

<table>
<thead>
<tr>
<th>Grantee Institution</th>
<th>Number of Publications</th>
<th>Number of Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWRU</td>
<td>159</td>
<td>15</td>
</tr>
<tr>
<td>Cornell</td>
<td>219</td>
<td>15</td>
</tr>
<tr>
<td>SUNY</td>
<td>190</td>
<td>10</td>
</tr>
<tr>
<td>UW</td>
<td>45</td>
<td>1</td>
</tr>
<tr>
<td>Johns Hopkins</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>Harvard</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>Brown</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Columbia</td>
<td>25</td>
<td>1</td>
</tr>
<tr>
<td>Miami</td>
<td>29</td>
<td>1</td>
</tr>
<tr>
<td>Yale</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Emory</td>
<td>21</td>
<td>1</td>
</tr>
<tr>
<td>Maryland</td>
<td>13</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: For Johns Hopkins, Harvard, Brown, Columbia, Miami, Yale, Emory, and Maryland, the AITRP’s publication list was only available for 2001-2002.

Source: Abt Associates analysis of FIC Annual Reports

It is not productive simply to count publications, but rather to examine in detail the quality and relevance of the publications. Publication quality can be addressed either by expert panel or a bibliometric analysis of the publications; neither is feasible in the current study. The database of AITRP-related publications developed in the course of the FS may be useful in a full outcome evaluation.

Assessing the relevance of these publications (whether published in journals accessible to developing country researchers, on topics of interest and relevance to peers in developing countries, etc) is an equally time-consuming activity, not suitable in a Feasibility Study. However, we examined publications for a single grantee institution to develop a system that can be applied to the program as a whole. The case study picked was that of publications of trainees at the AITRP at Columbia University.

Trainees at the Columbia AITRP appeared to be active in many areas of AIDS research including HIV transmission, progression to AIDS, prevention, treatment and pathology of AIDS, and interactions between AIDS and TB. Snippets from the titles of trainee publications include the following: “strategies for partner notification of STDs”, “access to condoms and effects of condom use”, “microbicide research and development”, “lessons from programs to reduce mother-to-child transmission”, and many others. The titles at the very least suggest that trainees actively pursue diverse aspects of AIDS research. We also found that, of the 25 papers published by Columbia trainees between 2001 and 2002, 16 appeared in local (South African) journals, and nine in peer reviewed international journals. The latter included a publication in the Journal of Virology, and several papers in the Journal of Infectious Diseases – both journals are highly respected, and routinely read by many American investigators.
5.5 **Characterization of AITRP Trainees**

The rest of this Chapter focuses on trainee experiences. The roster that we put together in the course of this study included email contact information for 596 trainees (57% of the total number of trainees in the list assembled from grantee records obtained directly by Abt Associates). We contacted 491 of the trainees for whom email addresses were available on time (i) to introduce ourselves (ii) to determine what fraction of e-mails are still in use (or accurate), (iii) to get a preliminary response rate on a future survey instrument, and last but not least, (iv) to ask a small fraction of the trainees a few basic questions about the impact of AITRP on their careers. We received 165 responses (34%) expressing willingness to participate (a majority were very enthusiastic and several said that they thought the evaluation was very important), three trainees declined, and 47 e-mails (10%) bounced back. Several trainees asked us to use a different e-mail address in the future and we updated our records accordingly. We sent different questionnaires in accordance with OMB regulations to 94 trainees (for a sample of the trainee questions, please see Appendix C). Thirty-five trainees (37%) completed the survey; answers from 33 that were received in time for this report were analyzed, and are presented below.

5.5.1 **Comparison Between Respondents and Trainees in the Roster**

The responses represent at most 6% of the trainee population and can in no way be considered applicable to the program as a whole. We did examine, however, the extent to which respondents were similar to the rest of the roster. Figure 5.8 below demonstrates that our respondents are fairly representative of trainees as a group. Their responses, while they still cannot be generalized, may be relevant to understanding trainee experiences in AITRP selection.
Figure 5.8: Comparison between Survey Respondents and All Trainees in the Roster

Note: Roster assembled from PI records
5.5.2 Respondent Demographics

Out of 33 trainees who answered questions, 18 were women (this is likely not the distribution across the “universe” of AITRP grantees). The average age prior to joining the program was 34.8 years (minimum age of 25 years, maximum age of 59 years), consistent with a type of candidate many PIs look for: an individual in mid-career, frequently with an established position at home and a record of accomplishments in his or her line of work. Over 50% of the respondents to our questions came from sub-Saharan Africa (16 out of 33).

Prior to joining AITRP, 64% of the respondents had faculty appointments or were enrolled in science programs, and 30% were practicing medical doctors interested in boosting their research skills. One respondent was the Head of National Control of STD at Ministry of Health.

5.5.3 Decision to Participate

These trainees learned about the program by word-of-mouth or through advertisement in local newspapers. In several cases, future trainees collaborated on a project with someone who knew about the program, or was an AITRP fellow him- or herself, and a few respondents had attended a talk by a PI. This was a highly motivated group – roughly half the trainees had participated in other American and European international programs before, sponsored by CDC, WHO, and the Fulbright Foundation.

Almost all respondents chose to participate in the program because they viewed it as a good research opportunity (two trainees said it was a good funding opportunity). In the words of one trainee:

I identified shortcomings in my own education and training. I desperately needed to address them if I wanted to make a real change within the community.

In particular, a majority of survey respondents were hoping to improve knowledge of research methods and laboratory techniques (38%) or increase expertise in a particular topic (31%). A few respondents (16%) wanted to acquire managerial or leadership skills. One trainee wrote:

I hope that I will get much knowledge and skills for planning, prioritizing, running, managing a public health program, specifically, AIDS prevention program. This will contribute to my country's health program.

5.5.4 Scientific Activities During AITRP Training

Out of 33 individuals that we have surveyed, 18 have earned or are earning a degree through AITRP (6 out of 7 trainees who are still in the US are enrolled in a degree program). The training provided is usually at a master's level; as is the case for 2 out of our respondents, trainees sometimes stay on to earn a Ph.D.

Degree-seeking scholars were often involved in different aspects of HIV/AIDS research and acquired a variety of skills. For example, one trainee notes:

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18 Most records that we currently have do not specify trainee gender with the exception of the trainee roster compiled by Ms. Hatton for years 1988-1993 of AITRP. In this set the distribution of male to female trainees was 237 to 133 (almost 2 to 1).

19 Trainee responses were edited for spelling and grammar.
I was training in different areas such as quantitative and qualitative research, ethics, leadership, women’s health, behavioral changes, quality of life, statistics, grant preparation and presentation.

Short-term trainees usually mastered a particular technique or procedure (which they are hoping to apply upon return), such as “entry inhibitor assays”, or “neutralization assay.”

5.5.5 Collaborations

During their stay in the United States, the majority of trainees (91%) interacted both professionally and personally with other fellows at their institution. Trainees shared offices with each other and studied together; in some instances universities sponsored special events for AITRP fellows at which they could meet, share scientific results, and socialize:

AITRP organized a welcome party for all fellows at the beginning of the year and we have had regular meetings for presentations about AIDS related subjects

Many trainees find interacting with each other “a very enriching experience.” These interactions, however, appear to be largely limited to trainees’ host institution—only 2 respondents indicated that they met trainees from other AITRPs.

5.5.6 Trainee Accomplishments

Questions about accomplishments were posed in the questionnaire as well. Many respondents feel that they have benefited immensely from their participation in the program. The AITRP fellowship had a generally positive impact on their professional standing, including enhanced access to research funds, better relationships with colleagues, and promotion to a more senior level at home. Table 5.4 below categorizes their accomplishments.

As the Table shows, almost all respondents reported positive effects on their careers. Most commented on the improvements in both the scientific and disease-based knowledge base. Many spoke of institutional outcomes – improved networks, changes in organizations, and new courses offered. Finally, there were some comments on improved public health practices based on AITRP.
Table 5.4: Outcomes of AITRP as Reported by Responding Trainees (N=33)

<table>
<thead>
<tr>
<th>Career outcomes</th>
<th>Number of Trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better job (promotion, more responsibilities)</td>
<td>13</td>
</tr>
<tr>
<td>Improved access to funds</td>
<td>9</td>
</tr>
<tr>
<td>No comment</td>
<td>9</td>
</tr>
<tr>
<td>Still in training</td>
<td>3</td>
</tr>
<tr>
<td>Better working relationships, access to better projects</td>
<td>2</td>
</tr>
<tr>
<td>No change</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scientific outcomes</th>
<th>Number of Trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved knowledge/theory</td>
<td>16</td>
</tr>
<tr>
<td>No comment</td>
<td>11</td>
</tr>
<tr>
<td>Publications</td>
<td>6</td>
</tr>
<tr>
<td>Improved techniques/data analysis</td>
<td>6</td>
</tr>
<tr>
<td>No change</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clinical outcomes</th>
<th>Number of Trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better understanding of disease</td>
<td>17</td>
</tr>
<tr>
<td>No comment</td>
<td>12</td>
</tr>
<tr>
<td>Better experimental approach to study disease</td>
<td>5</td>
</tr>
<tr>
<td>No change</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Institutional outcomes</th>
<th>Number of Trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>New/improved relationships with other institutions</td>
<td>12</td>
</tr>
<tr>
<td>No comment</td>
<td>11</td>
</tr>
<tr>
<td>New courses/programs</td>
<td>6</td>
</tr>
<tr>
<td>New department/organizational change</td>
<td>5</td>
</tr>
<tr>
<td>Increased interest</td>
<td>5</td>
</tr>
<tr>
<td>Expanded focus</td>
<td>3</td>
</tr>
<tr>
<td>No change</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Policy outcomes</th>
<th>Number of Trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>No comment</td>
<td>14</td>
</tr>
<tr>
<td>Improvement in public health practices</td>
<td>8</td>
</tr>
<tr>
<td>North-south cooperation</td>
<td>5</td>
</tr>
<tr>
<td>No change</td>
<td>3</td>
</tr>
<tr>
<td>Still in training/too early to tell</td>
<td>2</td>
</tr>
</tbody>
</table>

*Note: many trainees provided more than one response*
Qualitative responses complement the Table with anecdotal richness. For example, one trainee writes:

[I] Remained in the [name of a research institute in a developing country] and was promoted to specialist scientist. I now run several large projects with a staff of 15. My training improved my skills in epidemiology.

