



PRESIDENT'S MALARIA INITIATIVE

INDOOR RESIDUAL SPRAYING FOR MALARIA CONTROL



Quarterly Report

Indoor Residual Spraying (IRS) for Malaria Control
Indefinite Quantity Contract (IQC)

October 1, 2007 – December 31, 2007

Contract GHN-I-01-06-00002-00

Prepared for:
United States Agency for International Development

Prepared by:
RTI International
3040 Cornwallis Road
Post Office Box 12194
Research Triangle Park, NC 27709-2194

RTI International is dedicated to conducting research and development that improves the human condition by turning knowledge into practice. With a staff of more than 2,500, RTI offers innovative research and technical solutions to governments and businesses worldwide in the areas of health and pharmaceuticals, education and training, surveys and statistics, democratic governance, economic and social development, advanced technology, energy, and the environment. The second largest independent nonprofit research organization in the United States, RTI maintains nine offices in the U.S., five international offices, and one international subsidiary, as well as project offices around the world.

RTI International is a trade name of Research Triangle Institute.

September 2008

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

Contents

Acronyms	2
Introduction	5
Project Management	6
Angola	10
Benin	15
Ethiopia	18
Ghana	21
Kenya	27
Madagascar	29
Malawi	34
Mali	38
Mozambique	41
Rwanda	48
Senegal	55
Uganda	61
Zambia	68

Acronyms

ASACO	Association de Santé Communautaire
CAUSA	Crown Agents USA
CCF	Christian Children's' Fund
CDC	Centers for Disease Control
CFA	Central African franc
CFR	Code of Federal Regulations
CO	USAID's Contracting Officer
COP	Chief of Party
CNAC	National Committee for the Registration and Control of Pesticides
CNIECS	Centre National Information et d'Education du Ministère de la Santé
CREC	Center for Entomological Research of Contonou (Benin)
Crown	Crown Agents
CSCOM	Centre de Santé Communautaire (community health center)
CSREF	Centre de Reference
CS	Capsule suspension
CTO	USAID's Cognizant Technical Officer
DDS	Direction Departemental de la Sante de Oueme (Benin)
DDT	Di-chloro Di-phenyl Tri-methyl Chloride
DHE	District health educator
DHMT	District Health Management Team
DHT	District Health Team
DNACPN	Direction National du Contrôle de la Pollution et de la Nuisance
DOMC	Kenya Division of Malaria Control
DPS	Provincial Department of Health
DPV	Plant Protection Dvision (Senegal)
DRS	Direction Regional de la Santé
EA	Environmental assessment
EIA	Environmental impact assessment
EPA	Environmental Protection Agency
FAO	Food and Agriculture Organization
FY	Fiscal year
GFATM	Global Fund to Fight AIDS, Tuberculosis, and Malaria
GHC	Ghanaian cedi
GHS	Ghana Health Service
GIS	Geographic information system
HCC	Health Communications Center (Rwanda)
HCP	Health Communication Partnership
HOTM	Home office technical manager
ICON	Brand of Sygenta insecticide (available in WP and CS formulations)
IEC	Information, education and communication
IQC	Indefinite quantity contract
IRS	Indoor residual spraying
ITNs	Insecticide treated nets
IVM	Integrated vector management
KAP	Knowledge, attitude and practices
LATH	Liverpool Associates in Tropical Health
LLN	Long-lasting (pesticide-treated) net

L	Liters
LNA	Logistics needs assessment
LSTM	Liverpool School of Tropical Medicine
M	Meters
MCP	Malaria Control Program
M&E	Monitoring and evaluation
MACEPA	Malaria Control and Evaluation Partnership in Africa
MOA	Ministry of Agriculture
MOE	Ministry of Environment
MOH	Ministry of Health
MOHP	Ministry of Health and Population
MOP	Malaria Operational Plan
MOU	Memorandum of Understanding
MRTC	Malaria Research and Training Center
MSD	Ministry of Social Development
NBO	Nairobi Regional Office
NEMA	National Environment Management Authority
NGO	Non governmental organization
NMCP	National malaria control program
NVCC	National Malaria Control Centre (Zambia)
ORHB	Oromia Regional Health Bureau (Ethiopia)
ONE	Office National de l'Environnement
PEA	Programmatic environmental assessment
PERSUAP	Pesticide Evaluation Report and Safe Use Action Plan
PNLP	Senegal, Benin and Mali National Malaria Control Programs
PNILP	Rwanda National Malaria Control Program
PMI	United States President's Malaria Initiative
POP	Persistent organic pollutants
PPE	Personal protection equipment
PSI	Population Services International
RBM	Roll Back Malaria partnership
REMA	Rwanda's Environmental Management Agency
RFP	Request for proposal
RWF	Rwandan franc
RTI	RTI International
SAEs	Severe Adverse Experiences
SEA	Strategic environmental assessment
SLP	Service de Lutte contre le Paludisme
SO	Strategic objective
SOW	Scope of Work
STTA	Short-term technical assistance
TA	Technical assistance
TDY	Temporary Duty (in country)
TO	Task order
TOT	Training of trainers
TRACplus	Training and Research AIDS Center
UCAD	Universite Cheikh Ante Diop (Senegal)
UNICEF	The United Nation's Children's Fund
U.S.	United States of America
USD	United States dollar

USAID	United States Agency for International Development
WHO	World Health Organization
WHOPES	World Health Organization Pesticide Evaluation Scheme
WP	Wettable powder

Introduction

RTI International (RTI) was awarded the Indoor Residual Spraying (IRS) Indefinite Quantity Contract (IQC) on September 29, 2006, to respond to task order GHN-I-01-06-00002-00. This IQC reflects a new and substantial commitment from the U.S. Agency for International Development (USAID) to support the use of an effective malaria control intervention in Africa.

Funded by the United States (U.S.) President's Malaria Initiative (PMI) through USAID, RTI is providing technical and financial support to countries supported by the PMI to expand the use of IRS as an intervention for malaria prevention and control.

The main objectives of the project are to:

- Introduce the appropriate, effective, and efficient use of IRS in African countries not previously using it as part of systematic control programs.
- Provide technical assistance to improve the targeting and effectiveness of IRS programs in countries that already use the method.
- Provide financial assistance and procurement support alone to countries that have an established capacity for implementing strong IRS programs, but lack the resources and mechanisms to fully cover their populations at risk for malaria.
- Develop the capacity of public health institutions, municipal and district governments, and (where appropriate) private sector companies to implement IRS programs by systematically transferring greater responsibility and authority to such institutions with each round of IRS supported under the IRS IQC, and by relying on host country staff to the maximum degree possible in each assisted country; and
- Dramatically improve the transparency and quality of current government and industry practices for procurement, technical support, safety, and environmental compliance by setting examples of excellence and establishing clear standards for participation in work under the IRS IQC.

This quarterly report presents the program's progress towards achieving these objectives, and the report is divided into program management and individual country sections. This report summarizes the project's current activities and achievements, outstanding issues, and upcoming activities.

Project Management

As RTI was advised to anticipate during the FY08 planning cycle, the FY08 malaria operating plans (MOPs) prepared under the President's Malaria Initiative (PMI) include indoor residual spraying (IRS) in every PMI country. The primary emphasis of project management activities during this quarter was to increase staffing in Washington and Nairobi and prepare plans for fully mobilizing the Nairobi regional office.

Project Management

Staffing

RTI took the following actions to increase and mobilize IRS project staff in Washington:

- Ms. Bijou Muhura, who joined RTI in late September 2007, received training and orientation concerning RTI corporate and IRS project procedures. She traveled to Mali in October and remained in Mali and Benin for most of this quarter to coordinate start-up activities in both countries.
- Ms. Jill Jensen, IRS Project Assistant, started work in early October. She will provide home office support for communications, scheduling, and reporting and will maintain official project files.
- Two Environmental Assessment Specialists joined the IRS project staff in Washington during this quarter. Mr. Tito Kodiaga joined RTI in December and Ms. Jeanne Chabrier was hired in mid-November. They will both add to the project's capacity for preparing and revising supplemental environmental assessments (SEAs).
- RTI requested and received Cognizant Technical Officer (CTO) approval to hire a Procurement Specialist on a temporary basis to clear the backlog of procurement work for which RTI is responsible. Ms. Addie Calvitt started in this position in December.

In October, Gene Brantly and several colleagues began work on a comprehensive staffing plan and revised budget for the Nairobi regional office. USAID's CTO approved RTI's request to proceed with recruiting for the most critical positions, and requested a budget analysis to examine the overall impact of fully operationalizing the Nairobi office on funding for the rest of the IRS project activities. RTI took the following actions during this quarter regarding project staffing in Nairobi:

- Francis Kithuku started work as Finance Manager in October.
- RTI selected Samson Mesfin to serve as IRS Regional Controller, a finance position. USAID approved Mr. Mesfin's selection and he transferred from Iraq to Nairobi in late November.
- RTI selected Dorcas Wainaina to serve as Regional Human Resources Manager. She is available to start work in January 2008, assuming USAID approval.
- RTI continued recruiting for two Environmental Compliance Inspectors. Melanie Biscoe and John Chimumbwa reviewed applications and interviewed candidates. RTI expects to fill these positions in the next quarter, assuming USAID approval.

RTI also took the following steps on other matters concerning staffing:

- RTI gathered information from all chiefs of party (COPs) to prepare a complete census of staff working on the IRS project. During the process, RTI determined that it had not obtained USAID contracting officer (CO) approval for some of the staff and prepared a “batch” request for retroactive approval. The contracting officer approved this request in conjunction with the waiver of the requirement for CO approval of staff other than key personnel. RTI discussed with the CTO the possibility of revising the contract to eliminate the requirement for contracting officer approval of staff other than key personnel. RTI will submit a formal request for this change in the next quarter.
- Gene Brantly and Barbara Kennedy held extensive discussions with IRS personnel to revise the roles and job descriptions for US-based staff (task managers and project administrative specialists), to recognize the growing responsibilities of staff to be based in Nairobi and the increasing authority and capacities of country field offices. This evolution of roles has been anticipated for some time and should proceed over the next two quarters.
- RTI is still waiting to receive approved work visas from the Kenyan government for John Chimumbwa and Kim Canelas. Mr. Canelas has yet to receive his personal effects shipment from the US, pending resolution of the visa issue. RTI is working with the Kenya mission and has asked for the CTO’s assistance in resolving the matter.

Subcontractors

In October, RTI requested that the USAID contracting officer obtain clearance from the Department of Labor indicating that Crown Agents USA had satisfied the requirements of FAR Clause 52.224-24 regarding Preaward On-Site Equal Opportunity Compliance. RTI requires this clearance before exceeding \$10 million in subcontract awards to Crown Agents USA. RTI suspended further awards to Crown Agents pending resolution of this issue. The request was still pending as of the end of this quarter.

RTI staff conducted an audit of procurement records maintained by Crown Agents USA in November, to verify that all USAID requirements are being met.

Gene Brantly, Sherrill Speers (RTI Vice President for International Finance), and Cheri Brown-Alexander met with representatives of Crown Agents USA to discuss several changes in practice and staffing that would be required during the second year of the contract. These included a greater concentration of effort using Crown Agents staff in Nairobi, completing the process for issuing indefinite quantity contracts to equipment and insecticide vendors, increasing the use of local (in-country) procurement, and improvements in invoicing and timely payment.

Technical Progress

IRS Training Manual

John Chimumbwa completed the first draft of the IRS Training Manual in October. The draft manual was used as the basis for training sessions delivered in Rwanda, Senegal, Kenya, Ghana, Malawi, and Mali, and was revised periodically to respond to comments from trainers and participants. Melanie Biscoe started work on significant revisions to the manual in December to harmonize the content in complementary sections and add sections on environmental assessment, compliance, and monitoring. The revised manual will be submitted for USAID comment next quarter, after Ms. Biscoe has completed her revisions.

IRS Operational Procedures and Manual

Susan Voskuil, head of Project Administration for RTI's International Development Group, held a two-day intensive workshop in Washington in mid-November with the Project Administrative Specialists and Task Managers assigned to the IRS project. The meeting included training for the Task Managers to review details of selected procedures, and an open discussion of additional needs that should be addressed through new or revised administrative procedures. The following topics were addressed:

Day 1: Implementation Planning and Trouble-shooting

- Best practices/pain points on implementation to date—what's working and why; what's not working and why.
- Approach to planning for remaining country programs—what resources are needed; how do we best deploy them; how to work with potential bottlenecks.
- Role/responsibilities/authorities among major stakeholders in implementation.

Day 2: Financial and Administrative Management Tools

- Budgeting, including process for getting inputs from the field, available financial reports, and the financial reporting schedule.
- Refresher on administrative management processes.

Ms. Voskuil is also coordinating work by the Project Administrative Specialists to prepare a complete set of administrative operating procedures applicable to the IRS project. New procedures are being prepared on the following topics:

- Reporting and response to adverse incidents
- Hiring consultants
- Hiring staff
- Travel clearance requests
- Property purchase and recording

Environmental Monitoring Requirements for Countries using DDT

Mr. Robert Truesdale, a group manager in the Environmental Health and Safety Division of RTI's Science and Engineering Group, is leading work to prepare an environmental monitoring plan for DDT residues associated with the upcoming IRS program in Uganda. Similar monitoring programs may be needed in other countries using DDT, including Zambia, Mozambique, and Ethiopia, depending on the level of concern shown by USAID missions and/or host country ministries of health. Gene Brantly and Mr. Truesdale initiated discussions with Ms. Elissa Beerbohm of USAID to explore how USAID will consider potential environmental monitoring requirements for other countries. Ms. Beerbohm said she would discuss the matter with mission and bureau environmental officers and requested that RTI prepare a summary description of the Uganda DDT monitoring plan, once it has been completed and approved.

Financial Progress

From October to December 2007, the IRS TO1 project incurred \$5,589,234 in costs. Total project costs incurred contract-to-date as of December 2007 were \$14,910,766 against funds received of \$37,759,717. Appendix 1 provides more detailed information on financial status.

Management Priorities for Upcoming Quarter

RTI will continue to focus attention on staffing arrangements and roles and responsibilities for the project's Nairobi office, to come to agreement with the CTO on the optimal staffing plan and budget for Nairobi and to complete recruiting for approved positions. RTI will also prepare new task orders for two subcontractors, Crown Agents and Liverpool Associates in Tropical Health, to better realize the full benefit of their support and make the partnerships more efficient. RTI is preparing a quarterly newsletter, the "IRS Update," the first issue of which will be completed next quarter. Finally, a revised draft of the IRS Training Manual, incorporating improvements from the field tests conducted in several countries, will be submitted to USAID for review.

Angola

In June 2005, Angola was selected as one of the first three countries to receive funding under the United States' (U.S.) President's Malaria Initiative (PMI). PMI and the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM) funded the first large-scale indoor residual spraying (IRS) program in more than 10 years in Angola from December 2005 to March 2006.

Working initially under the U.S. Agency for International Development (USAID) Integrated Vector Management (IVM) project, RTI assisted the Angolan National Malaria Control Program (NMCP) with its IRS program. Activities supported by PMI and managed by RTI in Angola in 2006 and 2007 included spraying of 110,000 houses, protecting a total population of more than 613,000 in three southern provinces, Huila, Cunene, and Namibe. More than 85% of the houses targeted for spraying during this time were sprayed.

During fiscal year 2008, IRS will be continued in Angola's southern province of Huila, which reports the most cases of malaria among the southern provinces, and discontinued in Cunene and Namibe provinces. IRS will be initiated in Huambo province, the second most malarious province in the country. Between October 2007 and December 2008, RTI will conduct two rounds of spraying within these areas. One round of IRS will be conducted between December 2007 and March 2008 and will protect a total of 140,000 households and approximately 600,000–700,000 residents. The second round of IRS will occur between October 2008 and December November 2008 and will also protect 140,000 households.

RTI is tasked with providing strategic, technical, management and operations support for IRS activities in these provinces. In addition, RTI will work with the NMCP to help them strengthen their malaria case detection and epidemic response capabilities. As such, RTI will support the NMCP to develop an early warning system for malaria cases and will strengthen its diagnosis of malaria by supporting the development of entomological monitoring capabilities and building of an insectarium.

This quarterly report presents the program's progress towards achieving these objectives in Angola from October through December 2007, and the report summarizes the project's current activities and achievements, outstanding issues, and upcoming activities.

Current Activities & Accomplishments

Planning and Assessment

Pesticide Selection

The PMI team and NMCP confirmed their preference for using ICON CS for round three of spraying in Angola, and this requirement was included in the 2008 PMI Malaria Operating Plan. However, because of the high demand and limited manufacturing capacity for ICON CS, the manufacturer (Syngenta) had difficulties meeting all of the orders placed in late 2007. RTI had 23 boxes of ICON WP in storage as the remainder from round two. The PMI team and NMCP agreed that RTI should start spraying on schedule in Huila province, using the ICON WP, and delay the start of its program in Huambo province until it could obtain a sufficient supply of ICON CS.

