



UGANDA INDOOR RESIDUAL SPRAYING (IRS) PROJECT – PHASE II

END OF SPRAY REPORT- ROUND II

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UGANDA INDOOR RESIDUAL SPRAYING (IRS) PROJECT PHASE II END OF SPRAY REPORT

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Acronyms

Abt	Abt Associates, Inc.
CDFU	Communications for Development Foundation Uganda
COR	Contracting Officer's Representative
DEO	District Environmental Officer
DHT	District Health Team
DLG	District Local Government
DSO	District Supply Officer
FC	Field Coordinator
IEC	Information Education and Communication
IRS	Indoor Residual Spraying
ITN	Insecticide Treated Net
SBCC	Social Behavior Change Communication
SO	Spray Operators
USAID	United States Agency for International Development
VHT	Village Health Team
WHO	World Health Organization

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Executive Summary

This report summarizes the preparations, operations and achievements of the Uganda Indoor Residual Spraying (IRS) Project Phase II, Spray Round II. In February 2013, the Round II spray operations began with micro-planning meetings, conducted concurrently in all 10 project districts. One week after micro-planning, after the delivery of the requisite supplies to the parish stores, the project's Field Coordinators (FCs) in collaboration with the district IRS teams recruited spray team members and oriented sub-county level spray teams.

The group A districts commenced spray operations on April 2, 2013, as per schedule and completed by April 25, 2013, while group B districts started spraying on April 22, 2013 and ended by May 25, 2013.

A total of 870,943 households were sprayed in the 10 project districts, which constitute 98.3 percent of the project target of 885,969 houses (Table 2). Overall, the households that were not sprayed decreased from 7.9 percent in Round I Phase II to 3.5 percent in Round II. The greatest reduction in the number of households not sprayed occurred in Kitgum district (from 16.4 to 4.4 percent). This reduction can be attributed to improved mobilization and operational strategies, namely enhanced supervision at all levels which the project put in place based on the lessons learnt from the last round.

During this spray round, the overall IRS coverage improved from the 92.3 percent (achieved in Round I) to 96.5 percent. As a result of increased efforts in mobilization, and supervision during this spray round, there was increase in IRS coverage across all the project districts with Kitgum, Apac, Nwoya and Gulu districts recording the highest increments. Additionally all the 10 districts achieved the project target of 90 percent IRS coverage, protecting 2.58 million people as compared to 2.57 million in the previous round. The protected population comprised of 49.2 and 50.8 percent male and females respectively, 538,264 children aged 0-5 years and 81,218 pregnant women.

A total of 3,264 Spray Operators (SOs) conducted the spraying in the 10 project districts accomplishing the spraying in an average of 22 days. Across the 10 project districts, the average number of households sprayed per SO per day was 12.1 (Table 2). In seven districts - Agago, Amuru, Gulu, Kitgum, Lamwo, Nwoya and Pader, the insecticide usage rate was equal to or above 2.7 houses per sachet of Bendiocarb, which is above the project's target of 2.6 houses per sachet. Only Apac district did not attain the project target of 2.6 houses per sachet (Table 2).

To improve mobilization and subsequently coverage, in this spray round, the project implemented the innovative rotational team leadership approach in all the parish stores, whereby each spray operator became a team leader when her/his village/neighboring village was being sprayed. This led to intensified mobilization in that catchment area along with representation of the locality on the spray team. In spite of these positive results, in this spray round, the project continued to face some challenges including insecticide pilferage and abuse. To mitigate these challenges, the project worked closely with the district local government (DLG) officials, strengthened supervision and monitoring of the spray activities. With this emphasis on vigilance and monitoring, the district authorities have successfully prosecuted people found in illegal possession of insecticide sachets. For instance in Kitgum, a SO who had stolen six Bendiocarb sachets, was convicted and imprisoned for one year.

1. Background

The purpose of the five year (June 2012- June 2017) Uganda IRS Project Phase II is to continue building on the achievements of Phase I which was implemented from July 2009 – July 2012. The overall objective of this project is to achieve the President’s Malaria Initiative (PMI) Uganda targets in IRS. With passage of the Lantos-Hyde Act, the PMI goal was adjusted to halve the burden of malaria in 70 percent of the at-risk populations of sub-Saharan Africa (SSA), thereby removing malaria as a major public health problem. One of the two objectives for SSA is to reduce malaria-related mortality by 70 percent in the original 15 countries, by the end of 2015, of which Uganda is one. In particular, this project contributes to USAID/Uganda’s Development Objective 3, whose aim is to improve outcomes in health, HIV/AIDS and education in Uganda through three objectives:

- a. To implement a high quality, safe and effective IRS program
- b. To develop national capacity to conduct IRS
- c. To perform comprehensive monitoring and evaluation of the IRS program.

2. Summary of key spray round activities

• Micro-planning

The spray operations for IRS Project Phase II, Round II began with micro-planning meetings held between February 12 -15, 2013 in all the 10 project districts. These meetings were held concurrently in both group A and B districts, thereby enabling the project to reduce the time taken to implement this activity. A total of 475 participants including District Health Teams (DHTs), District Environmental Officers (DEOs), District Supply Officers (DSOs), sub-county supervisors (Health Assistants) and storekeepers attended these workshops. The DHTs planned and facilitated this activity, while the FCs played the coordination role and provided technical support. During these micro-planning meetings, the project conducted pre and post-training capacity assessment for all sub-county supervisors and storekeepers. The areas assessed for knowledge and skills transfer included: operations, planning and spraying techniques, social mobilization, environment compliance, Short Messaging System (SMS) data transmission and general data management. The attendance records showed good retention of spray team members, only nine percent of storekeepers were new recruits, while all supervisors were retained from the previous spray round.

