

# **Global Development and Coordination of Capacity Building**

**Frontiers in Reproductive Health,  
Population Council**  
James Foreit

**September 2008**

This study was made possible by the generous support of the American people through the United States Agency for International Development (USAID) under the terms of Cooperative Agreement Number HRN-A-00-98-00012-00, In-house project 5800 13021. The contents are the responsibility of FRONTIERS and do not necessarily reflect the views of USAID or the United States Government.



## Summary

In response to a need to extend operations research (OR) capabilities beyond a small group of USAID cooperating agencies, FRONTIERS developed a capacity building component, the focus of which was to increase the demand for OR by improving the ability of managers to consume OR, and to increase the number and quality of researchers to be able to satisfy this increased demand.

Over a period of ten years, the FRONTIERS capacity building component developed five courses that were taught 66 times to almost 1,200 participants. Web versions of the courses average approximately 1,000 page views and 300 downloads per year. Important outcomes include the institutionalization of a training capacity for OR at the International Program for Population Studies (IPPS), Mumbai, India; Cairo Demographic Center (CDC), Cairo, Egypt; Institute for Health Economics (IHE), Dhaka University, Bangladesh; University of Costa Rica, Costa Rica; Reproductive Health Research Unit (RHRU), University of the Witwatersrand, Johannesburg, South Africa; and the Regional Centre for the Quality of Health Care (RCQHC), Makerere University, Kampala, Uganda. Extensive technical assistance was provided to WHO that has resulted in the institutionalization of both OR and an OR training capacity in both the Reproductive Health and Research and HIV divisions.

The major course offered was the ‘operations research proposal development’ workshop. Thirty-four proposals developed at these workshops were funded by non-FRONTIERS and non-USAID/RTU sources. Additionally, 24 willingness-to-pay surveys were conducted using the manual developed by FRONTIERS and a training methodology developed for a FRONTIERS course; FRONTIERS did not fund any of these surveys. Capacity building was relatively cost-effective because of the success in leveraging funding to implement the research proposals developed.

Organizations wishing to provide training in OR can modify these FRONTIERS courses and materials easily and at low cost; additional research techniques not covered in these courses (e.g. case studies and mathematical models) could be added. When offering OR courses, generic research topics such as statistics, questionnaire design and sampling should be avoided as these are usually available in almost every country. Rather, the focus should be on intervention research design, collaboration between managers and researchers, and utilization of results.

**CONTENTS**

- Summary ..... i
- I. Introduction..... 1
- II. Problem statement..... 2
- III. Objectives ..... 2
- IV. Strategies..... 2
  - A. Institutional capacity building..... 2
  - B. Curriculum development..... 3
  - C. Fellowships and internships ..... 4
- V. Outputs..... 5
  - A. Institutionalization ..... 5
  - B. Courses and participants..... 6
  - C. Fellows and Interns ..... 8
- VI. Outcomes ..... 9
  - A. Institutionalization of OR Training..... 9
  - B. Operations Research Studies..... 10
  - C. Impact on Individuals..... 11
- VII. Conclusions..... 12
- VIII. References..... 14

## I. INTRODUCTION

Operations research (OR) in family planning and reproductive health (FP/RH) is the application of research techniques to program improvement. It studies factors under the control of program managers to improve program outputs, outcomes, and impacts. Programs are directed by managers functioning at many different levels, from the individual service delivery point (a clinic manager) to the national government level (the minister of health or permanent secretary). All managers must make decisions: what services to offer, what promotional strategies to use, what kind of workers to hire, where to locate service delivery points, etc. OR provides managers with information to make decisions: to decide between alternative courses of action, identify opportunities, and find solutions to service delivery problems.

Over the past three decades, operations research has resulted in many improvements to FP/RH service delivery. For example, OR demonstrated that non-physicians could provide services, such as IUD insertions and hormonal pills, that have traditionally been restricted to doctors. Perhaps most importantly, it showed that community based distribution (CBD) of contraceptives by non-professionals could take services “beyond the clinic walls,” and make family planning available to millions of women living in rural areas and urban slums. More recently, operations research has been applied to postabortion family planning, finding effective methods of integrating FP/RH with other services, improving quality of care, and demonstrating effective means for encouraging abandonment of FGC.