Procurement and Logistics

Pesticides

RTI ordered additional insecticide for use in Huila and Huambo provinces in early November. The local supplier indicated it would fill the order for ICON WP within 3-4 weeks, ensuring that adequate insecticide will be available to continue operations in Huila province after the Christmas break. The supplier is not able to fill the order for ICON CS until early January. This has delayed the start of operations in Huambo province until receipt of the insecticide.

Spray Pumps & Parts

Replacement parts for the Hudson compression sprayers in Huila province were ordered, delivered, and received during this reporting period. The most critical part, about 300 “strainers,” were delivered to Angola in mid-November, but did not clear through customs for approximately three weeks. As soon as they were available, RTI fitted them to the stock of sprayers and launched spray activities in Huila.

Personal Protection Equipment

Personal protective equipment was ordered during this period for use in Huambo. After evaluating local suppliers and the steps that would be required to obtain contracting officer approval for local procurement, RTI determined that international procurement would be the faster course of action. Orders were placed and delivery is expected in January.

Spraying Operations

The logistics plan for round three was developed during the previous reporting period. The target number of houses to be sprayed in Huila province was reduced to 80,000. The schedule for spraying operations in Huambo was delayed until early in 2008 because the specific insecticide approved for this round – the encapsulated formulation of lambda cyhalothrin (ICON CS) – was not available from the manufacturer in time to launch the program in November as planned. Because RTI had in stock a modest supply of insecticide, the program in Huila was launched on December 3, 2007. The following is a brief summary of the operational plans for Huambo and Huila in round three.

Huila

- 80,000 houses to be sprayed in the outskirts of Lubango and Chibia.
- 41 days of operation with a target of 1,920 houses sprayed per day.
- 240 spray operators with a target of 8 houses sprayed per day.
- Operators will be organized in 30 teams of 8, with 3 teams per brigade.
- The communications program will engage 90 information, education, and communications (IEC) activists.
- Spray operations in Huila started on December 3, 2007.
- As of December 21, the campaign had sprayed 12,570 houses, using 460 kgs of insecticide to protect 61,900 residents.

Huambo

- 60,000 houses to be sprayed over 21 days, with a target of 2,880 houses per day.

- 360 spray operators with a target of 8 houses sprayed per day.
- Operators will be organized in 45 teams of 8, with 3 teams per brigade. The communications program will engage 120 IEC activists.
- Schedule: Will start as early as possible in January 2008, after receipt of the ordered insecticide and PPE.

Environmental Assessment and Compliance

USAID's Regional Environmental Advisor and Regional Legal Advisor visited Angola in early December. They inspected the IRS warehouse in Lubango, the staging and wash area, and active IRS operational sites in Huila province. Verbal comments provided to RTI indicate the visitors were generally satisfied with the environmental mitigation measures in place in Huila, including the level of discipline and organisation of spray operators. They indicated RTI should address the following concerns:

- Prepare an addendum to the existing Pesticide Evaluation Report and Safe Use Action Plan (PERSUAP) describing the justification for moving IRS operations from Namibe and Cunene provinces to Huambo province, and indicating the environmental mitigation measures in force for Huila province will also be applied in Huambo province.
- Arrange for proper disposal of empty sachets and remaining insecticide.
- Establish or enforce a practice for numbering the houses sprayed.
- Place appropriate warning signs (hazardous chemicals, no smoking) in the warehouse and on vehicles.

RTI requested that results of the inspection be communicated to RTI in writing. RTI will follow-up with the mission Environmental Officer, Mr. Josefa Gomes, to confirm that the issues noted above have been addressed.

Other Activities

Entomological Monitoring

A team from Angola's Faculty of Sciences was identified to perform the baseline entomological survey in Huambo and a similar survey for Chibia municipality in Huila, which is being added to the round three IRS program. Plans for the survey and protocols were agreed in late November and the team submitted its proposed budget in early December. The budget was approved with adjustments and the team plans will start its work in early January.

Capacity Building of Ministry of Health (Surveillance, M&E, etc.)

RTI was informed in early October that a site close to the National Institute for Public Health (INSP) had been selected for the insectary and laboratory. The PMI CDC focal point, Dr. Jules Mihigo, asked Antonio Muhungo, RTI's Chief of Party, to contact Dr. Jacques Mathieu at CDC Luanda to obtain information that had been developed by CDC over the previous two years, including specifications, drawings, and cost estimates that CDC had obtained through a public solicitation. Mr. Muhungo met with Dr. Mathieu in early November and forwarded the documents to RTI, requesting further instruction on the steps that would be required to carry out the plan. Abrar Sattar, RTI's Project Administrative Specialist for Angola IRS, provided specific instructions on the process that the Angola team would need to follow.

Mr. Muhungo also requested a meeting with the directors of the INSP and NMCP to describe RTI's new role regarding the insectary and laboratory. Mr. Muhungo requested that CDC facilitate the meeting, but Dr. Mathieu indicated he should arrange the meeting directly. As of the end of this reporting period, Mr. Muhungo had not yet been able to meet with the INSP and NMCP directors concerning this matter.

Project Management and Administration

Staffing and Financial Management

RTI has encountered serious difficulties in retaining and recruiting a Finance Manager for our office in Luanda. After the previous Finance Manager resigned, Mr. Muhungo advertised the position, reviewed applications, selected the preferred candidates, conducted appropriate testing, and checked references. He was unable to reach agreement on terms with the highest ranked candidate. As of December 2007, negotiations are underway with the other candidates to make a final selection.

During this period, the project's financial reporting to RTI headquarters has fallen significantly behind. RTI's Director of International Finance has determined that no further funds will be advanced to Angola until the accounts and reconciliations are brought current. One of the project's regional finance staff will be sent to Angola early in 2008, as soon as a travel visa can be obtained, to provide support to the office and hopefully to train the new finance manager. Until the accounts can be brought current, the Angola office will not be able to make further payments to spray operators and local vendors. This will likely delay the restart of IRS operations after the Christmas break.

Partnership and Collaboration

RTI negotiated a new memorandum of understanding (MOU) with the NMCP to clarify operational responsibilities assumed by each party for the IRS program. The MOU was signed by RTI's Chief of Party, the Director of the NMCP (Dr. Filomeno Fortes), and the USAID Mission Director. The MOU provided a clear starting point for discussions with the Director of Public Health (DPS) in each province, regarding the roles RTI would serve and RTI's and NMCP's expectations of cooperation and support from the provincial government.

On October 30, Antonio Muhungo made a presentation to the PMI focal points and other interested staff at USAID regarding results of the FY07 IRS program.

On November 7, RTI participated in a USAID Partners' Meeting organized by the mission to review the technical programs being implemented by USAID and share current information on security and mission priorities.

Outstanding issues

- ICON CS will not be delivered to Angola until early in 2008, forcing a delay in the start of round three operations in Huambo. RTI is also awaiting delivery of compression sprayers and protective equipment for use in Huambo.
- RTI must provide an addendum to the approved PERSUAP before launching IRS operations in Huambo.

- Financial reporting is behind schedule, compromising availability of funds. RTI will provide support from its regional finance staff until a new Finance Manager is hired.

Upcoming activities

- Issue a request for quotations for building the insectary, once final specifications have been approved by INSP and NMCP.
- Provide USAID with the PERSUAP addendum prior to launching IRS in Huambo. Provide evidence of response to other issues noted by the USAID inspectors.
- Continue and complete IRS round three in Huila. Launch round three in Huambo as soon as insecticide and equipment are received.
- Complete negotiations, employment, and training for a new Finance Manager. In the interim, provide support from regional staff to bring accounting reports up to date.

Benin

Benin was identified as one of the second wave of countries to receive funding under the United States' (U.S.) President's Malaria Initiative (PMI). The United States Agency for International Development (USAID) and the Benin National Malaria Control Program (NMCP) identified four epidemic-prone districts for indoor residual spraying (IRS) activities. In fiscal year 2008, the USAID and NMCP agreed to focus spraying activities in Sèmè-Kpodji, Dangbo, Adjohoun, and Akpro Missérété districts.

RTI is tasked with providing strategic, technical, management, and operations support for IRS activities in the above-mentioned districts. RTI and the NMCP will treat at least 70,000 households in the four districts during the first round of IRS which will begin in July. While most households in the target areas will be sprayed with residual insecticide, 20 to 30 percent of the target households in Dangbo and Adjohoun will receive long-lasting insecticide treated nets (LLNs) instead of IRS due to the prevalence of wetlands. This combined IRS program in these districts will protect approximately 350,000 people and at least 85 percent of the total estimated population in the targeted districts.

RTI will also implement a monitoring and evaluation (M&E) plan in Benin in collaboration with the Center for Entomological Research of Cotonou (CREC) and the NMCP. Additionally, RTI will provide support to the NMCP and to CREC by training them in IRS activities and providing guidelines to CREC in the construction of soak pits and renovation of storage facilities in the areas where CREC is working.

This quarterly report presents the program's progress towards achieving these objectives in Mali from October through December 2007, and the report summarizes the project's current activities and achievements, outstanding issues, and upcoming activities.

Current Activities & Accomplishments

Start Up

- Bijou Muhura, home office technical manager (HOTM), and Jacob Williams (environmental scientist) were in country in October and had successful meetings with local partners to discuss IRS activities, the IRS timeline, and the roles and responsibilities of each partner;
- The Mission has informed RTI that the IRS project will be allowed to use the vehicle that had previously been used by the closed RTI governance project. This vehicle will be used by the IRS project until additional vehicles have been purchased; and
- A bank account has been opened and is operational.

Planning and Assessment

Logistics Assessment

Mamadou Diallo (logistician from Senegal) conducted the logistics assessment in November. However, the logistics assessment was not fully completed as the IRS sites were being disputed and are likely to change. Another logistics assessment will have to be conducted before quantification can be done for the commodities that will be procured.

Other Activities

The IRS Task Force meeting is in place awaiting MOH confirmation. In the meantime, the country partners have met numerous times throughout the quarter at USAID/Benin to discuss operational plans and specific issues.

Entomological work

The CREC conducted a baseline entomological survey for three months and tested the below insecticides. One of the tested pesticides will be selected for IRS.

- K-Othrine WG 250 (Deltaméthrine 250g/kg),
- Ficam M (Bendiocarb 800g/kg),
- Fendona 5WP (Alpha-cyperméthrine 50g/kg),
- Sumithion 40 WP (Fénitrothion)
- Master Quick ZC (Chlorpyrifos 250g/l + Deltaméthrine 12g/l)

Project Management and Administration

Staffing

Job descriptions for the positions of Chief of Party; Logistician; Finance Manager; Technical Coordinator; Administrative Assistant; monitoring and evaluation consultant; information, education, and communications (IEC) consultant, and environmental consultant were posted in the news paper in October. The hiring process has been begun for key country personnel and interviews will be conducted over the coming weeks.

Office & Warehouse Space

Pascal Zinzindohoue, the USAID/Benin health team leader and focal point, approved the office building found by RTI in Sikecodji. A lease for the Benin IRS program office was signed; the office is located in Cotonou at Lot 921 Parcelle “E” Sikecodji.

Partnership and Collaboration

National Partners

RTI will be working in close collaboration with the PNLP. The HOTM held meetings with the PNLP to explain IRS activities and talk about roles and responsibilities during those activities.

Outstanding Issues

- The head of the CREC, Professor Martin Akogbeto, sent a letter to the PNLP coordinator, Dr. Kossou, requesting that two IRS sites be changed (Porto Novo to Akro-Misserete and Aguegue to Dangbo) following the completion of a baseline survey which provided more information on Anopheles mosquito locations. The PNLP has not yet confirmed these changes and this decision significantly impacts the current logistics assessment and other program planning that is taking place;

- USAID funding for the CREC, which has been routed through WHO, has not yet been received and the CREC has indicated that further delay may inhibit their ability to work with RTI on a number of necessary planning activities, including the logistics and environmental assessments. Dr. Dina Markitan Gbenou (head of WHO/Benin’s malaria program), indicated that WHO has received the funding from USAID but is uncertain when it will arrive in country;
- RTI proposed that each Ministry and partner organization 1) provide a point person to coordinate with the RTI-IRS team and 2) nominate one person to participate in the IRS steering committee;
- Mamadou Diallo (logistician from Senegal) partially completed the logistics assessment;
 - Ms. Diallo estimated that the population covered in the three proposed sites was about 280,000. The Malaria Operational Plan (MOP) stated that the covered population was about 350,000. RTI communicated this discrepancy to the PMI team (as well as to the CREC and PNLP), who will be determining the appropriate resolution for this issue. If new sites are added or sites are changed, it is most likely that another logistics assessment will need to be scheduled and this could result in schedule delays;
 - Additionally, the currently selected sites are still awaiting approval by the MOH. Further delay with this approval may result in schedule delays.
- The MOH’s director of cabinet has requested that only Cotonou be sprayed instead of the original sites selected. USAID/Benin and the CREC scheduled a meeting on December 24 to discuss the pesticide and sites selected. Because mosquitoes in Cotonou are more resistant to the pesticides being selected, if Cotonou is the site selected, it will be necessary to consider the resistance factor (and there is only funding for one spray round) as well as acceptability of the population. It has been requested that an “etude du dossier” be performed and completed in January by experts from different fields to decide on the pesticide that will be used in IRS; and
- The PNLP coordinator in Benin will be leaving. As this is a key decision maker for the IRS project, this departure may or may not have an impact on the IRS project.

Upcoming Activities

- Due to site changes, a second logistics assessment has been planned for January 2008. It will be conducted by Kim Canelas, RTI Operations Director. Once the logistics assessment is completed, it will enable the operations manager to quantify for commodity needs and, thereafter, initiate the procurement;
- The environmental assessment, which was originally scheduled for November, is now scheduled for January 2008. The environmental assessment was postponed due to Ms. Melanie Biscoe (environmental scientist) being sick and unable to travel;
- Candidates for a range of other country program positions are in the process of being identified to start in January. Some positions will be reposted in the newspaper since acceptable candidates were not found;
- The new COP for Benin, Seydou Doumbia, has been hired and will begin work on January 14. Mr. Doumbia is Malian and has extensive experience working in the malaria field. Ms. Muhura will be in country to introduce Mr. Doumbia to all local partners and to help him prepare for the fourth IRS steering committee meeting.
- The Mission has arranged subsequent meetings in January with the Director of Cabinet of the Ministry of Health (second in command after the MOH), along with the CREC and the PNLP, to discuss the pesticide and site selections.

Ethiopia

Ethiopia was identified as one of the third wave of countries to receive funding under the United States' (U.S.) President's Malaria Initiative (PMI). The U.S. Agency for International Development (USAID), Ethiopia National Malaria Control Program (NMCP), and Oromia Regional Health Bureau (ORHB) identified three epidemic-prone zones in Oromia region (East Shoa, Arsi, and West Arsi) for indoor residual spraying (IRS) activities. In 2008, the USAID and ORHB agreed to focus spraying activities in the 12 districts of the East Shoa zone, five districts of the Arsi zone, and four districts in the West Arsi zone.

RTI is tasked with providing strategic, technical, management, and operations support for IRS activities in the above-mentioned districts. RTI and the ORHB will treat at least 400,000 households with residual insecticide and protect over 1.7 million people in 21 districts during the first round of IRS in Ethiopia.

In addition, RTI will develop and implement entomological and environmental monitoring plans in Ethiopia in collaboration with the Malaria Research and Training Center (MRTC), Addis Ababa University Department of Pathobiology, Ethiopia Health and Nutrition Institute, Environmental Protection Authority (EPA), zonal and district health offices, and other USAID and national partners.

This quarterly report presents the program's progress towards achieving these objectives in Ethiopia from October through December 2007, and the report summarizes the project's current activities and achievements, outstanding issues, and upcoming activities.

Current Activities & Accomplishments

Start-Up

A scoping visit for the Ethiopia IRS country program was planned and undertaken during this period. John Chimumbwa, IRS technical director, and Patricia Preware, home office technical manager for Ethiopia, visited Ethiopia to meet with the PMI team in Ethiopia, the NMCP, the Oromia Regional Health Bureau, Crown Agents Ethiopia, and other local partners.

Planning and Assessment

General work planning

During the scoping visit, Mr. Chimumbwa and Ms. Preware met with the USAID/Ethiopia PMI representatives to ascertain what support would be needed for the Ethiopia IRS campaign. A draft scope of work for work-planning purposes was submitted to the Mission for review and was discussed during this visit. However, pending the release of the final Malaria Operational Plan (MOP) for Ethiopia, no final decision was made regarding the exact areas of IRS support in Oromia or the target number of houses.

During the scoping visit, the team was informed by a number of key stakeholders that the most suitable time for carrying out spraying, in order to stretch it across the whole transmission season and also to assist in bridging other the epidemic-prone seasons, would be the June/July period. This information was independently verified by WHO and the national Ministry of Health (MOH), as well as by the Oromia Regional Health Bureau.

With the release of the final approved MOP on November 25, RTI began preparation for a second country visit to meet with partners and review the revised scope of work for Ethiopia IRS support. Planned support as outlined in the MOP includes the following:

- Procurement of IRS equipment to support 3,000 spray operators;
- Implementation and supervision activities for 15 zonal and 200 district offices (no specific target numbers of households identified to date);
- Support entomological capacity building and monitoring services, and the refurbishment of the Malaria Reference and Training Center (MRTC) in Adama;
- Quality control and environmental compliance, including at the Adami Tulu pesticide plant.