• Stores and soak-pits verifications and renovations

The project Environment Compliance Officer (ECO), together with the FCs and DEOs, inspected and verified all parish stores and soak-pits in group A and group B districts. The verification revealed that 249 (90.8 percent) of the parish stores were in good condition (Table 1): the floors were cemented, windows were in place, vents were available and roofs were not leaking. Any store without one or more of the above requirements needed repair. A total of 15 parish stores were repaired, while 10 parish stores were relocated mainly because the host institutions repossessed the space that they had made available in the previous spray round.

The National Drug Authority (NDA) staff worked with the project ECO and conducted the assessment of the district and central IRS Stores for the calendar year 2013, in conformity with NDA requirements. Subsequently all the 11 stores were issued certificates of suitability of premises.

USAID/Uganda Environment Officer, Ms. Jessica Okui conducted the annual Environmental Compliance audit in Gulu and Nwoya districts.

Table 1: Stores and Soak-Pits assessment and repair in 10 project districts, March-April 2013

District	Total	Stores			Soak-Pits			Bath shelters repaired
		Good	Repaired	Re-located	Good	Repaired	Re-located	
Gulu	34	33	1	0	0	33	1	68
Nwoya	14	13	1	0	0	14	0	28
Apac	30	24	4	2	0	30	0	60
Pader	31	30	1	0	0	29	2	62
Kitgum	31	25	2	4	0	28	3	62
Kole	16	13	3	0	0	15	1	32
Oyam	25	21	3	1	8	13	4	50
Amuru	27	27	0	0	0	27	0	54
Agago	34	32	0	2	0	32	2	68
Lamwo	32	31	0	1	0	31	1	64
Total	274	249	15	10	8	252	14	548

- **Health and Safety Measures**

To safeguard the health and safety of spray team members, all women selected to participate as spray team members were screened for pregnancy and those found pregnant were disqualified from participation in spray activities. In addition to provision of adequately stocked first aid boxes at all parish stores, the project also procured and distributed 'Atropine' to all the hospitals and health center IVs. Atropine is an antidote for Bendiocarb poisoning.

- **Logistics distribution for group A & B districts:**

From January 16-31, 2013, the project implemented three key activities; pump assessment, pump calibration and pump maintenance in the 10 project districts. These activities were implemented by selected Team Leaders (4 per district who were previously trained on pump repair), DSOs, IRS Focal Persons and Uganda IRS staff. During this exercise, the project serviced and repaired all faulty pumps. Out of 4,375 pumps, 2,612 (59.7 percent) were serviced and repaired. Additionally insecticide and other supplies were distributed to group A districts in the last week of March 2013, while the same activity was done in group B districts in the third week of April 2013.

- **Social Behavior Change Communication activities**

The project conducted Information Education and Communication (IEC) and Social Behavior Change Communication (SBCC) activities before, during and after spraying. These included IEC/BCC material dissemination, radio talk shows, radio spots and community mobilization by sub-county IRS Committees.

A total of 60 interactive radio talk shows and 507 radio spots were aired in the 10 IRS districts through seven district based radio stations that included Devine FM, Luo FM, Pol FM, Mighty FM, Mega FM, Rupiny FM and Unity FM. Interactive radio talk shows and radio spots were used to address key topics on the spraying exercise, targeting the community and spray terms.

A total of 20,000 copies of IEC/BCC materials in the local languages were disseminated in all the 10 project districts. These materials addressed the following areas: frequently asked questions on IRS, house ghosting, insecticide pilferage, spray operator code of conduct and supervisor code of conduct.

- **Sub-county spray team recruitment and refresher training**

One week after the micro-planning meetings and storekeeper training, the FCs in collaboration with the district IRS teams, conducted recruitment of spray teams. The team employed participatory recruiting methods, thereby ensuring that only those persons that were members of the village health team (VHTs) and recommended by their communities were recruited. This spray round, the strategy was to ensure that at least one SO was recruited from each village in the parish. This was important for ensuring that during the actual spraying, the SO from that particular village would assist in mobilization and lead the team while spraying households in that village.

A total of 3,264 SOs participated in Round II, of whom, 698 (21.4 percent) were new entrants and 456 (14 percent) were women. New spray team entrants were recruited to replace those previously used SOs who did not show up for the recruitment exercise and those who were dismissed due to indiscipline.

After delivery of supplies to the parish stores, the project team, the district IRS teams and the sub-county supervisors conducted orientation of the spray teams for both group A and B districts. As per schedule, spraying in group A districts commenced on April 2, 2013, and by April 25, 2013, this group had completed spraying. Spraying in the group B districts started on April 22 and was completed by May 25, 2013.

3. Summary of Spray Results

The next sections of the report present a brief performance analysis of the Round II spray operations. It covers the following key areas: IRS coverage, population protected, insecticide usage rates and overall performance of spray teams. It also provides a snapshot analysis of these areas in relation to the previous spray round (Phase II, Round I).

3.1 Households Sprayed

At the close of Round II, the project had sprayed a total of 870,943 households in the 10 project districts. This was 98.3 percent of the projected target of 885,969 (Table 2) and 96.5 percent of the households found (coverage). Overall, the households that were not sprayed decreased from 7.9 percent in Round I to 3.5 percent in Round II. The greatest reduction in the number of households not sprayed occurred in Kitgum district (from 16.4 to 4.4 percent). This marked reduction in the number of households not sprayed from the previous round can be attributed to improved mobilization and key operational strategies including enhanced supervision at all levels, the team leader rotational approach and the performance based payment that the project put in place based on the lessons learnt from the previous round.