Traditionally, support for and implementation of OR has been donor-driven and conducted by a few American institutions. USAID-funded OR contracts have been limited to US-based research organizations including Columbia University, The Population Council, University Research Corporation, Tulane University, and Family Health International. Despite over 30 years of demonstrated effectiveness (Foreit and Frejka 1998), it was not until 1998, with the advent of the global Frontiers in Reproductive Health (FRONTIERS) Program, that USAID decided to move beyond this small community and support efforts to institutionalize the capacity to conduct OR in developing country organizations, USAID service delivery Cooperating Agencies (CAs), and multilateral donors.

USAID core funding for OR has declined over the past decade, reinforcing the importance of ensuring national-level interest in and capacity to undertake OR. Declining USAID funding is only one factor driving the need for capacity building in developing countries, however. Internationally, there is a growing demand for OR in many other health areas, as exemplified by the Sydney Declaration of 2007, the International Consultation on Male Circumcision and Operations Research in 2007, and the WHO Consensus Statement in 2008. PEPFAR’s recent support of ‘public health evaluations’ includes OR and an increasing proportion of USAID Missions and country programs of other donors are now funding non-research CAs and other organizations to conduct OR. WHO has organized operational research programs in reproductive health and HIV, as has the Global Fund in HIV, Malaria, and Tuberculosis. Foundations such as the Bill and Melinda Gates Foundation and the Hewlett Foundation, and national organizations such as the Indian Council of Medical Research (ICMR), also support operations research. This explosion of interest has contributed to an increased demand for researchers able to conduct, and managers able to utilize, OR. This paper addresses the challenges, achievements and lessons learned by the FRONTIERS capacity building program from 1998-2008.

## **II. PROBLEM STATEMENT**

A paradox of OR is that testing a successful intervention is not, in itself, a measure of the project's success; one or more service delivery organizations must also utilize the results of the study in making decisions about whether to sustain or change the way in which it delivers FP/RH services. This indicator of success underlies FRONTIERS conceptualization of capacity building and has guided development and implementation of the initiative. Utilization is a management function and research capacity building needs to focus on overcoming knowledge barriers and increasing the manager's ability to understand, appreciate, and commission OR. Increasing knowledge and skills in "research appreciation and utilization" is recognized as a necessary step to using research to improve programs (Gerrish and Clayton 2004). Moreover, research has demonstrated that the inability of many health workers to understand research inhibits the incorporation of new service delivery approaches, and limits scientific information-seeking behavior (Gerrish and Clayton 2004).

Research training does increase the use of best practices. Studies have found that managers' utilization of research findings and evidence-based best practices increases if they have undergone research training (Egerod and Hansen 2005; Veeramah 2004). Improved reporting of research results must also accompany increased research training for managers and practitioners; in two studies, respondents rated the poor quality of research reporting as important barriers to its utilization (Glacken and Chaney 2004; Hutchinson and Johnston 2003).

## **III. OBJECTIVES**

- To increase the number of organizations teaching and conducting operations research.
- To increase the demand for operations research among managers and the supply of researchers to meet the increased demand.

## **IV. STRATEGIES**

### **A. Institutional capacity building**

Organizations are the ultimate consumers of OR. For OR to be adopted and persist in an organization, an organization must contain a critical mass of producers and users of OR. Therefore, FRONTIERS focused its efforts primarily on strengthening the ability of organizations to use and produce operations research. The key features of the institutional capacity building strategy included:

- I. Selection of a small number of organizations in priority countries: Criteria for selection required that the training center not be totally dependent on USAID funding, and attract students regionally.
- II. Long term commitments with organizations to ensure they received the necessary infrastructure and training experiences: Capacity building is a long term process involving the preparation of staff members to teach and conduct OR through formal training and

experience with actual OR projects; providing teaching materials, and the introduction of OR into the curricula of universities and research centers.

III. Resource leveraging from other donors and CAs: The long-term sustainability of OR outside of the Office of Population requires investments from other organizations, while the volume of outputs including number of courses developed and taught, and persons trained is also dependent on resource leveraging.