Environmental Assessment and Compliance

Jacob Williams, RTI environmental consultant, circulated a draft of the supplemental environmental assessment (SEA) document to USAID, the Ethiopia NMCP, and other relevant parties for review and comments. During this period, Mr. Williams also visited Ethiopia in order to take part in the public comment meeting for Ethiopia. The public comment is a necessary part of the SEA process and was organized in Adama to obtain public and other interested parties' opinions on the use of DDT for IRS operations.

Waste Management

Through various discussions, it was discovered that the current practice of disposal is to incinerate the sachets and cartons at the point of utilization and that empty packaging is not returned to stores for safe guarding. During their visit, Mr. Williams and Mr. Chimumbwa put forth a proposal to Adami Tulu management to consider accepting waste to store temporarily on behalf of the regions until a long-term solution is found at the continent level. The factory management requested time to consider this further. The Adami Tulu plant was in the process of negotiating with some of their international partners to try and establish the capacity to correctly incinerate the waste through purchase of incinerators designed for this purpose. However, no further details were forthcoming.

Pesticide Selection

The government of Ethiopia formulated an IRS strategic framework covering three classes of insecticides: organophosphate, organochlorides and pyrethroids. For the 2008 IRS campaign, and in line with the country's IRS guidelines and existing practices, di-chloro di-phenyl tri-methyl chloride (DDT) 75 percent WP will be used for IRS operations.

Procurement and Logistics

Pesticides

In light of sufficient available quantities of DDT for use in Oromia, RTI does not anticipate making any significant insecticide purchases for the 2008 malaria season, but will facilitate the in-country transportation and safety of the products.

Other equipment (Spray Pumps & Parts, PPE)

The 2008 MOP outlined the need for the following equipment:

- 1,200 spray pumps
- 3,000 spare part kits
- 3,000 sets of personal protection equipment (PPE)
- Other minor equipment as necessary

These quantities will be verified through further consultation with the Oromia Regional Health Bureau and USAID/Ethiopia before final procurement is made.

Project Management and Administration

Staffing, Office & Warehouse Space

During the RTI scoping visit, USAID/Ethiopia advised that it may not be necessary to establish a fully fledged RTI office in Ethiopia. However, RTI believes a presence would be required in order to ensure quality improvements and adequate financial management. Based on the absence of final household target numbers and a decision on the precise level of support needed, further discussion will be necessary once these factors have been determined. USAID/Ethiopia recommended making a decision regarding opening an office and staffing after RTI's next visit.

Partnership and Collaboration

National Partners

John Chimumbwa, Jacob Williams, and Patricia Preware met with various national partners during their visit to Ethiopia. These include:

- National Ministry of Health
- Oromia Regional Health Bureau
- Environmental Protection Authority
- Ministry of Agriculture's Pesticide Control Team and Agricultural Pesticide Registration and Control Laboratory
- Adami Tulu Pesticide Factory
- Adea District Malaria Office
- World Health Organization

Outstanding Issues

- Final determination of target districts and number of households.
- Ascertain final procurement requirements and delivery schedule once determination of target households and districts is made.

Upcoming Activities

- Follow-up visit by RTI team (currently planned for January 7-13, 2008).

Ghana

Ghana was identified by the United States Agency for International Development (USAID) as one of the third wave of countries to receive funding under the United States' (U.S.) President's Malaria Initiative (PMI). The USAID and the Ghana National Malaria Control Program (NMCP) identified five epidemic-prone districts (West Mamprusi, Gusheugu, Karaga, Savelugu/Nanton, and Tolon) for indoor residual spraying (IRS) activities.

RTI is tasked with providing strategic, technical, management, and operations support for IRS activities in the above-mentioned districts. RTI and the NMCP will treat 500,000 households with residual insecticide in five districts during the first round of IRS. This will protect at least 85 percent of the total estimated population in the targeted districts.

In addition, the IRS program will collaborate with the Ghana's Ministry of Health (MOH), the Ghana Health Service (GHS), the NMCP, and other stakeholder institutions to establish and maintain a national IRS coordinating committee. RTI will work closely with the Noguchi Memorial Institute for Medical Research (NMIMR) to manage entomology monitoring and surveillance activities for IRS operations as well as provide support to the NMCP to strengthen epidemic preparedness and response plans.

This quarterly report presents the program's progress towards achieving these objectives in Ghana from October through December 2007, and the report summarizes the project's current activities and achievements, outstanding issues, and upcoming activities.

Current Activities & Accomplishments

Start Up

Anna Thompson, RTI's home office technical manager for the Ghana IRS program, conducted an initial scoping visit to Accra to meet with the NMCP and USAID/Ghana. RTI was unable to meet with the Minister of Health and director of the Ghana Health Service, but met with the NMCP director and staff. In addition, the RTI team met with other key stakeholders and potential partners such as UNCIEF, the NMIMR, AngloGold Ashanti, and USAID implementing malaria partners in Accra. Paul Psychas and BethAnne Moskov of USAID/Ghana helped coordinate meetings with the USAID/Ghana staff, the NMCP, AngloGold Ashanti, Quality Health Partners (QHP), NetMark, Ngouchi, and the Community-based Health Planning and Services (CHPS) initiative.

While the focus of the initial scoping visit in September 2007 was partnership development, Ms. Thompson also gathered preliminary information on how to open project bank accounts and met with USAID to provide an overview of assistance required by the Mission during the procurement and implementation phase. Ms. Thompson was also briefed on the new procedures within the Mission to facilitate waiver processes for commodity procurement.

In December 2007, RTI conducted a follow-up visit to discuss district selection for IRS operations, as well as many of Ms. Thompson's project administrative start-up activities. Ms. Thompson met with real estate agencies to find appropriate office space for the IRS program. Following the decision to implement IRS activities in the northern region, Ms. Thompson began locating office space in Tamale with regional offices in targeted IRS districts.

Planning and Assessment

Logistics Assessment

RTI determined the logistical and financial support required for the IRS program and associated environmental compliance activities. The assessment evaluated storage facilities, human resource requirements for the implementation of spray activities, operational arrangements, and the required financial resources for implementing the spray operations. RTI also conducted site visits to the targeted districts to meet with regional and district authorities.

Environmental Assessment and Compliance

In November 2007, an environmental assessment was conducted by Jacob Williams, RTI's director of the USAID Integrated Vector Management (IVM) project, to satisfy the regulatory requirements of Ghana's Environmental Protection Agency (EPA) and the U.S. Code of Federal Regulations (22 CFR 216). The assessment evaluated the status of environmental assessments for other donors' vector control interventions, and sought to conjoin USAID's efforts with those of the other donors as necessary. In addition, Mr. Williams analyzed IRS activities in the country with regard to pesticide use (chemical, toxicological, and ecotoxicological features), mosquito resistance to the pesticides, and the interaction between IRS operations and vector control activities. Mr. Williams also identified the Ghanaian legal requirements that apply to the IRS program with regard to pesticide use, handling (supply, storage, spraying), and waste disposal.

Mr. Williams conducted field visits to the targeted districts in the northern region. In addition, technical discussions were held and crucial reports provided by USAID/Ghana (health and environment teams), the NMCP, GHS, Noguchi Memorial Institute for Medical Research, and regional/district health administrations in the northern region.

The environmental assessment will include the review's results, as well as the procedures that must be followed to minimize potential risks to human health and the environment from pesticide use in IRS.

Pesticide Selection

RTI will work closely with the GHS/NMCP, NMIMR, and other key stakeholders to select the insecticide that will be used for IRS in the targeted northern districts. The following criteria will be recommended for the insecticide selection:

- Pesticide registration in Ghana
- Acceptability of the pesticide to the NMCP
- Minimal risk to human health: Pesticide(s) must be approved by the World Health Organization (WHO) and should be selected based on their safety as described in USAID's Programmatic Environmental Assessment (PEA) for IVM
- Minimal risk to the environment, livestock, and agricultural trade
- Additional technical and logistical considerations include:
 - a) Vector susceptibility/resistance
 - b) Appropriateness of surface for spraying

- a) Duration of effectiveness (and implications for cost)
- b) Cost of insecticide
- c) Ghana's capacity to prevent pilferage

Selection of IRS District

Vector control is an essential component of the malaria control program and the country has adopted IVM to realize this control. In terms of site selection, the government of Ghana proposes to start IRS in an area where it will have maximum impact and demonstrate both the efficacy and sustainability of the program in the shortest possible time. The area should meet the following criteria:

- Transmission is predominantly seasonal and can be successfully interrupted by minimizing the longevity of female *Anopheles* mosquitoes.
- The disease and mortality burden is high enough to realistically enable a 50 percent reduction over the next three seasons.
- Vectors are sensitive to the selected pesticide.
- The area has both indoor/resting and endophagic *Anopheles* vectors.
- The population size is compatible with the resource envelope for the project.

In December 2007, Mr. Williams, Ms. Thompson, and John Chimumbwa, RTI's IRS technical director, met the GHS and USAID to discuss criteria for target site selection based on the goals of the government.

In the National Strategic Plan, the government of Ghana identified the northern region of the country as an area with the highest disease burden and therefore the highest morbidity and mortality burden in 2005. In addition, the NMCP indicated that the northern region is epidemic prone, hard to reach, and characterized by seasonal transmission for PMI-supported IRS activities. The following districts in the northern region were proposed for the first round of IRS operations:

- Tolon/Kumbungu
- Saveluga/Nanton
- Karaga
- Gushegu
- Saboba/Chereponi
- West Mamprusi
- East Mamprusi
- Bunkpurugu/Yunyoo

The discussions resulted in a three-day field visit by the RTI and NMCP team to the northern region to meet with the northern regional health director and district health and disease control officers to discuss possible IRS activities in Gushiegu, Savelugu, Karaga, and West Mamprusi. The RTI team also collected basic demographics for each of the districts, including an inventory of housing structures and materials. The general demographic statistics and assumptions for IRS planning in the targeted areas are as follows:

Basic Demographics	(2004)
Population	21 693,970
Children under five	3.2 million
Women of child-bearing age	4.5 million
IMR	64/100K
<5MR	111
Life expectancy	58 years
Cases per year	3.4 million
44 percent of all cases reported at health facilities	

Basic Assumptions

- Round one planned to cover approximately 100,000 households
- Population of approximately 900,000
- Family size averaging nine members per household
- Each household on average possesses five rooms of 180 square meters
- A single sachet covers on average 200 square meters
- An average of 4km between villages
- An enclosed family unit comprises multiple households
- Because of dispersed nature of the population, an operator can spray 20 rooms a day

Other Activities

Entomological Monitoring

The RTI team (Mr. Chimumbwa, Mr. Williams, and Ms. Thompson) held preliminary meetings with Drs. Wilson and Boakye from the Ngouchi Memorial Institute for Medical Research (NMIMR) to discuss a baseline assessment of the northern region. The discussions focused on NMIMR's role in the assessment, which would include insecticide susceptibility testing of pyrethroids and carbamates insecticides and entomological transmission indices. The possibility of NMIMR being involved in community advocacy issues to prime the population towards the impending IRS was also discussed. The team determined that identifying the insecticide susceptibility status of local mosquitoes is critical for selecting the IRS insecticide. Because the IRS is to start between April and May 2008, susceptibility testing is to be completed by the end of January 2008. The team therefore decided to submit a proposal for the activities.

The RTI team also proposed to involve NMIMR in monitoring and evaluating the IRS activities and training district GHS staff for basic entomological data collection during the vector control period. The team also discussed sending NMIMR's entomologists to Liberia to support possible IRS activities, if necessary.

USAID and RTI determined that RTI should develop a contractual relationship with NMIMR based on a review of its proposal to support a baseline assessment for IRS activities in Ghana.

Project Management and Administration

RTI began recruiting personnel for the IRS program during this quarter. The team placed job announcements in the Daily Graphic newspaper and began screening chief of party, finance, and logistics officer candidates through a recruitment agency. During interviews, the RTI team showed preference for candidates with working experience in the northern region, the

ability to relocate and work in the northern region office, academic qualifications, and language capabilities.

RTI also planned to begin the process of identifying office space in Accra to serve as the liaison office for activities and reporting between the IRS Program, NMCP, and USAID.

Partnership and Collaboration

Ghana National Malaria Control Program (NMCP)

During the initial scoping visit in September, Ms. Thompson met with Dr. Barte-Plange and her staff at to provide an overview of the PMI IRS objectives of ensuring the correct application of IRS and building an in-country capacity for sustaining IRS operations.

Ms. Thompson presented the overall PMI/RTI IRS start-up process and highlighted the expected roles and responsibilities of key partners during the pre- and post- implementation phases. The presentation highlighted the importance of information, education, and communications (IEC) activities, as well as monitoring and evaluating the IRS program (spray operations, environmental compliance monitoring, and entomological surveillance). Ms. Thompson also discussed human resources requirements and proposed organizational structure. A generic timeline of IRS activities based on RTI's experience was shared with the malaria control staff.

The NMCP staff expressed interest in IRS intervention and supported the need to build in-country IRS capacity to ensure sustainability. Vector control manager Aba Baffoe-Wilmot expressed interest in the establishment of an IRS oversight committee to monitor IRS operations.

Ngouchi Memorial Institute of Medical Research (NMIMR)

Ms. Thompson and Mr. Psychas met with Drs. Wilson, Boakye, Appaw, and Koram of NMIMR to introduce RTI as the USAID contractor implementing IRS programs in PMI countries, as well as to discuss possible areas of collaboration with NMIMR. Mr. Psychas introduced the PMI program and RTI's support in implementing IRS operations in PMI countries. Ms. Thompson gave a brief overview of RTI's IRS operations in PMI countries, including needs assessments, operations management, and monitoring and evaluation with a focus on entomology monitoring.

Dr. Boakye presented the institute's key strengths regarding IRS operations. He emphasized NMIMR's capacity to:

- Conduct entomology monitoring activities for IRS operations in Ghana. Dr. Boakye highlighted their support for AngloGold's IRS operations in Obuasi.
- Train junior technicians at the district level to carry out surveillance activities with supervision from NMIMR's senior entomologist.

AngloGold Ashanti

Mr. Steve Knowles, the AngloGold Ashanti malaria program manager, hosted the RTI/USAID visit in Obuasi and provided an overview of AngloGold Ashanti's IRS experience and operations in Obuasi. AngloGold Ashanti manages an integrated vector

control program which includes IRS operations, larvaciding, and distribution of ITNs within the Obuasi municipality. Apart from a few minor operational differences, the AngloGold Ashanti's IRS operations, which target 130,000 structures, is run similarly to RTI's planned IRS operations. AngloGold's IRS operations are implemented in two five-month sessions each year with a week-long break in between to re-train all 116 full-time spray operators. The Malaria Centre is the focal point of planning, implementing, and monitoring activities and also houses an insectary for entomology monitoring. AngloGold's IRS operations are well regarded by the government of Ghana for their success in the Obuasi municipality area. RTI's experience managing IRS programs in other PMI countries would benefit the AngloGold IRS operations through mutual collaboration. RTI is prepared to share its expertise in environmental monitoring and compliance and public procurement of IRS commodities, should the government of Ghana support AngloGold Ashanti in managing IRS operations under the national IRS Program.

UNICEF

Ms. Thompson and Mr. Psychas met with Mark Young of UNICEF to introduce RTI as the lead implementing partner for PMI IRS activities. The discussion focused on UNICEF's experience in the northern regions of the country and potential collaboration in the areas of transportation, storage, and logistics management within UNICEF districts.

Meetings with NetMark, Quality Health Partners (QHP), and the Community-based Health Planning and Services (CHPS) initiative provided an opportunity for USAID implementing partners to discuss their respective programs and experiences in Ghana. RTI introduced the IRS program and project start up activities of relevance to USAID contractors. The above mentioned USAID implementing partners expressed their willingness to provide assistance for project start up activities to RTI during a follow up visit by RTI's task manager.

Upcoming Activities

- Program start-up and administration
 - Submission of a draft scope of work to USAID and MOH/NMCP.
 - USAID submission of letter to the government of Ghana introducing RTI as a new partner.
 - Recruitment of key personnel to support the Ghana PMI IRS Program
 - Selection and approval of key chief of party, logistics, and finance officer candidates.
 - Establishment of office infrastructure and banking systems in Tamale and Accra (possible liaison office).
- Detailed logistics/operational assessment- northern targeted district
- Submission of supplemental environmental assessment (SEA), including selection of insecticide for USAID and approval by the government of Ghana.
- Entomological monitoring
 - Initial planning for entomological surveillance with Ngouchi Memorial Institute for Medical Research.
 - Conduct baseline entomological assessment in collaboration with Ngouchi.

Kenya

Kenya was selected as one of the third wave of countries to receive funding under the United States' (U.S.) President's Malaria Initiative (PMI), beginning in fiscal year 2008. In anticipation of this new program and because of malaria's high priority as a public health problem in Kenya, the U.S. Agency for International Development (USAID) used resources from its fiscal year 2007 budget to begin supporting the indoor residual spraying (IRS) program in Kenya. As such, in 2007, RTI provided payroll support for the Kenya Ministry of Health (MOH) and its Division of Malaria Control's (DOMC's) seasonal IRS activities in the 17 IRS districts.

