President's Malaria Initiative

UGANDA INDOOR RESIDUAL SPRAYING (IRS) PROJECT ANNUAL PERFORMANCE REPORT

OCTOBER 1, 2010 THROUGH SEPTEMBER 30, 2011

October 2011

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Acronyms

BCC	Behavior Change Communication
CDFU	Communications for Development Foundation Uganda
COP	Chief of Party
COTR	Contracting Officer's Technical Representative
DCOP	Deputy Chief of Party
DEO	District Environment Officer
DHI	District Health Inspector
DHO	District Health Officer
DHT	District Health Team
EMCAB	Environmental Management Capacity Building
GIS	Geographic Information System
GPS	Global Positioning System
IEC	Information, Education and Communication
IEE	Initial Environmental Examination
IR	Intermediate Result
IRS	Indoor Residual Spraying
LC	Local Council
M&E	Monitoring and Evaluation
MOH	Ministry of Health
MOP	Malaria Operational Plan
MOU	Memorandum of Understanding
NEMA	National Environmental Management Authority
NMCP	National Malaria Control Program
PMI	President's Malaria Initiative
PMP	Performance Management Plan
PPE	Personal Protective Equipment
PSC	Pyrethrum Spray Collections
SEA	Supplementary Environmental Assessment
SOEP	School of Entomology and Parasitology
SOP	Standard Operating Procedure
TA	Technical Assistance
USAID	United States Agency for International Development
WP	Wettable Powder
VCD	Vector Control Division
VHT	Village Health Team

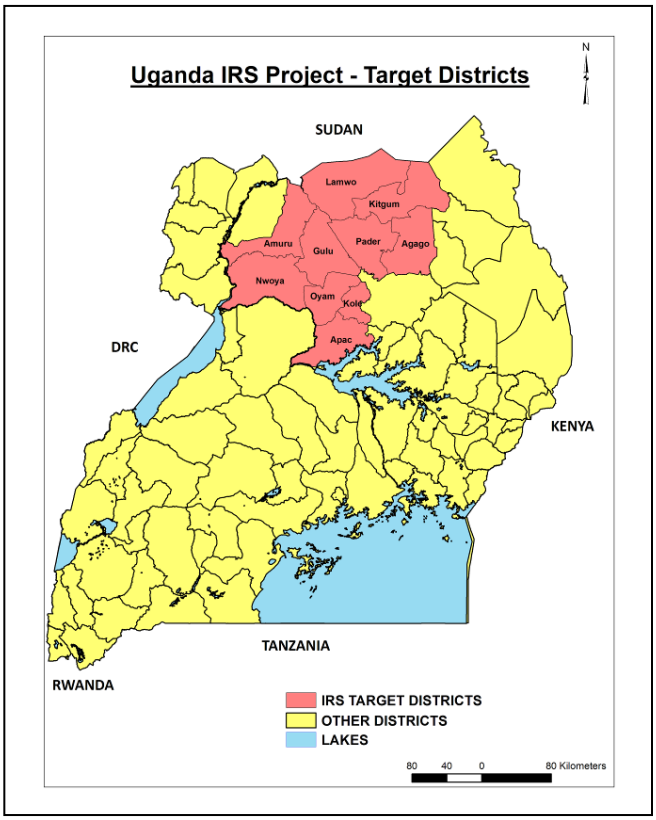
Executive Summary

This report presents the Uganda Indoor Residual Spraying (IRS) Project's progress in Year Two (period covering October 1, 2010 through September 30, 2011). The report outlines the key project activities and achievements during the year, the challenges and constraints faced, lessons learned, innovative approaches and recommendations for future implementation.

Background

The purpose of the Uganda IRS Project is to achieve the President's Malaria Initiative (PMI) Uganda targets in indoor residual spraying. In particular, the Uganda IRS Project contributes to IR.8.1: Effective use of social sector services through three main objectives:

- Implementation of a high quality IRS program;
- Conducting comprehensive monitoring and evaluation of the IRS program;
- Developing the national capacity to conduct IRS.



The PMI goal is to reduce malaria-related mortality by 70% by the end of 2014 in the following vulnerable groups: children under five and pregnant women. PMI/Uganda has a five-year strategic plan and an annual Malaria Operational Plan (MOP) which guides current implementation and scale-up of activities. IRS is the largest component of the MOP and is the cornerstone of the PMI/Uganda program.

The Uganda IRS program activities are being carried out with full collaboration of the Uganda National Malaria Control Program (NMCP) and cover ten priority districts. (With effect from July 1, 2010, the Government of Uganda went through a redistricting process and revised the original six project districts to carve out four new districts. The project activities were modified to recognize the newly formed districts starting in October 2010.)

Abt Associates (Abt), as prime contractor of this program, manages and directs all technical component activities in support of IRS planning, procurement, implementation, monitoring, and capacity building. In addition to Abt, the project is supported by Communications for Development Foundation Uganda (CDFU), a subcontractor which provides expertise and support for Information, Education and Communication (IEC) and Behavior Change Communication (BCC) activities of IRS program campaigns and population sensitization under the direction of Abt technical staff.

Project Activities/Achievements

During Year Two of the Uganda IRS Project, Abt Associates as the lead contractor has achieved great success in attaining the expected project results. Learning from the challenges and lessons in

Year One, the project was able to refine implementation approaches. The challenges which the project confronted in Year Two have led to more lessons learned that the project will carry forward to ensure project success in the final year.

During Year Two the project successfully conducted two spray rounds in the seven districts of Kitgum, Lamwo, Pader, Agago, Oyam, Apac and Kole, and one spray round in the three districts of Gulu, Amuru and Nwoya. In each round spraying exceeded the PMI expected coverage of 85% of targeted households and populations protected.

During Quarter One of Year Two (October 1 through December 31, 2010) project activities focused on Kitgum, Lamwo, Pader and Agago districts in the third round of spraying under Abt Associates as the lead contractor. The spray round commenced on November 3, 2010 and was concluded by December 10, 2010. With the exception of a few urban centers, the spray round in most sub-counties was concluded by the end of November, 2010. The spray round was concluded in an average of 21 days involving 1,379 spray operators. The insecticide usage rate was an average of 2.8 houses per sachet with each spray operator spraying an average of 12 houses per day.

Quarter Two activities (January 1 through March 31, 2011) focused on the six districts of Oyam, Apac, Kole, Gulu, Amuru, and Nwoya, during their third round of spraying.

In Oyam, Apac and Kole spraying commenced on January 5, 2011 and concluded by January 30, 2011. Spraying was completed in an average of 20 days involving 1,095 spray operators. The insecticide usage rate was an average of 2.6 houses per sachet, with each spray operator spraying an average of 13 houses per day.

Gulu, Amuru and Nwoya districts commenced spraying later than originally planned, due to national elections held during the months of February and March. The round began on March 9, 2011 and concluded by March 31, 2011. Spraying was completed in an average of 18 days involving 1,221 spray operators. The insecticide usage rate was an average of 2.8 houses per sachet, with each spray operator spraying an average of 12 houses per day.

Quarter Three activities (April 1 through June 30, 2011) were focused on the seven districts of Kitgum, Lamwo, Pader Agago, Oyam, Apac and Kole. All seven districts were undergoing the fourth round of spraying under Abt Associates as the lead contractor.

The four districts of Kitgum, Lamwo, Pader and Agago commenced spraying on May 9, 2011 and concluded by June 4, 2011. Spraying was concluded in an average of 19 days involving 1,434 spray operators. The insecticide usage rate was an average of 2.8 houses per sachet, with each spray operator spraying an average of 13 houses per day.

In Oyam, Apac and Kole districts spraying commenced on May 23, 2011 and concluded by June 20, 2011. The spray round was concluded in an average of 20 days involving 1,065 spray operators. The insecticide usage rate was an average of 2.6 houses per sachet, with each spray operators spraying an average of 14 houses per day.

Quarter Four activities (July 1 through September 30, 2011) were focused on reviewing project performance with USAID and preparation for the upcoming spray round that will cover all ten project districts. The performance review focused on the project's achievements, challenges, lessons learned and recommendations for future implementation. The project prepared for the next spray round by assisting district staff to organize and lead micro-planning meetings in the project districts, recruiting spray operators, conducting environmental compliance activities, conducting IEC/BCC activities and procuring and distributing equipment and supplies. The upcoming spray round is scheduled to commence in October 2010 with the districts of Gulu, Amuru and Nwoya that will be undergoing their fourth round of spraying. The districts of Kitgum, Lamwo, Pader, Agago, Oyam, Apac and Kole will follow with their fifth round of spraying in November 2011.

Throughout Year Two, the project team continued to build capacity with district and sub-county stakeholders to ensure that responsibility for several IRS related activities (e.g., micro planning and training of spray personnel) were increasingly transferred to local authorities. In addition, Abt

supported the construction of an insectory at Gulu University, which is expected to be completed by the end of November 2011.

Furthermore, the project collaborated with NMCP and the School of Entomology and Parasitology (SOEP) to organize a two-day curriculum review workshop. The project also worked with NMCP to review the NMCP strategic plan, resulting in specific recommendations for a new strategic plan.