IV. A phased approach to increasing capacity: Organizations receiving capacity building assistance were expected to go through a process of decreasing technical and financial assistance from FRONTIERS, and reach the goal of being able to conduct OR projects and do operations research training without significant outside assistance.

## B. Curriculum development

FRONTIERS based training course development and other training opportunities on the following model of the proximate determinants of research utilization by managers:

### **Proximate Determinants of the Use of Research for Decision-Making by Program Managers**

Research must be relevant → Manager must be aware of results → Manager must understand results →  
Manager must believe results → Manager must be able to implement results

FRONTIERS developed five OR training courses of 3-10 days, each addressing one or more of these proximate determinants:

- Operations Research for Managers (5 days): The purpose of this course is to increase program managers' and senior researcher's knowledge of OR. To increase the relevance of research to managers, and to increase their ability to understand and evaluate results, the course focuses on the definition and methods of OR. The course also emphasizes that managers and researchers must collaborate during the entire operations research process, and that the manager rather than the researcher must identify priority program problems. The English version of the course is available on CD and on the Population Council website<sup>1</sup>. Materials in Spanish and Russian are available on CD.
- Operations Research Proposal Development Workshop (10 days: Using a standardized protocol for an operations research project, participants develop proposals for submission to international organizations for funding. The workshop assists participants to write a complete proposal, beginning with a problem statement and ending with a budget. The workshop is attended by teams of managers and researchers from the same organizations who jointly design the studies. The goals of this approach are to ensure that the research problem is a

---

<sup>1</sup> [http://www.popcouncil.org/frontiers/OR\\_Course/index.htm](http://www.popcouncil.org/frontiers/OR_Course/index.htm).

program priority and, if the intervention is proven successful, the program could implement the results.

- Scientific Writing for Reproductive Health (3 days): This course helps managers understand research results. Developed in collaboration with WHO, it is designed to increase the report and journal article writing skills of researchers by teaching a paragraph by paragraph formula for writing a succinct, and well-organized report. This course is available on the Council website<sup>2</sup> and on CD in both English and Spanish.
- Financial Sustainability Workshop (5 days): Declining donor funding for family planning programs means that more funds must be raised locally. This workshop, developed and presented by FRONTIERS' partner FHI, demonstrates how OR can improve an organization's ability to undertake cost analyses and to make marketing and pricing decisions. Participants wrote proposals for low-cost and short duration research projects, and some proposals were funded by FRONTIERS. Course materials are available on CD and on the Population Council's website<sup>3</sup>. The course is designed to increase the relevance of OR and teach managers and researchers how to conduct basic economic analyses.
- Willingness to Pay (WTP) Course and Manual: This one-day course was developed by FRONTIERS and The Futures Group International. The manual explains how to use a simple survey instrument to determine client willingness to pay for FP/RH and other preventive health services. The objective of the course is to improve the ability of researchers to undertake and of managers to understand, a programmatically-relevant research technique. The manual is on both the Futures Group and FRONTIERS websites<sup>4</sup>. Hard copies are also available; CD versions are available in English, French, and Spanish. The WTP course is available on the Population Council's website<sup>5</sup>.

### **C. Fellowships and internships**

Long-term, hands on experience in operations research was made available to a number of developing country and American young professionals through fellowships and internships. The objective of the fellowship program was to increase the number of OR producers who would work in organizations other than the small number of regional research and training centers supported by FRONTIERS. FRONTIERS provided internships in the Washington DC office to graduates of the Tulane University International Health Program, with the objective of increasing the number of new professionals likely to work for US based CAs and USAID who were familiar with OR, and to strengthen their job and research skills.

---

<sup>2</sup> <http://www.popcouncil.org/frontiers/ScienceWriting/index.htm>

<sup>3</sup> <http://www.popcouncil.org/financialsustainability>

<sup>4</sup> [http://www.popcouncil.org/pdfs/frontiers/Capacity\\_Bldg/WTP\\_Manual.pdf](http://www.popcouncil.org/pdfs/frontiers/Capacity_Bldg/WTP_Manual.pdf)

<sup>5</sup> <http://www.popcouncil.org/WTP>

## V. OUTPUTS

### A. Institutionalization

1. ***Collaboration sustained with important training organizations in priority countries:*** FRONTIERS funded and/or provided technical assistance (TA) to institutionalize OR in the following organizations:

- International Program for Population Studies (IPPS), Mumbai, India;
- Cairo Demographic Center (CDC), Cairo, Egypt;
- Institute for Health Economics (IHE), Dhaka University, Bangladesh;
- University of Costa Rica, Costa Rica;
- Reproductive Health Research Unit (RHRU), University of the Witwatersrand, Johannesburg, South Africa;
- Regional Centre for the Quality of Health Care (RCQHC), Makerere University, Kampala, Uganda.