The fiscal year 2008 Malaria Operating Plan includes support for IRS in two epidemic-prone districts and two bordering districts in which malaria is endemic. This will advance the DOMC strategy of transitioning IRS to endemic areas. PMI funds will be used to pay for insecticides and spray equipment, operational costs, training and supervision of spray operators, and related technical assistance for planning, monitoring and evaluation. The specific IRS activities for fiscal year 2008 are as follows:

- Provide technical assistance to the DOMC to refine their IRS strategy for epidemic prone areas in the highlands of western Kenya and assist with planning for the 2008 IRS campaign. This support will include additional training for sprayers and supervisors, development of a comprehensive IEC program to sensitize communities to the IRS campaign and assistance in planning and managing the logistics of the IRS campaign.
- Support IRS in two highland and in two neighboring endemic districts targeting 85 percent coverage in all four districts.

Planning discussions for the above activities were conducted between October and December 2007, and this quarterly report summarizes the activities during this period.

Current Activities & Accomplishments

Start Up

RTI worked with the Kenya PMI team (USAID Kenya and the Division of Malaria Control) to plan for the launch of the PMI program in Kenya. The launch will take place on October 17 at the Ministry of Health and will be officiated by the USAID Deputy Chief of Mission and the Minister of Health. RTI has been asked to demonstrate IRS operations by showing operators in full gear and carrying spray pumps.

Other Activities

End of Round Evaluation

RTI sponsored a two-day post IRS assessment meeting October 10-12 with the Kenya DOMC and its district, province, and national level representatives. The meeting identified many "lessons learned" from the DOMC's first large IRS program conducted in April to July 2007. These lessons will be considered during planning for the next spray round, scheduled in 2008.

Project Management and Administration

Staffing

Dr. John Chimumbwa, RTI's Technical Director for the IRS project, met with potential candidates for the Chief of Party and Technical Officer positions on the Kenya IRS program. RTI plans to hire a Chief of Party and other staff next quarter to provide support for the IRS round scheduled to launch in April 2008.

Partnership and Collaboration

National Partners

Dr. Chimumbwa attended a private sector workshop on Corporate Responses to Malaria, where he was asked to present his paper "Indoor Residual Spraying, The Ultimate Gift to the Population." The presentation was well received and many organizations requested more information about protecting their investments, work forces, and families. The group scheduled a follow-up IRS discussion meeting with senior managers and asked RTI to provide further information about responsible and effective IRS activities.

Upcoming Activities

During the next quarter (January to March 2008), RTI will hire staff, establish logistical arrangements, prepare a supplemental environmental assessment, and purchase equipment needed to support the DOMC's 2008 IRS program.

Madagascar

Madagascar was identified by USAID as one of the third wave of countries to receive funding under the United States (US) President's Malaria Initiative (PMI). The U.S. Agency for International Development (USAID) and the Madagascar national malaria control program (NMCP, or Service de Lutte contre le Paludisme [SLP]) identified 24 epidemic-prone districts for indoor residual spraying (IRS) activities. USAID and the SLP agreed to focus spraying activities in 95 communes within targeted central highlands districts.

RTI is tasked with providing strategic, technical, management and operations support for IRS activities in the above-mentioned districts. During the first round of IRS in fiscal year 2008, RTI and the SLP will spray at least 250,000 households with residual insecticide in six districts, protecting at least 1.25 million people and 90 percent of the total estimated population in these districts. In addition, RTI will provide support to Madagascar's national malaria control program to strengthen its entomology capacity to monitor IRS activities and procurement of entomological equipment.

This quarterly report presents the program's progress towards achieving these objectives in Madagascar from October through December 2007, and the report summarizes the project's current activities and achievements, outstanding issues, and upcoming activities.

Current Activities & Accomplishments

Start-up

Anna Thompson, the Madagascar home office technical manager (HOTM), visited Madagascar in September 2007 to:

- Meet with USAID and the NMCP to discuss and begin planning for an IRS program in Madagascar in fiscal year 2008.
- Meet with the NMCP to assess logistics, management, and technical needs and reach agreement on additional assistance required of RTI through USAID to support spray operations.
- Finalize RTI's scope of work and timeline for IRS operations in Madagascar with USAID/Madagascar, the Ministry of Health (MOH) and the Madagascar NMCP.
- Visit communes targeted for IRS operations in FY07 and FY08, and understand lessons learned and key challenges faced.

IRS operations in Madagascar were managed by the NMCP, with RTI providing targeted technical assistance, including procurement of IRS commodities and financial management of spray operations. To that end, the initial planning and start-up activities in Madagascar focused on:

- IRS budget and organization of the IRS program: Ms. Thompson (HOTM) reviewed the proposed IRS budget submitted by the NMCP and the current organizational structure with Dr. Jean Desire Rakotoson, IRS National Coordinator within the NMCP.
- RTI put forth a proposal to "loan" five to six NMCP IRS staff (including the national IRS coordinator, regional coordinator, national technical coordinator, regional technical coordinator, environmental monitoring officer/entomologist, and driver) to PMI/RTI IRS

team to facilitate funding of the program and payment of NMCP IRS staff during the spray operations. The proposal included setting up a per diem system for central and regional level officials supervising IRS operations. However, it was also agreed that the MOH would continue making regular salary payments to NMCP IRS staff and RTI would provide NMCP IRS staff with per diem during spraying activities according to USAID regulations.

- RTI also proposed to hire separately additional staff members, including Finance and Logistics Officers and a Senior Technical Advisor. In discussions with USAID/Madagascar, it was agreed that, given the need to manage PMI IRS funds in country and provide assistance with operational activities, RTI could move forward with the recruitment of Finance and Logistics Officers with the intention of recruiting a Technical Advisor in the future.

The IRS program faced delays in the financial set-up needed to support the NMCP's IRS operations. To this end, RTI fielded its IRS finance managers in Rwanda and Senegal to Madagascar to provide on-the-ground support of financial management and ensure IRS financial management systems were established in-country and funding delays could be resolved on the ground.

Planning and Assessment

Logistics Assessment

Based on country experience, the NMCP conducted a needs assessment to determine the material, logistical, and financial support required for the IRS program. This included assessments of the targeted districts, the human resource requirements for the implementation of spray activities, and operational arrangements, as well as the determination of financial resources required for the implementation of spray operations.

RTI reviewed the logistical needs with the IRS Program Coordinator within the NMCP and focused its support on:

- Purchasing insecticide, spraying equipment, and adequate amounts of personal protective equipment (PPE) for spray operators.
- Providing financial support and transportation for trainers and spray teams.
- Supporting the promotion of health education to raise public awareness and to foster cooperation for IRS activities.

Procurement and Logistics

Alpha cypermethrin was selected as the insecticide of choice by the NMCP. For the FY08 campaign, a total of 19,200 tons of alpha cypermethrin-RUB 5WP was required to meet the needs for the IRS campaign. RTI procured 18,400 tons to add on to the existing 800kg remaining from past IRS campaigns.

RTI's procurement partner, Crown Agents, led the tendering and procurement process for the Madagascar IRS campaign. 500 pumps (12 liters Hudson X-pert®) approved by WHO were procured by RTI. Additional spare parts were also procured for maintenance. In compliance with WHO norms, PPE was also procured by RTI and distributed to spray operators and supervisors. RTI also procured motorbikes for use by spray operators in certain areas.

Due to delays in the delivery of procured items, the IRS campaign (scheduled to start in January) was postponed to commence in February 2008. The official launch is scheduled for February 2, 2008 for Analamanga region and February 6, 2008 for Amoron’I Mania and Haute Matsiatra regions.

Insecticide was first stocked in a central warehouse rented by RTI in Antananarivo. Insecticide needs per district were estimated and deployed to each district. Zone supervisors are in charge of supplying appropriate quantity for each commune. Each fokontany (village) leader will receive the quantity allocated for her/his locality before the spray operation.

Below is a summary of items procured by RTI to support the Madagascar IRS program:

	Type	Quantity
Insecticides	RUBI SWP	18T 400
Spray equipments	Pumps Hudson X-pert 12 litre Reparation Kit	300 300
Personal protection equipment	Gloves, Visors, Hats, Goggles, Overalls, Boots	For 720 persons
Transport equipment	Vehicle rental Motorbikes	15 27

IEC Development and Implementation

Following discussions with the NMCP at central and district level, Ms. Thompson noted that the Madagascar IRS program had not developed an extensive information, education, and communication (IEC) program due to funding constraints from previous IRS operations. As a result, the responsibility of communicating information and preparatory activities for IRS operations at the community level was given to regional authorities and team leaders.

Time spent in-country did not provide an in-depth review of the current IEC strategy and whether communities were well-informed, prepared, or understood activities required of them before, during, and after the completion of spray operations within their household. RTI recommended that, given the limited emphasis on IEC based on discussions, there was a need to scale up current community mobilization activities in order to minimize the risks associated with the exposure of communities to insecticides and to ensure that communities are well-prepared for spray activities.

RTI proposed increased IEC activities through radio spots to discuss IRS activities and door-to-door communication at the village level. RTI’s recommendations to improve IEC activities were well-taken by the NMCP, and an IEC focal point was assigned to work with RTI to seek ways to improve IEC activities. During the reporting period, RTI shared experiences from other IRS activities and worked with the NMCP to identify key messages to disseminate to the population, as well as to develop brochures, t-shirt, caps, and stickers.

Local health officials and local leaders conducted an awareness raising campaign before and during the geographic data collection period. Community workers (two in each fokontany) informed the population on the date of the spray operators’ arrival and what one should do and not do during the spray operation. Community workers were also trained to indicate dwellings identified for spraying activities.

Posters were hung in frequently-used places, and flyers in local languages were distributed to the population. Information spots were broadcast on local radios, wherever possible. The NMCP IEC specialist coordinated activities and developed communication and advocacy strategies and materials.

Environmental Monitoring and Compliance

Following environmental compliance reports conducted by RTI, as well as an in-country assessment of storage facilities, the NMCP requested the renovation of storage facilities at program sites. RTI arranged for an assessment of storage facilities for IRS operations in Madagascar in order to ensure compliance with USAID/Food and Agriculture Organization (FAO) storage requirements and standards. More specifically, the consultant, Mr. Katota was requested to:

- Visit the selected districts to examine the project sites and storage facilities.
- Determine and document the work necessary to bring the storage facilities into compliance.
- Submit a report on the assessed facilities, including recommendations for next steps and a draft budget.
- With regards to 22CFR216, ensure that storage facilities are refurbished and compliant with USAID storage facilities standards.

The storage sites visited were found to be non-compliant mainly on the basis of unsatisfactory location in terms of the USAID/FAO requirements. During the trip, Mr. Katota found that the current storage facilities were co-located within hospital facilities. Although these were secured, it was clear the program could not clean equipment, correctly dispose of sachets, or conduct any progressive rinsing due to these co-locations and their proximity to water sources, thus causing possible contamination.

The following recommendations were made:

- Construction of new storage facilities – This would require working with the MOH/NMCP and civic authorities to identify suitable areas for construction. RTI would have to request a waiver to construct storage facilities and seek approval from USAID. The option of property development, if considered, could offer a permanent solution to the problem of inadequate IRS storage facilities.
- Procurement of Storage Containers – This would require working with the MOH/NMCP and civic authorities to identify suitable areas for co-locating containers and other items. In this event, RTI would have to seek approval from USAID to proceed in such a manner, in addition to requesting further budgetary resources to purchase containers. This option (ship containers) possesses a number of cost benefits compared with option one above. For options one and two to be attainable, the MOH and the NMCP could assist by indicating whether or not it is feasible for them to source suitable land from civic authorities for construction or locate of containers for use as IRS facilities.
- In the interim, it is recommended that the NMCP and its IRS team ensure that IRS commodities stored within hospital facilities are not co-located with hospital supplies, drugs, or bed linens. In addition, the NMCP should ensure that the rinsing of equipment

and disposal of insecticide is not performed on hospital premises to avoid possible contamination of water sources.

Partnership and Collaboration

RTI sought to develop a strong collaborative relationship with the NMCP since it led the management of the operations. Hence, increased communication and collaboration was required by RTI and the NMCP in order to ensure that IRS commodities were procured and targeted technical assistance was provided.

Upcoming Activities

- Delivery of IRS commodities (insecticide, pumps, and PPE) to support spray operations.
- Recruitment of a Finance and Logistics Officer to support the NMCP/IRS program
- Visit by the RTI technical director to support training and monitor technical and operations management of spray operations underway, as well as to provide a technical assessment of current IRS strategy, selection criteria, and operation set up.
- Collaboration of RTI and PMI/CDC (Caroline Maxwell) to establish an entomology monitoring system for the IRS program. This would include enhancement of the NMCP's capacity in entomology monitoring through the training of junior-level technicians and the procurement of additional equipment and materials for entomological surveillance.

Malawi

Malawi was identified as one of the first wave of countries to receive funding under the United States' (U.S.) President's Malaria Initiative (PMI). The U.S. Agency for International Development (USAID) and the Malawi National Malaria Control Program (NMCP) identified Nkhotakota as an epidemic-prone district to pilot indoor residual spraying (IRS) activities.

RTI is tasked with providing strategic, technical, management and operations support for IRS activities in the above mentioned district. RTI and the NMCP will treat at least 26,500 households with residual insecticide in Nkhotakota districts during the first round of IRS in the country.

This quarterly report presents the program's progress towards achieving these objectives in Malawi from October through December 2007, and the report summarizes the project's current activities and achievements, outstanding issues, and upcoming activities.

Current Activities & Accomplishments

This quarter included the preparations, training, and beginning of implementation for the spray round in Nkhotakota. Kim Canelas, IRS Project Logistics Director, visited Malawi three times to direct training, startup, and implementation of this round. Mohammed Nassor Saleh, Field Coordinator from the Zanzibar IRS program, came to direct field operations. Tito Kodiaga, Environmental Compliance Manager, conducted an environmental compliance inspection in December of this quarter.

Start Up

During this quarter, the IRS team, comprising the Nkhotakota district health medical team (DHMT) staff assigned to IRS, RTI staff in Malawi, and staff from Illovo Sugar's Dwangwa Estate, began operations in Nkhotakota district. They secured storage and staging facilities in Dwangwa and Lupachi; arranged a training site in Dwangwa; and recruited, selected, and trained spray operators, storekeepers, support staff, drivers, and others necessary for operations.

Planning and Assessment

Logistics Assessment

Mr. Canelas conducted a final logistics assessment in Nkhotakota district with assistance from Charity Mauluka and from the DHMT in Nkhotakota. Foreseeing delays in starting the spray round, he requested that 200 more spray cans be loaned from the Zanzibar IRS project. To this end, he then recruited and trained 200 more spray operators to use them. This expansion of staff altered the original logistics plans, requiring more vehicles and necessitating the division of spray operators training into two separate sessions.

Environmental Assessment and Compliance

Mr. Kodiaga visited Malawi December 10-16 of this reporting period to conduct the environmental compliance inspection for this spray round. He found areas of concern and

made many immediate corrections while on site. His initial assessment of the start-up of this spray round was “unsatisfactory”, but was upgraded to “satisfactory” after intervention from himself, Mr. Canelas, and Mr. Saleh. He stated, "This pilot project in Malawi has demonstrated that things can go wrong for various reasons in the IRS spray operations, and that if swift remedial actions are taken, then the objective of monitoring and compliance is achieved." The most serious complaints were gaps in training and the loss of 962 sachets of insecticide (362 were recovered empty during this quarter, and more were recovered afterwards). The Malawi IRS team addressed each of his remarks and recommendations and worked hard to bring all aspects of the operation into full compliance. His full report is available separately.

Procurement and Logistics

Pesticides, spray pumps and parts, and personal protection equipment (PPE) were procured and distributed during this reporting period. Late delivery of some commodities contributed to the late start of the spray round. Hudson shipped 130 pumps to Malawi with incorrect nozzles, which also caused delays. The arrival of 200 pumps with correct fittings from Zanzibar helped alleviate this situation.

Two warehouses were established for this spray round: one semi-permanent primary facility in Dwangwa and a second, temporary storage facility in Lupachi. All materials from the Lupachi site were removed and brought back to Dwangwa following spraying in that area.

IEC Development and Implementation

IEC Material Design and Development

Information, education, and communication (IEC) materials were adapted from other IRS programs around Africa and also from materials available at the district health office (DHO). While the materials used were complete and accurate, translations of some materials were delayed, causing difficulties for mobilizers in the field.

Training of IEC Mobilizers

IEC and community mobilization training began November 12, directed by Mr. Canelas and Mr. W. Kamanga, IEC coordinator from the Nkhotakota DHO. There were problems following this initial training and, after it was learned that incorrect information was being imparted in the field, trainees had to be re-oriented on some aspects of IRS. Swift intervention prevented this from becoming a significant problem. However, it was an unnecessary and time-consuming delay in start-up.