Trainees claimed to having gained new knowledge and basic research skills, and mentioned learning new clinical approaches to the study of HIV/AIDS. In words of another trainee:

I [also] changed my own scientific theories on the basis of what I learned. These impacts on everything I have planned for the future.

It is remarkable to see how returning trainees strive to make a difference in their countries and how much so few individuals can accomplish. Below is just a sampling of what the former fellows have done:

I have founded an NGO called Impact Research and Development Organization. The mandate of the NGO is to design, advise on and execute research studies that are responsive to the needs of the researched, and those that translate into measurable outcomes (i.e., create Impact in the community)

Establishment of a new research focus area; the establishment of a network of research partners across the globe; an increase in postgraduate student enrollments

In terms of policy outcomes, most trainees cited examples of strengthened cooperation between the United States and their countries or referred to improvements in health care practices (Table 5.4). An interesting response came from a Chilean trainee who writes that she has raised awareness of HIV/AIDS in her (Catholic) university, where such topics have always been taboo.

5.5.7 Rates of Return

As discussed above, 33 trainees completed the questionnaire. Of these, six are still in training, and the rest returned to their home countries (the ‘brain drain’ study conducted by the FIC reported rates of trainee return of about 80%). Given the small sample size and the selection bias (trainees who returned home or who are still in training are much more likely to fill out the questionnaire), this return rate of 100% cannot be generalized to the entire program. Consistent with the general strategy to recruit trainees from professional situations that are established and secure in the long-term, the vast majority of respondents returned to pre-training home institutions (23 out of 26, 1 trainee did not indicate his affiliation prior to joining AITRP).

5.5.8 Collaborations after Training

Through our correspondence, we learned that upon return, many of the trainees (52%) maintain the connections they had developed with each other during their stay in the United States: they exchange ideas, write grants together, advise each other on scientific matters, and share skills and expertise (two former fellows who had just returned home told us that they plan to “develop strong collaborative bonds” with other trainees in their country). The Uganda Society for Health Sciences seems to be a particularly effective vehicle for networking:
... as members of Uganda Society for Health Scientists (USHS) we have shared research ideas mainly in the areas of HIV and Tuberculosis.

Likewise, the majority of respondents continue to interact with their former mentor (89%); these collaborations appear to remain as a ‘student-mentor’ in nature, with PIs helping former trainees with grant applications and providing general advice and guidance. So it is no surprise that three-fourths of the respondents (n=21) identified their research agenda as ‘very similar’ or ‘somewhat similar’ to their former mentor’s.

5.5.9 Sources of Support

Fourteen respondents reported not getting financial assistance either from NIH or from any other agency. Among the few that do, four have received re-entry grants—a source of support that is no longer available (Figure 5.9 below). A total of 5 individuals are sponsored by NIH: three have been awarded R01 and R03 grants, one FIRCA-AIDS, and one is funded through the AITRP supplement. One trainee has applied for a GRIP and is still waiting for the results. As for non-NIH sources, our respondents have been or are being supported by WHO, World Bank, ANRS (a French agency that sponsors AIDS research), and several domestic organizations.

![Figure 5.9: Post-AITRP Training Support](image)

<table>
<thead>
<tr>
<th>Source of support</th>
<th>Number of trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>AITRP funds</td>
<td>N=32(^\text{20})</td>
</tr>
<tr>
<td>None</td>
<td>20</td>
</tr>
<tr>
<td>Re-entry</td>
<td>4</td>
</tr>
<tr>
<td>Supplementary</td>
<td>1</td>
</tr>
<tr>
<td>Did not respond</td>
<td>7</td>
</tr>
<tr>
<td>Non-AITRP funds</td>
<td>N=33</td>
</tr>
<tr>
<td>None</td>
<td>15</td>
</tr>
<tr>
<td>NIH R01</td>
<td>2</td>
</tr>
<tr>
<td>NIH R03</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
</tr>
<tr>
<td>Did not respond</td>
<td>8</td>
</tr>
</tbody>
</table>

5.5.10 Challenges Faced Upon Return

In our questionnaire, we asked trainees to list the three most formidable challenges that they face in their home countries. Not surprisingly, the most common obstacles are lack of funds, personnel, and poor infrastructure (Table 5.5). Some trainees spoke of deficiencies in national policy, lack of information, and gender inequality. One trainee passionately wrote:

> People in key positions who are more interested in enriching themselves rather than making a difference in peoples lives, lack of infrastructure/resources, a need to empower women who for the most part suffer silently.

\(^{20}\) To comply with OMB regulations trainee questionnaires were varied and not all trainees were asked all the questions (therefore N is less than 33 in some cases)
Table 5.5: Challenges Faced Upon Return (N=28)

<table>
<thead>
<tr>
<th>Number of Trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of funds</td>
</tr>
<tr>
<td>Poor infrastructure</td>
</tr>
<tr>
<td>Lack of trained personnel</td>
</tr>
<tr>
<td>Limited access to information</td>
</tr>
<tr>
<td>No comment</td>
</tr>
<tr>
<td>Deficiency of national policy</td>
</tr>
<tr>
<td>Gender inequality</td>
</tr>
<tr>
<td>Delays in decision making</td>
</tr>
</tbody>
</table>

Lack of access to the Internet and scientific literature is a serious impediment to trainees’ ability to conduct research\(^{21}\). Of the 14 trainees who responded to the question, two have no access to the Internet (16%); five out of 15 (33%) have no or limited access to scientific literature. Some of the trainees who have access cannot afford it:

_I have access to Internet. In relation to the scientific literature I have access but it is expensive and I can not afford it. This is a big problem to improve research._

5.5.11 General Trainee Feedback

Nearly all of our informants were very positive about their stay in the US and all but one encouraged others to participate in the program\(^{22}\). When asked to rate their overall experience on a five-point Likert scale (where 1 is unpleasant and 5 is outstanding), the average score was 4.3 (N=32). Several trainees said that it was their first time in the United States and they initially had difficulties adjusting to a new environment, but once settled, most have enjoyed the experience. Our respondents liked meeting other researchers and were very thankful for having access to state-of-the-art AIDS research:

_[I] was able to acquire adequate skills and knowledge in epidemiology and Biostatistics, this was done in a perfect learning environment with adequate resources necessary for learning. Apart from the academics [I] had a chance to interact with people of different backgrounds and culture and got to learn a lot about these different cultures._

In fact, the majority of trainees considered the academic experience the best aspect of the program, followed by mentorship and an opportunity to meet new people and make friends (Table 5.6).

\(^{21}\) An evaluation of an ENRECA program (a research capacity building initiative run out of the Danish NIH counterpart) revealed that having access to the Internet was a critical prerequisite for a success of a program in developing countries.

\(^{22}\) A quote from a trainee who has not encouraged others: “There is no provision for Social Scientists; only medical doctors and, to a lesser extent, biostatisticians and lab personnel. In my case, I was like an 'adopted' child taken over by AITRP when my 2-year Fulbright funding ended. Also, in [my country] there is an established link with the [major university] and spreading their wings to those in other institutions has not been attempted.”
Some trainees did speak of challenges during their stay, however (Table 5.7). The most common complaint was the lack of support: this included financial problems, such as delays in stipend initiation or inadequacy of the stipend amount; personal challenges in getting to meet people, being away from the family and adjusting to a new way of life; and difficulties in completing the research project. One trainee mentioned “lack of interest on behalf of the institution in building international network among the participants.” Another was frustrated by the lack of access to HIV clinics and centers.

**Table 5.7: Worst Aspects of AITRP (N=30)**

<table>
<thead>
<tr>
<th>Number of Trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing</td>
</tr>
<tr>
<td>Lack of support</td>
</tr>
<tr>
<td>No comment</td>
</tr>
<tr>
<td>Cultural transition</td>
</tr>
<tr>
<td>Arranging accommodations</td>
</tr>
<tr>
<td>Lack of opportunities</td>
</tr>
<tr>
<td>Inadequate amount of time</td>
</tr>
</tbody>
</table>

To improve their experiences, trainees made a few recommendations to their host institutions and the NIH. Representative comments and are organized below by category:

**Better funding/other support (11 trainees):**

Provide better information and support on regulatory issues as a foreigner in the USA. Help with the identification of places to live for a quarter.