FRONTIERS also assisted the World Health Organization (WHO) to organize a three-day consultative meeting on “Expanding Capacity for Operations Research in Reproductive Health” in Geneva in December 2001<sup>6</sup>. The meeting was held in response to WHO’s objective of becoming more active in OR on reproductive health. Eighty-eight participants from WHO, UNFPA, USAID and FRONTIERS attended. The meeting discussed the definition and content of OR, its relevance to priority WHO reproductive health topics, and future OR training collaborations among organizations. The meeting was one of the foundations of a long term relationship (2001-2008) between FRONTIERS and WHO that led to collaboration on proposal development workshops, writing courses, and other OR institutionalization activities.

2. ***Long term relationships established:*** FRONTIERS partnered for nine years with the CDC and RHRU, for seven years each with IIPS and WHO, and for five years with the RCQHC. Activities with IHE and the University of Costa Rica were terminated upon completion of their initial two year contracts because IHE was unable to provide the necessary administrative support to fully institutionalize OR training and the counterpart at the University of Costa Rica changed half-way through the sub-agreement and the new counterpart was not interested in OR.
3. ***Significant resources leveraged:*** All OR training courses were leveraged with contributions from donor organizations that usually covered all participant and venue costs, with FRONTIERS supporting staff time and materials. The amount and proportion of leveraging varied from approximately 50 percent per course in Asia, where FRONTIERS customarily sponsored counterparts implementing OR projects to attend courses, to almost 100 percent in the United States, Africa and Europe, and for all courses held jointly with WHO. WHO also provided many facilitators for the courses and often covered FRONTIERS staff travel and per diems, further increasing leverage. Other major international sponsors of courses and participants included (but were not limited to) UNFPA, ICOMP, DFID, CARE, USAID Missions, Pathfinder, USAID/Flexible Fund, Save the Children, AED, Tulane University,

---

<sup>6</sup> [http://www.popcouncil.org/pdfs/frontiers/reports/WHO\\_expand\\_capacity.pdf](http://www.popcouncil.org/pdfs/frontiers/reports/WHO_expand_capacity.pdf)

and the MEASURE Evaluation Project. Many local organizations and NGOs, including the All India Institute of Medicine, World Vision, and the Red Cross, also sponsored participants for specific country workshops.

Funding for the direct local costs for the institutionalization of OR within institutions was fairly evenly split between core and field support. Table 1 compares the amount of core and field support in eight countries.

**Table 1: Core and Field Support Funding for Major Capacity Building**

<b>Organization/Country</b>	<b>Core</b>	<b>Field Support</b>
IHE/Bangladesh	\$66,950	
PROCOSI/Bolivia		\$83,450
CDC/Egypt	\$72,294	
MOH/El Salvador		\$33,625
RHRU/South Africa		\$120,160
Makerere U./ Uganda	\$32,117	
IIPS/India	\$82,776	
U. Costa Rica/Costa Rica	\$41,170	
<b>Total: \$532,542</b>	<b>\$295,307 (55%)</b>	<b>\$237,235 (45%)</b>

USAID Missions leveraged almost half of the direct local costs of institutional capacity building. Moreover, capacity building activities were relatively inexpensive, partly because of leveraging by other organizations and Missions. A cost estimate prepared for a 2002 external evaluation of FRONTIERS indicated that the capacity building activities accounted about six percent of the program’s total core funding between 1992 and 2002.

## **B. Courses and participants**

Table 2 describes the number of OR training courses taught and the number of participants attending for each type of course. FRONTIERS funded and/ or provided TA for approximately eight courses per year over this nine-year period. The mean number of participants per course was 19, with a range of between 5 and 43 participants.