Coordination with Spray Operations

IEC mobilizers and spray teams were well-coordinated after the first week. Operators could tell immediately if a household or cluster of households had been missed by the IEC campaign by noting the level of preparedness of household members. Operators became adept at mobilizing households who had been missed. Many mobilizers had to briefly abandon their roles on IRS to attend Child Health Week. The project substituted some spray operators for mobilizers during this period. These operators performed quite well as mobilizers – an important lesson for IRS operations in the future.

Spraying Operations

Geographic Reconnaissance and Detailed Planning

Mr. Canelas oversaw final geographic reconnaissance and detailed planning during this quarter, a role assumed to Mr. Saleh in December. More households than anticipated were found as operations proceeded.

Recruitment and Training for Spray Teams

Starting November 6, spray operators were recruited from the spray area using a panel interview process. The panel comprised staff from RTI, the DHO, and district environmental office (DEO). During and after operations, the overall quality of spray operators was assessed and resulted in a positive outcome. However, the process of choosing team leaders and supervisors from among the operators was not performed according to protocol and required remediation during operations. Some team leaders and supervisors had to be shifted when they did not perform up to standard.

Logistics Support for Spray Operations

Local vehicles and drivers were engaged to support operations. Transportation went well, other than two issues. First, there were disputes over fuel, a common problem across IRS programs in Africa. While not a serious problem, the disputes were contentious and time-consuming. In the future, it is recommended that a per-kilometer costing system be used. The second issue was the training and performance of drivers. Some drivers were seen picking up passengers during operations, among other infractions. Supervising drivers is difficult after they leave staging areas. Transportation of pesticides and operators are, historically, the most dangerous periods in a spray operation. This is where most accidents occur and, in other countries, there have been fatal accidents. Future rounds in Malawi must address the supervision of drivers.

Fuel costs rose during operations and appear to continue to do so. This poses a challenge for IRS, generally, and for Malawi, in particular.

Project Management and Administration

Staffing

The absence of a Chief of Party (COP) for IRS in Malawi greatly hindered smooth operations. Following the loss of the COP in September, a second qualified candidate was identified and recruited. However, he did not accept the position, leaving the post vacant throughout this reporting period. This necessitated considerable input from technical assistance visits from outside Malawi. Delays in approval for Mr. Saleh to work on the IRS project resulted in the Nkhotakota spray operation being conducted without oversight during the crucial start-up period of operations. USAID approval of staff at that level is no longer required for IRS; thus, it should not be a problem in the future.

Administrative Support

RTI's Nairobi office provided substantial support to the Malawi program during this reporting period, with several visits from Mr. Canelas and a trip from Mr. Kodiaga. The finance office

in Nairobi worked closely with Ms. Mauluka to assure timely payments of field costs and to provide oversight to financial operations in Malawi. RTI technical director, John Chimumbwa, visited Malawi during operator training.

Partnership and Collaboration

National Partners

The NMCP and the Nkhotakota DHMT have embraced IRS with enthusiasm and dedication. Three DHMT staff members (Mr. S. Mulenga, Mr. W. Manda, and Mr. W. Kamanga) devoted themselves to IRS. Without their efforts, and the efforts of the entire DHMT, this spray operation would not have been possible. The DHO in Nkhotakota has gained valuable experience and capacity in IRS (and considerable experience in correcting problems as they arise) by their active and full participation.

Illovo Sugar and the Dwangwa Sugar Estate staff, especially Dr. Henry Chakaniza and Mr. Evans Masamba, provided valuable support to the IRS spray round in Nkhotakota. PMI provided pesticide to the Estate to cover their households, and the Estate provided expertise, trainers, medical support, and examinations of staff to the wider campaign. It is hoped that this exemplary public-private partnership will continue to serve Malawi.

Special mention must be made to the contribution of Alex Coburn, a United States Peace Corps volunteer, for his contribution to IRS in Nkhotakota. He especially helped with IEC and community mobilization.

USAID Partners

The active oversight of USAID staff helped to identify issues as they arose and helped to speed up remedial actions, especially in the area of environmental compliance.

Upcoming Activities

Due to shortage of pesticide in Nkhotakota, as well as to some clusters being missed in the initial round, there will be a mop-up round in the district as soon as supplies can be procured. Also, the DHMT, along with RTI, is planning post-spray community meetings to assess and document community perceptions and attitudes toward IRS for lessons learned and the planning of spray round two.

Mali

Mali was identified by the United States Agency for International Development (USAID) as one of the second wave of countries to receive funding under the United States' (U.S.) President's Malaria Initiative (PMI). The USAID and the Ministry of Health (MOH) and Mali National Malaria Control Program (PNLP) identified two epidemic-prone districts for indoor residual spraying (IRS) activities. In fiscal year 2008, USAID and the NMCP agreed to focus spraying activities in Koulikoro and Bla districts (called circles in Mali).

RTI is tasked with providing strategic, technical, management, and operations support for IRS activities in the above-mentioned districts. RTI and the NMCP will treat at least 75,000 households with residual insecticide during the first round of IRS. This will protect approximately 431,000 people and at least 85 percent of the total estimated population in the targeted districts.

In addition, RTI will develop and implement a monitoring and evaluation (M&E) plan in Mali in collaboration with the Malaria Research and Training Center (MRTC) and the NMCP, as well as provide support to the NMCP to strengthen epidemic preparedness and response plans. Specifically, RTI will train Service d'Hygiene (hygiene agents) from malaria epidemic districts (including Bla and Koulikoro) so that the MOH can have a pool of trainers available in epidemic zones.

This quarterly report presents the program's progress towards achieving these objectives in Mali from October through December 2007, and the report summarizes the project's current activities and achievements, outstanding issues, and upcoming activities.

Current Activities & Accomplishments

Start-Up

Bijou Muhura, home office technical manager (HOTM), and John Chimumbwa (technical director) were in country starting November 26 to meet with in-country partners and initiate IRS planning meetings. Mr. Chimumbwa was in country for three days, while Ms. Muhura stayed for two weeks to work on office start-up activities.

Ms. Muhura held numerous meetings throughout the quarter while in country to introduce the IRS project to local partners, talked with the Secretary General (SEGAL) of Health and the PNLN about IRS and, among other things, demonstrated the importance of establishing an IRS steering committee.

Due to the decentralization of the government in Mali, the Mission strongly suggested that RTI establish a steering committee at the central level, but also some forum at the regional/circle level where partners will be informed about IRS. Meetings included the December 5 meeting called by the PNLN coordinator, Dr. Georges Dakono, held at the MOH, and chaired by the technical advisors to the MOH, Dr. Oumou Diakite and Mr. Oumar Ag Mohamed. During this meeting participants were informed about IRS and discussions were held about the sites selected by the PNLN for IRS. The group later came to consensus that an IRS steering committee should be formed at the central level and will be chaired by the SEGAL or his representative. This task force will include both decision makers and

technicians, and among the technicians there will be entomologists and parasitologists from the MRTC.

A project bank account has been opened and is operational.

Other Activities

Entomological Monitoring

Dr. Mamadou Coulibaly of the MRTC is conducting the entomological baseline survey for Mali IRS. The insecticides being tested by the MRTC are: bendiocarb (FICAM) and lambda cyhalothrin (ICON). Based on the conclusion of the baseline survey, one insecticide will be chosen for IRS activities.

Project Management and Administration

Staffing

Job descriptions for the positions of: Chief of Party; Logistician; Finance Manager; Technical Coordinator; Administrative Assistant; Monitoring and Evaluation Officer; information, education, and communications (IEC) consultant, and environmental consultant were posted in the *Essor* newspaper.

Office & Warehouse Space

The mission had suggested that RTI find office space in “ACI 2000,” as most ministries are in that neighborhood and USAID will be moving in the U.S. Embassy building, which is also in ACI 2000. The mission suggested that it is mostly ideal for RTI to have office space in close proximity to the USAID offices. Finding office space in Bamako was challenging because the rent was very high, houses were still under construction (which makes it risky to have a lease signed), or the space was not adequate to support the project business. Despite these challenges, office space was identified and a lease was signed on December 6, 2007.

Partnership and Collaboration

The HOTM held meetings with the PNLP to explain about IRS activities and talk about roles and responsibilities during those activities.

Outstanding Issues

- Following RTI meetings with key officials at the MOH, the Mission realized that many key officials were not officially notified of the selected regions to be sprayed. The Mission informed RTI that they will work with the PNLP to communicate this information officially to all partners.
- Ms. Muhura, the HOTM, was not able to meet with key officials at the Ministry of Environment (MOE) on the November 2007 trip. The Mission did arrange a meeting with a MOE technical advisor, Dr. Moulaye Farota, who was not well-briefed on the IRS project but was very helpful in providing the environmental rules of Mali. On the next trip the HOTM will work with the Mission so that a meeting can be arranged with either the Minister or the SEGAL of environment, since the MOE plays an important role with

regards to the IRS project. The Mission is determining if a meeting will be possible during the HOTM's next trip.

- The PNLP is currently being moved from under the Directorate of National Health (DNS) to the MOH. Though this move is now official, the PNLP is still on the premises of the DNS. Additionally, with this move, the current head of the PNLP will either be confirmed or replaced. This may have an impact on the IRS project.
- Ms. Muhura is waiting for news from the Mission and the PNLP in regards to putting in place an IRS steering committee.
- Resumes received from the job announcements are not adequate (lacking qualifications and/or English-speaking skills). During the next HOTM trip in country, Ms. Muhura will have to repost certain positions.

Upcoming Activities

- The logistics assessment is planned for January 2008 and will be conducted by Kim Canelas, the RTI IRS operations director. Once the logistics assessment is complete, it will enable Ms. Canelas to quantify for commodity needs and, thereafter, initiate procurement.
- The environmental assessment is planned for February 2008. It will be conducted by environmental scientists, Jeanne Chabrier and Tito Kodiaga.
- Repost job descriptions in the newspaper and interview potential candidates.

Mozambique

Mozambique was identified by the United States Agency for International Development (USAID) as one of the second wave of countries to receive funding under the United States (U.S.) President's Malaria Initiative (PMI). USAID and the Mozambique Ministry of Health and its national malaria control program (NMCP) identified six epidemic-prone districts (Quelimane, Nioadala, Namacurra, Murrumbala, Milange and Mocuba) for indoor residual spraying (IRS) activities. In 2007, USAID and the NMCP agreed to focus spraying activities in 48 localities in the six districts with the intention of continuing coverage in these areas in 2008.

RTI is tasked with providing strategic, technical, management and operations support for IRS activities in the above mentioned districts. RTI and the NMCP will treat approximately 600,000 households in these six districts with residual insecticide during IRS activities. This will provide protection for approximately 1.7 million people and at least 85 percent of the total population in these districts. In addition, RTI will provide support to the NMCP to strengthen epidemic preparedness and response plans in collaboration with partners Liverpool Associates in Tropical Health (LATH), Medical Research Council of South Africa (MRC) and Crown Agents.

This quarterly report presents the program's progress towards achieving these objectives in Mozambique from October through December 2007, and the report summarizes the project's current activities and achievements, outstanding issues, and upcoming activities.

Current Activities & Accomplishments

Planning and Assessment

Logistics Assessment

A logistics needs assessment was conducted by RTI and its partners Crown Agents and MRC in July (as detailed in the previous quarterly report).

Environmental Assessment and Compliance

RTI is still awaiting the final approval of the Mozambique supplemental environmental assessment (SEA) from USAID. Final signatures are being obtained and final approval is expected shortly.

Pesticide Selection

The government of Mozambique has already formulated an IRS strategic framework covering three classes of insecticides: carbamates, organochlorides and pyrethroids. For the 2008 IRS campaign, the Mozambican government has proposed the use of di-chloro di-phenyl tri-methyl chloride (DDT) 75 percent WP for 90 percent of the structures (rural and traditional houses) in the six districts, with the remaining 10 percent (urban areas) to be covered by deltamethrin 10 percent WP, both of which have already been procured by the government in sufficient quantities to meet the necessary insecticide demands for all six districts for the fiscal year 2008 malaria transmission season.

Procurement and Logistics

Additional logistical needs were acquired in-country through RTI's procurement partner, Crown Agents Mozambique. Such items include haversacks to carry DDT sachets, and other supporting materials for IRS operations locally. Personal protection equipment (PPE) and spray pumps were previously purchased by RTI using Integrated Vector Management (IVM) project funding and is already being used by spray teams.

- PPE for all of the spray teams was received and distributed to the teams in the districts.
- The Ministry of Health (MOH) delivered extra PPE that was stored in the MOH warehouse in Maputo in the same transport that delivered the RTI-procured PPE.

Several procurement challenges that RTI encountered during this period were:

- Ensuring that all the IRS transport rental providers regularize their vehicles with insurance and other necessary documentation.
- Poor information sharing within the Provincial Department of Health (DPS) created delays. PPE stored in MOH central warehouse and designated for the province of Zambezia was only discovered when the RTI procured PPE was to be transported to Zambezia from Maputo. The delay in commissioning PPE for all the teams could have been avoided if DPS communication with MOH Maputo was more effective.

IEC Development and Implementation

Training of IEC Mobilizers

Training of information, education, and communications (IEC) mobilizers was carried out for all six districts in September. Mobilizers were selected from the villages where they live to ensure that villagers would be more accepting of inviting mobilizers into their homes and hearing about the spray activities. Pamphlets were reproduced and are distributed by the mobilizers.

IEC Campaign Implementation

Mobilization activities began on September 17. Mass media through radio Mozambique and community radios in the districts has been ongoing since September 19, and will continue until the end of spray operations. Personnel for mobilization activities comprise the following: 420 community mobilizers, 56 team leaders, 16 supervisors, and 12 IEC leaders (district level).

Coordination with Spray Operations

IEC mobilization began before spray operations, affording the mobilizers the opportunity to alert residents that spray operators would soon be visiting their houses and address concerns that household members may have had.

IEC mobilization is currently on-going in tandem with spray operations. Mobilizers have also been directed to include some monitoring of spray operations during their visits to households once spray operators have reached the community. This will serve to increase

monitoring efforts for spray operations in the various districts and allow the community members to report any adverse behaviour of spray operators.

Since mobilization activities began before the spray operations, mobilizers in some districts have already completed their house-to-house mobilization. As such, mobilizers were requested to accompany spray operators from house to house when the teams arrive. This reduced the number of household refusals.

Spraying Operations

RTI and the DPS began spray operations in Quelimane, Nioadala and Namacurra on October 2. Spray operations in Milange, Mocuba and Morrumballa began on October 29. An agreement was made to organize small teams into larger teams and concentrate spraying efforts in one locality before moving on to the next. Spray teams will start with the more difficult and hard-to-reach areas, moving on to densely-populated areas and finally the easier localities. Beginning in December, a “sweep” method (in which several teams from different administrative operational bases are combined) was applied.

There is an increased sense of responsibility among the district teams, such that some teams have reported to RTI themselves indiscipline among the teams that is detrimental to operations. Several villages that were never reached during previous campaigns have been sprayed during these operations.

Several operational challenges that RTI encountered during this period were:

- A strike was held by the spray operators during the salary payments on November 7 on the DPS premises. There were complaints about the salary rate and Sunday schedule payment. A DPS malaria coordinator and the RTI management team made a visit to the site and explained to the sprayers that the salary rates were based on government rates to be paid for days worked.
- Even though the DPS agreed to provide a contract to spray operators, while the agreed-upon salary rates would be paid by RTI, the spray operators have yet to receive formal contracts from the DPS.

Environmental Mitigation

Wash water disposal pits were constructed in all six districts operational bases (77 localities). Triple rinse lines for the pumps were set up in the localities to ensure minimum environmental contamination and wastage of DDT. An environmental and agricultural monitoring team was formed, comprising representatives from the respective ministries.

Several environmental challenges that RTI encountered during this period were:

- The monitoring team visited the field, taking serious measures on environmental compliance offenders. In Quelimane, the teams reported having found DDT repackaged in small bags and sold under a strange name. On further investigation, they learnt that the DDT was obtained during the previous spraying season. They are actively visiting the markets and talking with farmers to prevent DDT leakage and to ensure that what was found in the villages is not used. However, the team kept possession of what they found in the markets.

- Concrete plans for the disposal of the empty sachets and the residual DDT after the triple rinse need to be addressed before the end of the spray period, as one of the DPS warehouses is almost full of these items from previous spraying campaigns. After reorganizing the warehouses, the space for storing empty sachets and residual DDT at the end of the campaign will be determined and necessary plans made and implemented.

Logistics Support for Spray Operations

Transport logistics were organized for the spray operators and community mobilizers. Approximately 76 vehicles total have been sourced for transportation for mobilizers and spray operators for all six districts. RTI established a contract with Total petrol station for the fuelling of the vehicles to be paid on a monthly basis. A boat was identified for transportation of teams between two islands in Nicoadala. 230 bicycles were also repaired and distributed.

Several environmental challenges that RTI encountered during this period were:

- For the size of the spray operations, many vehicles had to be hired and most are from small businesses or individual car and truck owners who then hire drivers for the vehicles. Most of the drivers are inadequately cautious about the safety of their cargo. Some drivers had to be sent back because of their propensity to speed, use of cell phones while driving, and transportation of additional people in the back of the truck.
- Two vehicular accidents occurred during this period, resulting in the death of a Namacurra coordinator and one of the Alfa Security guards enlisted for transportation of funds for salary payments.
- RTI is working to review current safety measures and implement more comprehensive mitigation measures.