The project also worked to build capacity of the private sector. A consultative meeting was held to bring together the MOH Vector Control Division and twenty-five participants from the private sector involved in pest control to develop a private sector training program for IRS.

Planning Activities

As indicated in the background section of this report, the original six district boundaries were rearranged by the Government of Uganda with effect from 1st July 2010, creating a total of ten districts, including the four new districts of Kole, Nwoya, Lamwo and Agago created out of Apac, Amuru, Kitgum and Pader respectively. The project activities were reviewed to refer to the four new districts in Year Two as shown in the set targets below:

Table 1: Summary results for Year Two

	Round 1			Round 2			Round 3			Round 4		
	Target	Found	% diff	Target	Found	% diff	Target	Found	% diff	Target	Found	% diff
Kitgum	105,475	162,799	54.35%	162,799	159,755	-1.90%	85,798	83,209	-3.11%	83,209	79,181	-5.09
Lamwo							73,957	69,724	-6.07%	69,724	70,417	0.98
Pader	149,340	173,653	16.30%	173,653	183,367	5.60%	88,057	98,708	10.79%	98,708	96,714	-2.06
Agago							95,310	109,241	12.75%	109,241	113,869	4.06
Apac	111,534	151,182	35.50%	151,182	164,501	8.80%	94,899	90,562	-4.79%	90,562	99,823	9.28
Kole							69,206	72,507	4.55%	72,507	80,177	9.57
Oyam	101,908	111,548	9.50%	111,548	105,992	-5.00%	105,992	102,992	-2.91%	102,992	115,466	10.8
Amuru	103,754	107,894	4.00%	107,894	107,448	-0.40%	74,484	77,656	4.08%	77,656	*	
Nwoya							33,004	35,695	7.54%	35,695	*	
Gulu	144,205	136,299	-5.50%	136,299	136,581	0.20%	136,581	152,839	10.64%	152,839	*	
Total	**716,216**	**843,375**	**17.80%**	**843,375**	**857,644**	**1.70%**	**857,288**	**893,133**	**4.01%**	**893,133**		

** Due to the shift in timing caused by national elections, the third round was delayed by one month, and the fourth round rescheduled and incorporated with the other seven districts in October/December 2011.*

Activities by Intermediate Result

1.1. Result 1: High-Quality IRS Program Implemented

Strategy: Planning, management and implementation of indoor residual spraying in collaboration with key stakeholders.

Table 2: Result 1 Indicators

Indicator	FY 2011 Target	FY 2011 Actual	Q1 Target	Q1 Actual	Q2 Target	Q2 Actual	Q3 Target	Q3 Actual	Q4 Target	Q4 Actual
Number of district level planning and introductory meetings conducted	20	27	4	4	6	6	7	7	10	10
Number of people trained in IRS*	1,017	1,771	254	334	255	348	254	816	254	273
Number of IRS print materials disseminated	5,000	1,500	0	0	1,500	1,500	0	0	0	0
Number of radio spots aired	2,400	1,960	560	560	700	700	700	700	0	0
Number of radio talk shows conducted	120	117	27	27	33	33	57	45	12	12
Number of community members sensitized on IRS	3,000	2,849	495	495	550	550	748	748	1,056	1,056
Number of districts sprayed	10	10	4	4	6	6	7	7	0	0
Number of households sprayed with IRS**	1,681,011	1,514,324	343,122	358,409	514,166	527,307	626,943	628,608	0	0

**Number trained includes laboratory technicians, environmental officers and spray personnel (i.e. spray operators, team leaders, supervisors, store keepers, mobilizers and wash persons). The training also includes refresher training.*

***Some districts were sprayed once during the year*

Accomplishments in Year Two:

Procurement and Logistics

A total of 270,160 insecticide sachets of Bendiocarb WP 80% were procured and used in the third spray round in Kitgum, Lamwo, Pader, Agago, Oyam, Apac and Kole in the first quarter of Year Two. In the second quarter, 174,360 sachets of Bendiocarb were procured while 200,160 sachets of Bendiocarb insecticide were procured in fourth quarter to supplement the existing stock for use in the October/December 2011 spray round.

In Year Two, in consultation with USAID, the project decided to take on logistics in-house instead of sub-contracting as was the case in Year One. Thus, the project developed and implemented a new logistics system in the first quarter of the year. One innovation was to call Parish Storekeepers to the District Store to receive their equipment and supplies, and then accompany distribution back to their respective parish stores as opposed to the earlier distribution from the district to parish stores. This change brought about several positive results: it reduced the number of errors in quantities supplied; it eliminated cases where trucks arrived for delivery yet the parish storekeeper was not at site, and it facilitated completion of tracking documentation of supplies as completed dispatch notes were consigned immediately to the district storekeeper. This change enabled spraying to start on schedule in all locations, from the first spray round of Year Two.

Another innovation was in the redesign of the insecticide tracking sheet used by Parish Storekeepers. The new format includes tracking of insecticide issued (and returned) by team, and requires the signature of each team leader. The form, completed daily, is picked up by the data collectors (along

with team summary data sheets) and delivered to data entry centers for inputting to a database which can be analyzed, and discrepancies quickly identified for further investigation.

IEC/BCC

CDFU, in collaboration with Abt staff, NMCP Senior Health Educator and District Health Educators, carried out the IEC/BCC activities as planned. The IEC/BCC strategy has continued to evolve in response to the community level population gaining a high level of IRS knowledge and continuing to accept IRS as a positive intervention. For this reason, the project was able to reduce the amount of print materials and radio spots. In some districts or sub-counties the project was even able to stop these activities altogether.

Since most community members had already been sensitized to IRS during Year One, the project concentrated efforts to work with IRS committees who effectively mobilized the community in preparation for each spray round. IRS committees, made up of 11 community local leaders, went door-to-door ahead of the spray teams to mobilize community members at parish level. In addition to working with IRS committees, in Year Two, the project continued to make use of interactive pre- and post-IRS radio talk shows and radio spots from local radio stations which were designed to mobilize the community. These radio spots were also used to sensitize the community on specific issues as needed before, during and after the spray round. The radio talk shows tackled specific IRS topics and addressed IRS concerns as they arose from the community by responding to caller questions. Radio spot messages were aired to emphasize the messages delivered in the radio talk shows. Table 2 below provides details of the IEC/BCC activities conducted during the year.

Table 3: IEC Activities

District	IEC committees community sensitization meetings		Radio spots	Radio talk shows	IEC/BCC Materials Disseminated
	No. of Meetings	Committee Members			
Kitgum	30	110	210	13	0
Lamwo	21	99	210	13	0
Pader	36	132	280	13	0
Agago	44	176	280	13	0
Apac	30	110	280	14	0
Kole	15	55	210	14	0
Oyam	24	77	210	14	0
Gulu	34	187	70	8	700
Amuru	10	55	140	8	400
Nwoya	10	55	70	7	400
Total	**254**	**1,056**	**1,960**	**117**	**1,500**

Spraying Operations

Micro-planning

Micro-planning meetings were held in the project districts prior to each spray round. By the fourth quarter, capacity of local officials was sufficiently high to allow the micro-planning meetings to be fully facilitated by the district and MOH staff. The main objective of the micro-planning meetings was to involve key stakeholders in planning sessions of the IRS program. Participants in the micro-planning meetings included IRS sub-county supervisors (Health Assistants), team leaders, District Health Team (DHT) members, and storekeepers. The micro-planning meetings laid plans for the upcoming spray rounds and refreshed participants on IRS Standard Operating Procedures (SOPs). During these meetings the participants dismissed poor performers from future involvement in IRS activities. The meeting facilitators also disseminated spray reports for the previous rounds. With effect from February 2011 the project decided to include storekeepers in the micro-planning meetings to give them a better orientation on how to relate with the spray teams. Directly after the micro planning meeting, the project provided storekeepers with an additional day of training on inventory management, record keeping, environmental compliance and first aid, among other topics.

Recruitment and Training for Spray Personnel

The project, in close collaboration with district staff, recruited spray personnel prior to each spray round, including supervisors, team leaders, spray operators, wash-persons, security guards and storekeepers. Local district officials took the lead in the recruitment process using established recruitment guidelines. Recruitment was carried out with active participation of DHT members, sub-county officials and members of the community, who conducted an evaluation process of the recruits. Priority was given to: previous spray personnel with good conduct; Village Health Team (VHT) members; and, lastly, parish residents able to read and write. Efforts were made to minimize recruitment of new spray personnel. The new spray personnel comprised an average of 10% of the total recruits by the fourth quarter. As mentioned above, spray personnel found guilty of misconduct in previous spray rounds were discontinued from further involvement in IRS activities. In the fourth quarter the recruitment process was made even more transparent by giving the recruits a test to evaluate their ability to read and write, which is a key prerequisite.