[Provide] academic orientation before the beginning of the study.

Have some introductory lectures in computing for students with no prior experience.
Increase the stipend. The stipend given was quite minimal considering the numerous expenses that one has to meet and the high cost of living in the US.

Have an initial clear agreement signed including the timelines, resources available as an AITRP scholar, and responsibilities as well as benefits related to being an AITRP scholar.

**Expand training period/scope of training (4 trainees):**

*I wish AITRP could support us for further study such as PhD degree, short-term training courses…*

*Expand the time of training*

*Offer different short exchange programs or practicum at universities or research centers known for their good HIV/AIDS related work.*

**Contact with FIC/NIH (2 trainees):**

*Allow students to visit the NIH and meet with Fogarty staff*

**5.5.12 Other Comments**

We asked trainees how (if at all) has AITRP affected the AIDS epidemic in their country. Out of 28 trainees who responded to the question, 22 noted that the program’s largest contribution is in building human potential (Table 5.8).

**Table 5.8: Impact of AITRP (N=28)**

<table>
<thead>
<tr>
<th>Number of Trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased number of trained professionals</td>
</tr>
<tr>
<td>No comment</td>
</tr>
<tr>
<td>Decreased incidence/transmission of HIV</td>
</tr>
<tr>
<td>Improved education/counseling services</td>
</tr>
<tr>
<td>Increased awareness</td>
</tr>
<tr>
<td>Facilitated vaccine development</td>
</tr>
</tbody>
</table>

This included not only training individuals in research skills, but—as importantly—educating future policy makers. In the words of one trainee:

*AITRP has trained several Ugandan physicians who have assumed key positions in the ministry of health and academic institutions upon their return to the country. This has contributed dramatically to the control of HIV in Uganda.*
Several respondents wrote that through the establishment of programs to treat opportunistic infections in HIV-positive women, availability of counseling services, and treatments that reduce the risk of mother-to-child transmission AITRP has led to the decrease in the incidence of HIV/AIDS in their countries (Table 5.8). Interestingly, a trainee from India conveyed that the program had so far had no effect on the AIDS epidemic.

Respondents used the section for general comments to praise the program and tell us that they think it critical that AITRP continues to exist.

I would like the US government to continue supporting this training program so that more people are trained to deal with the problems of developing countries.

One trainee summarized what seems to be the general sentiment among our respondents:

Excellent program; excellent faculty; excellent colleagues. Some of us would never have been 'discovered' had it not been the exposure AITRP gave us!
6.0 Summary of Findings

The purpose of this study was to determine whether it is feasible to conduct an outcome evaluation of the AITRP program. To do so, we

- explored relevant topics surrounding strategic planning, program management, partnerships, and results-related issues surrounding AITRP;
- examined existing data – about the grantees, trainees, and other stakeholders – and determined its sufficiency and integrity;
- assessed conventional and emerging methods that may be especially appropriate to a full-scale outcome evaluation.

Our intent was not to answer the evaluation questions posed in Chapter 2, but rather to ensure, through document review, interviews, analysis, and other data collection, that answers existed or could be reasonably established. In this Chapter, we summarize our findings using the FIC evaluation framework.

6.1 Strategic Planning

In the FS, information about program planning was obtained primarily from program staff and a selection of PIs and NIH partners. As a result, the picture we paint is a partial one. While the FS helped understand many facets of the program, it also raised new questions.

Origin of the program. It is clear from the study that AITRP evolved with the disease – as the epidemic spread, the total number of grantees increased (from 11 to 23) as did the number of participating countries (from 44 to over 78). The program also evolved with the disease’s research agenda – as the focus of research in the field morphed from epidemiology to prevention, so did the program. The nature of the expert recommendations (that were generally adhered to) changed as well – the first review emphasized strategy and direction, the second, management of the program. The program continues to stay current with research and training needs by collaborating closely with other NIH Institutes and NIH-wide efforts on HIV/AIDS research.

Country Participation. AITRP has had participants from almost 80 countries worldwide. It appears that FIC (and the PIs) made not only the right choices but also timely choices when adding countries to the AITRP portfolio. As Figure 4.3a shows, the program added both the worst hit (at that juncture) countries and the potential “ticking time-bombs.” Examples include bringing in China in the very first cohort, and Russia in the second cohort, well before the dire predictions about HIV in China and Russia began. There are only a few prominent non-participants (prominent because they have a nationwide prevalence rate of >5%) and include Burkina Faso, Sierra Leone, Congo, Namibia, Angola, Togo, and Burundi – all countries that are war-torn or recovering from internal chaos.

An issue, however, is not if all countries with HIV/AIDS crises are participants [because clearly they are, with some exceptions] but rather if there is an optimal number of participants from these countries [to create a critical mass of researchers back home]. In fact, should there be additional incentives in the program to attract researchers from countries where the magnitude of the crisis necessitates far more training than is currently apparent? Using a simplified static model described

23 As discussed above, the FS was a short study, engaging under 1,000 hours of staff time over a 6 month period in 2003.
in Appendix F, the FS found some countries to be over-represented (e.g. Mexico) and others underrepresented (e.g. India). It would be helpful to develop a more dynamic model and truly assess a more “sustainable” number of trainees from countries of interest.

**Trainee Return.** PIs take their responsibility to ensure trainee return to home countries seriously, typically using a combination of strategies ensure trainee return. Often, they seek balance between long-term training – typically associated with trainees staying back in the US – and short-term training – associated with trainees returning. The strategies appear to be working well – between 80-90% of the trainees returned home (a potential comparison point can be drawn from the National Science Foundation database, that shows that less than a third of foreign doctoral students in the United States return home).

But perhaps return rate is too simple a metric for assessing a program’s contribution to building research capacity in developing countries. “Brain drain” is a complex issue and needs more in-depth examination. First, the return rates reported need to be verified, as they are based on a partially completed roster (that may not accurately represent the entire population) and rough estimates of a small set of PIs. Moreover, these numbers may well over-report true return rates – the current number captures the fraction of trainees that return immediately upon end of training. We do not know how many trainees actually come back to the US or go to other industrialized country after their initial return (often driven by frustration at the lack of research infrastructure in their home countries).

There are other complex issues at play as well. One reason trainee return rates are as high as they are is that PIs carefully select trainees who are more likely to return. Often these are senior, more established researchers or students from the labs of these well-established researchers (where there may already be a critical mass of researchers). In the quest to ensure trainee return, AITRP might miss recruiting students who may no doubt be more high-risk from a brain drain perspective, but perhaps more appropriate to establish research capacity at an institution. The trade-off to make here is: attracting students who have a low chance to return but who are more likely to establish research capacity or those who have a high chance of return but provide only diminishing returns from a capacity development perspective. *Are the program goals not better served if the former were offered greater incentives to return (such as larger or longer-term re-entry grants) rather than not be invited to participate at all?*

Finally, giving undue importance to trainees return rates may underestimate the impact of the program in other ways. For example, *if a trainee obtains employment at the World Health Organization or UNAIDS, or any number of the many international organizations combating HIV/AIDS, should that really count against the program?* By entering such an organization, former trainees may be helping not only their own countries fight the epidemic (say targeting research resources), but also their regions, and even the developing world in general. *To what extent is trainee return rate a perverse performance measure driving sub-optimal decision-making on the part of the PIs?*

**Grantee Institutions.** As a group, we found that AITRP grants have been made to the top biomedical research universities in the country—19 of the 23 current grantee institutions are ranked in the top 50 medical schools by *US News and World Report*. AITRP also attracts prominent researchers in the US, and by extension, from foreign countries. Although the latter claim could not be tested in this small Feasibility Study, our data did show that most trainees are highly qualified researchers with almost all having master’s level or higher degrees. It also appears that the five-year period of the grant produces synergies due to scale and scope, and enables integrated training (e.g. basic and clinical). The period allows multiple trainees to come and train together.

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Baseload funding has remained relatively constant. In the last funding cycle, new grantees received $300,000 a year in base amount for a 5-year period. While funding starts evenly, it diverges quickly, with some grantees (even in the same cohort) getting as much as five times as many dollars as the others. This divergence is especially evident in the older cohorts. Why do some AITRP PIs seek supplementary funding?

**Short-term vs. Long-Term Training.** One consequence of the desire to ensure trainee return is that the program has had a large number of short-term trainees (who are more likely to return compared with long term degree candidate type trainees). It is unclear what the total number of short-term trainees is (it may well be as high as 10,000) but it certainly exceeds long-term trainees by over an order of magnitude (there are about 500 long-term trainees in FIC records). The critical issue to examine is which model (short- or long-term) works better for achieving program goals. Or rather, which model may be more appropriate for which kind of training and expected outcomes? In fact, can a six-month, three month or even shorter study in the US make a difference in the career of a scientist, and if it can, in what way? What is the differential impact of the short-term versus long-term trainees? Do different types of trainees follow different career paths? Issues to examine here are: resource expenditures on short-term activities, nature and quality of the training, and the training’s contribution to regional research capability development goals.