Other Activities

Entomological Monitoring

RTI is still working with its partner LATH to set up a subcontract task order for entomological work in Mozambique.

Capacity Building of Ministry of Health (Surveillance, M&E, etc.)

The NMCP requested support from RTI for entomology field training. RTI is working with the NMCP to provide financial support to a small team of entomologists travelling to Zambezia and working on entomological activities for the province.

The provincial departments of the Ministry for Cooperation in Environmental Affairs (MICOA) were consulted through a series of meetings and asked to assign some of their employees to participate in the IRS program as supervisors in each of their respective districts. Each department has assigned one district supervisor who will be working as a team member of the district supervisory team during the campaign. These representatives relocated to the training center to get a feel for the spraying activity and to educate spray operators on the importance of protecting the environment from pollution and leakage of the chemical to the agricultural sector for agricultural use. This is the first time a multi-sectoral approach has been implemented during the IRS campaigns and more interaction with the players is eminent

through consultative meetings. This collaboration is the basis for the formation of an IRS working group, which does not currently exist in the province.

Monitoring and Evaluation

Progress on Key Indicators

A monitoring and evaluation visit that was carried out in November by the RTI management team to Namacurra and Nicoadala districts revealed some gaps in the statistical data. The RTI team advised the district coordinators to ensure that statistical data for the districts were accurate and well-summarized and that RTI would be willing to provide support for data sheet collection from the various spray team locations.

Spray coverage improved toward the second half of the period and some summary results to date can be found below.

Population Coverage

The global population targeted in the IRS project areas is 1,686,022 people. The following results relate to spray operations through December 9 (week 10). The coverage for week 10 is over 744,012 people, accounting for 44 percent of the overall campaign target. The weekly target for week 10 population coverage was 744,012 of the 1,108,363 (67%) target for period up to week 10.

District Population Coverage

District	Week 10 target	Week 10 actual coverage	% coverage week 10	Campaign target	Week 10 actual vs. campaign target	% coverage of campaign target
Quelimane	250,260	217,146	87%	300311	217,146	72%
Nicoadala	205,361	146,488	71%	273,815	146,488	53%
Namacurra	166,446	147,231	88%	221,928	147,231	88.4%
Mocuba	159,060	111,336	70%	318,120	111,336	35% ***
Morrumbala	163,464	82,831	50.7%	326,928	82,831	25.3% ***
Milange	81,640	38,980	48%	244920	38,980	16% ***

** Namacurra coverage is being followed-up for clarity- more houses and villages not sprayed last year have been covered.

*** Data not inclusive of activities of weeks 5 and 6, as was returned for correction

Household Coverage

The overall target houses for IRS is 337,204, out of which 196,874 have been sprayed, accounting for 58.3 percent of the total campaign target. The total household coverage from the initiation of the spraying to week 10 was 196,874 of the targeted 221,676, accounting for 88 percent of the week 10 target.

District Analysis of Target Household Coverage

District	Week 10 target	Week 10 actual coverage	% coverage week 10	Campaign target	Week 10 actual vs. campaign target	% coverage of campaign target
Quelimane	50,050	47,878	95%	60,062	47,878	80%
Nicoadala	41,076	34,142	83%	54,768	34,142	62%
Namacurra	33,191	39,418	118%	44,388	39,418	88.8% **
Mocuba	31,812	29,729	93%	63,624	29,729	46.7% ***
Morrumbala	32,693	33,814	103%	65,387	33,814	51.7% ***
Milange	16,328	11,907	73%	48,983	11,907	24%***

** Namacurra coverage is being followed-up for clarity- more houses and villages not sprayed last year have been covered.

*** Data not inclusive of activities of weeks 5 and 6, as was returned for correction.

Morrumbala, Mocuba and Milange data for weeks 4 and 5 was omitted as it was erroneous and was returned to the district for correction. The figures would be higher if it were not for this anomaly.

Several reporting challenges that RTI encountered during this period were:

- Poor completion of the data forms continued to be a big challenge, particularly in Milange, Morrumbala and Mocuba.
- Supervisors in the above three districts continue to show weakness in data management, but it is being addressed.
- Unpredictable weather, wherein teams cannot cross rivers to reach certain localities.

Project Management and Administration

Staffing

RTI continued its recruitment efforts for outstanding IRS positions. Temporary support staff (finance assistant, logistics assistant, etc.) was hired in Quelimane for the duration of the spray campaign. RTI's partner, Crown Agents, is providing logistical and procurement support to the project. Therefore, Crown Agents has a logistics officer, and other support staff, assigned to IRS in Zambezia. The interim chief of party (COP) continues to oversee operations in Mozambique until a full-time COP is hired.

Administrative Support

Eugene Brantly, IRS project director, visited the Mozambique IRS program December 5 through 11. Mr. Brantly was able to meet with the PMI team and the NMCP in Maputo, as well as the DPS in Zambezia.

Office & Warehouse Space

The DPS currently rents warehouse space for the various districts and is getting pressure from the owners to pay the arrears from October 2007. Otherwise, the warehouse will be closed and the goods therein confiscated. During Mr. Brantly's visit, it was agreed that RTI would cover the payments owed to the landlords for the district warehouse rentals, as well as future

payments for the duration of the current spray campaign. Afterwards, the storage containers being mounted by Crown Agents in the various districts will be in place to act as additional storage facilities. Otherwise, another solution would need to be arranged.

The Quelimane DPS storage space payment will remain the responsibility of the DPS as RTI offered the DPS space within its rented warehouse in Quelimane of which they have yet to avail themselves.

Partnership and Collaboration

National Partners

Collaboration and coordination with DPS, MICOA and the Ministry of Agriculture continued. During Eugene Brantly's visit with the DPS, a memorandum of understanding (MOU) was signed between the Zambezia DPS and RTI. While some revisions to the document were necessary, DPS and RTI were in agreement in terms of their respective roles and responsibilities. A final version of the document is currently being drafted and will be sent for signatures shortly.

USAID Partners

RTI has continued to work with Crown Agents on all logistical planning and implementation aspects of IRS activities. RTI is working with LATH on entomological activity planning and implementation. RTI and LATH are in the process of finalizing the scope of activities for entomological monitoring in Mozambique, according to approved USAID activities.

Outstanding Issues

- Continued recruitment for open country office and field office positions.
- Drafting of revised MOU for DPS and RTI signatures.
- Establishment of the IRS working group
- Entomological survey by the MOH and MRC/LATH in the operational areas.

Upcoming Activities

- The spray teams take a Christmas break for one week from December 24, 2007 to January 3, 2008.

Rwanda

Rwanda was identified as one of the second wave of countries to receive funding under the United States' (U.S.) President's Malaria Initiative (PMI). The U.S. Agency for International Development (USAID) and the Rwanda Ministry of Health (MOH) and its national malaria control program (Programme National Integre de Lutte Contre Paludisme [PNILP]) identified three epidemic-prone districts of Nyarugenge, Gasabo, and Kicukiro (these three districts comprise what is also known as Kigali Province or Kigali City) for indoor residual spraying (IRS) activities. In 2006, USAID and the PNILP agreed to focus spraying activities in these districts with the intention of expanding IRS coverage to Kirehe and Nyanza districts in 2008.

RTI is tasked with providing strategic, technical, management and operations support for IRS activities in the above mentioned districts. RTI and the PNILP will treat at least 85 percent of approximately 200,000 households in the five districts with residual insecticide during IRS. This will protect approximately 1 million people in the targeted districts.

This quarterly report presents the program's progress towards achieving these objectives in Rwanda from October through December 2007, and the report summarizes the project's current activities and achievements, outstanding issues, and upcoming activities.

Current Activities & Accomplishments

A spray round in Kigali province (comprised of Nyarugenge, Gasabo, and Kicukiro districts) was completed on October 15, 2007. This spray program, which began on August 13, yielded a 99 percent coverage rate for the targeted households in these districts over the planned time period; 161,996 households were sprayed.

The quarterly activities that are detailed in this report focus on post-spray operations and planning for an additional spray round that is to begin in Rwanda in Kirehe and Nyanza districts in January 2008.

Planning and Assessment

Logistics Assessment

RTI conducted a number of activities this quarter in order to plan for the spray round in Kirehe and Nyanza that is expected to begin in January 2008.

In October, the RTI IRS team met with Mr. Hakizimana, Mr. Mashukano, and Nathan Mugume from the RHCC to discuss planning for the spray round in Kirehe and Nyanza districts. Meeting attendees concluded the following:

- Spraying in Kirehe and Nyanza will begin on January 24 and 25 respectively.
- The PNILP should finalize the schedule for recruiting Kirehe and Nyanza IRS operators and oversight environment officers within three days.
- RTI and the PNILP should visit Kirehe and Nyanza between December 17 and 28. These visits should verify whether IRS operators (sprayers and IEC implementers) have been recruited in collaboration with local government.

- RTI will develop a information, education, and communications (IEC) strategy to educate the public about IRS. This strategy will incorporate a variety of communication channels, including churches, commercial centers, billboards, and health centers.
- As part of the IEC effort, focal point journalists from different FM radio stations should be trained to effectively communicate IRS messages and respond to public questions on IRS.

In December, RTI conducted field visits to Kirehe and Nyanza districts to meet district health teams and discuss IRS operations that will be implemented in the districts in January. During these visits, RTI also discussed with district staff the PNILP criteria for the selection of spray operators and the timeline for IRS operations. The team also sought to confirm the estimated number of households to be sprayed based on 2006 statistics.

Procurement and Logistics

Spray Pumps & Parts

WHO-approved Hudson X-Pert compression sprayers that were used during the Kigali spray round of IRS will also be used for the Kirehe and Nyanza districts spray round. RTI used 600 spray pumps during the Kigali round and anticipates needing an additional 350 pumps for the next spray round in January 2008. As such, additional spray pumps were ordered. Spray pump toolkits (which include pliers, wrenches, screw drivers, and knives) were also ordered.

Personal Protection Equipment

During the spray round in the three districts of Kigali, spray operators and team leaders were provided with the following PPE in accordance with WHO specifications: overalls (two per operator for washing rotation); helmets and face shields; mouth/nose masks; hard rubber gloves; and rubber boots (one pair per operator). The following safety gear and equipment were provided for washing personnel at washing sites in all sectors: aprons; nose/mouth masks; rubber gloves; rubber boots; soap; and bathing sheds for sprayers. The following items were also provided to spray operators and washing sites: bags for team leaders to carry insecticides/other equipment; barrels for progressive rinsing in each sector, and forms for data collection after spraying each house.



Spray operators dressed in full gear.

IEC Development and Implementation

The majority of information, education, and communications (IEC) work during this reporting period focused on collaboration with partners with regards to the IRS media campaign to support the upcoming spray operations. In preparation for this spray round, RTI reviewed IEC materials with USAID during internal evaluation meetings. An IRS media campaign requires intensive television and radio messages that target diverse population demographics, and the IEC strategy used during round one will be adjusted slightly to meet round two needs.

In December, RTI hosted a one-day meeting on IEC that was attended by the Rwanda Health Communication Center (RHCC), PNILP, and RTI program coordinator. Attendees established an internal committee for IEC activities to help the IEC coordinator generate message designs and revised timelines for IEC activities. The IEC coordinators for Kirehe and Nyanza also met with RTI to define each group's responsibilities and the way in which RTI will work with the PNILP/MOH and local authorities regarding IEC.

IEC Material Design and Development

During November and December 2007, a three-member IEC committee worked on IRS messages for the January spray round. Committee members included Mr. Badege, Mr. Mugume, and Epiphanie Nyiraharerimana of the PNILP. The committee was established in response to a recommendation during a stakeholders' meeting to strengthen IEC. A workshop to finalize IRS messages was carried out during December 2007 prior to seeking final authorization by the PNILP. Bids for IEC materials were officially opened in public.

Spraying Operations

Environmental Compliance

Environmental compliance at different Kigali province district sites continued during and after the spray round by the COP. Environmental health officers also provided daily surveillance in each sector and worked hand-in-hand with IRS supervisors and sector managers.

Jacob Williams, RTI environmental scientist, made a post-IRS visit during October 2007 to monitor environmental compliance and check IRS site conditions and practices. His goal was to minimize environmental hazards and identify the most environmentally responsible best practices. By the time of his visit, soak pits were being altered to be smaller and more efficient. Mr. Williams learned that most of the allergic reactions to the insecticide occurred when community members mopped their floors with unprotected hands after their houses had been sprayed. Mr. Williams therefore suggested increasing public education messages on this leading into round two of IRS. Dr. Williams visited 21 of the 35 sites and met with PNILP and USAID officials.

In November, RTI also conducted evaluations of IRS warehouses, district stores, and storage conditions in order to ensure compliance with environmental requirements prior to the spray round in Kirehe and Nyanza districts.

Implementation of Spray Operations

In order to complete the Kigali province (three districts) spray round in two months, and considering the difficult terrain and lack of road access to many district communities, RTI decided to establish 35 independent field operations, one per sector. 560 personnel were directly involved in spray operations and 70 additional people were involved in the IEC campaign. Spray teams consisted of about eight spray operators and one team leader. Team leaders were selected from the best spraying trainees and entrusted with supervisory responsibilities and communicating with the public about IRS.

Sectors were responsible for selecting and recruiting spray operators. This policy was enforced to build capacity and a sense of ownership at the sector level in order to sustain future IRS campaigns. Medical check-ups were conducted for all IRS operators to determine their physical fitness before the start of IRS operations and pregnancy tests were carried out for all female sprayers.

Spray and IEC operations in each sector were planned on a weekly basis and the spraying program was published in the local newspaper to inform people of spray dates for their respective localities. Sector managers and district operations managers conducted planning at the district level. Environmental compliance was monitored on a daily basis by environmental health officers deployed by the PNILP to each sector to work with IRS sector managers and supervisors.

Post-spraying Operations

As spraying ended in Kigali province in mid-October, program activities focused mainly on post-spray operations. District offices became crowded with equipment from field offices (sectors), and RTI coordinated the return of the equipment to district stores. All equipment used in the operation were collected from the 35 sector offices and returned to district warehouses in Nyarugunga and Nyarugenge. RTI's district offices began cleaning soak pits in all 35 sectors of the three districts.

Some tools and materials were reported missing from sector stores in Gasabo and Kicukiro. These were either tracked down or returned to the stores; those that were not found will be replaced/refunded by the people responsible for their disappearance.

All returned equipment was cleaned and then screened as being either reusable, disposable, or repairable. In November, technicians completed the cleaning, repair, and labelling of 48 spray pumps which had broken down. The labelling will be extended to other IRS materials (boots and coveralls) to facilitate the future tracking of equipment.

An internal post-IRS evaluation meeting was organized between the USAID and RTI program staff on October 30-31 to evaluate the Kigali province spray round operations and document lessons learned for future planning.

RTI also participated in a post-spray round stakeholders meeting on November 27. At the meeting, Michael Kramer, the director general of TRAC-PLUS, welcomed participants and RTI presented an evaluation report on the spray program in Nyarugenge, Gasabo, and Kicukiro districts. These presentations were followed by discussions and recommendations. Ms. Shelley gave a short speech on the previous spray round and expectations for the next

spray round. District health officers from Kirehe and Nyanza attended the meeting. The doctors in charge of Muhima and Kibagabaga hospitals in Nyarugenge and Gasabo districts reported reduced malaria cases in their hospitals at the end of first month of IRS. This meeting was broadcast by different radio stations in Kigali.

Other Activities

Entomological Monitoring

The PMI malaria operations plan for FY07 called for IRS to be implemented twice in the case of Kicukiro, Nyarugenge, and Gasabo (July 2007 and January 2008) and once in the case of Kirehe and Nyanza (January 2008). RTI and partners concluded that a comparison of baseline and post-IRS data could alert program managers to the existence of problems that might reduce the impact of IRS. The data collection plan was based on input from the PNILP, the Centres for Disease Control and Prevention (CDC), and RTI. Data collected under the plan will be reported to the director, PNILP, and all interested PMI program offices.

Five parameters were measured in the environmental monitoring evaluations that began in June 2007: vector insecticide susceptibility, vector density, vector species composition, vector behavior, and the IRS insecticide decay rate. Although some baseline data collection were carried out in the five targeted districts by Mr. Hakizimana and Dr. Lassana Konate, there has been little follow-up due to a lack of facilities at the PNILP. Key among these is an insectary. RTI is planning to build an insectary once a construction site has been identified by the PNILP.

