



U.S. PRESIDENT'S MALARIA INITIATIVE



2019 BURKINA FASO END OF SPRAY REPORT

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2019 VECTORLINK BUKINA FASO
END OF SPRAY REPORT

CONTENTS

| | |
|---|-----------|
| Acronyms | 1 |
| Executive Summary | 2 |
| 1. Country Background | 4 |
| 2. 2019 IRS Pre-Season Activities | 6 |
| 2.1 IRS Campaign Planning | 6 |
| 2.2. Logistics Planning and Procurement | 8 |
| 2.2.1 Personal Protective Equipment and Insecticide Procurement for the 2019 IRS Campaign | 8 |
| 2.2.2 Planning Logistics and Transportation for the 2019 IRS Campaign | 8 |
| 2.3. Training | 8 |
| 3. Implementation of IRS Activities | 12 |
| 3.1. Spray Campaign Launch Ceremony | 12 |
| 3.2. Short-term Technical assistance | 12 |
| 3.3. Spray Operation and Supervision | 13 |
| 3.3.1. Spray Operations | 13 |
| 3.3.2. Spray Supervision | 15 |
| 3.4. Logistics and Stock Management | 17 |
| 3.4.1. Insecticide for the 2019 IRS campaign | 17 |
| 3.4.2. Dispatching of IRS materials to Operations Sites | 17 |
| 3.4.3. Stock Management during the IRS Campaign | 18 |
| 3.5. Payment of Seasonal Staff | 18 |
| 4. Entomology | 20 |
| 4.1. IRS Quality assays | 20 |
| 4.2. Results | 20 |
| 5. Monitoring and Evaluation | 23 |
| 5.1 Key Objectives and Approach | 23 |
| 5.2 Data Management and Processing | 23 |
| 5.2.1 Data Collection and entry | 23 |
| 5.2.2 Data Quality Assurance | 24 |
| 5.3. Data Reporting to Stakeholders | 24 |
| 5.4 mHealth Results | 25 |
| 5.5 Structures Found and Population protected | 25 |
| 5.5.1 Structures Found | 25 |
| 5.5.2 Population Protected | 26 |
| 5.6 Insecticide Use and SOP Performance | 26 |
| 6. Environmental Compliance | 28 |
| 7. IEC Activities | 31 |
| 7.1. IEC Activities | 31 |
| 7.2. IEC Activities and outcomes | 32 |
| 7.3. World Malaria Day | 33 |
| 8. Gender Mainstreaming | 34 |
| 9. IRS Country Capacity Building | 36 |

| | |
|--|-----------|
| 10. Post-Season Activities..... | 37 |
| 10.1. Summary of Post-Spray Activities..... | 37 |
| 10.2. Demobilization of Commodities..... | 37 |
| 10.3. Inventory Assessment..... | 37 |
| 11. Challenges, Lessons Learned and Recommendations..... | 38 |
| Annex A: Procurement (local & international) and Post Spray Stock Balance | 40 |
| Annex B: Monitoring and Evaluation Plan | 44 |
| Annex C: Number of People Trained | 58 |
| Annex D: Environmental Mitigation and Monitoring Report..... | 59 |
| Annex E: DCV Form..... | 65 |
| Annex F: Spray Operation Form..... | 66 |

Tables

| | |
|---|----|
| Table 1: VectorLink Burkina Faso 2019 IRS Campaign Summary | 3 |
| Table 2: Estimated Population in Targeted Districts of Kampti, Kongoussi and Solenzo | 6 |
| Table 3: 2019 Key IRS Planning and Organizational Areas | 7 |
| Table 4: IRS Topics Covered during Trainings to Improve Spray Quality..... | 9 |
| Table 5: Operations Site Managers and Supervisors per District | 14 |
| Table 6: Distribution of Spray Teams by District | 15 |
| Table 7: Breakdown of Supervision by Government Structures | 16 |
| Table 8: Location of Quality Assurance Cone Tests, Insecticide Sprayed and Number of Houses Tested..... | 20 |
| Table 9: Comparison of SMS Structures to Confirmed Structures | 25 |
| Table 10: Spray Coverage Based on Structures Found by SOPs per District..... | 26 |
| Table 11: Reasons for Not Spraying a Structure by District..... | 26 |
| Table 12: Population Protected During 2019 IRS Campaign per District | 26 |
| Table 13: Insecticide Used per District | 27 |
| Table 14: Construction/Rehabilitation and Refurbishment of 2019 Operational Sites..... | 28 |
| Table 15: Summary of Incident Cases Recorded during the 2019 IRS Campaign..... | 29 |
| Table 16: 2019 Burkina Waste Quantification Chart | 30 |
| Table 17: Overview of Mobilization Results | 32 |
| Table 18: Seasonal Workers Disaggregated by Gender during the 2019 IRS Campaign..... | 35 |