**Table 2: Number of Courses Taught and Number of Participants by Type of Course Mid 1999 – Mid 2008**

Course	Number Taught	Number of Participants*
Operations Research for Managers	18	370 (32%)
Operations Research Proposal Development Workshop	15	323 (28%)
Scientific Writing for Reproductive Health	15	227 (19%)
Financial Sustainability Workshop	6	99 (8%)
Willingness to Pay Workshop	4	47 (4%)
Miscellaneous**	6	105 (9%)
<b>Total:</b>	<b>63</b>	<b>1,171 (100%)</b>

\* Based on number of participants who were present on first day of course.

\*\* Includes 2 qualitative methods and 1 data analysis course in India, 1 research utilization and 1 experimental design course in Costa Rica, and 1 OR training of trainers workshop Czech Republic

As shown in Table 3, course participants participating in OR training courses came from 72 countries, from almost all regions of the globe. At least one course participant from each of the 72 countries received funds from non-USAID sources. All participants from nineteen of 20 countries in Europe, Central Asia and the Middle East were supported by non-USAID sources, as were all participants from the 23 African countries, most of whom attended the RHRU and CDC courses. Non USAID sources also funded all participants from seven countries in Asia and 10 countries in Latin and North America.

**Table 3: Countries of Course Participants by Region**

Europe/Central Asia/Middle East	Africa	Asia	Latin America and North America
Afghanistan	Angola	Bangladesh	Argentina
Armenia	Benin	Cambodia	Bolivia
Azerbaijan	Botswana	China	Brazil
Byelorussia	Burkina Faso	India	Costa Rica
Czech Republic	Cameroon	Indonesia	Ecuador
Egypt	Chad	Laos	El Salvador
Georgia	Eretria	Myanmar	Guatemala
Kazakhstan	Gambia	Nepal	Honduras
Kyrgyzstan	Ghana	Pakistan	Mexico
Lithuania	Guinea	Philippines	Peru
Moldova	Ivory Coast	Sri-Lanka	USA
Palestine	Kenya	Thailand	
Romania	Liberia	Viet Nam	
Russia	Lesotho		
Syria	Mali		
Tajikistan	Mauritania		
United Kingdom	Mozambique		
Ukraine	Namibia		
Uzbekistan	Niger		
Yemen	Nigeria		
	Rwanda		
	Senegal		
	Somalia		
	South Africa		
	Sudan		

Europe/Central Asia/Middle East	Africa	Asia	Latin America and North America
	Tanzania		
	Uganda		
	Zambia		
	Zimbabwe		
<b>Total: 20</b>	<b>Total: 28</b>	<b>Total: 13</b>	<b>Total: 11</b>

Table 4 shows the number of PDF downloads and page views for the courses and training manuals available on the FRONTIERS website for the period 2007 – 2008. The OR training course was the most downloaded course during the period, despite being posted for just five out of the 12 months; the scientific writing course was available for ten of the 12 months. The lack of downloads for the WTP manual during the period may reflect the fact that the English version has been on the web since 2002 (and is on the Futures Group website), and the Spanish version since 2005. The mean monthly number of all downloads and page views are 8 and 127 respectively, when calculated on a base of the total number of months courses were posted (e.g. WTP manual 12 months, OR for Managers 5 months). A lack of alternative courses may have contributed to the large number of page views. A web search by WHO's HIV Department in the first half of 2008 discovered that the FRONTIERS courses were the only Reproductive Health OR courses available on the web.

**Table 4: Population Council Website: Downloads and Page Views for Capacity Building Course Materials July 2007 – June 2008**

Course	Date Posted	Downloads	Page views
Operations Research for Managers	April 2008	267 (84%)	1,344 (27%)
Scientific Writing for RH	September 2007	51 (16%)	1,004 (20%)
WTP Manual (English)	2002	0	1,159 (23%)
WTP Manual (Spanish)	2005	0	1,440 (29%)
<b>Totals</b>		<b>318</b>	<b>4,947 (99%)*</b>

\* Does not reach 100% due to rounding error.