Dr. Konate carried out a post-IRS surveillance study by collecting mosquitoes in three sprayed districts during October 2007. Mosquitoes were collected from inside and outside the sprayed homes in two villages of each district. In his draft report, Dr. Konate recommended that the PNILP should take the following actions:

- Integrate entomological monitoring of the sentinel-site activities into epidemic-prone areas in order to raise awareness of the importance of entomological monitoring among health officials.
- Train agents on entomological monitoring and vector control at each site.
- Train teams in the post-intervention monitoring of entomological indicators to determine the quality of vector control operations.
- Establish an IRS monitoring plan.
- Establish a computerized record of the entomological monitoring activities.
- Carry out a multi-disciplinary evaluation of the pilot phase of IRS in Kigali. The evaluation should encompass processes, products, advantages, and constraints, as well as entomological impacts and their parasitological/clinical consequences.
- Research the sensitivity of vectors to insecticides, vector bionomy and behaviors, and other vector control measures.
- Establish multi-sectorial collaboration by working closely with all sectors potentially involved in vector control.

The consultant also recommended that PMI consider financing the PNILP to develop an insectary and obtain other equipment for entomological studies. He also recommended that the PMI help the national reference laboratory investigate the molecular identification of vectors and determine plasmodial infection through immuno-enzymatic tests.

Separately this quarter, RTI visited the Kigali Central Hospital incinerator with logistics manager Valens Kayumba in search of a facility to dispose of empty ICON sachets from IRS Round One. RTI representatives met with Muyogoro Jerome, the incinerator technician. The inspection of the incinerator and subsequent interview with Mr. Jerome revealed that the incinerator works perfectly, burns at 750-850 degrees centigrade, and has a filter for dioxins but needs to be overhauled. It is currently used to incinerate expired medicine and other hospital waste products. RTI believes that the incinerator will be likely be an appropriate option for the disposal of empty ICON boxes and sachets but is postponing this decision pending further investigation.

Capacity Building of the Ministry of Health

Preliminary consultations have occurred between RTI and the PNILP to train technicians in entomology and sentinel site personnel in epidemic surveillance and response. RTI and the PNILP have also discussed the way in which monitoring and evaluation (M&E) will be conducted in the forthcoming IRS rounds.

End of Round Evaluation

The program office and PNILP, in collaboration with the three districts of Gasabo, Nyarugenge, and Kicukiro, conducted a post-IRS evaluation to identify public perspectives of IRS operations and lessons learned. This was done prior to the November 27 IRS stakeholders' meeting, in which an evaluation of round one was presented.

Monitoring and Evaluation

Progress on Key Indicators

Spraying took place from August 13 to October 13 in Gasabo, Nyarugenge, and Kicukiro districts (making up Kigali province). The program yielded a 99 percent coverage rate for the targeted households over the planned time period; 163,543 households were reached and 161,996 were sprayed. Below are summary results.

Parameter	Gasabo District	Kicukiro District	Nyarugenge District
Total houses estimated*	65,208	42,875	43,679
Population protected	322,104	210,729	201,035
Number of houses found	65, 208	42,875	43,679
Total houses sprayed	75,389	42,928	43,679
< 5 years protected	59,637	32,480	31,838
Nets in sprayed houses	98,035	73,561	68,627

Project Management and Administration

Staffing

In anticipation of the January 2008 operations in two additional districts, vacancies for Kirehe and Nyanza district staff were published in newspapers starting on October 28 with the Sunday Times. In November, RTI announced IRS posts for the districts of Kirehe and Nyanza. Program office representatives consulted with the home office technical manager prior to making this decision. Pre-selection and candidate interviews for IRS posts in the two districts took place during December 2008, and by the end of the year, staffs for these two districts had been selected.

Office & Warehouse Space

RTI also obtained office space at the district and sector levels and identified individuals with managerial skills, who could be both IRS trainers and sector managers/supervisors.

The program continued to operate from a hired office at the White Eagle Building (Polisi Denis building) and maintained three district warehouses for distributing insecticide and other materials to sector offices. Much of the ICON was kept at the CAMERWA warehouse.

Partnership and Collaboration

National Partners

During this reporting period, the program office continued to consult and communicate with the PNILP on all post-IRS operation issues with regards to round one in Kigali and round two in Kirehe and Nyanza.

USAID Partners

RTI consulted with USAID malaria partners to exchange information and build awareness. One of the more prominent partners that participated in consultations was IntraHealth Twubakane, which is engaged in home-based malaria management in several districts.

Outstanding Issues

- Continued planning for IRS in Kirehe and Nyanza.
- Finalization of IRS messages and acquiring approval by the PNILP and HCC.
- Confirmation of IRS launch dates for Kirehe and Nyanza.
- Recruitment of candidates for the TOT in early January 2008 by the PNILP.
- Creation of a new list of sprayers incorporating sprayers from IRS in Kigali.

Upcoming Activities

- Receiving a list of candidates for the TOT and spray operators from district authorities.
- Identifying a training site for the TOT and spray operators.
- Training IEC implementers.
- Using different media for communication of IRS messages prior to IRS operations.
- Launching IRS in Kirehe and Nyanza.

Senegal

Senegal was identified by USAID as one of the second wave of countries to receive funding under the United States' (U.S.) President's Malaria Initiative (PMI). The U.S. Agency for International Development (USAID) and the Senegal Ministry of Health (MOH) and its national malaria control program (Programme National de Lutte Contre le Paludisme [PNLP]) identified three epidemic-prone districts (Nioro, Richard Toll and Velingara) for indoor residual spraying (IRS) activities in fiscal years 2007 and 2008.

RTI is tasked with providing strategic, technical, management, and operations support for IRS activities in the above mentioned districts. RTI and the PNLP will treat at least 75,000 households with residual insecticide in the Nioro, Richard Toll, and Velingara districts during fiscal year 2008. This will protect approximately 500,000 people and at least 80 percent of the total estimated population in the targeted districts. In addition, RTI will provide support to the PNLP to strengthen epidemic preparedness and response plans.

This quarterly report presents the program's progress towards achieving these objectives in Senegal from October through December 2007, and the report summarizes the project's current activities and achievements, outstanding issues, and upcoming activities.

Current Activities & Accomplishments

Planning and Assessment

Logistics Assessment

During this reporting period, the logistics plan for spraying in Richard Toll in January 2008 was completed and the procurement of IRS commodities was begun. For this upcoming spray program, it was determined that all structures found in the district (new and old) will be sprayed, including approximately 22,647 houses. This will protect approximately 155,000 individuals. The operation will be staged from six sites that sector managers will supervise. District coordinators will provide logistics, administration, and mobilization support. Each staging post will contain disposal facilities for insecticide waste, including soak pits, triple rinse facilities, and wash areas for spray operators.

In December, the RTI team conducted a field visit to Richard Toll to implement administrative training procedures for the COP, logistics officer, and district team in preparation for the spray round. The team also implemented a number of environmental assessment requirements, including a progressive rinse system, a soak pit, and spray operator wash areas.

During this quarter, RTI held a number of key planning meeting with USAID and the PNLP in order to develop an operation plan for spray operations in Richard Toll in January 2008. Following is a summary of what was decided:

- Malaria transmission in Senegal takes place during heavy rains and at the beginning of the dry season. However, in Richard Toll, there is more than one peak in malaria transmission per year because of its proximity to the Senegal River, experiencing of temporary floods, and irrigation of rice fields and other crops. Therefore, based on

general peak transmission, it was determined that spraying of the district should be conducted in January.

- The next round IRS training will involve all stakeholders and be divided into two phases over five days:
 - The first phase will be the training of trainers (TOT) among national, regional, and district officials. The second phase will be the training of spray operators at the sector level by the TOT graduates.
 - District authorities will lead the selection of spray operators.
 - RTI will distribute the training manual to potential trainers and other reference persons in Dakar prior to the TOT to allow for feedback on the manual before training begins.
- The IRS equipment will be maintained, assessed for quality, and replaced when necessary.
 - Field staff members were briefed on equipment policies and will be part of the practical team to assist the other five sites.
 - RTI agreed to implement recommendations by the Mission and Melanie Biscoe (RTI environmental scientist) regarding IRS equipment and protective equipment (PPE). RTI also established that any sub-standard equipment received in-country will not be accepted by the country team.
- Supervision will be key to improving IRS operations during the next round in Richard Toll. To this effect, the plan for January 2008 will be to minimize the number of team members supervised by one team leader.
 - Each group of four IRS operators will be supervised by one team leader who will be with them throughout the field operations.
 - The team leader will place a sticker on each house that has been sprayed. Supervisors and sector managers will preside over team leaders. Each position will include checklists and safeguards to ensure quality work and compliance.
- With regards to community mobilization, RTI will work in partnership with other stakeholders to ensure positive interactions with communication partners.
 - RTI offered to provide IRS information, education, and communications (IEC) materials from other countries and will help finalize and implement the IEC strategy in collaboration with other stakeholders.
 - Meeting attendees determined that IEC materials should be submitted for review to resource people among IRS stakeholders and health educators.
- With regards to district-level coordination and with the support of the PMI Senegal team, RTI proposed a district-level discussion forum to identify the responsibilities of all stakeholders during IRS implementation.
- The government and its partners in vector control will establish an IRS oversight committee which RTI will help run.
- In order to assess IRS insecticide quality, RTI will identify regional capabilities for quality control of insecticides to ensure that PMI countries receive a high-quality stock.

Pesticide Selection

The insecticide of choice for IRS in Richard Toll is ICON 10 WP, the same insecticide used during the spray round in Velingara, Nioro, and Richard Toll from May - July 2007. Based on field trials conducted by Brian Sharp from the Medical Research Council in South Africa and the Institute Pasteur in Madagascar, ICON 10 WP is effective on mud walls for at least five months.

However, after communicating with manufacturers, the PNLP assessment team became interested in using ICON 10 CS, a lambda-cyhalothrin-based insecticide. ICON 10 CS has been demonstrated to achieve optimal performance in contact bioassays up to nine months after application on mud and thatch walls in a field setting. The assessment team contacted ICON manufacturers to send samples of ICON 10 CS to the PNLP via RTI for additional insecticide trial tests.

Procurement and Logistics

The insecticide, equipment, and majority of supplies to be used in the January 2008 Richard Toll spray round were available in central storage facilities in Dakar. The required items were transported to Richard Toll two weeks before the training of trainers. Storekeepers, drivers, washers, and guards were trained in the safe handling and transport of the insecticide.

Pesticides

The proposed insecticide for the Richard Toll spray round was ICON 10 WP. Based on the last spray round, the necessary amount of ICON 10 WP needed is approximately 11,885 sachets; there are 22,647 households in Richard Toll and approximately one sachet was used per 0.53 households on average.

Other Commodities

RTI determined that the following equipment would be needed to support IRS for Richard Toll in January:

- 80 Hudson X-pert compression spray pumps
- 160 protective suits (two per operator)
- 100 helmets/visors
- Mouth/nose masks (as necessary)
- 1,000 rubber, neoprene, PVC, or butyl rubber gloves
- 50 repair kits
- 200 strainers
- 80 pairs of rubber boots (one pair per operator)
- Barrels, tubs, and buckets for washing equipment and suits
- Bags for team leaders to carry insecticide and supplies
- Other supplies to record spray data

Most of this equipment was available in the Dakar warehouse, except for the rubber gloves, repair kits, visors, and strainers. The equipment was distributed to spray operators, storekeepers, and washers.

Spraying Operations

Recruitment for District Administration and Spray Teams

Based on the past spray round in Richard Toll in which each spray operator sprayed eight households in a five-hour workday, 2,820 spray operator days would be required to spray the 22,647 houses. 56 spray operators were required to finish spraying the houses within 55 working days.

The IRS program will be jointly supervised by RTI and personnel from Services d' Hygiene. These field supervisors will ensure adequate team planning, safety, quality control, and environmental compliance.

Human Resources Requirements for January 2008 Operations in Richard Toll.

District staff (temporary)	
District coordinator	1
District admin/finance	1
District logistician	1
Spray records/data entry clerk	1
Spray teams	
Operators	56
Team leaders	9
Field manager	3
Inspectors (Service d' Hygiene)	3
TOTAL	75

Other Activities

Entomological Monitoring

RTI and partners met on December 11 at the PNLN to develop an entomological evaluation plan to measure of the quality of IRS implemented in the three districts (Richard Toll, Nioro, and Velingara). Meeting attendees included representatives from the PNLN, USAID, RTI, Université Cheikh Anta Diop (UCAD), Service National de l'Education et de l'Information pour la Santé (SNEIPS), Centers for Disease Control and Prevention (CDC), Christian Children's Fund (CCF), Management Sciences for Health (MSH), and International Relief and Development (IRD), as well as chief medical officers from Nioro and Velingara districts and representatives from the health districts, public hygiene areas, and medical regions of Saint Louis, Kaolack, and Kolda. Lassana Konaté of the UCAD presented the results of post-IRS entomological surveillance.

Project Management and Administration

Staffing

RTI conducted interviews short-listed candidates identified by the COP for the environmental coordinator and program assistant positions.

The program also reassessed the management of IRS activities at central and district levels and it was determined that:

- The COP will improve the coordination and planning of IRS activities between RTI, the PNLP, Service d'Hygiene, and district authorities.
- The IRS logistics officer will oversee all logistics operations and logistics assistants within each district.
- The district operations team will assume increased responsibilities and oversight of district-level IRS operations. This involves increasing the number of spray teams and decreasing the number of spray operators per team.
- The district operations team will enforce management procedures, such as the placement of white stickers on houses that have been sprayed, green stickers on sprayed houses that have been inspected, and red stickers on houses that have been spot checked by the spray team supervisor.
- The environmental coordinator will supervise all environmental monitoring and compliance activities in the three districts. He or she will enforce all mitigation activities identified in the Pesticide Evaluation Report and Safe Use Action Plan (PERSUAP) and Senegal Environmental Impact Assessment.

Administrative Support

Anna Thompson, RTI's home office technical manager, and John Chimumbwa, the IRS technical director, visited Dakar from December 10-14 and met with the Senegal/PMI team, PNLP, and Senegal IRS team to discuss lessons learned from previous IRS activities and plans for January IRS operations in Richard Toll. They accomplished the following:

- Met with Mary Cobb, Robert Perry, and Debra Gueye (PMI/Senegal) to discuss the post-IRS round evaluation, as well as technical and operational activities for spray operations in January.
- Recruited short-term personnel for January spray operations.
- Finalized RTI's scope of work, budget, and timeline for IRS operations in Senegal with USAID/Senegal and the MOH/PNLP.
- Updated the memorandum of understanding for the IRS program, including roles and responsibilities of RTI, the Mission, and MOH/NMCP for IRS operations during fiscal year 2008.
- Participated in an IRS partner meeting to review a post-IRS entomology assessment.

The U.S.-based RTI finance manager visited the Dakar office from November 3-16. His scope of work included:

- Reviewing project requirements, ensuring that set-up procedures are in place, training staff, implementing RTI's financial management and accounting procedures, and verifying compliance with the supporting document checklist.
- Reviewing the reconciliation of financial transactions using international accounting's reconciliations and coordinating the systems with financial management.
- Implementing a quality control system which maximizes cost-effective and accountable operations, minimizes errors and risks of noncompliance, and improves financial management services wherever possible.
- Developing a financial management monitoring plan and checklist for the regional offices.
- Documenting the financial systems, internal controls, and procedures of the project.

- Developing financial management objectives in coordination with the COP and other RTI staff.

Partnership and Collaboration

National Partners

During their December visit, Mr. Chimumbwa, Ms. Thompson, and Amadou Gueye met with the Dr. Thior, the PNLP director, to seek feedback on the leadership that guided the first round of spraying in Senegal. Dr. Thior highlighted the successes of that round and expressed his support for future IRS activities. Dr. Thior explained how RTI could support the training of physicians in poison treatment and symptom recognition and help provide the required medicines to the target districts. Dr. Thior accepted RTI's offer to join the RTI team in their visit to Richard Toll so that he could meet with district-level stakeholders to improve coordination between central and district IRS activities.

Upcoming Activities

- The MOU has been edited by RTI and will be returned to the PMI Senegal team for further action. This document is critical to ensure the accountability of all parties during the implementation of IRS activities.
- Community mobilization for IRS: The Mission informed RTI that the communication partner CCF will work closely with RTI to improve its performance during the second round of IRS. The Mission also pledged to encourage the CCF to place an employee in the RTI office at the district level.
- RTI must submit scopes of work for January visits to Senegal to lead the training of spray operators and trainers as well as provide technical and management support to the IRS team.
- RTI Nairobi and Washington teams will continue to provide on- and off-site technical and management support to the Senegal IRS team to strengthen the planning, training, and implementation of IRS activities.
- RTI must recruit and train an environmental officer and program specialist for the Senegal IRS program.

Uganda

Uganda was identified by the United States Agency for International Development (USAID) as one of the first wave of countries to receive funding under the United States (U.S.) President's Malaria Initiative (PMI). USAID and the Uganda Ministry of Health (MOH) and its national malaria control program (NMCP) identified certain districts for indoor residual spraying (IRS) activities. In 2007, USAID and the NMCP agreed to focus spraying activities in Kabale, Kanungu, Kitgum, Pader, Gulu, Amuru and Apac districts with the intention of expanding IRS coverage to additional areas in 2008.

RTI is tasked with providing strategic, technical, management and operations support for IRS activities in the above mentioned districts. RTI and the NMCP will treat at least 500,000 households with residual insecticide in the above seven districts during IRS in Uganda. This will protect approximately 2.5 million people and at least 85 percent of the total estimated population in the targeted districts. In addition, RTI will provide support to the NMCP to strengthen epidemic preparedness and response plans.