Table 2: Summary of Key IRS Indicators for Spray Round II, Phase II, April-May 2013

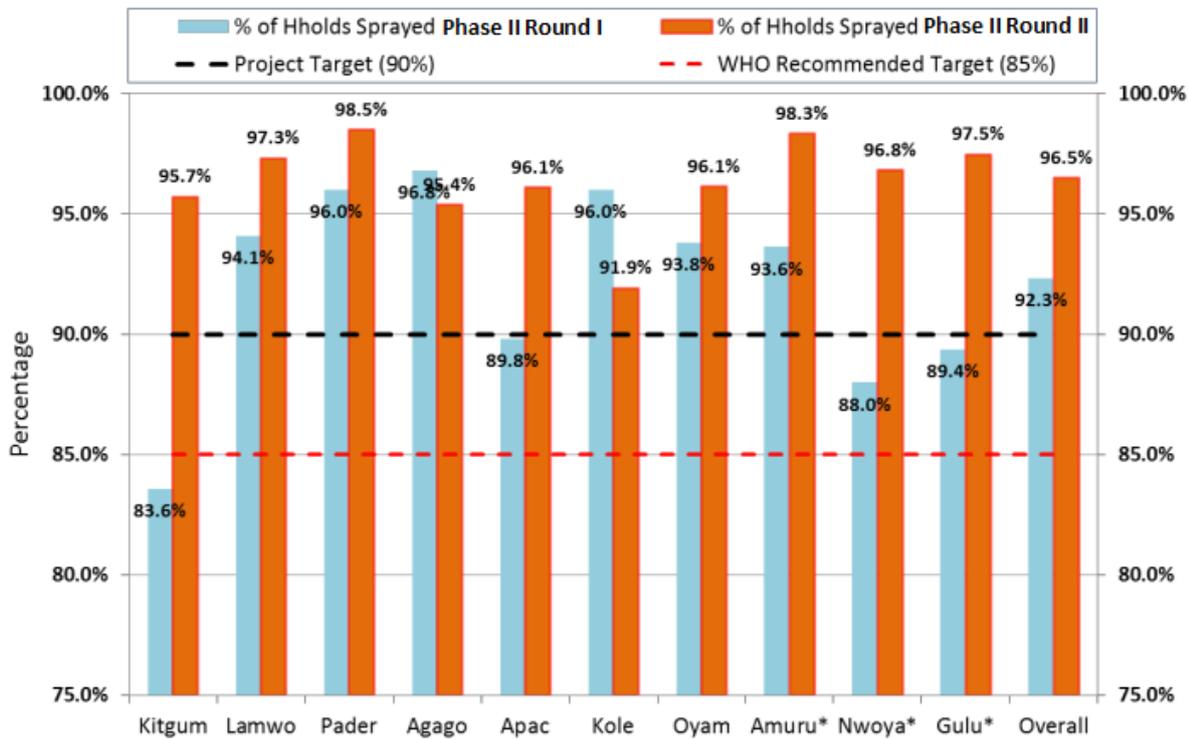
SNo	INDICATOR	DISTRICTS										TOTAL
		Kitgum	Lamwo	Pader	Agago	Apac	Kole	Oyam	Amuru	Nwoya	Gulu	
1	No of districts sprayed	1	1	1	1	1	1	1	1	1	1	10
2	Targeted households	68,597	85,458	95,986	120,365	71,697	70,798	106,400	76,891	35,891	153,886	885,969
3	Total households Found	66,787	75,430	95,787	121,260	80,381	70,629	107,047	82,068	36,628	166,707	902,724
4	Households fully sprayed	63,636	73,386	94,304	115,595	74,943	62,920	100,575	80,688	35,389	161,966	863,402
5	Households partly sprayed	200	17	46	59	2,292	1,997	2,334	8	74	514	7,541
6	Total households fully and partly sprayed	63,836	73,403	94,350	115,654	77,235	64,917	102,909	80,696	35,463	162,480	870,943
7	Households not sprayed	2951	2,027	1,437	5,606	3,146	5,712	4,138	1,372	1,165	4,227	31,781
8	% of households partly or fully sprayed	95.6%	97.3%	98.5%	95.4%	96.1%	91.9%	96.1%	98.3%	96.8%	97.5%	96.5%
9	% of households not sprayed at all	4.4%	2.7%	1.5%	4.6%	3.9%	8.1%	3.9%	1.7%	3.2%	2.5%	3.5%
10	Targeted population	234,575	226,228	284,369	387,557	259,023	192,137	298,616	254,584	118,456	507,744	2,763,289
11	Total population Found	209,384	233,988	280,024	389,768	215,268	180,258	287,250	257,299	111,081	503,591	2,667,911
12	Female population protected	102,966	115,435	139,842	188,107	105,918	85,493	141,193	129,262	55,190	248,865	1,312,271
13	Male population protected	97,890	112,538	136,203	185,041	100,983	80,754	135,811	124,768	52,415	243,165	1,269,568
14	Total population protected	200,856	227,973	276,045	373,148	206,901	166,247	277,004	254,030	107,605	492,030	2,581,839
15	Total population not protected	8,528	6,015	3,979	16,620	8,367	14,011	10,246	3,269	3,476	11,561	86,072
16	% of population protected	95.9%	97.4%	98.6%	95.7%	96.1%	92.2%	96.4%	98.7%	96.9%	97.7%	96.8%
17	% of population not protected	4.1%	2.6%	1.4%	4.3%	3.9%	7.8%	3.6%	1.3%	3.1%	2.3%	3.2%
18	No. of children under five protected	39,187	46,514	58,333	82,165	39,299	31,608	53,680	59,371	25,465	102,642	538,264
19	No. of pregnant women protected	4,317	56,331	9,808	13,422	4,844	3,343	6,867	8,904	3,685	20,697	81,218