**In-country vs. US-based Training.** The 1996 review recommended shifting program focus to more US-based training (to fully expose developing country trainees to state-of-the-art research methods). While that has been the norm, there has been significant in-country training that has gone on, at least when measured by the number of trainees who may have participated. Not having a full tally of in-country trainees nor expenditures, it is difficult in the FS to assess the value of in-country training. This is recommended as a future activity. It may also be worthwhile to re-visit the in-country training option especially for countries where the research infrastructure is improving (e.g. Uganda), and especially for certain kinds of training (e.g. bioethics).

**Training Models.** The FS found at least five models of training: mini-sabbaticals, match-up with mentors, “sandwich” and “farm” training, and in-country training (which could be long- or short-term). What are the strengths and weaknesses of each model? Are there any best practices?

**Training Priorities.** AITRP trains many highly qualified people in cutting-edge research. A high-level strategic question here is: Do trainee countries with minimal research infrastructure which are ravaged by the AIDS epidemic benefit from this kind of training or would it be more appropriate to prepare front-line AIDS workers, such as clinicians, nurses and counselors?

### 6.2 Program Management

**NIH Management.** Our interviews with program staff, PIs and others revealed that the program appears well thought-out and well managed. PIs are satisfied with the level of support and oversight from FIC. They respect the program officers and appreciate their guidance and support. However, many expressed a need for active involvement from FIC in certain aspects of the program. Would the program benefit from NIH staff taking a more active role in program management? This question was not addressed in the FS.

**Active Role for FIC.** FIC has taken a largely passive role in program management, instead letting merit-based panel reviews and the individual AITRPs take the lead. Going forward, a question to explore is if FIC should indeed take a more active role in country selection (for example, providing incentives to add countries such as Sierra Leone)? Should FIC actively engage grantees such that the new grantees (and trainees) learn from and build upon the experiences of the older cohorts? Are AITRP activities in a given region coordinated with other domestic and international AIDS initiatives.
(including other NIH/FIC programs such as ICORTA)? Is there a duplication of effort? What, if anything, should FIC/NIH do to promote the integration of in-country efforts? Can (or should) FIC/NIH play a bigger role in facilitating better networking both within and outside the program? Should it support networking and collaboration among former trainees who have returned to their home countries? Does it make sense for FIC or AITRPs to coordinate like-minded initiatives in country?

Since September 11 2001, trainee entry into the US has become much more difficult. Many PIs made a plea to help get trainees into the US in time to begin training. Could AITRP (or NIH in general) support its program participants, for example through supporting visa applications more directly?

**Grantee Management.** The grants appear to be managed well with little turnover of Principal Investigators. The PIs are well-established researchers in the field with national and international connections. While the FS did not give us an opportunity to rate the quality of their research (for example through use of expert panels or bibliometrics), based on leadership in the HIV/AIDS research community alone, one could claim that the AITRPs benefit from their PIs’ networks.

*Are AITRP PIs effective managers and leaders (the two being quite different concepts)? How can the individual AITRPs be managed better? How can the grantees better leverage their collective strengths, or network with other AITRPs and other training programs? Are there best practices that could be shared from AITRPs or other similar “center-like” research programs?*

**Role of In-country Collaborators.** We were able to speak to a few in-country collaborators, who appear to support the program by helping to select trainees, and, in some cases, mentoring them after return. Given their critical role as the “gatekeepers” to the program, it is important to learn more about their influence in proposing appropriate trainees for the programs. *A future study should focus more on their role in AITRP and if the program should leverage them better.*

**Research Agenda.** The AITRPs tend to expose students to interdisciplinary training eschewing labels such as “basic”, “clinical”, or “behavioral” research. While we have anecdotal evidence of the breadth of the training provided, we do not have a systematic assessment of the “coverage” of different aspects of AIDS research. *Collectively, do the 23 grantees that comprise AITRP address most important topics in AIDS research that are relevant to developing countries? Is there close correspondence between type of training needed in a particular country/region and training provided?* We explored this question for a small number of grants but by no means for all of them.

**Post-Training Support and Sustainability.** Both trainees and PIs cite lack of funds as a major challenge in continuation of their work in country. Often, PIs help trainees locate and compete for future research funds (including the newly initiated highly competitive GRIP awards). But trainees continue to struggle for funds as they return home. In their feedback, PIs expressed concerns about new policies to make re-entry grants even more competitive. The newly introduced GRIP program has disproportionately affected AITRP grantees. *Can FIC/NIH do anything to overcome challenges faced by trainees who choose to return to their home countries? What can FIC/NIH do to help find funds (or services such as access to the Internet or to current scientific literature) for post-AITRP activities?*

**6.3 Partnerships**

The program appears well integrated within NIH, with participation from seven ICs, as well as the Office of AIDS Research (OAR). AITRP also appears to fill an important niche in the OAR’s
strategic plan. These partnerships are mutually beneficial, with AITRP program managers participating in NIH-wide AIDS efforts, and outside partners contributing both intellectually and financially to AITRP selection and sustenance. At the FIC level, the program does not appear to have formal partnerships with other organizations (such as CDC, UNAID, etc), although there are grantee-level partnerships with several programs such as the International Vaccine Network or AIDS International Clinical Trial Group. At the grant/project level, AITRPs have vibrant partnerships, within their institutions and with others, including other AITRPs. The partnerships are often results of PIs’ efforts and their pre-existing networks. PIs expressed interest in networking more efficiently within the program (i.e. with other AITRPs).

Questions raised regarding partnerships were: How can the grantees better leverage their collective strength, or network with other training programs (such as those sponsored by other international entities)? To what extent should AITRPs operating in the same countries collaborate and complement each other’s agendas? For example, the University of Alabama AITRP recruits trainees from Nigeria in West Africa and Rwanda in Central Africa. Would it make sense for trainees from Cameroon to be recruited by Alabama rather than by UNC/NYU or UC Berkeley, as is currently being done? Similarly, Cornell, which has not had trainees from Africa, recently added Tanzania. Unless there were other synergies in place, might it be more effective for the University of Washington or CWRU to recruit Tanzanian trainees as these AITRPs already have trainees from neighboring Kenya, or for the John Hopkins AITRP which already invites trainees from neighboring Malawi and Congo? In other words, to what extent could the program as a whole be more effective in promoting the establishment of regional ties, if the AITRPs coordinated more closely with each other? Or is that even desirable?

Finally, is the PI meeting an adequate forum for strengthening ties, or should more be done? Are there best practices that could be shared from other similar “center-like” research programs?

### 6.4 Outcomes, and Impacts: Results

Given the goals of the Feasibility Study, we did not attempt to directly answer the core questions surrounding the program, namely: does the program help build sustainable capacity of foreign scientists to deal with the AIDS epidemic, support collaborative research between the US and foreign scientists, and stimulate cooperation and sharing of research knowledge by scientists combating AIDS worldwide? Rather, we addressed substantive and methodology related issues surrounding trainees and trainee experiences to help pose questions in an outcome evaluation. In addition, through an extensive literature review, we explored issues surrounding research capacity development, especially in the context of HIV/AIDS. We also examined other programs that support research and training in HIV/AIDS, as well as regional needs with respect to the disease. Below we discuss some of our preliminary findings about trainees.

**Trainee Characteristics.** According to the FIC data, the program has trained about 500 long-term and about 1,100 short-term trainees (the latter number may be, as mentioned before, as high as 10,000). These trainees are already highly qualified, with over 90% having advanced degrees prior to entering AITRP (this appears to be part of the strategy to select well-established researchers who are likely to return). Of the long-term trainees, about two-thirds receive master’s (46%) or doctoral

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25 NIH international AIDS research includes efforts to develop: HIV vaccine candidates and physical barrier methods; behavioral strategies to alter risk behaviors; drug and non-drug strategies to prevent mother-to-child transmissions; therapeutics for HIV-related conditions; and approaches to using anti-retroviral therapy in resource-limited settings.

26 From our experience with the National Science Foundation, informal round-tables are a very effective forum for the sharing of ideas.
(20%) degrees. Of the short-term cohort, three-quarters spend less than three months as AITRP trainees.

**Trainee Experiences.** We posed questions about their AITRP experiences to a small fraction of the trainees. The purpose of the questions – which varied from trainee to trainee – was not to obtain representative data, but rather to collect anecdotes about trainee experiences, and test questions. It is worth emphasizing that data about trainee experiences comes from six percent of the total “universe” of trainees and must not be generalized to the program. In their responses, trainees reported being highly satisfied with the program (giving it an average ranking of 4.3 out of 5.0). It was notable though that they interact primarily with researchers at their own AITRPs. Trainees also reported that they work collaboratively with mentors and other colleagues during their stay in the US and conduct productive research. But there is more to learn about their experiences in the US. Given the many trainee models, what was the nature of the research, collaboration and relationship-building during the course of the training? And how did it affect their post-training activities?

**Post AITRP Activities.** Most trainees go back to their home countries, in fact back to the institutions they came from, where they continue to collaborate with mentors and seek out new relationships. Both PIs and the trainees provided inputs on post-training activities and collaborations. Trainees with whom we interacted reported that many of them stay in touch with faculty members with whom they worked as part of their AITRP training. Our conversations, though, raised many questions. For example, what are the major challenges facing trainees when they return? How do trainees use what they learned as AITRP fellows to train others? How does advancement in their professional lives extends out to institutions and countries, and lead to research capacity development? How often does their influence go beyond research and into the public policy arena?