## C. Fellows and Interns

FRONTIERS trained seven international fellows and four Tulane University Interns. The fellows were located in Population Council offices in Bolivia, Egypt, Honduras, India, Kenya, the Philippines, and Uganda, where they received intensive mentoring from one or more FRONTIERS and other Population Council staff. Interns worked at the FRONTIERS Washington office. Internships lasted for one year, while fellowships were for either one (in India and Honduras) or two years.

## VI. OUTCOMES

### A. Institutionalization of OR Training

*Successes:* OR was institutionalized in three training centers by FRONTIERS, and two by WHO. These now centers teach OR without outside assistance. FRONTIERS also helped WHO's HIV Department and the Global Fund to increase the use of OR within service delivery projects through the provision of materials and course facilitators. Institutionalization also produced a notable multiplier effect: at least 17 organizations taught one or more capacity building courses themselves after staff attended a FRONTIERS course.

Participants from India, the United States, Kenya and Ukraine began teaching FRONTIERS operations research and scientific writing at their own organizations without technical assistance from FRONTIERS. At least 17 courses have been taught without direct input from FRONTIERS. In India, the Center for Operations Research Training (CORT) in Baroda has taught an OR course annually since 2005 and a scientific writing course since 2006, indicating that OR has been institutionalized in that organization. The Indian National Institute of Family Welfare taught an OR course in 2008 and the India Center for Medical Research (ICMR), the Institute for Research in Leprosy and the Ahmadabad Medical College added OR to their curricula and taught the writing course in 2007. In the United States, staff from the Academy of Educational Development (AED) and JHPIEGO have taught the scientific writing course, in Ukraine the course has been taught by the National Academy of Postgraduate Studies, and in Kenya AMREF has taught the course.

The Cairo Demographic Center (CDC) in Egypt and the International Institute of Population Studies (IIPS) in India added OR courses to their graduate curricula in 2002 and 2007 respectively. Both organizations teach the courses without outside technical or financial assistance. CDC has held short courses and provided technical assistance without FRONTIERS participation. IIPS stopped receiving technical assistance from FRONTIERS in 2007 and has yet to teach a short OR course, but staff have provided technical assistance in OR to other Indian organizations. Staff from PROCOSI in Bolivia continue to conduct low-cost OR studies after FRONTIERS technical assistance ended.

WHO/Euro has created an OR training center in Lithuania at the School of Public Health, University of Kaunas. The center will offer both proposal development and OR for managers' courses based on FRONTIERS materials that have been translated into Russian. The first course, a proposal development workshop, will be held in December 2008 for 20 participants from Azerbaijan, Belarus, Kyrgyzstan, Moldova, and Ukraine. Proposals developed at the workshop will be submitted to WHO for funding. FRONTIERS also provided training of trainers for five Russian-speaking researchers. They have subsequently translated the course into Russian and facilitated three WHO/Euro training courses in Kazakhstan, Russia, and Lithuania.

The School of Public Health at the University of Washington in the USA, sent a faculty member to a FRONTIERS operations research course in Washington in 2006. The faculty member has since taught two OR mini-courses at the University. Two divisions (Tuberculosis and HIV) of the US Centers for Diseases Control, Atlanta requested OR course materials in June 2008; both divisions have plans to teach operations research both domestic and international audiences.

FRONTIERS provided facilitators for two proposal development workshops in Thailand for WHO/Asia in 2007-2008. Another workshop without FRONTIERS participation will be held in 2009. Proposals developed at the first two workshops were submitted to WHO for funding, as will those developed at a course to be held in 2009 at Chulalongkorn University.

In Bangladesh, FRONTIERS provided training of trainers to facilitate presentation of the scientific writing course by three persons from ICDDR-B, the William Grant School of Public Health, and the Independent University of Bangladesh. The organizations plan to hold a scientific writing course for the faculty of provincial universities in early 2009. The trainees have already begun to modify course exercises and have developed a half-day session on searching the web for journal articles. FRONTIERS also provided training of trainers to Assiut University in Egypt to integrate the scientific writing course in their school of public health and the Ob/Gyn department of the medical school.

**Challenges:** Institutionalization has been less successful in other organizations. The Dhaka University’s Institute of Health Economics was unable to offer a full OR course because of University regulations, but added OR modules to existing courses. The Institute was also unable to sponsor short courses after the withdrawal of FRONTIERS support because of administrative limitations.