This quarterly report presents the program's progress towards achieving these objectives in Uganda from October through December 2007, and the report summarizes the project's current activities and achievements, outstanding issues, and upcoming activities.

Current Activities & Accomplishments

Planning and Assessment

Final planning and assessment for spray operations for Amuru district took place in October.

Environmental Assessment and Compliance

A cost analysis and public comment consultative meetings are underway for DDT-based pilot spray operations in Apac and Oyam. This information will be used to finalize the supplemental environmental assessment (SEA) currently being revised.

Procurement and Logistics

Procurement planning began for the upcoming spray round in Gulu, Kanungu and Kabale. The following table presents the personal protective equipment (PPE) procurement requirements for upcoming IRS operations:

Procurement Requirement for GULU			
Items	Unit	Quantity	Size
Nose & mouth masks	Pieces	61,000	
Socks (pairs)	Pieces	1,996	27-30cm
Haver sack (psc)	Pieces	820	Any color except white
Procurement Requirement for Kanungu			
Items	Unit	Quantity	Size
Helmets	Pieces	459	

Face shield	Pieces	1,377	
Nose & mouth masks	Cartons	60,937	
Hand gloves (short)	Pieces	433	7*17cm
Hand gloves (long for wash person)	Pieces	70	7*22cm
Socks (pairs)	Pieces	936	27-30cm
Haver sack (psc)	Pieces	459	Any color except white

Procurement Requirement for Kabale

Items	Unit	Quantity	Size
Helmets	Pieces	449	
Face shield	Pieces	1,347	
Nose & mouth masks	Pieces	58,875	
Hand gloves (short)	Pieces	431	7*17cm
Hand gloves (long for wash person)	Pieces	56	7*22cm
Gum boots	Pieces	459	9
Socks (pairs)	Pieces	918	9-11
Haver sack	Pieces	449	Any color except white
Overalls	Pieces	392	Green
			-48(x-large)
			-44 - 46(large)
			-42 (medium)
Overalls	Pieces	392	Blue
		154	48(x-large)
		153	44 - 46(large)
		85	42 (medium)
Overalls	Pieces	94	Orange
			-48(x-large)
			-44 - 46(large)
			-42 (medium)
Overalls	Pieces	40	Red
			-48(x-large)
			-44 - 46(large)
			-42 (medium)

Pesticides

Additional pesticide was ordered for Kabale and Kanungu spray operations.

Procurement Requirement for Kanungu		
Items	Unit	Quantity
Icon WP	Kgs	2,128

Procurement Requirement for Kabale		
Items	Unit	Quantity
Icon WP		2,238
Total insecticide needed for Uganda	Kgs	4,366

IEC Development and Implementation

The district launch in Amuru was presided over by the Minister of Health, Dr Steven Malinga. RTI hosted at its field office in Gulu Dr. Malinga, Dr. Kenya Mugisha (director of community health), Dr. J. B. Rwakimari (program manager), and Maria Byangire (senior health educator).

A district sensitization workshop was held in Gulu December 17, as part of information, education, and communication (IEC) activities in preparation for spraying of the district. Attendees included 4 members of parliament, 61 local council members, 8 district health team members, 20 department heads, 4 media representatives, the resident district commissioner from Pader, 1 chair from Pader, the NMCP deputy manager, a senior entomologist from the MOH, a senior health educator from the MOH. In total, the workshop had 99 participants. 71 IRS T-shirts and 97 IRS brochures and pamphlets were distributed to participants.

Spraying Operations

The first round of spray activities took place in Amuru district November 24 – December 16, 2007. The estimated population for Amuru district was 255,851 living in 78 camps and an estimated 133,852 houses. The district is comprised of 2 counties, 8 sub-counties and 51 parishes. Key indicators for spray operations in this district are provided below.

IRS Indicators	Numbers
Total houses found	103,754
Population protected in sprayed houses	399,175
Houses completely sprayed	98,414
Houses partially sprayed	3,833
Total houses sprayed	102,247
% of targeted houses partially and fully sprayed	98.5
Age < 5 years protected in sprayed houses	108,079
Pregnant women protected in sprayed houses	21,147
Refused rooms	232
Locked rooms	1019
Mosquito nets found in sprayed houses	52,019
Age < 5 years sleeping under mosquito nets	53,652

On average, one sachet of ICON was used to spray 3 houses.

Other Activities

Retreat Planning Workshop for the IRS Project

A planning meeting for IRS staff was held and facilitated by Kim Canelas, IRS director of operations. Two independent consultants, Dr. Gunawardena Dissanayake and Dr. John Rwakimari, attended the opening session. The objectives were to:

- Review 2007 activities and document lessons learned.
- Introduce the Malaria Operational Plan for fiscal year 2008.
- Orient new staff in:
 - a) RTI policies, mission, vision, etc.
 - b) PMI objectives
 - c) IRS activities and planning
- Develop a performance monitoring plan for the project.
- Create an operational budget.
- Develop operational work plans.

Quality Assurance and Analysis Plan (QAAP) for DDT

A QAAP team from RTI were in the country to carry out a number of activities including establishing QAAP indicators, conducting consultations with key stakeholders, conducting an on site visit to the district by RTI environmental team, and establishing lab facilities for analysis. A trip report and baseline samples were outputs from this activity.

Public Comment Consultative Meetings

Workshops on the validation of initial concerns raised during the public comment meeting in regards to the use of DDT were held in Apac, Kanungu, and Kampala. They were convened by RTI consultant, Dr. Zerubabel Nyiira as part of the SEA process.

John Bahana (COP) and Dr. Nyiira travelled to Apac for a workshop on the validation of DDT concerns. Other attendees included councilors, the district executive, religious leaders and stakeholders, all of whom supported the use of DDT in the district. The NMCP manager also attended.

Mr. Bahana and Dr. Nyiira traveled to Kanungu to hold a meeting similar to the one in Apac. There were 140 participants at the workshop including the area Member of Parliament, Dr Baryomunsi, the Bishop of the Church of Uganda, Chair person for the district and other district leaders and councilors. Like in Apac, the meeting attendees unanimously supported DDT use in their district. They expressed appreciation to PMI through RTI for the first round of spraying which they reported had drastically reduced malaria cases.

RTI also facilitated a forum on validation of concerns raised during the public comment meeting for the use of DDT in Kampala at Hotel Equatoria. More than 40 participants took part in a lively discussion on DDT. The NMCP manager was present along with representatives of Ministry of Agriculture, Animal Industries, and Fisheries, WHO, the media, and other stakeholders.

Capacity Building of Ministry of Health

RTI continued to support the MOH to conduct bio-assays in Amuru. RTI is also collaborating on a comparison efficacy check on ICON procured by WHO and that procured by RTI, that were used in Kabale and Kanungu. Further chemical analysis is needed before final conclusions can be made and RTI is working with USAID and the MOH to organize the analysis.

Monitoring and Evaluation

Key indicators for this quarter are presented in the table below.

Performance Indicators for Fiscal Year 2008 Q1

Indicators			
		Target	Achieved
A.	Inputs		
	Number of insecticide sachets procured	37,000	33,744
	Number of spray pumps procured	803	803
B.	Process		
1.	Personnel trained		
	Spray personnel (operators/wash persons, team leaders, supervisors and store keepers)	978	978
	District Health Team members	9	9
	Clinicians	32	0
	Environment officers	1	0
	Others (NGO's)	3	0
2.	IEC		
	Number of community leaders sensitized directly (District/Sub County)	310	310
	Number of community meetings conducted	40	40
	Number of people reached through community meetings (film van talk shows) estimates	100000	54000
	Number of radio spots / messages aired	207	207
	Number of radio talk shows held	4	3
	Number of discussants in radio talk show	16	13
	Number of brochures distributed to the community	208	208
	Number of pamphlets distributed to the community	208	208
3.	Supervision		
	Number of technical support supervision conducted (MOH/RTI/Environment compliance officer/NEMA)	10	7
	Number of administrative support supervision (District/ RTI/DHT)	15	15
4.	Entomology		
	Number of larval surveys conducted	2	1
	Number of PSC conducted	2	1
	Number of light trap collections	0	0
	Number of bioassays conducted	3	1
	Number of susceptibility test conducted	3	1
5.	Human Health and Environmental Monitoring		
	Number of spray operators examined	803	0
	Number of soak pits established	8	8
	Number of reported cases due reaction of spraying at community	N/A	6

	level		
	Number of reported misuse of insecticide	N/A	2
	Number of traffic accidents among the spray operators	N/A	2
	Number of pregnancy test conducted	1	1
	Number of test positive for pregnancy	114	3
	Number of medication doses distributed	40	40
	Number of medication doses used	40	15
C.	Output		
	Number of houses found	103754	102247
	Number of houses sprayed	103754	102247
	Number of houses fully sprayed	103754	98414
	Number of houses partly sprayed	103754	3833
	Number of houses not sprayed	103754	1507
	Percentage of houses sprayed	N/A	98.50%
	Total population found	429214	399175
	Number of people protected	429214	399175
	Number of under five years protected		108,079
	Number of pregnant women protected	38629	21147
	Percentage of population protected	N/A	93%

Project Management and Administration

Staffing

Newspaper advertisements were run for the post of project assistants, M&E specialist, environmental compliance inspector, and logistician in view of possible scale up of IRS in the country. Two project assistants were interviewed and short-listed. The project assistant candidates will be presented to the RTI home office and USAID for approval. The hiring of a new finance officer, Gerald Katusabe, was approved. Joyce Acheng reverted to her position as assistant accountant and will soon move to the Gulu office to support field activities in the north.

Administrative Support

The program director, Eugene Brantly, and the task manager, Patricia Preware, visited the project and held planning meetings with the COP. They also had debriefs at the USAID Mission to discuss the progress of the DDT supplemental environmental assessment. Roy Schonberg, director of global infrastructure at RTI, visited the project to discuss ways and means of assisting the project to fully utilize IT

Establishing RTI offices in Apac and initiating program contacts

RTI initiated moves to establish offices in Apac in preparation for spray activities. The staff supporting the offices are Gilbert Acaye (district coordinator) and Sarah Rubereti (project assistant). They have already made contacts with political and civic leaders.

Partnership and Collaboration

National Partners

RTI collaborated with the Ministry of Health vector control division regarding entomological monitoring activities. John Bahana held consultative meetings with the Kabale District Health Officer on future work in the district and on how to improve collaboration.

USAID Partners

RTI hosted Andrew Inglis, Ortencia Nichols, the PMI Rapid Assessment team, and the PMI audit team of Karthyrine Soliven and Paul Horseficor, accompanied by Dr Gunawardena of USAID. The PMI teams held discussions with the RTI field staff and later also visited the Kampala office for further discussions with the Mr. Bahana. RTI held meeting with the Health Communication Partnership on the way forward for IEC programming in Apac district.

Outstanding Issues

The procurement of necessary insecticide and PPE for spray operations in Gulu (scheduled to begin in January), and Apac and Oyam (scheduled to begin in February/March).

Upcoming Activities

- Continued sensitization activities in for Gulu district.
- Finalize logistics assessment for Apac, Oyam, Kitgum and Pader districts.
- Entomological baseline data collection for Apac and Oyam districts.
- Spray operations in Gulu (beginning in January), and Apac and Oyam (beginning at the end of February/ beginning of March).

Zambia

Zambia was identified by United States Agency for International Development (USAID) as one of the countries to receive funding under the United States' (U.S.) President's Malaria Initiative (PMI). Zambia is implementing indoor residual spraying (IRS) for malaria control as part of an integrated vector control management (IVM) strategy. Spraying began in 2003 following the success of IRS by the private sector Konkola Copper Mines. The spraying program is under a five-year (2006-2010) National Malaria Strategic Plan, which has an overall objective of reducing malaria incidence by 75 percent by 2010.

IRS in Zambia is implemented by the National Malaria Control Centre (NMCC) of the Ministry of Health (MOH). Additional resources and technical support are mobilized through a number of external partners, including the USAID, the Roll Back Malaria partnership, the Malaria Control and Evaluation Partnership in Africa (MACEPA), the World Health Organization (WHO), the Global Fund for HIV/AIDS TB and Malaria (GFATM), and the World Bank.

Under the PMI, USAID awarded RTI with a contract to work with the Zambia MOH and NMCC to provide technical assistance and support to IRS and other malaria control and prevention activities in Zambia. In 2006, the Zambian MOH, with the support of USAID, implemented spray rounds in 15 of the 72 districts in Zambia using DDT, lambda-cyhalothrin, and alpha-cypermethrin. The 2007 spray round covered around 700,000 households. The MOH plans to expand IRS to 21 more districts in 2008.

This quarterly report presents the program's progress towards achieving these objectives in Zambia from October through December 2007, and the report summarizes the project's current activities and achievements, outstanding issues, and upcoming activities.

Current Activities & Accomplishments

RTI is not directly involved with spray operations in Zambia, which USAID/PMI supports through a different mechanism. The primary roles for RTI in supporting IRS in Zambia are procurement and environmental compliance. All procurement for the 2007 spray round was completed in the previous quarter.

Environmental Assessment and Compliance

An environmental compliance inspection was conducted by RTI's environmental scientist, Jacob Williams, in November. The purpose of this trip was to monitor compliance of IRS implementation with the Pesticide Safe Action User Plan outlined in the environmental assessments. Specifically:

- To determine and document whether there is full compliance with USAID requirements as included in the approved SEA;
- Compare current compliance activities with past activities to determine whether and what kind of improvements have been made;
- Determine immediate action to comply with the country SEA, and;
- Determine, in consultation with RTI program and District officials; the training and other support required to improve and ensure future compliance with SEA requirements;

- Ensure compliance with Stockholm Convention reporting requirements.

Overall the compliance with 22CFR216, the SEA and Zambian laws and regulations was found to be satisfactory. Mr. Williams documented areas of excellence and issues requiring attention in his Environmental Compliance Inspection Report. One major difference in this year's inspection is the issue of women spray operators using DDT. The 2007 SEA proposes the re-assignment of pregnant women and breast-feeding mothers to non-spraying IRS activities, as well as reasonable efforts to assure that women do not serve as spray operators on teams using DDT for IRS. Where the complete exclusion of women from DDT spray teams is not feasible at this time because it would unduly disrupt operations, the presence of women on these teams should still be reduced as much as possible.

In response, the program has shown very commendable efforts in adhering to this requirement although the SEA was approved after planning, training and other preparations for this year's IRS operations had already been completed.

- MOH issued a formal letter of to USAID stating its agreement to the re-assignment of females to pyrethroid teams. Coordinator, NMCC, also verbally confirmed the implementation of the policy to RTI.
- Lusaka district restricts its full force of 136 female spray operators to pyrethroids; Kabwe district has all of its 26 women on pyrethroids, while Kafue district also has all its females re-assigned to pyrethroid teams.

Significant reductions in female involvement in DDT teams are also observed in rural districts where the impact of the exclusion of females from DDT teams is highest. For example, Kitwe district has reduced its female force to four women; Ndola district demonstrated a reduction of about 80%. Chongwe had three out of its nine women spray operators on DDT teams. These districts further indicate that relevant adjustment will be made in the number of male operators next year, to ensure full exclusion of females in DDT teams.

Pregnant women and lactating mothers are not engaged as spray operators. Pregnancy tests are conducted before spray operations begin. Female spray operators are also cautioned on the potential dangers of pesticides to a fetus.

Environmental Mitigation—Facilities Refurbishment

Mr. Williams' report also notes that urgent support is needed to upgrade facilities at the IRS service points (e.g. soak pits for pyrethroids lines, evaporation tanks and cemented wash bays for DDT lines, ablution blocks and toilets). In response to this RTI is engaged in an activity to upgrade spray support infrastructure at the district level to better safeguard spray operators' and community members' health by improving washing and waste water disposal facilities, especially the construction of evaporation tanks for the containment and disposal of DDT waste water and soak pits for the disposal of pyrethroid waste water from equipment washing. RTI consultant Edwin Katota worked on identifying structures needing to be refurbished and quantifying the nature of the work to be done in sites in the fifteen districts where USAID supports IRS.

During this reporting period, Mr. Katota worked on cost estimates for this activity, providing cost estimates for works to be undertaken at thirteen sites. Chingola and Chililabombwe will subsequently be included after inspecting them. The Provincial Health Office has identified

replacements for current facilities which cannot be rehabilitated as they belong to private mining concerns. Kafue District is yet to identify a suitable building for use as an IRS facility.

Most of the buildings inspected so far appear not to have been used before as IRS facilities. Some of the structures are in very poor physical state. Some of the sites such as Kazungula, Luanshya, Kalulushi, Mufulira, Chongwe, and Kitwe will require further assessment due to location within hospital grounds, adjoining the administration buildings, and/or close to densely populated areas respectively. It is important that a consultative meeting is held with the affected District Health Offices to see whether alternative sites could be identified and rehabilitated for use as IRS facilities.

Upcoming Activities

RTI will continue to pursue the facilities refurbishment and upgrading/construction of evaporation tanks, soak pits, and wash bays in an effort to ensure worker safety and protection of the environment.