Training was conducted for new spray personnel, while previous spray personnel were given a more limited one-day orientation meeting to review spray techniques. In order to acquaint new recruits with SOPs, the project provided these people with two extra days of on the job training, while the more experienced spray operators began spraying. The storekeepers training was conducted by Abt staff, in collaboration with district officials, for both new and old storekeepers to acquaint them with the new logistics management systems and procedures. Laboratory technicians from all the ten districts were given refresher training by MoH officials on carrying out pregnancy tests. A total of 91 laboratory technicians from the 10 districts were trained during the year. Altogether 1,771 spray personnel were given some degree of training during the year. This number includes all new spray personnel (or personnel in new positions, such as team leaders), as well as all store keepers and the laboratory technicians referred to above.

Launch of Spraying

Kitgum/Lamwo/Pader/Agago

The third spray round of the Uganda IRS Project under Abt Associates as the lead contractor commenced on November 3, 2010 with Kitgum, Lamwo, Pader and Agago districts, and was completed by December 10, 2010. Most sub-counties concluded spraying by the end of November, the exceptions being a few urban centers. District Vector Control officers were brought on board to boost the supervision activities. A total of 360,882 households were found in these four districts, of

which 358,409 (99.3%) households were sprayed. The total population recorded was 1,193,527, of which 11,183,129 (99.1%) were protected against malaria.

The fourth round of spraying in Kitgum, Lamwo, Pader and Agago districts commenced on May 9, 2011 and was concluded by June 4, 2011. (Over 95% of the sub-counties had concluded spraying by May 31, 2011.) A total of 360,181 households were found in the four districts, of which 340,796 households were sprayed (94.1% coverage). The total population recorded was 1,155,265, of which 1,102,209 (94.8%) were protected through the IRS spray campaign.

Apac/Oyam/Kole

Round three spray activities in Apac, Oyam and Kole districts commenced on January 5, 2011 and concluded by January 30, 2011. A total of 266,061 households were found in the three districts, of which 264,901 (99.6%) were sprayed. The total population recorded was 751,908 of which 748,511 (99.6%) were protected.

Round four spraying in Apac, Oyam and Kole districts began on May 23, 2011 and concluded by June 20, 2011. A total of 295,466 households were found of which 287,812 (97.6%) were sprayed. The total population recorded was 801,697 of which 782,071 (97.8%) were protected.

Amuru/Gulu/Nwoya

Round three spraying in Amuru, Gulu and Nwoya districts commenced on March 9, 2011 and concluded by March 31, 2011. A total of 266,190 households were recorded in the three districts, of which 262,406 were sprayed (98.6% coverage). The total population found was 883,810, of which 873,973 (98.9%) were protected.

All ten districts surpassed the target of 85% coverage in each spray round, as demonstrated in the summary tables below.

Table 4: Summary of IRS Output Indicators for the Ten Project Target Districts in Year Two Round Three (Bendiocarb insecticide)

Indicator	Kitgum	Lamwo	Agago	Pader	Apac	Kole	Oyam	Amuru	Nwoya	Gulu	Total
Spray period	Nov 3-Dec 10	Nov 3-Dec 10	Nov 3-Dec 10	Nov 3-Dec 10	Jan 5-Jan 29	Jan 5-Jan 26	Jan 5-Jan 30	Mar 9-Mar 31	Mar 9-Mar 30	Mar 9 - Mar 31	Nov 3-Mar 31
Total households*	83,209	69,724	109,241	98,708	90,562	72,507	102,992	77,695	35,695	152,839	893,172
Households fully sprayed	82,010	68,262	108,389	97,983	86,658	71,172	99,545	76,756	34,731	148,639	874,145
Households partly sprayed	254	385	722	404	3,342	1,316	2,868	645	80	1,555	11,571
Total households fully and partly sprayed	82,264	68,647	109,111	98,387	90,000	72,488	102,413	77,401	34,811	150,194	885,716
Households not sprayed	945	1,077	130	321	562	19	579	255	884	2,645	7,417
% of households partly or fully sprayed	98.9	98.5	99.9	99.7	99.4	99.9	99.4	99.7	97.5	98.3	99.12
% of households not sprayed at all	1.1	1.5	0.1	0.3	0.6	0.1	0.6	0.3	2.5	1.7	0.88
Total population	277,641	226,546	386,476	302,864	260,292	193,258	298,358	265,522	117,170	501,118	2,829,245
Total population protected	274,727	222,700	383,733	301,969	258,557	193,196	296,758	264,791	114,510	494,672	2,805,613
Total population not protected	2,914	3,846	2,743	895	1,735	62	1,600	731	2,660	6,446	23,632
% of population protected	99	98.3	99.3	99.7	99.3	99.9	99.5	99.7	97.7	98.7	99.11
% of population not protected	1.0	1.7	0.7	0.3	0.7	0.1	0.5	0.3	2.3	1.3	0.89
No. of children under five protected	62,394	52,018	98,479	78,099	56,330	40,155	64,350	66,945	29,061	108,441	656,272
No. of pregnant women protected	6,281	5,984	14,312	11,934	9,808	6,813	13,104	10,431	4,872	19,835	103,374
No. of mosquito nets found	75,656	61,131	126,997	106,261	102,102	69,220	95,677	37,239	21,151	123,904	819,338
No. of children under 5 sleeping under a net	53,304	41,125	79,945	65,540	41,661	31,171	44,461	32,887	13,489	61,987	465,570
No. of insecticide sachets used	31,610	24,199	38,025	34,679	36,495	26,289	40,097	26,982	12,394	56,127	326,897
Average number of households sprayed per sachet	2.6	2.8	2.9	2.8	2.5	2.8	2.6	2.9	2.9	2.7	2.75
Number of spray operators	363	289	374	353	391	279	425	372	165	684	3,695
Average number of households sprayed per spray operator per	10	12	14	13	12	14	12	13	12	12	12.4
Average number of spray days	23	19	20	21	20	18	21	16	18	19	19.5

* *Households are individual structures in the project context*

Table 5: Summary of IRS Output Indicators for the Seven Districts in Year Two Round Four (Bendiocarb Insecticide)

Indicator	**Kitgum**	**Lamwo**	**Pader**	**Agago**	**Apac**	**Kole**	**Oyam**	**Total**
Spray Period	May 9-June 4	May 9-June 4	May 9-June 4	May 9-June 4	May23-June 20	May23-June 17	May23-June 12	May 9-June 20
Targeted households	83,209	69,724	98,708	109,241	90,562	72,507	102,992	626,943
Total households	79,181	70,417	96,714	113,869	99,823	80,177	115,466	655,647
Households fully sprayed	72,661	64,402	89,396	112,578	93,399	78,422	109,205	620,063
Households partly sprayed	755	253	391	360	3,228	1,485	2,073	8,545
Total households fully and partly sprayed	73,416	64,655	89,787	112,938	96,627	79,907	111,278	628,608
Households not sprayed	5,765	5,762	6,927	931	3,196	270	4,188	27,039
% of households partly or fully sprayed	92.7%	91.8%	92.8%	99.2%	96.8%	99.7%	96.4%	95.6%
% of households not sprayed at all	7.3%	8.2%	7.2%	0.8%	3.2%	0.3%	3.6%	4.4%
Targeted population	277,641	226,546	302,864	386,476	260,292	193,258	298,358	1,945,435
Total population	258,337	221,350	288,055	387,523	282,253	206,988	312,456	1,956,962
Total population protected	241,130	203,976	272,124	384,979	273,111	206,297	302,663	1,884,280
Total population not protected	17,207	17,374	15,931	2,544	9,142	691	9,793	72,682
% of population protected	93.3%	92.2%	94.5%	99.3%	96.8%	99.7%	96.9%	96.1%
% of population not protected	6.7%	7.8%	5.5%	0.7%	3.2%	0.3%	3.1%	3.9%
No. of children under five protected	51,891	44,387	60,644	88,876	55,255	40,583	60,367	402,003
No. of pregnant women protected	5,629	5,719	11,018	15,208	6,745	5,699	10,487	60,505
No. of mosquito nets found	57,345	46,733	74,282	107,693	104,864	69,267	94,004	554,188
No. of children under 5 sleeping under a net	38,137	30,993	44,828	62,615	40,511	30,699	42,376	290,159
No. of insecticide sachets used	29,647	22,947	32,370	39,257	39,292	28,819	43,118	235,450
Average number of households sprayed per sachet	2.6	2.8	2.8	2.8	2.5	2.7	2.6	2.7
Number of spray operators	331	278	389	436	362	292	411	2,499
Average number of households sprayed per spray operator per day	11	14	12	14	13	16	13	13
Average number of spray days	21	16	19	19	22	17	21	19

Following is a graphical representation of key indicators which compare results from round one to four. Data is presented according to the original six districts, to allow comparison.