Local responsibility for collaboration by the University of Costa Rica with FRONTIERS changed after the first year, and the new liaison person showed little interest in institutionalizing capacity building. Consequently, the collaboration did not continue beyond the second year. The program in El Salvador terminated without producing a single OR proposal due to a series of misfortunes including volcanic eruptions and accusations of corruption in the Ministry of Health.

WHO/Afro attempted to establish an OR training capacity at the regional training institute, CERPOD, at Bamako in Mali, but the attempt was discontinued after one proposal development workshop. WHO/Afro instead sent managers and researchers to training at the Cairo Demographic Center and other FRONTIERS courses.

## B. Operations Research Studies

As shown in Table 6, Thirty four OR proposals developed at seven OR training workshops were funded by organizations other than USAID’s Research, Technical Assistance, and Utilization (RTU) Division. The number of non-USAID/RTU funded proposals is equivalent to almost one-fifth of the 192 OR activities OR studies and other technical assistance activities supported through FRONTIERS itself.

**Table 5: Proposals Funded by Non-RTU Sources**

Source	Proposals Funded
USAID/Bolivia	12
ICOMP	5
CORE/USAID Flexible Fund	6
WHO	2
National organizations in India*	9
<b>Total</b>	<b>34</b>

\* List of funders not available, only funded proposal titles available

Furthermore, WTP studies have been conducted in at least 24 countries with non-FRONTIERS funding (some countries have conducted more than one survey). The survey is a standard tool for estimating the impact of prices on demand for RH products and services in social and commercial marketing studies. USAID-funded organizations conducting WTP surveys include Population Services International (PSI), Abt Associates, Futures Group, and Family Health International (FHI). Including these WTP studies increases the total number of non-FRONTIERS supported OR studies carried out as a result of FRONTIERS' capacity-building initiative to 58, equivalent to 30 percent of the total number of FRONTIERS supported activities.

### **C. Impact on Individuals**

**Interns:** Three Tulane University Interns focused on research and evaluation activities. During their internships, two published operations research papers in refereed journals with assistance from FRONTIERS staff. One intern went on to work for CEDPA and another for a domestic healthcare NGO in San Francisco; the third intern left in the middle of her internship for a position at USAID.

**Fellows** worked exclusively on ongoing operations research projects implemented by FRONTIERS. In Latin America, the Bolivian fellow went on to take up a regular position in the Population Council's country office. In Honduras, the fellow was hired by the World Bank before she completed her fellowship. The Kenya, India, and Egypt fellows returned to their original organizations (The Kenya MOH, the Indian National Council of Applied Economic Research, and Cairo University, respectively). The Uganda fellow moved on to work for the USAID-supported Regional Center for Quality of Health Care at Makerere University and the Philippines fellow returned to the School of Economics at the University of the Philippines to complete her PhD.

**Course participants:** Reliable data on the impact of research training courses is difficult to obtain. Response rates to evaluation surveys are usually considerably lower than 50%. Moreover, survey respondents are self selected and may not be representative of all participants. In this section we report the activities of interns and fellows after training using the results of five anonymous mail surveys with 60 - 85% response rates.

**Survey 1:** FRONTIERS conducted pre-test and post-tests to evaluate the impact of a proposal development workshop held at CDC, Cairo, in 1999. The pre-test was conducted on the first day of the course, while the post-test mail survey was conducted in 2000, one year after the course. The 21 participants were a mixture of graduate students, mid-level researchers, managers and service providers. Eighteen participants (86%) responded to the survey. Respondents did not participate in significantly more operations research projects after the course than before (4 versus 3). Five respondents submitted proposals to the FRONTIERS small grants project but none were accepted. Participants fared better in introducing OR into their own teaching (4 participants), organizing OR workshops (2 participants) and reviewing OR papers and proposals (2 participants). Thirteen participants responded to the question, "Did you use any skills or knowledge gained from the operations research course on your job during the past year", of which eleven responded positively.