Figures

| | |
|--|----|
| Figure 1: IRS Operational Sites in Burkina Faso | 5 |
| Figure 2: Mini-Launch Ceremony in Yilou Village of Kongoussi District..... | 12 |
| Figure 3: Marking of Structure by SOPs and Corrective Action by Supervisor..... | 13 |
| Figure 4: Percentage Mortality of Susceptible Insectary Colony and wild <i>An. gambiae</i> s.l. after Cone Bioassay in Houses Sprayed with Pirimiphos-Methyl CS in Kongoussi District (0, 1 and 2 months after IRS)..... | 21 |
| Figure 5: Percentage Mortality of Susceptible Insectary Colony after Cone Bioassay in Houses Sprayed with Clothianidin (SumiShield WG) in Solenzo and Kongoussi Districts (0, 1 and 2 months after IRS)..... | 21 |
| Figure 6: Percentage Mortality of Susceptible Insectary Colony after Cone Bioassay in Houses Sprayed with Clothianidin + Deltamethrin (Fludora Fusion WP-SB) in Kampti District (0, 1 & 2 months after IRS) . | 22 |
| Figure 7: Spray Data Sharing with Stakeholders..... | 25 |
| Figure 8: SOP Training at the Permanent Soak Pit and Mobile Soak Pit Level..... | 28 |
| Figure 9: World Malaria Day ceremony commemoration..... | 33 |
| Figure 10: Female SOPs and Washers..... | 34 |
| Figure 11: Logistical Challenges and Problem Solving at the Community Level..... | 39 |

ACRONYMS

| | |
|-------|--|
| BMP | Best Management Practices |
| BUNEE | <i>Bureau National des Evaluations Environnementales</i> / National Bureau of Environmental Assessment |
| COP | Chief of Party |
| CSPS | <i>Centre de Santé et Prévention Sociale</i> / Center for Health and Social Prevention |
| DC | District Coordinator |
| DCV | Data Collection Verification |
| DEC | Data Entry Clerk |
| DHMT | District Health Management Team |
| DS | <i>District Sanitaire</i> / Health District |
| DOS | Directly Observed Spray |
| DRS | <i>Direction Régionale de la Santé</i> / Regional Health Directorate |
| ECO | Environmental Compliance Officer |
| ICP | <i>Infirmier Chef de Poste</i> / Health Post Nurse |
| IEC | Information, Education, and Communication |
| IRS | Indoor Residual Spraying |
| IRSS | <i>Institut de Recherches en Sciences de la Santé</i> / Institute of Research on Health Sciences |
| ITN | Insecticide Treated Nets |
| LLINs | Long-Lasting Insecticide-Treated Nets |
| M&E | Monitoring and Evaluation |
| MOH | Ministry of Health |
| NMCP | National Malaria Control Program |
| PMI | President's Malaria Initiative |
| PPE | Personal Protective Equipment |
| PSECA | Pre-Season Environmental Compliance Assessment |
| SEA | Supplemental Environmental Assessment |
| STTA | Short-Term Technical Assistance |
| U.S. | United States |
| USAID | United States Agency for International Development |
| WHO | World Health Organization |

EXECUTIVE SUMMARY

In September 2017, Abt Associates was awarded a five-year task order, the U.S. President's Malaria Initiative (PMI) VectorLink Project, to support malaria vector control activities, including the implementation of indoor residual spraying (IRS) in up to 24 countries, including Burkina Faso. The purpose of the PMI VectorLink project is to support PMI in planning and implementing IRS programs and other proven life-saving malaria vector control interventions with the overall goal of reducing the burden of malaria in Africa.

In preparation for the campaign, Abt provided IRS related commodities procurement and logistical services, planning, organization, management, and IRS implementation. The project conducted spray operations from June 6, 2019 to July 11, 2019 with a spray target of 221,255 structures and a goal of protecting 663,765 people in the following districts in Burkina Faso: Kampti (South-West Region), Kongoussi (North-Center Region) and Solenzo (Boucle de Mouhoun Region). The project sprayed the organophosphate, pirimiphos methyl (Actellic 300CS), and clothianidin (SumiShield 50 WG) in Kongoussi, clothianidin (SumiShield 50 WG) in Solenzo and clothianidin/deltamethrin (Fludora Fusion) in Kampti. The spray target was initially based on a total of 266,765 structures with a goal of protecting 774,378 people; however, this target was reduced to 221,255 structures due to the exclusion of five sites (Bourzanga, Nassere, Rollo, Zimtenga and Nafo) in the district of Kongoussi because of security issues/concerns that the team faced in-country.