In their post-AITRP collaborations, are PIs and their former trainees equal collaborators or do they continue the mentor-student relationship that started with AITRP training? To what extent do former trainees design and implement independent research? Are they performing international-caliber research in their post-AITRP careers (and are funded by international donors)? How similar is trainees’ research agendas to their former advisors? Are former trainees interacting with each other, especially those from the same geographical region?

**Correlates of Success.** The FS did not examine the career development of former trainees and assess how trainees contributed to research capacity development in their countries or regions. We recommend that a future study do that. This study should also track broader impacts (beyond research – on institution-building, clinical changes, or changes in policy). But there must also be some attempt made to link the outcomes and impacts to the training: how did the trainees’ AITRP experiences lead to outcomes and impacts? How would things be different had they not participated in AITRP (or participated in other training programs, perhaps even Europe-based)? These are hard questions to answer – but at the heart of a full evaluation of the program.

### 6.5 Methodological Findings

**Availability of Program Expenditure Data.** We do not know the total size of the program in terms of dollars expended. All we were able to learn is that about $80 million was committed to the program between 1993-2000. We are not even confident that this includes NIH partner funds or funds from other sources. For example, the Yale AITRP received $10 million including a large contribution from NIDA, while the database lists about $5 million. What is the true “leverage” of AITRP funds?

There appears to be no readily available information source for program expenditures between 1988-1993. Nor do we know very much about how program resources are spent. Expenditure data at the
grantee level (e.g. how the grant money was spent, for example on short- versus long-term training) are also not available freely. More information about grant expenditures will help track country-level expenditures and the relative role of AITRP in the international community. For example, it would be helpful to include the contribution of AITRP on charts such as Figure 6.1 and 6.2.

Figure 6.1: Worldwide Funding of HIV AIDS

![Figure 6.1: Worldwide Funding of HIV AIDS](image)

International HIV/AIDS spending in developing countries and countries in transition grew significantly from 1996 through 2001, to a total of nearly $1.2 billion.

Figure 6.2: Regional distribution of HIV/AIDS disbursements

![Figure 6.2: Regional distribution of HIV/AIDS disbursements](image)


28 [http://www.internationalbudget.org/resources/library/UNAIDS.pdf](http://www.internationalbudget.org/resources/library/UNAIDS.pdf)
Availability of Information about Trainees. Our efforts in developing a trainee roster and reconciling FIC information with data received directly from PIs revealed the poor availability and quality of data on AITRP trainees. There is no single database that captures the names of all AITRP trainees. It appears that no one may know precisely the total number of trainees (especially short-term) trained. There were some definitional inconsistencies. For example, if a trainee had a doctoral degree and came to the US for three months, is he or she a “postdoctorate” or short-term trainee. Different AITRPs handled definitions such as these in different ways.

Even for trainees whose names are captured by the system, other attributes about them (e.g., type of training received) are unknown. Of concern is the one attribute that may be the most important of all – trainee contact information. There may be reliable contact information for fewer than half the trainees that participated in the program. In an attempt to verify the email addresses, we discovered that without further effort, one could reliably access less than one sixth of the trainee population.

In other words, trainee tracking, both at the grantee level and FIC levels has been inadequate. If there is to be an outcome evaluation, reconstructing a full trainee roster is a critical first task. Based on a more precise estimation of the level-of-effort to do so, it may be cost-effective to reconstruct a full list only for the long-term trainees. But even from a program feedback perspective, going forward, what can be done to improve trainee tracking?

Comparison Programs. Based on our conversations with PIs, NIH partners and outside AIDS experts, it appears that there may not be a program that is similar enough to AITRP. There are some that fund research capacity development goals as AITRP does – like the Wellcome Trust Group, and some that support HIV/AIDS research in specific countries – like the KITSO AIDS Training Program. However, there is none that comes close to AITRP in scale, scope or outreach. This finding is important because it suggests that a valid comparison group against which the program can be evaluated will be difficult to find.

Dimensions of Research Capacity Development (RCD). Appendix G is a review of literature on RCD. We chose, like some others in the community,29 to consciously avoid seeing capacity as “relating only to the production of scholarly research by the academic community, preferring instead to think of a research ‘system’ concerned with both the production and the use of research, embracing both producer-communities and user-communities and recognizing that these communities commonly overlap. We also found it more helpful to think in terms of research capacities rather than of capacity as a single overarching characteristic. For instance, there is a capacity to produce scholarly research in order to build knowledge. This is somewhat different from the capacity for policy-makers to use such research, and different again for the capacity for practitioners to produce research to inform their practice. These are all, however, important forms of research capacity. Such a multi-dimensional view would warn us against believing that there might be one or two simple actions that would increase the capacity of the system. It seems more likely that capacity development requires multiple actions.” Given this premise, we propose four dimensions along which to measure RCD (AITRP focuses naturally on the first and second, with the expectation that the other two will benefit from them):

- Intellectual capital: the skills, creativity and motivation available for research.
- Organizational capital: the management, strategies and decision-making that contribute to the research process
- Tangible capital: the laboratories, offices and equipment used in research
- Social capital: the economic and political support that is obtainable.

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29 Alan Dyson, University of Newcastle and Charles Desforges, University of Exeter “Building research capacity: some possible lines of action, 2002.”
Available at http://www.nerf-uk.org/word/capacity-paper.doc?version=1
7.0 Recommendations and Next Steps

Given the findings in the FS, both from the point-of-view of program content and data availability and quality, is it appropriate to conduct a full Phase II Outcome Evaluation (OE)? In the section below, we would like to address this core question posed in the Feasibility Study, and present our conclusions on the need and appropriateness of an outcome evaluation.

7.1 Need for an Outcome Evaluation

Our rationale for a full outcome evaluation can be summarized as follows:

First, AITRP is the FIC’s flagship training program and appears to result in achievements and impacts that appear to go well beyond the individuals who participate in it. It would be important to showcase and highlight its achievements using methods and measures that stand up to objective scrutiny and analysis. Preliminary data collection in the Feasibility Study demonstrated that AITRP activities, outcomes and impacts are varied and substantive enough to attempt a systematic catalog of its characteristics. As the Chapters above indicated, individual AITRPs are strong and vibrant projects ably run by well-renowned researchers based in some of the top US universities. Interactions with a small group of trainees indicated high levels of satisfaction with their AITRP experiences. All trainees with whom we interacted (with the exception of individuals still in training) returned to their home countries and enjoy professional success. They reported important accomplishments both scientific and disease-related. A thorough outcome evaluation, using qualitative and quantitative methods, will document the program’s outcomes and impacts.

Second, the program is large and complex and an inventory of its accomplishments or their attribution back to the program is not possible within the scope of a short-term feasibility study. Our examination of the core aspects of the program—its strategic planning and management, partnerships, and accomplishment—revealed many interesting aspects of AITRP. It is apparent that AITRP is very complex—it involves 23 universities in the United States, their dozens of partners at and outside of the NIH, hundreds of universities in developing and transition countries, and thousands of trainees from 78 different countries. Due to the flexibility built into the program and varying conditions in trainee home countries, PIs at each grantee institution have developed unique training approaches. Each grantee has a multi-layered partnership structure: in addition to AITRP-AITRP collaborations, individual programs connect to vaccine trials, prevention networks, and other domestic and international activities. Since many of our informants identified this complexity as a critical feature of the program, it is important to determine how it supports the program’s capacity development goals and the program’s fit with other efforts to combat the epidemic. As discussed in the previous Chapter, there are several issues that remain unexplored, such as the sustainability of research capacity in trainee home countries. We do not know if trainees who return home stay home, and whether they find themselves in an environment that is conducive to scientific research. Do they have sufficient funds, infrastructure, and qualified personnel to launch an independent research agenda? These and other questions would need a more in-depth analysis of the program than was afforded in the Feasibility Study.

Finally, AITRP is a model for several other programs within the Center. An evaluation of the program would help guide not only the future of AITRP but also these other programs (e.g. ICORTA launched in 2002). In addition to guiding their future development, the evaluation will create a blueprint for examining these programs themselves. Going beyond even FIC, there are likely lessons that other international biomedical training programs, such as those funded by the Gates Foundation, can incorporate.
While data on trainees were incomplete, our interactions with FIC, NIH staff and PIs indicate that development of a full trainee roster is feasible and cost-effective (though a census survey of trainees may not be – see details in the sections below). Therefore, both from a substantive and methodological perspective, we believe that a full program evaluation would provide new, interesting, and important insights into the workings and achievements of AITRP. These insights can in turn be used to provide informed guidance on the program policies, management, and processes. In the section below, we outline some recommendations on the design of an OE if one is conducted.

7.2 Proposed Design of an Outcome Evaluation

Collecting information on trainees and being able to get in touch with them has been one of the main challenges in this study. Considerable effort was required to be able to compile contact information on half or fewer of all individuals trained in the US. Even after the information was integrated, we had limited success in getting trainees to respond: only about a third of trainees who agreed to provide feedback on the program eventually did. To the best of our knowledge, no information is available (or feasible to maintain) on trainees who attended lectures and workshops in their home countries. In other words, while an OE is highly valuable, there are some methodological approaches that may enhance its cost-effectiveness and usefulness in characterizing the program. In this section, we propose a preliminary outcome evaluation design and data collection approaches. We begin with outlining the core study questions.