Figure 1: Houses Sprayed per Spray Operator

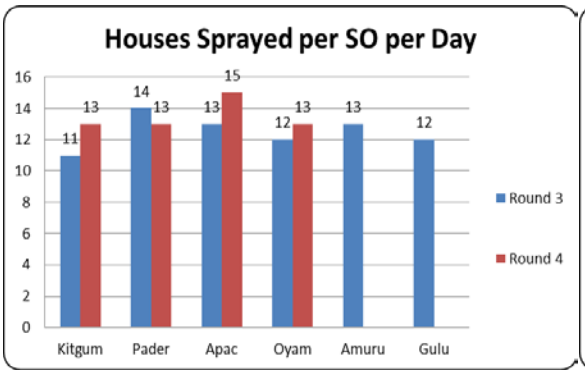


Figure 2: Insecticide Usage Rate

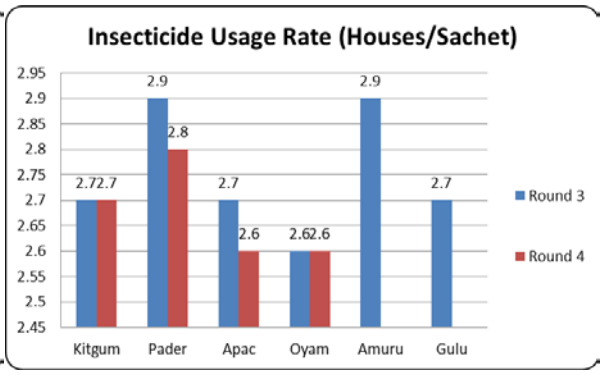


Figure 3: No. of Spray Days

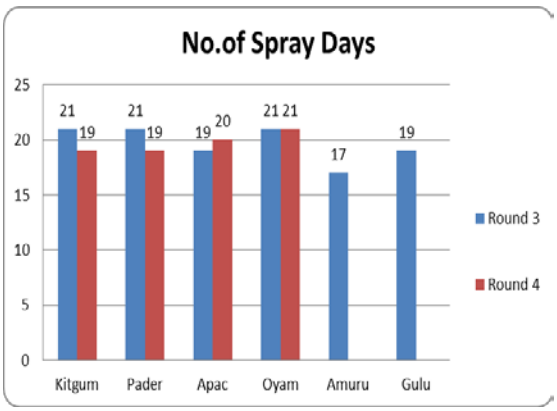
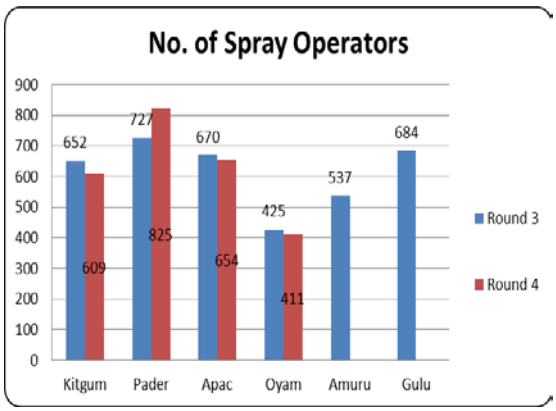


Figure 4: No. of Spray Operators



1.2. Result 2: Comprehensive Monitoring and Evaluation of the IRS Program Performed

Strategy: Ensure appropriate program activity monitoring, environmental monitoring and compliance, and vector surveillance.

Table 6: Result 2 Indicators

Indicator	Q1 Target	Q1 Actual	Q2 Target	Q2 Actual	Q3 Target	Q3 Actual	Q4 Target	Q4 Actual	FY 2011 Target
Annual work plan developed and approved	1	1	0	0	0	0	0	0	1
IRS progress reports prepared and submitted	5	5	5	5	4	4	4	4	19
Number of district level digital maps prepared	12	12	12	25	14	14	10	10	40
Number of inspections done by supervisors per spray round	250	342	250	409	250	466	0	0	1,000
IEEs and/or SEAs completed as required	0	0	0	0	0	0	0	N/A	TBD
Percentage of washing bays and soak pits inspected	90%	100%	90%	90%	90%	99%	90%	96%	90%
Number of entomological surveys conducted	15	10	15	12	8	12	15	12	51
Number of susceptibility tests conducted	0	0	1	1	0	0	6	6	6
Number of wall bioassay tests conducted	150	168	150	138	150	54	150	162	600
Number of PSCs carried out	180	216	180	216	180	360	180	144	720

Accomplishments in Year Two:

Routine Environmental Compliance Inspections

To ensure proper environmental protection, the project environmental team and Field Coordinators collaborated with District Environmental Officers (DEOs) and DHT members to conduct routine environmental compliance inspections before, during, and after each spray round during the year. The project team and DEOs conducted a total of 1,064 environmental compliance inspections. The inspections were done to monitor proper use of Personal Protective Equipment (PPE), the triple rinsing process, conditions of IRS soak pits and stores, as well as the issues related to the general safety of the community. During the inspections, the assessors identified and corrected main inaccuracies including silting of the soak pits, improper usage of PPEs by a few storekeepers and some spray operators, and incidences of spray personnel not bathing at site after field work. Minor repairs were done on the soak pits prior to each spray round. On average, 96% of the washing bays and soak pits were inspected throughout the year. Post-IRS inspections were also carried out at the end of every spray round to ensure stores and soak pits are left clean and in adherence to environmental compliance standards.

Evaluation of Environmental Compliance of IRS

Staff from USAID, PMI and the Environmental Monitoring and Capacity Building (EMCAB) project conducted an independent environmental compliance audit. Susan Anderson, the EMCAB Team Leader, joined the project Senior Environmental Specialist in a visit to the project from May 16 -25, 2011 to carry out a second evaluation of environmental compliance of IRS activities. They visited Gulu, where they provided technical support and guidance and made a presentation on USAID Regulation 216 during the Environmental Compliance workshop. The audit team did not find any major or minor issues, and the audit report submitted to USAID revealed that Abt fulfilled their commitment to take action on previously recommended actions.

Supplemental Environmental Assessment (SEA)

Peter Chandonait, an environmental specialist from the Abt head office, visited the project in the third quarter to review the Environmental Management and Mitigation Plan as per the SEA. A detailed report on the current practice of mitigation plan and recommended actions was submitted to USAID.

IRS Waste Disposal

Twice during Year Two, the project used the Nakasongola incineration facility to dispose of IRS related waste materials which were housed, sorted, categorized and packed in the Gulu central store. Nakasongola is a military facility, approved by the National Environmental Management Authority (NEMA), and has a commercial arm which provides incineration services to those outside the military for a charge. NEMA officials supervised the disposal. A total of 19,395.5 kgs of waste including empty insecticide sachets, nose masks, polythene sheets, torn gloves and filter clothes was collected over the year and safely delivered to Nakasongola for final disposal.

Environmental Compliance Workshop

Abt project staff, assisted by Susan Anderson from EMCAB (who was part of the environmental compliance independent audit team), representatives from MOH/NMCP, NEMA and the districts, organized and facilitated a workshop on Best Management Practices in Environmental Compliance. The workshop was held in Gulu from May 16 to 20, 2011. A total of 22 participants from the project's target IRS districts attended the workshop. Participants included District Environmental Officers (DEOs), Vector Control Officers and District Health Inspectors (DHIs) . The participants were able to gain hands-on experience by visiting the field and implement what they learned.

Entomological Monitoring

National and district VCOs (under the supervision of the NMCP Senior Entomologist) carried out a total of 46 entomological surveys throughout the year, including pre- and post-IRS Pyrethrum Spray Collections, monthly IRS wall bio assays, and vector susceptibility surveys in sentinel sites within selected districts. The second round of national susceptibility study, which was originally scheduled to be carried out during the last quarter of Year Two (Sep 2011), was postponed to October 2011.

The monthly wall bio assays conducted in 3 selected districts clearly indicate that Bendiocarb is showing longer residual effects on vector mosquitoes which lasts for more than 4 months. Laboratory reared susceptible vector mosquitoes (Kisumu strain) were used for the above bioassays. A total of 522 wall bio assays were conducted during the year. The following figure shows the results of the monthly wall bioassays.