SNo	INDICATOR	DISTRICTS										TOTAL
		Kitgum	Lamwo	Pader	Agago	Apac	Kole	Oyam	Amuru	Nwoya	Gulu	
20	No. of mosquito nets found	31,249	31,524	49,804	70,926	53,678	27,342	53,204	18,960	10,652	93,664	441,003
21	No. of children under 5 sleeping under a net	21,106	23,737	32,909	51,686	22,346	21,794	25,402	18,359	7,311	47,388	272,038
22	No. of insecticide sachets used	23891	25,975	32,918	40922	31,193	24686	40,175	28,467	13,072	60,753	322052
23	Average number of households sprayed per sachet	2.7	2.8	2.9	2.8	2.5	2.6	2.6	2.8	2.7	2.7	2.7
24	Number of spray operators	255	269	347	408	334	257	377	274	136	607	3,264
25	Average number of households sprayed per spray operator per day	11.4	11.9	12.9	12.9	10.5	11.5	11.9	13.4	11.3	12.2	12.1
26	Average number of spray days	22	23	21	22	22	22	23	22	23	22	22

3.2 IRS coverage

According to World Health Organization guidelines, for effectiveness of any malaria intervention (such as IRS), at least 85 percent of the targeted households need to be sprayed. During this spray round, the overall IRS coverage improved from the 92.3 percent (achieved Phase II Round I) to 96.5 percent. This significant increase in coverage occurred across all the project districts with Kitgum, Apac, Nwoya and Gulu districts recording the highest increments (Figure 1). This increase in coverage was a direct result of the project’s efforts based on lessons learned from the previous round of spraying. These efforts included: enhanced mobilization using the rotational team leader approach, enhanced supervision at all levels and performance based payment for the teams. All the 10 districts achieved the 90 percent target of IRS coverage (Figure 1).

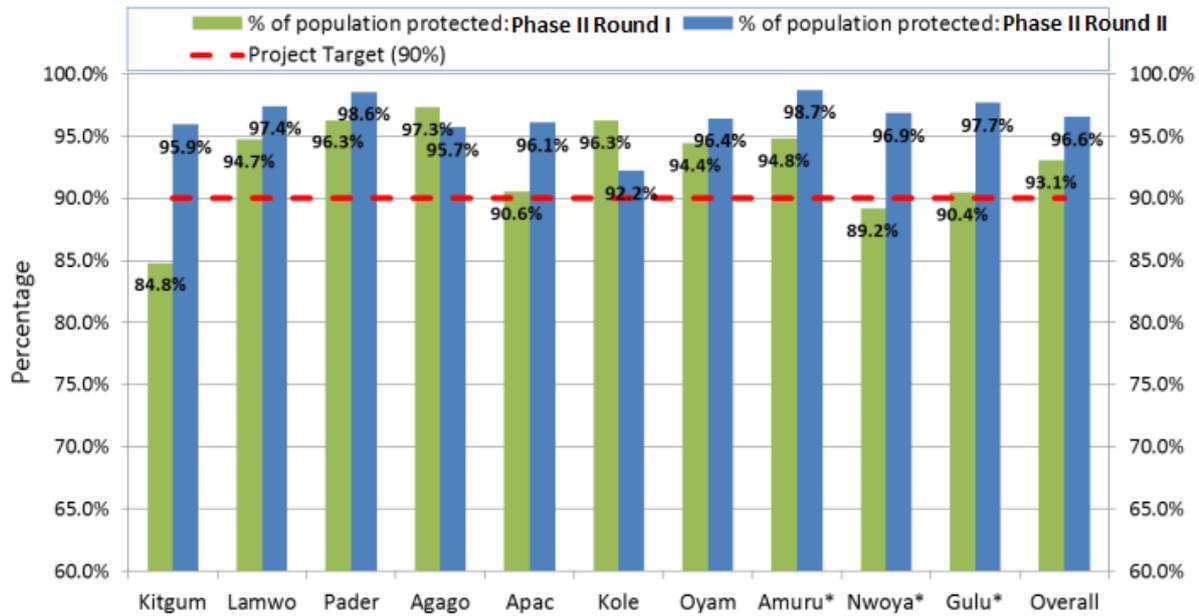
Figure 1: Comparison of IRS coverage, Round I, Oct-Nov 12 and Round II, April-May 2013



3.3 Protected and unprotected population

The first objective of the project is to achieve a high quality, safe and effective IRS program and thus ensure that a significant proportion of the vulnerable target population including pregnant mothers and children below 5 years are protected. At the end of the spraying in Round II, the project successfully met this objective and protected 2.58 million people (Figure 2). This was an increase in comparison to 2.57 million in Round I. The population protected consisted of 49.2 and 50.8 percent male and female respectively. The project protected 538,264 children aged 0-5 years, and 81,218 pregnant women.