7.2.1 Proposed Study Questions

Over the years, AITRP program goals have evolved considerably. However, the goals have clustered around three basic themes:

- Build sustainable capacity of foreign scientists to deal with the AIDS epidemic;
- Support collaborative research between the US and foreign scientists; and
- Stimulate cooperation and sharing of research knowledge by scientists combating AIDS worldwide.

The Feasibility Study provided adequate information to begin addressing these questions directly. For example, it helped develop definitions and dimensions of sustainable capacity development, examine international HIV/AIDS research agenda and priorities, and assess the relevance of certain methods and measures.

A full OE would enable us to attack these questions head-on. We can address the first goal by examining the accomplishments of AITRP trainees and assessing if the training led to career development, contributions to the field – both research and policy – and institutional capacity development at the home institutions of the trainees. It will also be useful to explore broader impacts on public policy and clinical practice. The critical issue here, as discussed in the next section, will be having robust access to AITRP trainees and other participants from developing countries. Our literature review has provided adequate dimensions to measure the contributions of AITRP to research capacity development goals.

The second goal can be assessed by examining the nature and quality of collaboration between mentors at US universities and trainees, both during and after training. An important actor here is the in-country collaborator who is formally charged with helping candidate selection, but informally may be a long-term link between collaborating countries.
The third goal, which emphasizes post-training institutional collaborations, can be assessed by examining the nature and productivity of collaborations between the AITRPs and foreign institutions, as facilitated by AITRP participants.

Spanning all investigation is the fundamental question of how AITRP’s achievements compare with other AIDS-related training programs, and if the opportunity cost of the program is worth the benefits incurred.

In addition, an OE would answer some of the questions raised in the FS along three distinct program areas, both to recommend improvement to the program, and as independent variables to explain strides made toward the program goals above:

- **Strategic Planning and Management** – The FS explored program history, origins, and context. The OE will focus on strategic choices made by the program. For example:
  
  o To what extent does AITRP (primarily through the selection process) balance merit and capacity development objectives?
  
  o To what extent are certain countries over or under-represented in the AITRP trainee population? How should that balance be shifted?
  
  o What are the trade offs between in-country and US-based training, or between short- and long-term training?
  
  o Is trainee selection that is driven by the PIs’ (or in-country coordinators’) up-front assessment of the trainees’ proclivity to return appropriate for ensuring research capacity development?
  
  o How can FIC and PIs provide more active post-training support for trainees (to truly ensure long-term trainee return, and sustainable research capacity development)?
  
  o Finally, it is important to conduct a more fundamental examination of the role of the “center-like” mechanism of AITRP: What is the “value added” of supporting a given AITRP over a long period of time over the traditional approach of giving a larger number of smaller grants to a bigger population of academic PIs who support small groups of trainees?

- **Program/Project Management** – The FS examined program management issues at the FIC and grantee levels. The OE will focus on comparisons across programs and grantees. For example:
  
  o At the FIC level, how does the management of this program compare with the management of other AIDS-related or research capacity development programs?
  
  o At the grantee level, how does the management of this program compare with the management of other AIDS-related or research capacity development programs? Are there best practices that could be shared, both within and outside the program?
  
  o How do different management models (including training models) shape project outcomes? Are certain types of training activities more closely related to success than others?
Partnerships – The FS explored, albeit superficially, partnerships within the NIH infrastructure. The OE will assess the potential for partnership reports. For example:

- What are the types of partnerships that remain untapped? How can the program leverage partnerships within FIC but also external to NIH – at the program and grantee levels, and within and across disease categories (i.e. with TB or general health training programs, eliminating duplication of effort)?
- Financially speaking, how has AITRP (the program and the grantees) leveraged funds from other sources – both internal to NIH and other?

### 7.2.2 Proposed Overall Approach

Our proposed approach for a Phase 2 OE is driven by our findings in the FS – both substantive and methodological. Three findings in particular are worth emphasizing. First, as discussed above, the FS found that trainee information is available for less than half the trainees and is going to be resource intensive to retrieve. Also it is likely that due to a variety of factors (such as some trainees being involved in the program for too short a time interval) that without significant follow-up, survey response rates will be low. Any study of the program must not focus excessively on data collection via trainee surveys.

Second, we learned that AITRP is a large and multifaceted program that has complex interactions with its environment, including US and foreign research institutions, policy and political entities, and other donor organizations. In most countries, it is one of many programs that is attempting to address the AIDS crisis. Together with these programs, it may have made deep and lasting changes, but they cannot be unearthed in casual high-level observations. Any study of the program needs to focus on better understanding the role of AITRP as it related to other programs in place.

Finally, we learned that research capacity development itself is a complex process. As we pointed out in Chapter 6, in order to assess RCD, one needs to assess not only the capacity to produce scholarly research – as done in traditional evaluations– but also the capacity for policy-makers to use such research, and the capacity for practitioners to produce research to inform their practice. To conduct such an assessment, it is critical to get to know the stakeholders involved in specific situations, and examine the role of AITRP along the research to impact continuum.

Given our belief that it is essential to understand the program at the highest as well as the ground levels, we propose a two-phase approach to the Outcome Evaluation. The OE should begin with an examination of the “universe” of AITRP, and then quickly move on to a detailed assessment within a smaller “constellation”. The first part will focus on the development of a complete trainee roster (including short-term trainees), statistical analyses, and conduct of a select set of interviews. The second part would use information generated in the first to conduct a small number of carefully selected case studies. Case studies will focus on “country” capacity development. They will include a survey of trainees in these specific countries as well as interviews with key participants within and outside the program. These tasks are discussed in brief below. As we elaborate upon these ideas, we also comment on the appropriateness of specific tools and methodologies such as a census survey of trainees or a bibliometric assessment.
Phase I: High-Level Analysis

**Building a Trainee Roster**

The FS made us acutely aware that the critical issue in evaluating AITRP is characterizing trainee experiences and the impact of their participation on their subsequent careers. As a result, developing a reliable trainee roster is an important first step. While the FS began the process of the compilation, it is not complete. Any comprehensive study of the program must begin with a full inventory of trainees (at the very least, this will give us a full count of the number of long- and short-term participants in the program).

To generate a comprehensive list, paper-based lists must first be converted into electronic records, then combined with existing electronic lists into an MS Excel or Access database, and finally sorted with duplicate entries removed. Because records that we receive from PIs and FIC have different formats and are arranged differently, they will have to be processed manually. Gaps in electronic records will be filled with data available from hard copy annual reports. Information about each trainee’s e-mail addresses, dates and types of training, research area, current position, and publications collected from trainee surveys will be crosschecked, and the document will be updated accordingly. Finally, in-country collaborators must be contacted and asked to share with us any trainee contacts that they have. We had some success with this approach—two Johns Hopkins in-country collaborators sent us their trainee lists. If practical, trainees themselves can be used as a source of contacts for other trainees.

**Statistical Analyses Using a Completed Trainee Roster**

Once a trainee roster is finalized, it can be used to conduct a series of basic statistical testing and hypothesis development. These hypotheses could become the basis of interview protocols for PIs, trainees, in-country collaborators and other stakeholders. Some hypotheses to be tested would include questions such as: Are trainees from certain regions (e.g. Eastern Europe, Asia) more likely to receive certain types of training than those from other regions? Is there a correlation between prior training and type of training (degree levels, or whether short- or long-term)? Are there systematic differences between AITRPs or the Cohorts? One could begin with a data mining approach using a matrix such as:

<table>
<thead>
<tr>
<th></th>
<th>Trainee Highest Degree before AITRP</th>
<th>Trainee Country of Origin</th>
<th>Type of Training (Long/short degree)</th>
<th>AITRP Attended</th>
<th>Trainee Country of Return</th>
<th>Cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trainee Highest Degree before AITRP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trainee Country of Origin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of Training (Long/short degree)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AITRP Attended</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trainee Country of Return</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Cohort</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Select Interviews**

We have already conducted interviews with a large fraction of PIs and NIH partners. As part of Phase II of the OE, interviews would also be conducted in the countries that form the bases of the case.
studies (see section below on Case Studies). However, there may still be a fraction of interviews that would need to be conducted in Phase I. They may include conversations with:

- Six Principal Investigators whom we were unable to engage with during the Feasibility Study; this would require some support from FIC staff;

- AIDS experts in the United States and abroad. These will include individuals from CDC-GAP, UNAIDS, USAID, WHO and related organizations; during this study we generated a list of potential contacts (largely though recommendations of PIs, NIH partners, etc) but did not speak with them due to time and resource limitations;

- NIH partners. We were not able to speak with key individual at all partner institutions; we have many contacts provided by FIC and recommended by other partners with whom we spoke;

- Individuals at national and international granting agencies. During the FS we learned that many trainees have received funding from other funding organizations (e.g., the Elizabeth Glazer Pediatric AIDS foundation). It may be helpful to contact program officers at these organizations. We continue to identify other granting agencies that have provided funds to trainees. Evaluators may need to take special care in exploring whether former trainees are successful in obtaining NIH grants (R01, R03, GRIPs).

Phase II: Case Studies

The mission of AITRP is to build research capacity in developing countries in order to combat the AIDS epidemic. To get a feel for the nature of the capacity that is being developed, it is critical to examine the career progression of the trainees, and understand how their activities contributed to country-based research capacity development. It is only through case studies that this contribution can be assessed. Our first task therefore is to recommend candidates for case studies.