Figure 5: Monthly wall bioassays in Pader District

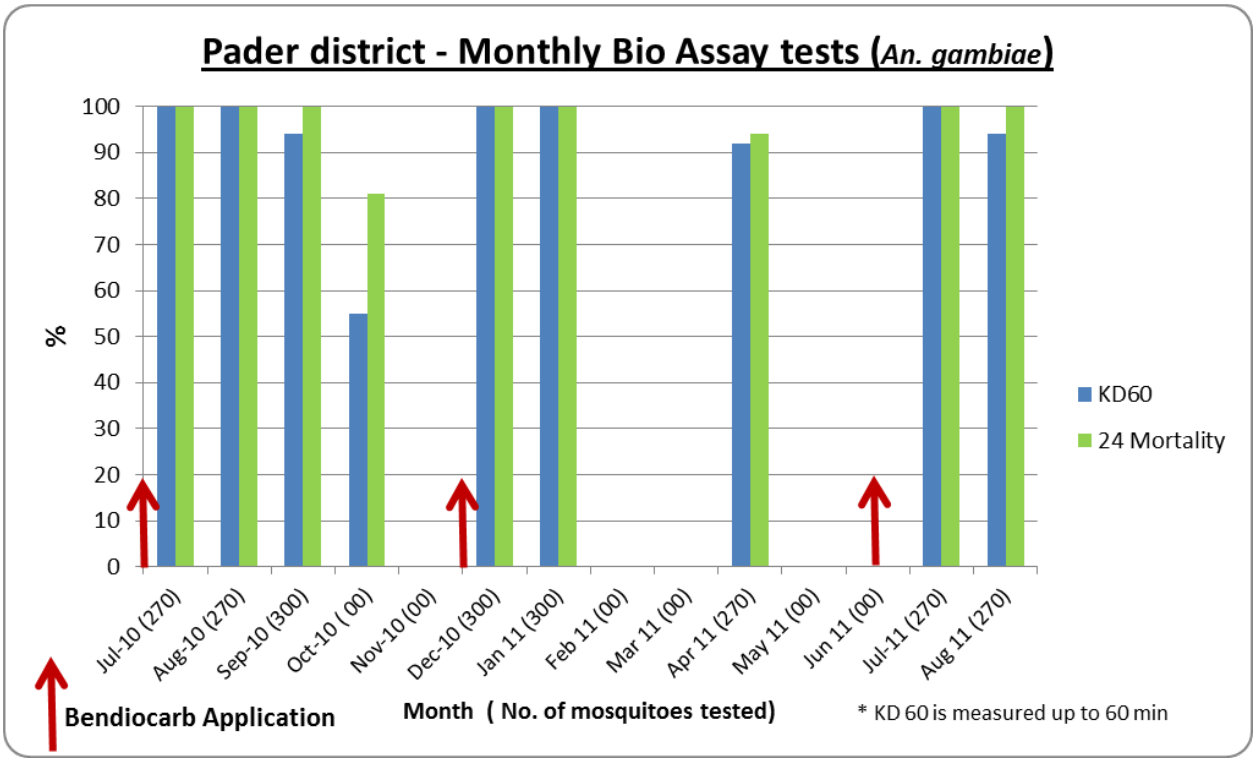


Figure 6: Monthly wall bioassays in Apac District

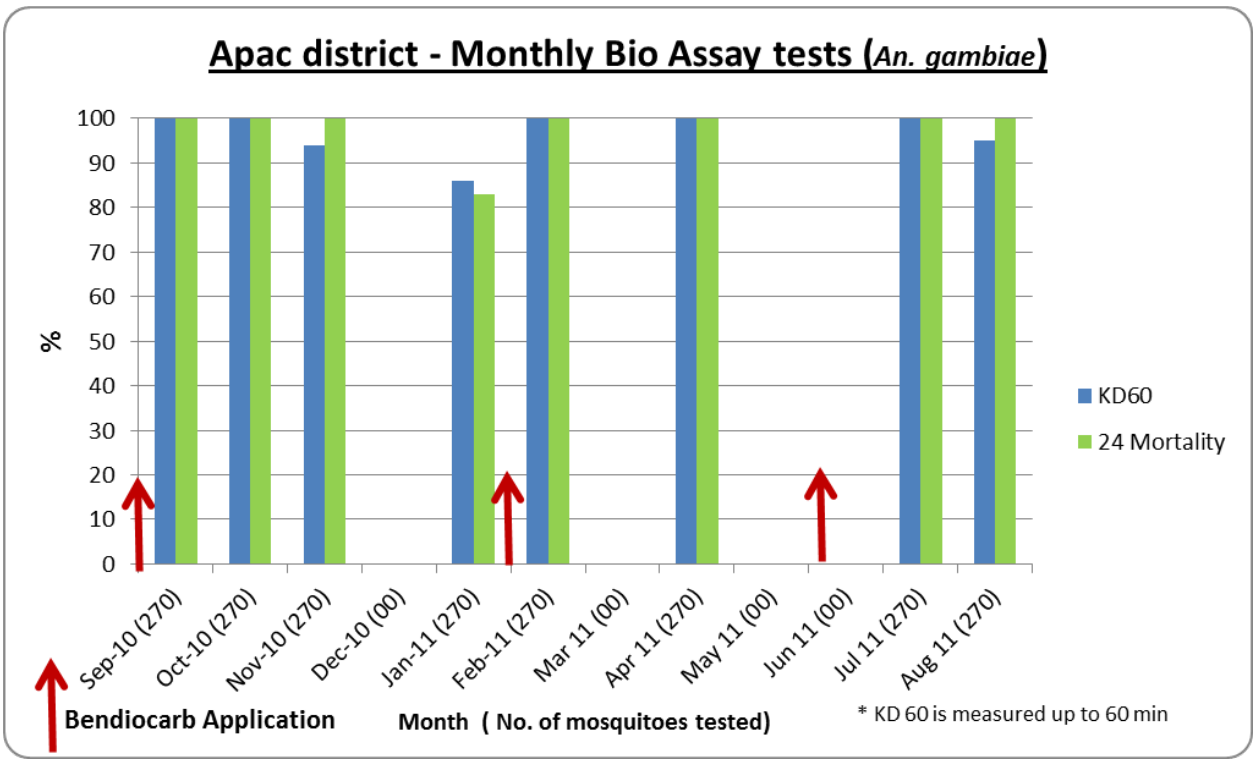
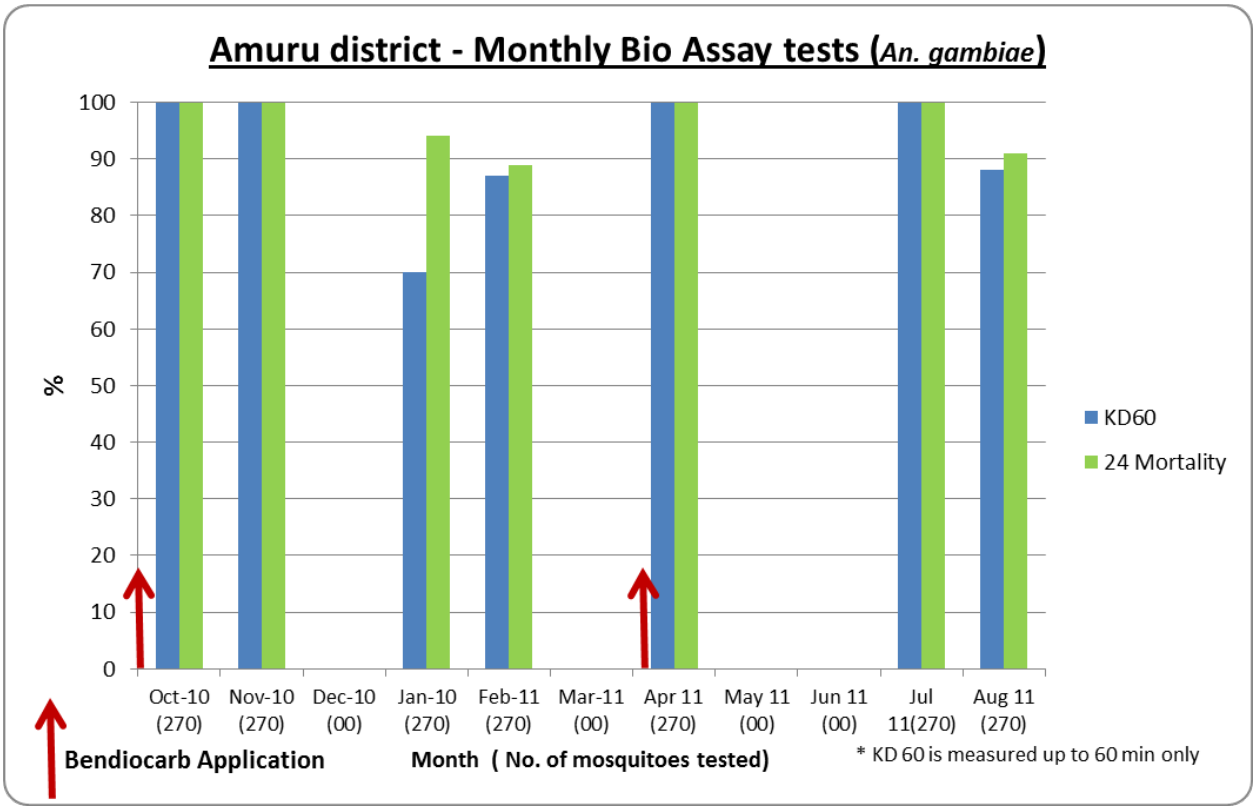


Figure 7: Monthly wall bioassays in Amuru District



As shown below pre- and post-IRS pyrethrum Spray catches reveals the marked reduction of indoor resting vector densities in the sprayed houses in all districts. Total of 936 PSC's were done during this period.