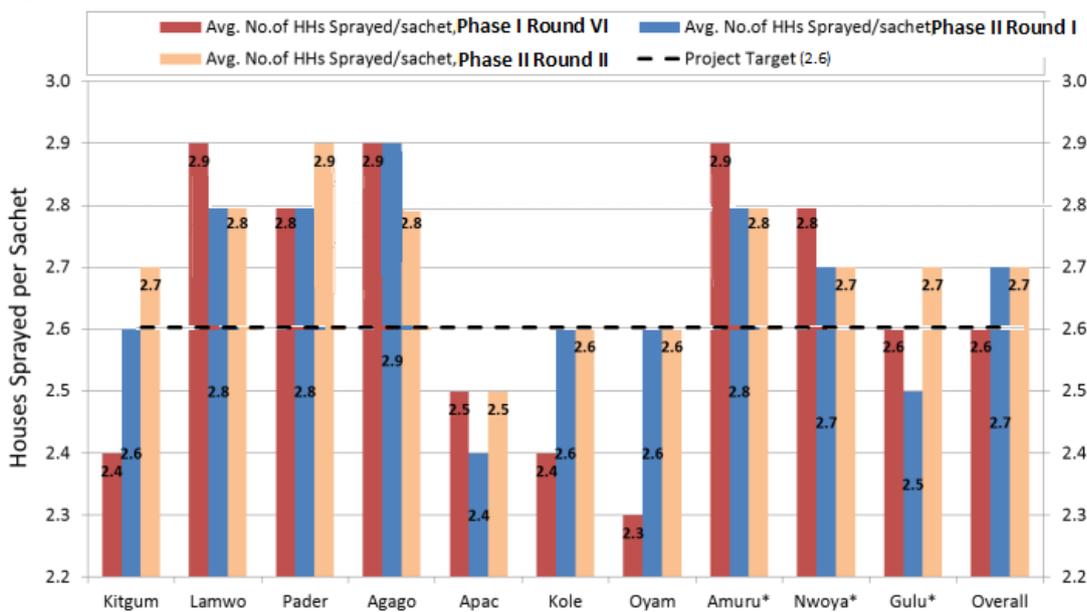
Figure 2: Population protected, Round I, Oct-Nov 2012 and Round II, April-May 2013



3.4 Insecticide Usage Rate

Insecticide is the key element of IRS, since its ingredients are what provides the actual protection against malaria transmitting mosquito vectors. Therefore monitoring proper utilization of insecticide is vital for achieving effective protection, as well as minimizing the risk that vectors may get resistant to it. The project target is to achieve an insecticide usage rate of 2.6 households per sachet (Figure 3). In this round of spraying, nine out of the 10 project districts attained this rate except for Apac district. In general, in this round of spraying, there was an improvement in insecticide usage rate in all the districts compared to the previous round. This improvement can be attributed to extensive servicing of the pumps including calibration and change of nozzle tips before commencement of spraying.

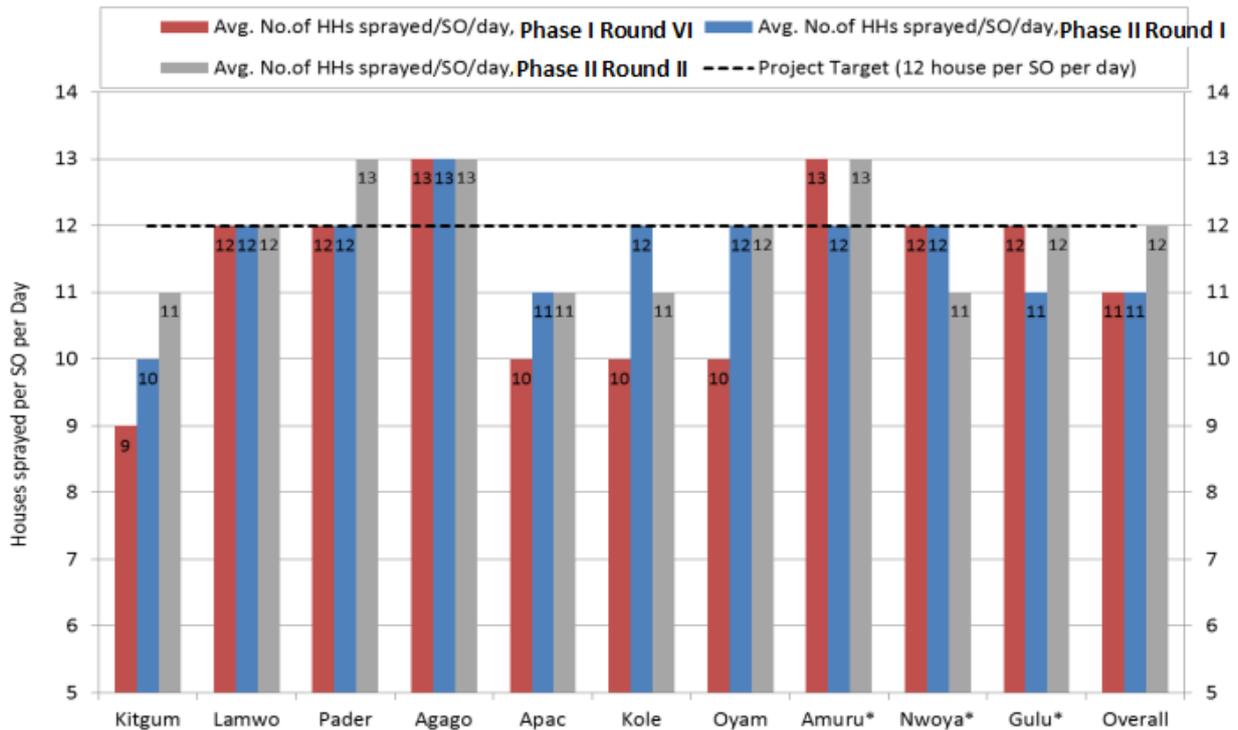
Figure 3: Comparison of district insecticide usage rate April-May 2012 April-May 2013



3.5 Work performance of spray teams

During this round of IRS, the project utilized 3,264 SOs to spray a total of 870,943 households in the 10 project districts. All the districts accomplished the spraying in an average of 22 days (Table 2). Seven districts; Agago, Amuru, Gulu, Kole, Lamwo, Pader and Oyam achieved the target of 12 houses sprayed per SO per day. Three districts; Apac, Kitgum, and Nwoya did not attain this target, while four districts: Agago, Amuru, Gulu and Pader surpassed it. (Figure 4).

