



PRESIDENT'S MALARIA INITIATIVE



INDOOR RESIDUAL SPRAYING FOR MALARIA CONTROL

Quarterly Report

Indoor Residual Spraying (IRS) for Malaria Control
Indefinite Quantity Contract (IQC) Task Order 1

April 1–September 30, 2010

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 one of the world's leading research institutes, dedicated to improving the human condition by turning knowledge into practice. Our staff of more than 2,800 provides research and technical expertise to governments and businesses in more than 40 countries in the areas of health and pharmaceuticals, education and training, surveys and statistics, advanced technology, international development, economic and social policy, energy and the environment, and laboratory and chemistry services. For more information, visit www.rti.org.

November 5, 2010

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.

Liberia

Background

This report outlines the Indoor Residual Spraying (IRS) project's progress in Liberia from July 2010 through September 2010, and summarizes the project's current activities, achievements, outstanding issues, and upcoming activities. Liberia is a mosquito-infested country that requires regular malaria prevention and control measures, especially during the malaria transmission period running from May through October. There is perennial transmission, with seasonal fluctuations.

The United States Agency for International Development (USAID) has contracted with RTI International for implementation of the Indoor Residual Spraying Indefinite Quantity Contract (IQC) project, with funding from the United States President's Malaria Initiative (PMI). For 2010, RTI introduced a new approach of using participatory methodologies as a way of stimulating community participation. IRS partners are the National Malaria Control Program (NMCP), Ministry of Health and Social Welfare (MOHSW), local governments in the counties that were sprayed, Firestone, Mentor Initiative, and the Anti-AIDS/STI/Malaria Awareness Movement (ADAM).

Following the main 2010 spray campaign (April 12–June 10), activities shifted to the participation of the private sector. As the positive effects of the PMI-supported IRS project begin to be felt and appreciated in Liberia, the private sector groups have expressed interest in conducting IRS as part of malaria prevention. The project initiated IRS in the private sector on August 24, 2010.

Note: IRS Liberia is in the process of transitioning from IRS Task Order 1 project (GHN-I-01-06-00002-00) to IRS Task Order 2 (GHN-I-01-09-00012-00). This will be the last quarterly report under IRS 1. Henceforth, reporting will be biannually as required under IRS TO 2.

Current Activities and Accomplishments

The second phase of the 2010 IRS project rolled out this quarter. This was a public-private partnership initiative (PPPI). During the course of the year, three large corporate entities—Arcelo Mittal Liberia (AML), an iron ore mining company, and two rubber plantation companies, Firestone Liberia (FL) and Liberia Agriculture Company (LAC)—expressed interest in undertaking an indoor residual spraying program to protect their employees. These companies compose close to 155,000 employees with 100,000 dependents residing within company premises. The initial plan was to begin with FL; however, with no response from the company and with time ticking, it was agreed that priority be given to AML, who had shown enthusiasm and made strides in preparing to implement IRS as part of their vector control program.

The quarter included spraying in Careysburg City, which initially was to be covered during the Firestone spraying. One of the project's warehouses is located in this city. The project adopted a different approach to complete the spraying, implementing it as part of intensive exposure training for 26 IRS coordinators, supervisors, and team leaders. When they had

participated as coordinators, supervisors, and team leaders during the main spray campaign, observers noted that they lacked hands-on spraying experience and skills. This training proved to be effective in that it exposed the participants to the realities of actual spraying, team deployment, supervision, data collection, and troubleshooting.

Planning and Assessment

The quarter focused on the second phase of the IRS campaign, which targeted the private-public sector partnership. With concurrence from the Mission, the project conducted a logistical assessment for LAC. LAC is the second-largest rubber company in Liberia after Firestone, with 3,620 permanent employees and a resident population of over 20,000. The objective was to establish the resources required for a successful IRS program. The assessment established that:

- The plantation has 79 divisions of varying sizes, with 1,141 housing units of between one and four rooms.
- The majority of the structures are four-roomed units with each room housing a household of three to eight members.
- The company had been doing some low-scale larviciding using deltamethrin-based larvicides (Pyral and Deltical). Following this procurement, some larviciding was done, though not on a regular basis; however, there was no developed plan for this.
- There were two people assigned to environmental sanitation, including malaria control.
- The company was a beneficiary to other PMI-supported activities such as Artemisinin-based combination therapies (ACTs), long-lasting insecticidal nets (LLINs), and training through the County Health Team (CHT).
- Malaria is LAC's number one cause of outpatient department attendance and inpatient admissions.