Case Study Selection

One potential selection paradigm could be to identify countries that have had significant participation in AITRP and examining impact in these countries and organize them so as to identify countries that have a significant AIDS problem and those where the government has made efforts to stem the crisis.

- Influence of AITRP, or a proxy for influence such as the number of AITRP trainees (some short-term but primarily long-term trainees). We explored several approaches to examine the number of trainees, including normalizing to the country population or to the number of HIV positive individuals. Eventually we settled upon using the raw number of trainees by country. To focus on countries where the program could have had the biggest impact and to limit the number of candidate countries, we only considered countries that had 10 or more long-term trainees over the course of the program (either in the FIC records or in our roster, Table 2.3). The results are shown in Figure 7.1.

- Severity of the AIDS epidemic, as a reflection of the potential contribution AITRP can make. We took the prevalence rate of HIV/AIDS from UNAIDS documents (Figure 4.3a).

- An index of “effort” of government policies to combat HIV/AIDS, as a reflection of the “external factors” that will enable or limit the impact of AITRP. We used principal component analysis methods to compute and aggregate “effort index” for these countries using data from UNAIDS documents. These data were not available for all countries and some efforts were guesstimated as high or low. The method is explained in Appendix F.
### Table 7.1: Indicators used to develop case study candidates

<table>
<thead>
<tr>
<th>Country with &gt;10 Trainees</th>
<th>Number of Trainees (FIC)</th>
<th>Adult HIV Prevalence (2001)</th>
<th>AIDS Effort Index&lt;sup&gt;30&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thailand</td>
<td>59</td>
<td>1.8</td>
<td>-</td>
</tr>
<tr>
<td>Brazil</td>
<td>51</td>
<td>0.65</td>
<td>2.6</td>
</tr>
<tr>
<td>China</td>
<td>40</td>
<td>0.1</td>
<td>-0.4</td>
</tr>
<tr>
<td>Uganda</td>
<td>39</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>India</td>
<td>36</td>
<td>0.7</td>
<td>-</td>
</tr>
<tr>
<td>South Africa</td>
<td>34</td>
<td>20.1</td>
<td>-0.4</td>
</tr>
<tr>
<td>Kenya</td>
<td>27</td>
<td>14</td>
<td>0.6</td>
</tr>
<tr>
<td>Mexico</td>
<td>18</td>
<td>0.29</td>
<td>0.8</td>
</tr>
<tr>
<td>Russia</td>
<td>17</td>
<td>0.18</td>
<td>-1</td>
</tr>
<tr>
<td>Indonesia</td>
<td>15</td>
<td>0.01</td>
<td>-0.7</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>14</td>
<td>0.04</td>
<td>-</td>
</tr>
<tr>
<td>Poland</td>
<td>11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: HIV prevalence rates were obtained from UNAIDS (www.unaids.org) AIDS Effort Index was also computed using data from UNAIDS.

Presented another way, the table above results in the following three-by-two matrix, and leads to suggestions for case study candidates – perhaps one to two from each quadrant. We have added two countries with significant number of short-term trainees – Haiti and Peru – to ensure some representation from countries that have contributed primarily short-term trainees.

### Table 7.2: Case Study Candidates

<table>
<thead>
<tr>
<th>Adult HIV Prevalence</th>
<th>Effort Index &lt;0</th>
<th>Effort Index &gt;0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1%</td>
<td>Indonesia, Czech Republic, Poland, China, Russia, India, Peru</td>
<td>Mexico, Brazil</td>
</tr>
<tr>
<td>1-5%</td>
<td>Haiti</td>
<td>Thailand, Uganda</td>
</tr>
<tr>
<td>&gt;5%</td>
<td>South Africa</td>
<td>Kenya</td>
</tr>
</tbody>
</table>

The contractor can work with FIC program staff to select a subset of the countries identified in Table 7.2 above to finalize a selection of candidates that represent various geographic regions and FIC priorities. FIC could also suggest additional countries based on its knowledge of the role and impact of AITRP in specific countries.

Once case studies have been identified, three activities follow: trainee surveys; country visits to interview a smaller subset of trainees, in-country collaborators, and other stakeholders; and interviews and visits with US-based PIs involved with the selected countries. Each is discussed below:

<sup>30</sup> The development of the AIDS Effort Index is discussed in Appendix F.
Trainee Survey

Success of the program depends singularly on the success of the trainees after their training. In order to truly understand the outcomes and impacts of the program, it is critical to fully understand the career trajectories of the trainees – every last one of them, if possible. The FS shed some light on the availability of data about trainees, and some possible ways to track them. An outcome evaluation will help consult as many trainees as is feasible (some strategies are discussed below) and document the extent to which the program – through their efforts – may be leading to individual and institutional research capacity. However, we do not propose a full census survey of trainees in the program, but only of those from case study candidates. The rationale for this recommendation is a practical one. In the Feasibility Study, we found that we have email addresses for 57% of the participants (of these, 10% were incorrect); 34% of trainees agreed to participate. We sent the questionnaire to half of those, and 37% completed the survey. Assuming the same reply ratio for the remaining half, our predicted aggregate response rate, without significant follow-up, is less than 10%. Given this estimate, it is unlikely that it would be cost-effective to administer a survey to AITRP trainees. We therefore propose that there be no census trainee survey but rather all effort be dedicated to tracking down trainees in the case study countries and then to aggressive follow-up in the small sample. The steps here would be: identifying trainees to be contacted for interviews and surveys (this should already be done in Phase 1), finding their correct contact information, requesting participation in a survey, conducting survey, and then performing resulting data analysis. The last step would also motivate and help prepare for the site visits, which are discussed next.

Site Visits.

Brief “nuggets” in the annual reports from most grantees will provide some fraction of the data that is needed. However, many manifestations of research capacity development are not easily grasped via these “nuggets” or even through telephone interviews, surveys, and document reviews; it may be necessary to conduct site visits to a small number of countries. Site visits may become even more appropriate if FIC chooses to forego a trainee survey (as recommended). Site visits involve visits to the developing/transition country institutions as well as US-based AITRP sites. Interviews would need to be conducted with the following individuals:

- In-country collaborators. They can provide important information on trainee selection, regional AIDS priorities and challenges, and placement of former trainees. Contact information for in-country collaborators is easily available from PIs;

- Colleagues of trainees in selected institutions; policy makers and senior administrators in countries selected as case studies (these would be done during site visits). Once contact is made with trainees or in-country collaborators, it may be simple to get contacts for such individuals; we already have an informal list of interview candidates in many countries in Asia, Africa, and Eastern Europe/Russia;

- Finally, interviews need to be conducted to study the effectiveness of short-term in country training. For this purpose, one might select a US faculty member who gave such courses in the past year or so, interview him or her, and obtain a list of the course attendants. Getting in touch with these participants would help gauge whether such mode of training is effective. Faculty members who teach these mini-courses are listed in grantee annual reports. Depending on the circumstances, these interviews could be combined with site visits.

Interviews/Visits with US-based PIs and Stakeholders

AITRP grant sites are "mediating variables’ and are critical to assess if attempts are to be made to ascribe trainee success to the training program. We proposed that interviews be conducted at all AITRPs that have trainees from countries selected for case studies and site visits.
**Bibliometric Assessment**

In an OE, we do not propose a bibliometric assessment. While AITRP aspires to high quality research (and likely accomplishes it through careful selection of high caliber participants), it is nonetheless a training program, and should be judged on the quality of training provided rather than the quality of the research conducted (although, clearly the two are likely correlated). Therefore we recommend that a bibliometric analysis be ruled out in the OE. Another reason for this recommendation is that most bibliometric assessments examine US-based or European publications and journals. By conducting a bibliometric analysis on AITRP publications, we send the program the erroneous message that only publications in these journals count and those in Asian and African and other journals do not. This would be detrimental to the research capacity development objectives of the program, which encourage trainees to start and sustain local and regional research infrastructures.

However, as an NIH-funded program, supporting high quality research is an important requisite of the program and therefore must be addressed in the evaluation. We address this requirement by proposing a qualitative assessment of research quality (including journal quality). The project team should include biomedical researchers (including those specializing in AIDS research) and we recommend an external advisory committee as well.

### 7.2.3 Comparison Groups

Issues surrounding programs similar to AITRP were addressed in Chapter 4. Having done a preliminary scan of these programs, we have come to the conclusion that AITRP is fairly unique in scale and in its long-term commitment to capacity building in resource-poor countries. None of the programs examined likely form an appropriate control or comparison group to the AITRP program as a whole. It may however, be productive to examine programs on a country-by-country basis. For example, there are many similarities and differences between AITRP and the program “Secure the Future”, both engaged in research capacity building in South Africa. Or between AITRP and the Wellcome Trust, that funds training programs for research capacity development worldwide.

Comparison groups can be selected once case study candidates are finalized. The purpose of having these groups should primarily be managerial (seeking best practices and lessons) rather than evaluative.