Figure 4: Average number of households sprayed per spray operator per day, April-May 2012 to April-May 2013



4. Successful Interventions/Challenges/ Lessons Learned & Recommendations

4.1 Successful Interventions

In this spray round, the project implemented the rotational team leadership approach in all the parish stores. This approach comprises of giving a SO who comes from that particular village or neighboring village the lead responsibility for spray operations in that particular catchment area. Being a resident of the village, the team leader actively participates in mobilization of her/his village and the neighborhood. This intervention helped improve mobilization and coverage of the villages, and also ensured that each village was represented on the spray team.

Performance based payment was also introduced during this spray round. This approach included payment of parish spray teams according to their performance. Any parish store spray team that did not attain the target IRS coverage of 90 percent and above, was paid less than the agreed amount. Instead, the team was paid a proportion of the agreed amount equivalent to the coverage achieved. For instance a team attaining 80 percent coverage was paid 80 percent of the amount initially agreed upon. This innovation helped encourage all team members to perform their best and subsequently improved IRS coverage.

4.2 Key Challenges /Constraints

- The project continues to face on going challenges of insecticide pilferage and abuse. However the project in collaboration with the DLGs strengthened supervision and monitoring of the spray activities at all levels up to the village level. With this emphasis on vigilance and monitoring, the district authorities have successfully prosecuted people found to illegally possess insecticide sachets. For instance in Kitgum, a SO who had stolen six Bendiocarb sachets, was convicted and imprisoned for one year.
- The early and heavy rains at the start of spraying for group A and worsened road conditions affected the progress of spray teams. These weather and road conditions led to slight delays in the timely delivery of items to parish stores.
- There were some villages that turned away SOs for various reasons including arguing that the timing of spraying is inconvenient due to demands of cultivation as well as other competing activities. However, project partner CDFU together with district IRS teams rightly intervened using multiple approaches; community dialogue, radio talk shows and house to house visits by sub-county IRS committee members, to have those households sprayed. Overall the existing mobilization structures namely local council I are still not effective.
- There are some hard to reach areas especially in Kitgum (Orom sub-county) and Nwoya (Purongo sub-county) and Amuru (Amuru sub-county), which are not easily accessed by SOs using their bicycles. To address this problem, the project proposes to create some new parish store at the nearest possible points in these sub-counties, after thorough analysis of the situation on the ground.
- The challenge of competing district programs in certain cases affected the focus of sub-county supervisor on effective supervision of spraying. For instance during this round, the Northern Uganda-Health Integration to Enhance Services (NU-HITES) a USAID funded project engaged most of the Health Assistants (majority of whom are the sub-county supervisors during the spray round) in data collection that lasted through the duration of spraying. As a result, the district IRS team had to replace the overburdened supervisors, but unfortunately there was inadequate time to retrain their replacements.

5. Appendix

The tables below (Table 3-12) refer to sub-county level results for households sprayed, coverage, and population protected during Phase II, Round II.

Table 3: Pader district summary of results by sub-county Round II, Phase II, April-May 2013

Sub-county	Houses Found	Sprayed houses	Unsprayed houses	IRS Coverage	Population protected					Unprotected population	% of population protected
					Female	Male	Total	Pregnant women	Children <5 Years		
Acholibur	9,636	9,557	79	99.2	15,262	14,056	29,318	1,123	6,708	202	99.3
Angagura	3,118	3,060	58	98.1	4,430	4,448	8,878	183	1,853	165	98.2
Atanga	5,521	5,271	250	95.5	9,012	8,004	17,016	392	3,416	748	95.8
Awere	19,818	19,782	36	99.8	29,468	27,303	56,771	2,201	12,472	84	99.9
Kilak	6,127	5,958	169	97.2	7,853	8,688	16,541	762	3,360	420	97.5
Laguti	5,510	5,294	216	96.1	8,040	7,326	15,366	455	3,441	602	96.2
Lapul	6,302	6,110	192	97.0	9,666	9,430	19,096	600	4,347	502	97.4
Latanya	4,701	4,630	71	98.5	7,700	8,147	15,847	521	3,681	244	98.5
Ogom	5,684	5,602	82	98.6	8,433	8,547	16,980	528	3,470	208	98.8
Pader TC	7,729	7,669	60	99.2	12,999	13,150	26,149	934	5,314	160	99.4
Pajule	6,759	6,619	140	97.9	10,178	10,605	20,783	702	4,638	401	98.1
Puranga	14,882	14,798	84	99.4	16,801	16,499	33,300	1,407	5,633	243	99.3
Grand Total	95,787	94,350	1,437	98.5	139,842	136,203	276,045	9,808	58,333	3,979	98.6

Table 4: Oyam district summary of results by sub-county Round II, Phase II, April-May 2013

Subcounty	Houses Found	Houses Sprayed	Unsprayed Houses	IRS coverage	Population protected					Un-protected population	% of population protected
					Female	Male	Total	Pregnant women	Children <5 years		
Aber	22,689	21,750	939	95.9	28,948	27,613	56,561	1,398	10,307	2,109	96.4
Acaba	10,640	10,198	442	95.8	14,103	14,513	28,616	709	5,819	1,122	96.2
Iceme	12,398	11,882	516	95.8	17,915	15,597	33,512	696	6,552	1,147	96.7
Loro	15,441	14,751	690	95.5	20,710	19,664	40,374	843	7,705	1,571	96.3
Minakulu	19,144	19,043	101	99.5	25,124	24,575	49,699	1,420	9,499	252	99.5
Ngai	10,873	10,715	158	98.5	14,903	14,621	29,524	729	5,971	491	98.4
Otwal	15,862	14,570	1,292	91.9	19,490	19,228	38,718	1,072	7,827	3,554	91.6
Grand Total	107,047	102,909	4,138	96.1	141,193	135,811	277,004	6,867	53,680	10,246	96.4

Table 5: Kole district summary of results by sub-county Round II, Phase II, April-May 2013