Logistics

The only major procurement was for 4,200 sachets of deltamethrin WG, which were procured to support the private sector initiative. The project ordered a vehicle and six motorbikes, and expects delivery of the items during the next reporting period.

Environmental Compliance

In preparation for the waste incineration, the country team together with the Environmental Protection Agency (EPA) of Liberia embarked on a process of waste quantification. This involved the counting and weighing of waste generated during the two IRS spray rounds of 2009 and 2010. Table 1 shows the amount of waste generated over the two-year period.

Table 1: IRS waste generated during the 2009 and 2010 IRS campaigns

Type of Waste	Quantity	Weight in kg	No. of packs
Empty sachets	55,486	187.2	4
Nose mask	7,637	106.5	2
Gloves (pieces)	4,816	122.8	3
Old bags	30	15.0	1
TOTAL		431.5	10

With the support of Liberia EPA and endorsement letters from the NMCP, the United Nations Mission in Liberia (UNMIL) agreed to incinerate empty insecticide sachets. However, the low capacity of the UNMIL incinerator meant that only empty sachets could be disposed. The remaining solid waste is in storage while the project certifies other facilities for incineration. The incineration commenced on September 18, 2010, and was still in progress at the time of compiling this report.

The project decommissioned the Bokay's Town warehouse and handed it over to the authorities. The site had been used for two years, serving at one time as the IRS project's central warehouse. The process involved the covering of the soak pits and returning them to their original state, the destruction of bathrooms, and the thorough cleaning of the three rooms used as storerooms.

Information, Education, and Communication (IEC)

For the private sector spray, the project trained mobilizers from AML. PMI, NMCP, AML, and RTI jointly conducted the training, which included 21 mobilizers, mainly camp masters, over a two-day period. The mobilizers were then deployed three days before the commencement of the spray program.



AML mobilizers during training

Spray Operations

In August, spraying took place in Careysburg City and Yekepa (AML). The latter was within the context of the private-public partnership initiative.

In an effort to strengthen and consolidate IRS operations in Liberia, the project held a six-day field/exposure training in August in Careysburg City for 26 IRS coordinators, team leaders, and supervisors. The training consisted of actual spraying, field coaching/supervision, and discussions.

- 26 supervisors and team leaders trained
- 761 structures sprayed
- 5,524 people and 833 households protected

In Yekepa, the project trained nine AML employees and nine volunteers. Spraying was conducted over a 17-day period.

- 1,168 structures sprayed
- 6,762 people and 1174 households protected by IRS

The second objective of the initiative was to complete the spraying of areas close to Firestone previously left out during the last campaign. Spraying began on August 24 and ended on September 11.



Supervisors sharing a point in the field during the August 2010 exposure training



Spray operators undergoing training at AML

Entomological Monitoring

During the quarter, the project supported the entomological activities of the NMCP and CHT teams, directing efforts at establishing vector presence and densities. This involved larval sampling and conducting pyrethrum spray catches (PSC).

Capacity Building of Ministry of Health

The project is developing the capacity-building process of MOHSW on three fronts:

- Program planning—through technical meetings and joint planning
- IRS implementation—through training and attachments--a six-day hands-on training for coordinators, team leaders, and supervisors conducted in Careysburg
- Entomological surveillance—sent four people, two each from Liberia Institute for Biomedical Research (LIBR) and NMCP, to Ghana for a two-month advanced training in entomology.

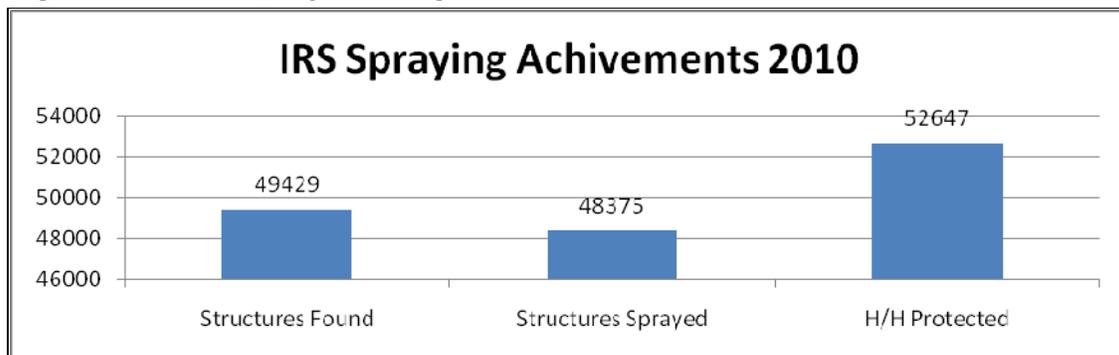


Careysburg training participants included 12 supervisors, 4 coordinators, and 10 team leaders (4 women and 22 men)

Monitoring and Evaluation (M&E)

The project completed spraying on September 11, 2010, with the campaign ending in Yekepa (AML) on that date. With a target to spray 50,000 structures, the 2010 IRS campaign achieved remarkable results. During the campaign, IRS sprayed 48,375 structures and protected 420,532 people in 52,647 households. Figure 1 below shows the 2010 IRS achievements.