Figure 8: Pre- and Post-IRS resting vector densities in Pader district

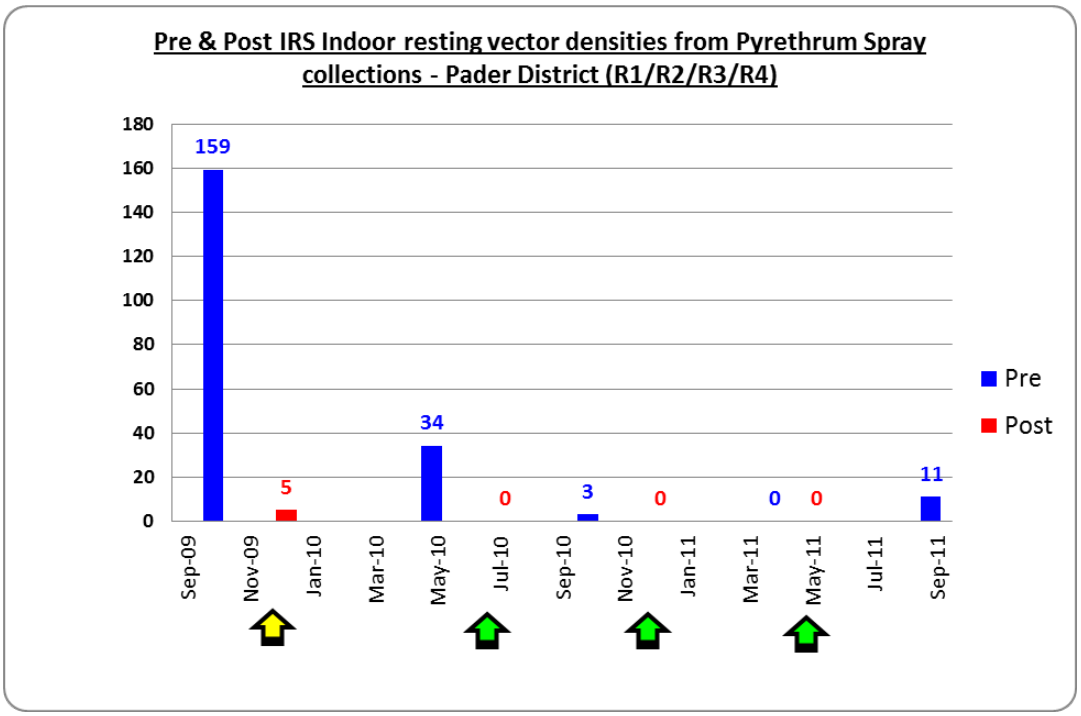


Figure 9: Pre- and Post-IRS resting vector densities in Kitgum district

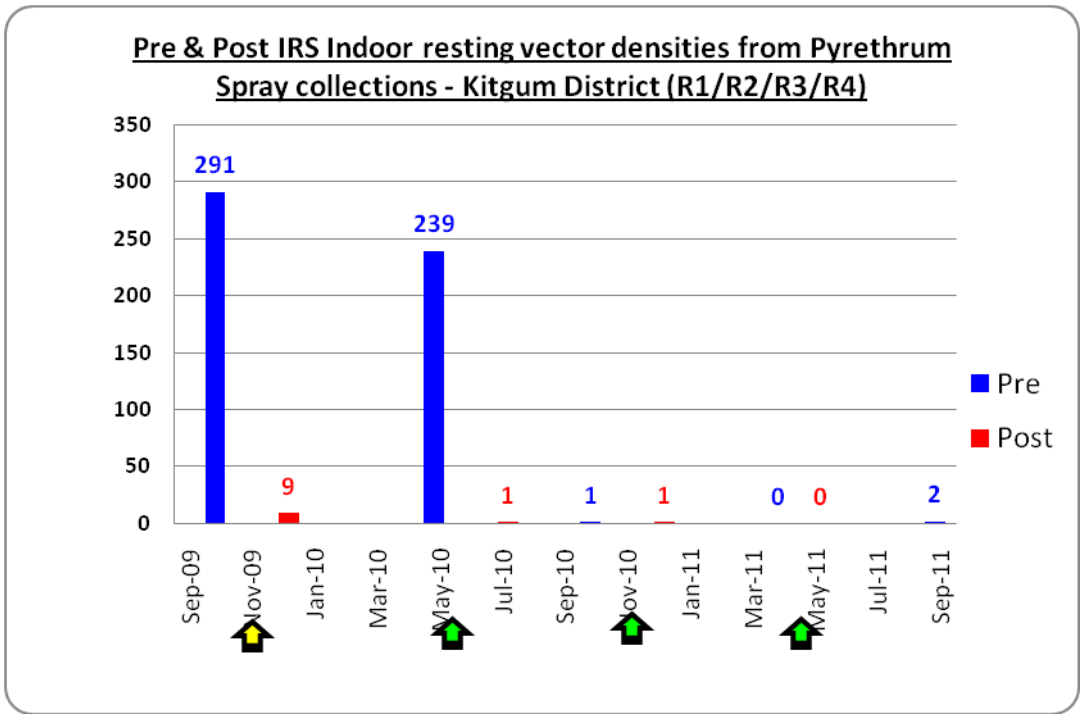


Figure 10: Pre- and Post-IRS resting vector densities in Oyam district

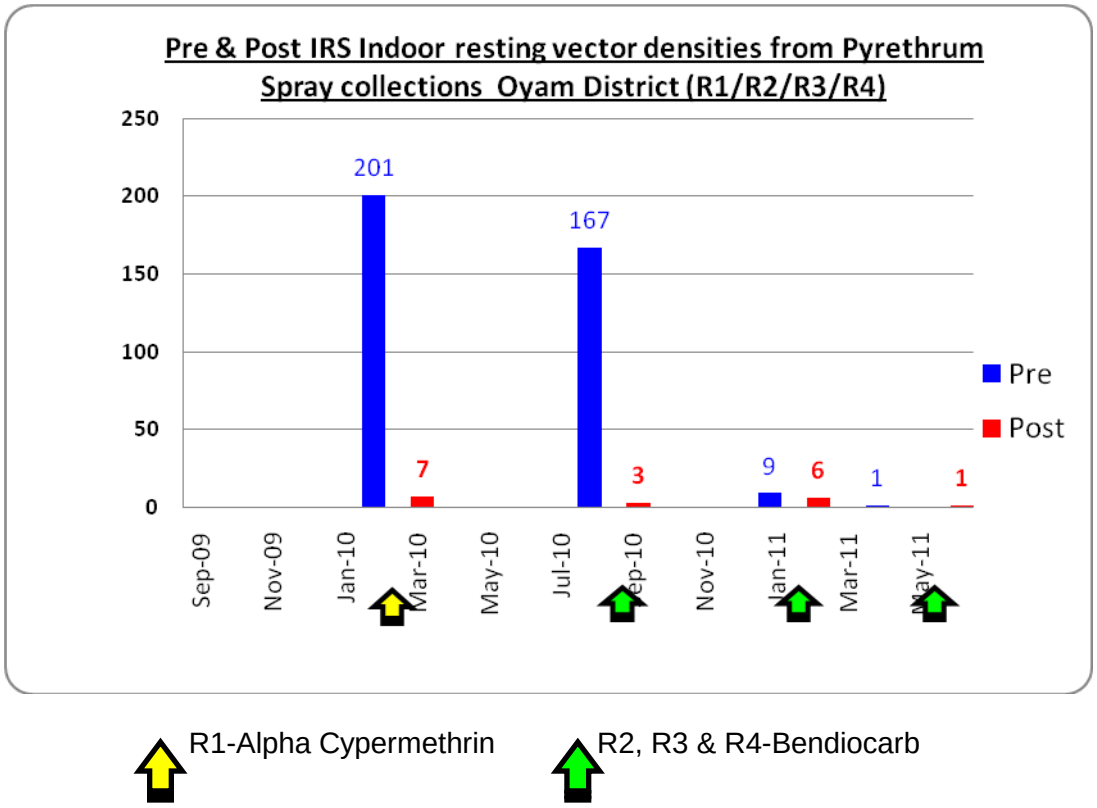
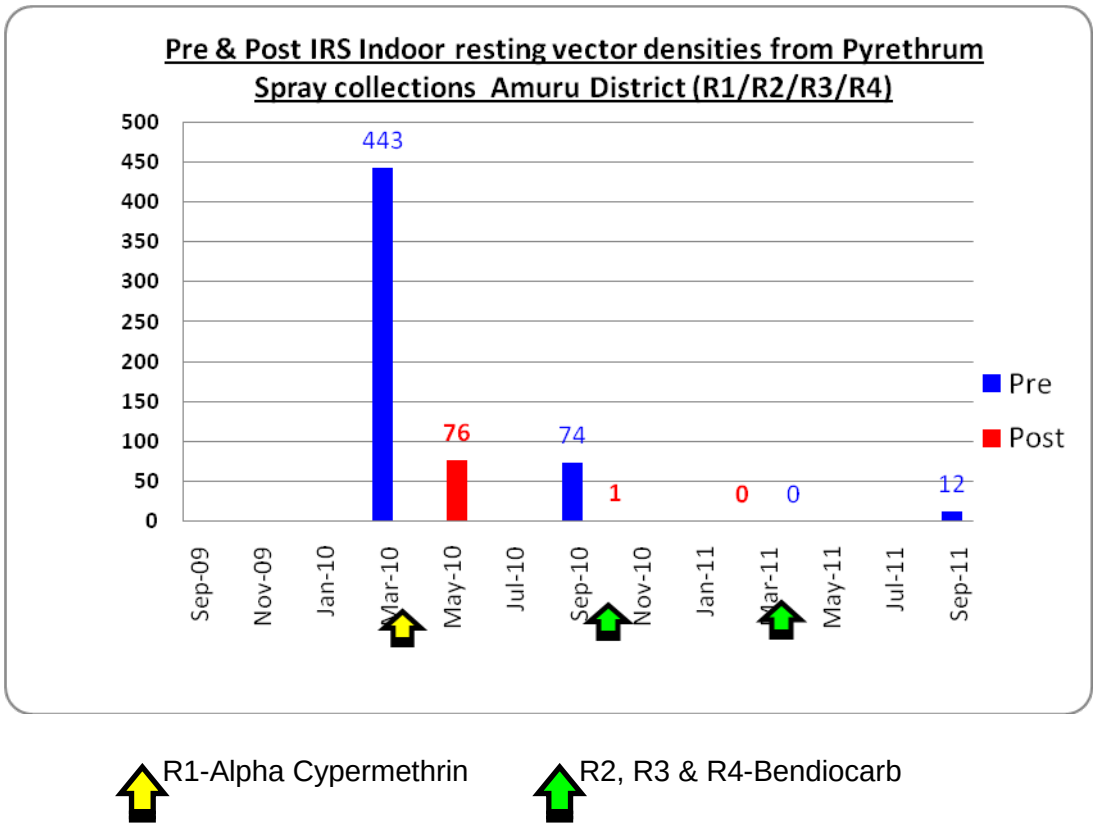