Subcounty	Houses Found	Sprayed houses	Unsprayed houses	IRS Coverage	Population protected					Unprotected population	% of population protected
					Female	Male	Total	Pregnant women	Children <5 Years		
Aboke	10,023	8,997	1,026	89.8	12,701	12,378	25,079	452	5,109	2,440	91.1
Akalo	9,646	8,966	680	93.0	11,585	10,651	22,236	273	3,518	1,331	94.4
Alito	25,769	23,702	2,067	92.0	33,054	30,812	63,866	1478	12,809	5,462	92.1
Ayer	10,157	8,998	1,159	88.6	11,857	11,391	23,248	408	4,427	2,929	88.8
Bala	15,034	14,254	780	94.8	16,296	15,522	31,818	732	5,745	1,849	94.5
Grand Total	70,629	64,917	5,712	91.9	85,493	80,754	166,247	3343	31,608	14,011	92.2

Table 6: Apac district summary of results by sub-county Round II, Phase II, April-May 2013

Subcounty	Houses Found	Sprayed houses	Unsprayed houses	IRS Coverage	Population protected					Unprotected population	% of population protected
					Female	Male	Total	Pregnant women	Children <5 Years		
Abongomola	8,704	8,019	685	92.1	10,255	9,771	20,026	463	3,777	1,519	92.9
Aduku	8,833	8,357	476	94.6	12,667	11,412	24,079	469	4,561	1,512	94.1
Akokoro	7,619	7,258	361	95.3	10,492	10,933	21,425	490	4,015	842	96.2
Apac	11,810	11,269	541	95.4	13,862	13,714	27,576	665	5,128	1,282	95.6
Apac TC	3,048	2,733	315	89.7	4,992	4,527	9,519	261	1,403	1,192	88.9
Chawente	6,131	6,016	115	98.1	8,624	7,991	16,615	442	3,418	275	98.4
Chegere	8,874	8,768	106	98.8	11,546	10,780	22,326	638	4,602	300	98.7
Ibuje	9,526	9,331	195	98.0	12,704	11,490	24,194	618	4,878	579	97.7
Inomo	5,215	5,021	194	96.3	6,453	6,112	12,565	223	2,227	465	96.4
Nambieso	10,621	10,463	158	98.5	14,323	14,253	28,576	575	5,290	401	98.6
Grand Total	80,381	77,235	3146	96.1	105,918	100,983	206,901	4844	39,299	8,367	96.1

Table 7: Amuru district summary of results by sub-county Round II, Phase II, April-May 2013

Subcounty	Houses Found	Sprayed houses	Unsprayed houses	IRS Coverage	Population protected					Unprotected population	% of population protected
					Female	Male	Total	Pregnant women	Children <5 Years		
Amuru	20,540	20,337	203	99.0	33,774	32,562	66,336	2892	16,280	578	99.1
Amuru TC	7,586	7,354	232	96.9	11,694	11,633	23,327	1053	5,383	516	97.8
Atiak	15,958	15,545	413	97.4	23,461	22,279	45,740	1531	9,970	835	98.2
Lamogi	16,802	16,473	329	98.0	25,867	25,172	51,039	1373	10,844	829	98.4
Pabbo	21,182	20,987	195	99.1	34,466	33,122	67,588	2055	16,894	511	99.2
Grand Total	82,068	80,696	1,372	98.3	129,262	124,768	254,030	8904	59,371	3269	98.7

Table 8: Agago district summary of results by sub-county Round II, Phase II, April-May 2013

Subcounty	Houses Found	Houses Sprayed	Unsprayed Houses	IRS coverage (%)	Population protected					Unprotected population	% of population protected
					Female	Male	Total	Pregnant women	Children <5 years		
Adilang	9,835	9,264	571	94.2	14,858	15,728	30,586	942	6,775	1,733	94.6
Arum	7,187	6,996	191	97.3	10,082	9,660	19,742	773	4,580	517	97.4
Kalongo TC	4,160	4,092	68	98.4	9,170	7,735	16,905	471	2,509	172	99.0
Kotomor	7,378	6,973	405	94.5	10,028	10,133	20,161	389	3,734	1,069	95.0
Lamiyo	4,127	4,047	80	98.1	5,828	5,540	11,368	184	2,435	144	98.7
Lapono	20,838	18,817	2,021	90.3	35,078	33,919	68,997	3,948	16,998	6,722	91.1
Lira Palwo	4,831	4,512	319	93.4	7,329	7,516	14,845	370	3,130	939	94.1
Lukole	11,877	11,577	300	97.5	19,320	18,915	38,235	1,468	9,295	1,035	97.4
Omiya Pacwa	7,459	7,422	37	99.5	9,995	10,355	20,350	645	4,250	85	99.6
Omot	6,771	6,372	399	94.1	9,282	9,096	18,378	611	4,174	1,030	94.7
Paimol	11,292	11,178	114	99.0	18,758	19,195	37,953	1,388	8,015	302	99.2
Parabongo	9,673	9,504	169	98.3	14,773	14,117	28,890	1,110	5,990	93	99.7
Patongo	2,837	2,824	13	99.5	4,336	4,150	8,486	170	1,821	23	99.7
Patongo TC	4,826	4,118	708	85.3	6,785	6,128	12,913	348	2,832	2,077	86.1
Wol	8,169	7,958	211	97.4	12,485	12,854	25,339	605	5,627	679	97.4
Grand Total	121,260	115,654	5,606	95.4	188,107	185,041	373,148	13,422	82,165	16,620	95.7

Table 9: Gulu district summary of results by sub-county Round II, Phase II, April-May 2013