Note that the approaches described above are not set in stone. The outcome evaluation is an iterative process: as the study progresses, additional topics may need to be explored further; these new topics would result in changes to the study plan, and so forth. The Table on the following page summarizes a preliminary approach to the evaluation.
### Table 7.2: Summary Approach for the AITRP Outcome Evaluation

<table>
<thead>
<tr>
<th>Outcomes Related</th>
<th>Data Source</th>
<th>Collection Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>How well does AITRP build sustainable capacity of foreign scientists to deal with the AIDS epidemic?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Trainees return to their home countries/regions after completion of training;</td>
<td>Trainees, in-country collaborators, in-country mentors (if different), AITRP faculty</td>
<td>In-country case studies, interviews, focus groups, document review</td>
</tr>
<tr>
<td>- trainees involved in research/policy work to benefit developing/transitio...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- trainees promoted or experience other forms of career progression;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- evidence of leadership in home countries (able to successfully interact with policymakers and advisors);</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- trainees continue to stay involved with relevant topics in HIV/AIDS research/policy;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- trainee research quality meets international standards; publish in local and international journals;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- trainees able to independently attract research funds for HIV/AIDS research;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- trainees build on their AITRP training; development of institutional infrastructure in university/public sector entity (e.g., national research society, new department or lab course);</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- seed a critical mass of researchers in home country/region;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- establish local/regional networks and collaborations;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- former trainees initiate and engage in further training activities in home country/region</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How well does AITRP establish and maintain collaborative research between the US and foreign scientists?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Trainees engage in collaborative research with US-based researchers and counterparts during training period;</td>
<td>PIs, trainees, in-country collaborators</td>
<td>Interviews, in-country case studies</td>
</tr>
<tr>
<td>- publish jointly with US researchers; trainees integrated in research groups (vs. remain outsiders);</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- establish networks in the US within and outside home AITRP;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- type of mentorship provided during training;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- joint research and publications of former training and other HIV/AIDS researchers (in the US, Europe, Japan, and other developing/transitio...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- other leadership activities in the international arena;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- relationship between former trainees and international partners (co-PI vs. mentor-trainee) and trainee ownership of research agenda; joint publications with international researchers (and with regional colleagues)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How do AITRP’s achievements compare with other AIDS-related training programs? What factors promote success? Is the opportunity cost of the program worth the benefits accrued?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Size/participation in AITRP (by country/type etc) as compared with other programs;</td>
<td>PIs, experts at other AIDS-related organizations, budget specialists at FIC, program administrative staff</td>
<td>In-country case studies, interviews, data analysis</td>
</tr>
<tr>
<td>- relationship between type (AITRP name, training model, etc), length (degree, duration) and other attributes of training received and post-training activities and success</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation Question</td>
<td>Data Source</td>
<td>Collection Method</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Strategic Planning</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To what extent does AITRP balance between merit and capacity development objectives?</td>
<td>AITRP selection panelists, FIC program staff, members from NIH partner ICs, AIDS experts outside of FIC, university administration, former trainees, in-country collaborators</td>
<td>Interviews, data analysis</td>
</tr>
<tr>
<td>To what extent are certain countries over or under-represented in the AITRP trainee population? What are the trade offs between in-country and US-based training, or between short- and long-term training? Is trainee selection that is driven by the PIs’ (or in-country coordinators’) up-front assessment of the trainees’ proclivity to return appropriate for ensuring research capacity development? How can FIC and PIs provide more active post-training support for trainees? What is the “value added” of supporting a given AITRP over a long period of time over the traditional approach of giving a larger number of smaller grants to a bigger population of academic PIs who support small groups of trainees?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Project Management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At the FIC level, how does the management of this program compare with the management of other AIDS-related or research capacity development programs? At the grantee level, how does the management of this program compare with the management of other AIDS-related or research capacity development programs? Are there best practices that could be shared, both within and outside the program? How do different management models (including training models) shape project outcomes? Are certain types of training activities more closely related to success than others?</td>
<td>PIs, trainees, project administrators, comparison programs (e.g. Wellcome Trust)</td>
<td>Interviews</td>
</tr>
<tr>
<td><strong>Partnerships</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What are the types of partnerships that remain untapped? How can the program leverage partnerships – both intellectually and financially - within FIC and outside of NIH – at the program and grantee levels, and within and across disease categories?</td>
<td>PIs, NIH partners, members of other AID-related training organizations, AIDS experts at CDC/UNAIDS/World Bank</td>
<td>In-country case studies, interviews</td>
</tr>
</tbody>
</table>
7.2.4 Proposed Conceptual Approach

More and more, organizations are under pressure to demonstrate that their programs result in significant and lasting changes in the welfare of their intended beneficiaries. However, such "impacts" are often the product of a confluence of actors and events that are difficult to attribute to any single program or set of programs. As a result, assessing impacts is problematic. Yet, many organizations continue to report results far beyond the reach of their programs. To address this challenge in program evaluations, we explored two alternatives to a traditional logic model drive approach.

**Research value mapping (RVM) or Knowledge Value Framework (KVF) approach**

The RVM/KVF approach was developed at the Georgia Institute of Technology as an alternative to more traditional public policy evaluation approaches. According to Rogers and Bozeman, the methodology’s principal authors “Typically, R&D performance evaluations have focused on not only on the wrong thing, but have looked in the wrong place. Most evaluations have been project or program based. Often this focus is misleading.”31 Their principal point is that such a constrained focus “buries the actual work practice”. Traditional evaluation, they contend, fails to capture the larger context in which research is performed. Rather, one should look at the larger “Knowledge Value Collective” composed of individuals who are connected by their uses of a particular area of knowledge, or the more circumscribed “Knowledge Value Alliance”, the later of which is more delimited, taking into account the institutional context of knowledge activities as well. Rather than examining the outputs of projects and programs, the Knowledge Value framework is “more fluid” and “less oriented toward discrete outputs and is not subject to artificial time and organizational boundaries.”

We have no qualms about the need for more effective mapping of the knowledge networks of scientific research activities. This has been a long and distinguished activity first under the rubric of the sociology of science, and later under the sociology of knowledge. However, we believe that the Knowledge Value framework may be too ambitious and too unfocused for the needs of many Federal evaluations. Whether one follows the guidance of the Government Performance and Results Act (GPRA) of the past administration, or the present guidance under the President’s Management Agenda and Program Assessment Rating Tool (PART), in both cases there are requirements that government agencies assess:

- How well a program has achieved its intended goals (with some sense of both the strategic approach and the relative return on tax payer’s investment),

- The extent of a program’s contributions to society (e.g., outcomes and impacts), and

- A general sense of “value added” by the program or project.

Therefore, we believe that it is a false dichotomy to state that the Knowledge Value framework presents an alternative to R&D project focus in an evaluation. Rather this approach is asking different questions that are perfectly valid in their own right, but are often well beyond the necessary concerns of R&D program evaluation, per se.

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31 Rogers, J. and Bozeman, B. “Knowledge Value Alliances: An Alternative to R&D Project Focus in Evaluation.” School of Public Policy, Georgia Institute of Technology, 2003.
We found the KVF approach to impractical in the case of an AITRP evaluation. The approach will likely require us to ask for and analyze every trainee curriculum vita. Given our limited success with reaching trainees (and the further attrition that might happen when trainees who do not include resumes even if they respond), we believe our information base will be too spotty for the tool to be effective.

**The Outcome Mapping (OM) Approach**

In recent years, a new tool called outcome mapping has emerged which characterizes and assesses the contributions made by initiatives to the achievement of outcomes (rather than impacts). Developed at the Canadian International Development Research Centre Evaluation Unit, outcome mapping is an integrated performance management and evaluation tool which:

- Focuses on changes in the behavior, relationships, or actions of partners (as outcomes)
- Characterizes and assesses the program’s contributions to the achievement of outcomes
- Focuses on the broader context

The novelty of this approach lies in its shift away from assessing the products of a program to focus on changes in behavior, relationships, actions, and activities in the people, groups, and organizations it works with directly.

In this FS, we tested *outcome mapping* as an evaluation approach for AITRP and assessed its strengths and weaknesses in settings that span both the US and developing/transition countries. Through its use in evaluating an international research program intended to develop research capacity, we not only tested its robustness for AITRP, but also paved the way for improvements to the approach itself.

After a detailed review, we decided against outcome mapping as a method for evaluation for AITRP. Our primary reasons were:

- Data on outputs, outcomes and impacts, whether or not they can be explicitly and reliably linked to inputs and activities, are critical for evaluations driven by GPRA constraints; it was simply not enough to document changes in behaviors of boundary partners
- It is expensive - a study that involves 78 countries is not particularly amenable to extensive discussions with boundary partners and site visits; the incremental value of rich anecdotal data - that may indeed demonstrate changes in behaviors - does not adequately justify the additional cost
- OM is a management tool - more a method for ongoing monitoring and course correction than solely retrospective summative evaluations; our task at hand is a summative evaluation

While we rejected RVM as being both unsuitable and infeasible, OM was more relevant to the present study. We therefore incorporate certain relevant aspects of the approach into a “modified” logic model. Key lessons incorporated from the approach were:

- Recognition that progression from inputs to outcomes is iterative (and not a linear cause-and-effect as is traditionally modeled) will make provisions for more complex feedback between stages
• Measurement of changes in behaviors is critical for sustainability; measures for these changes were added to the logic model

• Learning explicitly explored - through a deeper examination of program’s strategic planning and other management issues.

To summarize, having examined other evaluation approaches in the literature, we propose that a logic-model approach combined with the FIC framework for evaluation – albeit modified – continue to be used for the full outcome evaluation.