Figure 11: Pre- and Post-IRS resting vector densities in Amuru district



Geographic Information Systems (GIS)

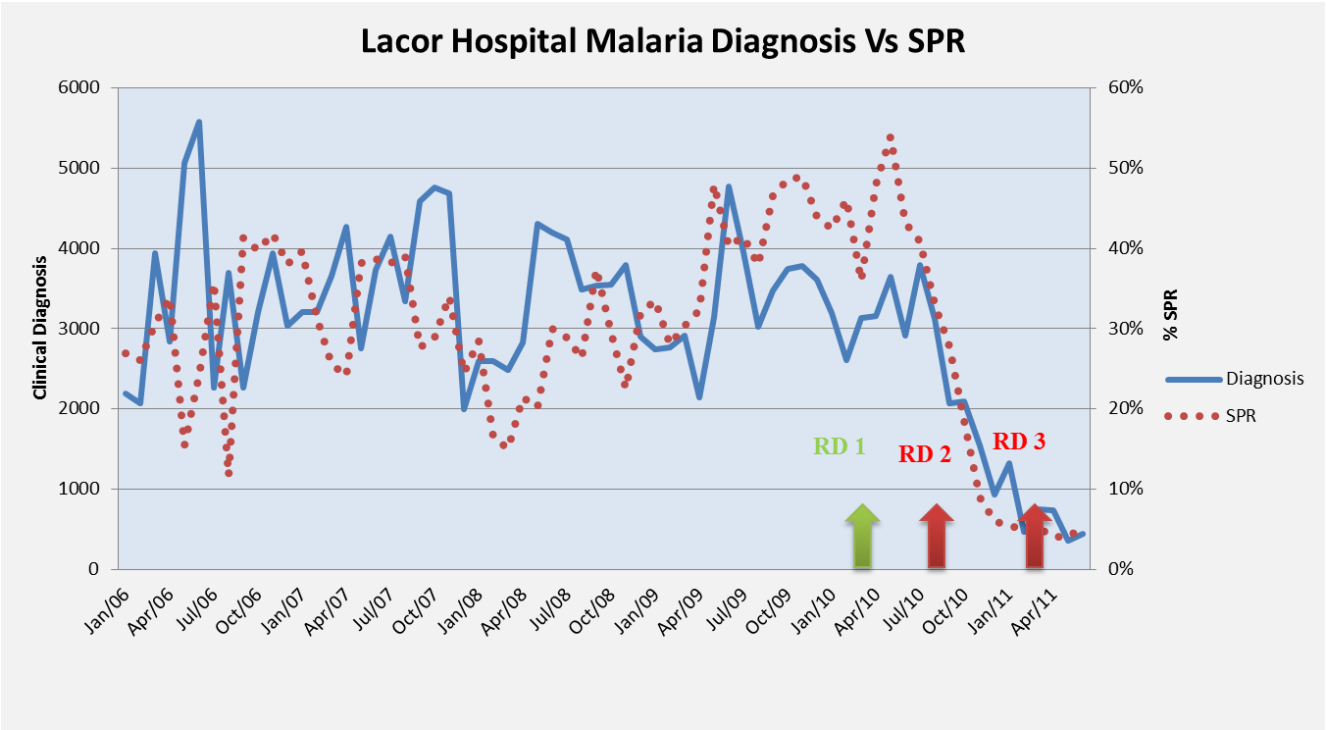
During Year Two Abt continued to use GIS digital maps of all districts (down to the parish level) as a tool to facilitate IRS activities in in planning, implementation, managing logistics, performance monitoring, and overall monitoring and evaluation. During Year Two the project team added to these maps by incorporating population data, land use patterns, roads, infrastructure facilities and other relevant entities. Using GIS, the project also prepared road network distance maps in the project area which helped in planning and delivery of IRS supplies to parish stores and to assist in planning for data collectors. The project has also initiated the preparation of digital maps at lower administrative levels (such as village level) to find out the impact of IRS on malaria in the selected localities. This was done using the spatial analysis of malaria data from selected hospitals in the given area to compare these with IRS coverage and other related factors. The project plans to continue to develop such maps from selected sentinel sites where it is possible to obtain reliable malaria data from health institutions.

Monitoring and Evaluation

The project team greatly improved its M&E system during the course of Year Two with the introduction of a new data collection system. Now, motorbike drivers collect data cards from the parish stores and bring them to the data entry points on a daily basis. Data updates are shared with the project team every other day during the spray round. Real time data has enabled the project to make informed decisions and conduct quick interventions as needed, during the spray round. The districts have continued to provide working space for the data centers with the exception of a few districts. Every data entry center has at least three data clerks who update the database on a daily basis and email the update which is then shared with the project staff.

The project revised its PMP to suit the updated indicator and target needs. The project submitted the PMP to USAID for approval. Epidemiology data for impact assessment was collected from selected sentinel sites to assess the impact of the project on the malaria burden in the target districts. The data collected thus far indicates a drastic downward change in the malaria trend as illustrated in the graph below from Lacor Hospital, Gulu district:

Figure 12: Lacor Hospital Malaria Diagnosis vs. SPR



1.3. Result 3: National Capacity for Conducting IRS Developed

Strategy: Improve the technical skills and capability of NMCP/MOH (national and district level) and other relevant government bodies including National Environment Management Authority (NEMA).

Table 7: Result 3 Indicators

Indicator	Q1 Target	Q1 Actual	Q2 Target	Q2 Actual	Q3 Target	Q3 Actual	Q4 Target	Q4 Actual	FY 2011 Target
IRS training module developed*	0	0	0	0	0	0	0	0	1
Number of IRS and entomological monitoring plans developed and implemented	0	0	0	0	0	0	1	1	1
Number of national and district staff conducting the in-service training**	0	0	0	0	0	0	25	22	225
Number of students trained in IRS***	0	0	0	0	0	0	0	0	25

Accomplishments in Year Two:

Establishment of Insectary

During Year Two Abt supported the construction of an insectary at Gulu University. The construction work however, has not moved as expected due to delays in finalizing the Memorandum of Understanding (MOU) between Gulu University, MOH and Abt. In September 2011 the MOU was signed and the contractor resumed work. The roof is being fixed as illustrated in the photo below and the work is scheduled to be complete by end of November, 2011. All the equipment and other items needed for this insectary has been purchased.

Insectary under construction in the Gulu university premises

Curriculum Review Workshop

On January 17-18, 2011, the project collaborated with NMCP and the School of Entomology and Parasitology (SOEP) to organize a two-day curriculum review workshop for SOEP at the Uganda IRS Kampala office. The workshop aimed at reviewing the existing pre-service curriculum, developing an in-service training curriculum, and developing a training and certification IRS program for private sector pest control operators. The workshop had 10 participants from various institutions. Dr. Ray Beach, the PMI /CDC entomologist participated in the workshop. It was realized during this workshop that the SOEP curriculum includes an IRS component. It was therefore decided upon to focus efforts on providing relevant training aids and materials instead of training the students.

National Malaria Control Program Review

The NMCP strategic plan review took place in April and May, 2011. The outcomes of the review were to be used to come up with the next five year strategic plan (2011-2015) for NMCP. The Abt COP and the National Field Coordinator participated in the review and contributed towards the vector control strategy and program management.

Consultative meeting on Proposed IRS Training of the Private Sector

A consultative meeting on the proposed IRS private sector training was held on July 22, 2011 in collaboration with the MOH at the MOH Vector Control Division offices. The meeting gathered 25 participants from 18 companies in the private sector involved in commercial pest control activities. The meeting's objective was to introduce the proposed IRS training program to the private sector and gather feedback on the way forward. MOH/NMCP staff facilitated the meeting supported by Abt staff.