Subcounty	Houses Found	Sprayed houses	Unsprayed houses	IRS Coverage	Population protected					Unprotected population	% of population protected
					Female	Male	Total	Pregnant women	Children <5 Years		
Awach	10,126	10,060	66	99.3	15,183	14,226	29,409	920	5,933	195	99.3
Bobi	10,921	10,044	877	92.0	12,509	12,611	25,120	693	5,139	2,150	92.1
Bungatira	8,788	8,646	142	98.4	13,078	12,163	25,241	855	5,159	458	98.2
GMC_Bardege	17,102	16,457	645	96.2	27,159	27,479	54,638	3,134	11,136	1,852	96.7
GMC_Laroo	9,791	9,640	151	98.5	14,086	14,225	28,311	1,490	6,614	383	98.7
GMC_Layibi	10,226	10,206	20	99.8	18,896	19,707	38,603	1,512	6,350	58	99.8
GMC_Pece	12,503	12,105	398	96.8	19,390	19,223	38,613	2,772	7,988	1,214	97.0
Koro	12,530	11,955	575	95.4	16,876	15,925	32,801	823	6,821	1,501	95.6
Lakwana	11,170	11,139	31	99.7	15,170	14,435	29,605	1,099	5,690	73	99.8
Lalogi	12,542	12,541	1	100.0	19,762	18,870	38,632	1,495	8,249	2	100.0
Odek	18,276	18,068	208	98.9	28,584	26,990	55,574	2,516	12,505	630	98.9
Ongako	9,148	8,778	370	96.0	14,043	13,170	27,213	1,205	5,909	1,038	96.3
Paicho	7,620	7,372	248	96.7	11,164	10,613	21,777	638	5,494	714	96.8
Palaro	4,447	4,447	0	100.0	6,236	6,327	12,563	317	2,696	0	100.0
Patiko	6,769	6,507	262	96.1	10,131	10,169	20,300	704	4,447	719	96.6
Unyama	4,748	4,515	233	95.1	6,598	7,032	13,630	524	2,512	574	96.0
Grand Total	166,707	162,480	4227	97.5	248,865	243,165	492,030	20,697	102,642	11,561	97.7

Table 10: Kitgum district summary of results by sub-county Round II, Phase II, April-May 2013

Subcounty	Houses Found	Sprayed houses	Unsprayed houses	IRS Coverage	Population protected					Unprotected population	% of population protected
					Female	Male	Total	Pregnant women	Children <5 Years		
Akwang	4,732	4,626	106	97.8	6,933	6,757	13,690	294	2,673	312	97.8
Amida	4,803	4,302	501	89.6	6,760	6,203	12,963	298	2,684	1,334	90.7
Kitgum Matidi	5,943	5,413	530	91.1	8,441	8,272	16,713	376	3,299	1,456	92.0
Kitgum TC	11,592	10,616	976	91.6	20,674	18,143	38,817	888	6,206	3,040	92.7
Lagoro	4,594	4,494	100	97.8	7,019	6,974	13,993	293	2,863	289	98.0
Layamo	4,972	4,939	33	99.3	7,653	7,108	14,761	346	2,807	111	99.3
Mucwini	7,845	7,698	147	98.1	12,263	12,081	24,344	523	5,073	455	98.2
Namokora	5,754	5,562	192	96.7	9,025	8,389	17,414	412	3,791	588	96.7
Omiya Anyima	10,277	10,001	276	97.3	14,507	14,324	28,831	437	5,605	728	97.5
Orom	6,275	6,185	90	98.6	9,691	9,639	19,330	450	4,186	215	98.9
Grand Total	66,787	63,836	2,951	95.6	102,966	97,890	200,856	4317	39,187	8,528	95.9

Table 11: Lamwo district summary of results by sub-county Round II, Phase II, April - May 2013

Subcounty	Houses Found	Sprayed houses	Unsprayed houses	IRS Coverage	Population protected					Unprotected population	% of population protected
					Female	Male	Total	Pregnant women	Children <5 Years		
Agoro	12,405	11,712	693	94.4	19,967	19,300	39,267	1,242	8,588	2,043	95.1
Lokung	9,080	8,615	465	94.9	12,759	12,804	25,563	708	5,634	1,373	94.9
Madi Opei	6,502	6,379	123	98.1	9,845	10,141	19,986	386	3,412	452	97.8
Padibe East	12,180	12,047	133	98.9	18,348	17,709	36,057	621	6,616	387	98.9
Padibe West	7,727	7,522	205	97.3	12,351	11,701	24,052	502	4,702	644	97.4
Palabek Gem	7,444	7,189	255	96.6	10,820	10,703	21,523	377	4,690	678	96.9
Palabek Kal	7,764	7,714	50	99.4	11,590	11,130	22,720	488	4,469	196	99.1
Palabek Ogili	6,841	6,755	86	98.7	11,097	10,997	22,094	628	5,126	187	99.2
Paloga	5,487	5,470	17	99.7	8,658	8,053	16,711	379	3,277	55	99.7
Grand Total	75,430	73,403	2,027	97.3	115,435	112,538	227,973	5,331	46,514	6,015	97.4

Table 12: Nwoya district summary of results by sub-county Round II, Phase II, April - May 2013

Subcounty	Houses Found	Sprayed houses	Unsprayed houses	IRS Coverage	Population protected					Unprotected population	% of population protected
					Female	Male	Total	Pregnant women	Children <5 Years		
Alero	14,206	13,905	301	97.9	21,103	20,318	41,421	1,516	10,383	903	97.9
Anaka	7,493	7,128	365	95.1	11,765	10,978	22,743	730	5,152	1,135	95.2
Koch Goma	9,433	9,036	397	95.8	13,189	12,734	25,923	824	5,432	1,146	95.8
Purongo	5,496	5,394	102	98.1	9,133	8,385	17,518	615	4,498	292	98.4
Grand Total	36,628	35,463	1165	96.8	55,190	52,415	107,605	3,685	25,465	3,476	96.9