*Survey 2:* The FRONTIERS India office conducted a post-test survey of participants in three OR courses taught by IIPS, including two OR manager's courses and a proposal writing workshop. A single evaluation was conducted for all three courses, 6 – 14 months after they were given. The courses attracted a total of 72 participants, of whom 43 (60%) responded to the evaluation questionnaire. Participants indicated that they had received non-FRONTIERS funding to conduct nine OR studies.

*Survey 3:* A post-test survey was conducted approximately six months after a 2006 scientific writing course in Ghana. Eighteen of 23 (83%) participants responded to an open ended mail questionnaire. All respondents credited the course with improving their writing skills, and one participant said the course helped him complete three articles, all accepted for publication in peer-reviewed journals.

*Survey 4:* The FRONTIERS India office evaluated three scientific writing courses, one held at IIPS, the other two at CORT. Data from the evaluations were combined to provide a larger number of respondents on whom to base results. 57 persons attended the three courses, and 42 (74%) provided feedback. Twenty participants (36%) said that the course helped them in writing reports and journal articles. At the time of the evaluation, participants said they had eight articles accepted for publication.

## **VII. CONCLUSIONS**

FRONTIERS capacity-building initiative has filled an important gap in meeting the demand for operations research capacity in developing countries. The major results included development of a suite of five courses in reproductive health OR, one of which has been modified to introduce operations research to the HIV division in WHO and in the Global Fund. The courses were taught 66 times and were attended by almost 1,200 participants from 72 countries. In each course, 50 -100% of participants and venue costs were funded from non-USAID/RTU sources. With FRONTIERS help, five organizations institutionalized OR capacity and at least 17 organizations have taught at least one operations research or scientific writing course without outside assistance. Through these efforts, non-FRONTIERS funding was leveraged to support 34 OR projects and 24 WTP surveys.

Many important capacity building lessons have been learned. Research capacity building is a relatively inexpensive activity because of the large amounts of leveraging it can attract. Proposals of a quality high enough to attract funding can be produced at OR workshops. Course materials posted on the internet attract large numbers of views and downloads and they probably add to the multiplier effect of face-to-face courses, as in the case of WTP materials. For example, each course posted on the web received approximately the same number of views per year and the Spanish manual attracted more views than the English version.

FRONTIERS had limited success in institutionalizing OR in some universities. A possible reason is that the goals of FRONTIERS and most universities are somewhat contradictory. Introducing new subjects into the curricula of universities was difficult and most departments attempted to attract outside funds and lecturers instead of assuming the costs of

institutionalization themselves. Specialist research centers, such as IIPS and CORT in India, were more likely to institutionalize OR. IIPS is a demographic research and training center that wished to modernize its course offerings and attract funds by offering short courses. CORT depends on course revenues for its existence and added the OR and writing to their annual course offerings with only a small amount of outside assistance.

Organizations wishing to provide instruction on operations research will probably find it quicker and less costly to modify these FRONTIERS courses and materials than to develop their own, unless they wish to train in research techniques not covered by FRONTIERS, such as case studies and mathematical models. Finally, those contemplating offering OR courses should avoid including regular research topics such as statistics, questionnaire design and sampling which are already available in almost every country; rather, they should focus on intervention research design, collaboration between managers and researchers, and dissemination of results.

In conclusion, perhaps the greatest lesson from the FRONTIERS capacity building initiative is that there is sufficient interest now among a range of international and national organizations that OR can be supported without relying solely on USAID funding.

## VIII. REFERENCES

Foreit, J. and T. Frejka (eds.). 1998. *Family Planning Operations Research: A Book of Readings*. New York: Population Council.

Gerrish, K. and Clayton, J. 2004. "Promoting evidence-based best practice: an organizational approach," *Journal of Nursing Management* 12 114-123

Glacken, M. and Chaney, D. 2004. "Perceived barriers and facilitators to implementing research findings in the Irish practice setting," *Journal of Clinical Nursing* 13, 731-740

Hutchinson, A. M. and Johnston, L. 2004. *Bridging the divide: a survey of nurses' opinions regarding barriers to, and facilitators of, research utilization in the practice setting*, *Journal of Clinical Nursing* 13, 304-315

Veeramah, V. 2004. "Utilization of research findings by graduate nurses and midwives", *Journal of Advanced Nursing*, 47 (2), 183-191