Figure 1: IRS spray coverage



Population protected

The IRS project protected 420,532 people in 12 districts and sub-districts of four counties. The population protected represents about 12% of the country population. The pie chart in Figure 2 breaks down the population protected by IRS by category.

Figure 2: Population protected by IRS in 2010

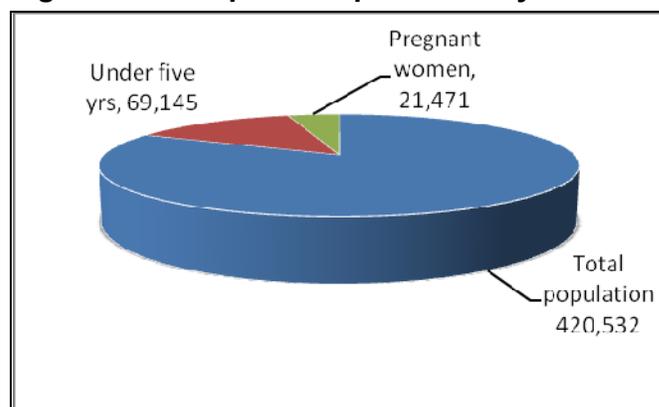


Table 2: People trained to deliver IRS

District	IEC Mobilizers	Spray Trainers	Spray Operators	Washers, Drivers, etc.
Yekepa (AML)	21	0	18	6
Careysburg	0	26		5
TOTAL	21	26	18	11

Insecticide Quality Control

The project received the results of the chemical analysis of the six samples of insecticides in August 2010. The results were 25.3% and 24.8% for the Pali and K-Othrine respectively. Both are deltamethrin-based insecticides. The findings indicate that the quality of the insecticide was good and corresponds with the required percentage of 25%.

Project Management and Administration

Project logistician Prince T. Borbor resigned in August 2010. The project has since posted advertisements and conducted interviews for this post and those of monitoring & evaluation/technical officer, project assistant, and driver. Ken Mugo, the IT regional manager, provided IT support to the country team.

Partnership and Collaboration

RTI was instrumental in involving the private sector in the IRS project, and held meetings with AML, LAC, and Firestone. The objective is to establish collaboration in the IRS field. USAID prepared draft memoranda of understanding. The Chief of Party (COP) attended the regular NMCP/PMI partners meetings that were reinstated. RTI serves as a member of the malaria steering committee.

Two NMCP/RTI technical meetings were held during the quarter. Representing NMCP at the meetings are the vector control and IEC/BCC [behavior change communication] units. The COP contributed to the IRS section of the Global Fund to Fight AIDS, Tuberculosis, and

Malaria Round 10 proposal. The focus of the Ministry for Round 10 is on capacity building of the vector control unit of the NMCP.

Outstanding Activities

- Incineration of waste
- IRS planning and review meetings at county level

Upcoming Activities for April to June 2010

- Cone bioassays (efficacy monitoring of insecticide on walls from spray round)
- IRS planning and review meetings
- Geographical reconnaissance and logistics assessment for 2011
- Capacity building

Way Forward

The potential health benefits of IRS actually extend beyond the reduction in malaria morbidity and mortality alone. Areas freed from malaria have the potential to attract investment in addition to saving people's limited resources, time, and energy. The areas targeted for spraying are rich in mineral deposits and are prime zones for timber, rubber, and agriculture production, which are the major economic drivers.

Malaria is a big threat to economic development and is one of the main contributors to poverty. By investing in malaria prevention, the private sector, the nation, and affected communities will reap benefits in the short and long term. Benefits include increased attendance at school and work and increased productivity. All of this will eventually contribute to poverty alleviation and enhance the achievements of the Millennium Development Goals.

Because of the high level of commitment from the management of AML and LAC to conduct IRS, the project recommends that they be supported with insecticide and technical assistance for an initial period of two years while they put in place a mechanism of buying their own chemicals. A partnership network should be established that brings together the private and public communities and the funding agencies. This initiative requires development of an M&E framework.