Pump Maintenance Training

The Abt IRS advisor, in collaboration with the DVCO of Kitgum district conducted a training session for storekeepers in Kitgum, Lamwo, Agago and Pader on basic pump maintenance and repair in the fourth quarter. The storekeepers were equipped with knowledge on how to maintain the pumps, proper transportation, storage and cleaning of the pumps.

Project Management and Administration

Accomplishments in Year Two:

Administration

The Gulu office was moved to a new location in February 2011 due to continuos unstable power supply in the previous location that could not be rectified.

Spray personnel Payment

PostBank made successful payments for the third and fourth spray rounds to all spray personnel in the ten project districts.

Human resources

The project implemented its approved staffing plan for Year Two, adding a logistics unit which included: a Senior Logistics Manager; four District Store Managers; and two Dispatch Agents. These are in addition to the position of the Central Store Manager, which was already in existence. The project also added one additional Field Coordinator to strengthen the operations team. Four staff members, a driver, a logistics manager, the accountant and a field coordinator, left the project during the year. Simon Smith, the home office based Technical Coordinator for the project, also left Abt and was replaced by Rebecca Patsika. The procurement manager's contract was terminated in the third quarter and a decision was made to combine the two positions of the Procurement Manager and the Human Resource Manager into a single position. This position has not yet been filled, but will be during Year Three.

Staff Retreat

An all-staff retreat was held from December 14-17, 2010 in Jinja. The retreat discussed the project achievements and challenges and the way forward for better implementation. Two representatives from CDFU and the Abt Associates Portifolio Manager also attended the retreat.

Presentations

- Ranjith De Alwis, the Uganda IRS Senior Advisor and Entomologist, made a presentation on the performance of the project at the PMI head office in USA on January 25th, 2011.
- Dr. J.B. Rwakimari, Uganda IRS Chief Of Party, Mr.Michael Okia, Senior MOH Entomologist, and David McGuire from Abt head office particpated in the 6th RBM Vector Control Technical Working Group meeting on February 7th – 9th 2011 in Geneva, Switzerland. Dr. Rwakimari made a presentation on the status of IRS in Uganda.

Visitors to the Project

- David McGuire, the Abt Division Vice President responsible for the IRS project, visited the project in the first quarter on November 14-17, 2010. He met USAID and MOH officials and participated in the award fee board meeting. He also interacted with the project staff and visited the field operations.
- The project hosted two representatives from the Zambia IRS program during the fourth quarter. The visitors came to observe and learn from the Uganda IRS project on how to run an effective and efficient IRS program.

Workplan and Budget

The workplan and budget for Year Three was finalized and submitted to USAID in quarter four with technical assistance from Susan Scribner and Rebecca Patsika from the Abt home office.

Financial Update

Uganda Indoor Residual Spraying Project

Budget and Expenditures for Year Two
Period: October 2010 - September 2011
Contract No: AID-617-C-09-00001

Contract Cost	$31,804,017
Fixed Base Fee	$954,121
Award Fee	$1,590,201
Total Contract	$34,348,339
Obligation	$30,436,645

Expenditures to Date by Line Item

Line Item	Total Actual Expenditures Aug 2009 - Sept 2010	Total Estimated Costs Oct 2010 - Sept 2011	Actual Year Two totals	Remaining Funds from Year Two Estimated Costs	% under (over) spending	Note	Cumulative Expenditures to Date
Labor	$710,734	$872,411	$718,545	$153,866	18%		$1,429,279
Fringe	$298,508	$366,413	$305,193	$61,220	17%		$603,701
Overhead	$234,528	$255,591	$222,019	$33,571	13%		$456,547
Consultants - Fees/Travel/ODCs	$53,023	$49,193	$536	$48,658	99%	1	$53,559
Travel and Per Diem (Less Consultant Travel & ODCs)	$244,182	$39,022	$167,607	($128,585)	-330%	2	$411,789
Allowances	$220,491	$245,457	$194,804	$50,652	21%		$415,295
Other Direct Costs	$2,105,662	$3,151,116	$2,899,390	$251,726	8%		$5,005,052
Equipment	$373,925	$51,038	$38,231	$12,807	25%		$412,156
Materials	$4,511,554	$6,764,517	$8,451,687	($1,687,170)	-25%	3	$12,963,241
Subcontracts	$275,269	$275,378	$285,184	($9,806)	-4%		$560,453
Other Indirect Costs	$1,028,070	$1,346,326	$1,254,750	$91,576	7%		$2,282,819
Burdened Salary Cap Excess	($187)		($903)	$903			($1,090)
Total Estimated Cost	$10,055,757	$13,416,460	$14,537,044	($1,120,583)	-8%		$24,592,801
Fixed Base Fee (3%)	$301,678	$402,494	$436,138	($33,645)	-8%		$737,817
Award Fee (5%)	$0	$670,823	$530,067	$140,756			$530,067
Total Cost Plus Fixed Fee	$10,357,436	$14,489,777	$15,503,249	($1,013,472)	-7%		$25,860,685

Notes:
1. Planned logistics consultancies moved to Year Three.
2. In-country travel was budgeted under ODC. Actual cost is within overall budgeted amount.
3. Insecticide for Year Three spraying was procured during Year Two.

Total Expensed Funds	$25,860,685
Total Obligated Funds	$30,436,645
% Obligated Funds Expensed	84.97%
Total Obligated Funds Remaining	$4,575,960

Total Award Fee	$1,590,201
Total Award Fee Billed	$530,067
Award Fee Remaining	$1,060,134
Total Base Fee	$954,121
Total Base Fee Billed	$737,817
Base Fee Remaining	$216,304

Reporting Requirements

The Uganda IRS Project developed and submitted the following program documentation as contractually obligated:

1. Monthly Reports
2. End of Spray Reports
3. Quarterly Reports

Successful interventions /Innovative Approaches

- Real time data is essential for project monitoring and decision making. The introduction of motorbike drivers who daily collect and carry data from the parish stores to the data entry points has helped to make it possible for the project to obtain data in real time. This data, in turn, serves to provide up to date information in support of field supervision activities.
- A human resource database containing the profiles of all spray personnel was developed. The database will enable tracking of attributes like individual performance and discipline incidences. Bio data forms were completed by all newly recruited spray personnel and their photos taken. The photos are used for identification of the spray personnel during the payment process. Over 70% of the spray personnel information has already been populated in the database.
- The involvement of local IRS committees in mobilizing the community has proved to be more effective than using the proposed LC chairmen whose lack of availability lead to poor mobilization. The IRS committee members go door-to-door ahead of the spray team, mobilizing the community for the spray round.
- GIS maps were used in planning of distribution movements for logistics, and in the routing of the data collection routes.
- VCOs were used in Kitgum and Lamwo districts to bridge a supervisory gap. The VCOs worked closely with the field coordinator and the DVCO and did a commendable job.
- IRS has been well received by many community members who have freely opened their homes without hesitation.
- Due to the improved logistics system in the distribution of supplies and equipment, all parishes in the various districts have been able to start spraying on the same day starting with the second quarter.

Challenges/Constraints

- Incidences of misconduct among spray personnel continue to be observed. Some spray personnel have engaged in data falsification and insecticide pilferage. The different incidences are handled promptly on a case-by-case basis together with the local authorities as appropriate, and the culprits discontinued from participation in any future IRS activities.
- One of the parish stores in Agago district was broken into on 3rd June, 2011, and 63 sachets of insecticide, some overalls and haversacks were stolen. The case was reported to police and, with the help of local community members, all the stolen items were recovered. Two thieves were arrested and the case handed over to the police.
- Some water sources dried up due to the prolonged drought in quarter two, resulting in shortages. Depending on the situation, some extra costs were incurred in recruiting an extra person to fetch water, or facilitating the existing wash person to use a bicycle to fetch water to ensure that the IRS activities continued without interruption.
- There was a delay in implementation of the micro-planning meeting in Gulu in the second quarter due to a threatened boycott by the Health Assistants who were demanding involvement of all the 30 health assistants instead of the planned 17. This was resolved and the meeting held later on.
- The DVCO in Oyam district was continually interfering with IRS activities including recruitment of incompetent spray personnel and gross misconduct. Consequently, the DHO in Oyam district relieved the DVCO of his duties vis-à-vis IRS, and appointed the assistant VCO to coordinate IRS activities henceforth.

- Some IRS supervisors were found to be soliciting for bribes during recruitment of spray personnel. Investigations were done and culprits prosecuted.
- There was interference with the IRS program from some local leaders, especially in the recruitment process.
- The election process which took place in the second quarter interfered with the program as community members went to cast their votes. In Lalogi and Lakwana sub-counties in Gulu district, the Officer in Charge of Police stopped the spray operators' orientation exercise claiming it was interfering with voter turn-out.

Lessons Learned and Recommendations

- Inspection of IRS stores after the collection of logistics at the end of every spray round is essential to ensure that the premises are kept clean and adhering to environmental compliance standards.
- Some sub-county supervisors were found to have given wrongful authorizations regarding payments. A disclaimer was drafted in quarter three in response to this, releasing Abt from any issues arising from the wrongful authorizations made by the supervisors. The sub-county supervisors signed the disclaimer before endorsing payment. This disclaimer was hence used in the following payments.