VectorLink Burkina Faso successfully completed its 2019 IRS campaign, which lasted 30 operational days, well within the scheduled timeframe designated by the National Malaria Control Program (NMCP). The VectorLink Burkina Faso Project benefited from the support of the UNITAID-funded Next Generation IRS (NgenIRS) project, in the procurement of insecticide. The following are project achievements and key highlights of the 2019 spray campaign (See Table 1):

- Sprayed 201,901 out of 220,482 eligible structures that spray operators (SOPs) found in the three targeted districts in Burkina Faso, accounting for a coverage rate of 91.6 percent. The project protected 587,248 residents, including 92,809 children under five years of age and 11,959 pregnant women.
- Trained 2,045 individuals to deliver IRS in the three districts in Burkina Faso.
- The project used a total of 15,358 bottles of Actellic 300CS, 33,885 sachets of SumiShield and 5,326 sachets of Fludora Fusion with a utilization ratio of approximately 3.7 structures sprayed per bottle/sachet of insecticide.
- The 100% mortality rate was recorded in wall bioassays for mud and cement substrates for all districts. These results indicate that spray application was conducted to an acceptable quality level in the houses tested.

VectorLink Burkina Faso implemented the 2019 IRS campaign in close collaboration with PMI/Burkina Faso and with several Burkina Faso governmental partners, notably: the National Malaria Control Program (NMCP); Ministry of Health (MOH); Ministry of Agriculture; Ministry of Environment; National Directorate of Agriculture; National Bureau of Environment Assessment; Regional Directorates of Health, Agriculture and Environment; District Health Management Teams (DHMTs) in the three target districts.

As the primary partner, the NMCP was involved in all of the main activities, including the development of the operational plan, macro and microplanning meetings. Trained as core trainers, the NMCP trained health post nurses /infirmiers chef de poste (ICP) as trainers in the three districts. Furthermore, the NMCP took part in supervising IRS activities implementation in the targeted districts. The DHMT and local authorities, in collaboration with VectorLink field district coordinators, were responsible for seasonal staff recruitment and training. The regional directorate and provincial services of agriculture and environment assisted with the environmental compliance assessment.

Table 1: VectorLink Burkina Faso 2019 IRS Campaign Summary

| | Kampti | Kongoussi | Solenzo | Total |
|---|--------------------------|--|-----------------------|---------|
| Insecticide used | Fludora Fusion: 5,326 | SumiShield: 4,951 Actellic CS300: 15,358 | SumiShield: 28,934 | 54,569 |
| Total targeted structures | 29,379 | 86,165 | 105,711 | 221,255 |
| Cumulative structures found by SOPs | 24,377 | 85,341 | 110,764 | 220,482 |
| Cumulative structures sprayed | 21,129 | 79,117 | 101,655 | 201,901 |
| Population in sprayed structures | 70,261 | 219,229 | 297,758 | 587,248 |
| Population of pregnant women in sprayed structures | 1,323 | 4,218 | 6,418 | 11,959 |
| Population of children under five in sprayed structures | 11,821 | 35,240 | 45,748 | 92,809 |
| Spray progress (%) based on targeted structures | 71.9% | 91.8% | 96.2% | 91.3% |
| Spray coverage (%) (based on structures found by SOPs) | 86.7% | 92.7% | 91.8% | 91.6% |
| Total number of people trained to deliver IRS in targeted areas | 351 | 756 | 938 | 2,045 |
| Female | 76 (22%) | 135 (18%) | 186 (20%) | 397 |
| Male | 275 | 621 | 752 | 1,648 |

1. COUNTRY BACKGROUND

Malaria remains a major public health issue and is endemic throughout the country, with a seasonal upsurge from May to November. In Burkina Faso, the rainy season duration varies across the country with corresponding variances in seasonal malaria transmission based on geographic zones. In the North, the rainy season is short (up to three months); in the central zone, it lasts up to six months; and in the South, it can last up to nine months. Important components for reducing the burden of malaria morbidity and mortality include systematic use of diagnostic tools for suspected malaria cases and effective use of antimalarial medicines for confirmed cases, along with prevention strategies, such as the prevention of malaria in pregnancy, seasonal malaria prevention and vector control interventions, such as promoting consistent use of long-lasting insecticide-treated nets (LLINs) and IRS.

Burkina Faso has strong entomological capacity and a history of malaria vector research, including insecticide resistance monitoring. IRS implementation was first carried out in 2010 and 2011 as a pilot intervention in the district of Diebougou, a high-transmission area located in Bougouriba Province in the southern zone of the country. The insecticide used was carbamate, and the IRS program covered 36,870 structures, corresponding to 99.30 percent of the eligible structures, thus protecting 115,638 people. The NMCP has included IRS in its current 2016-2020 Strategic Plan for Malaria Control.

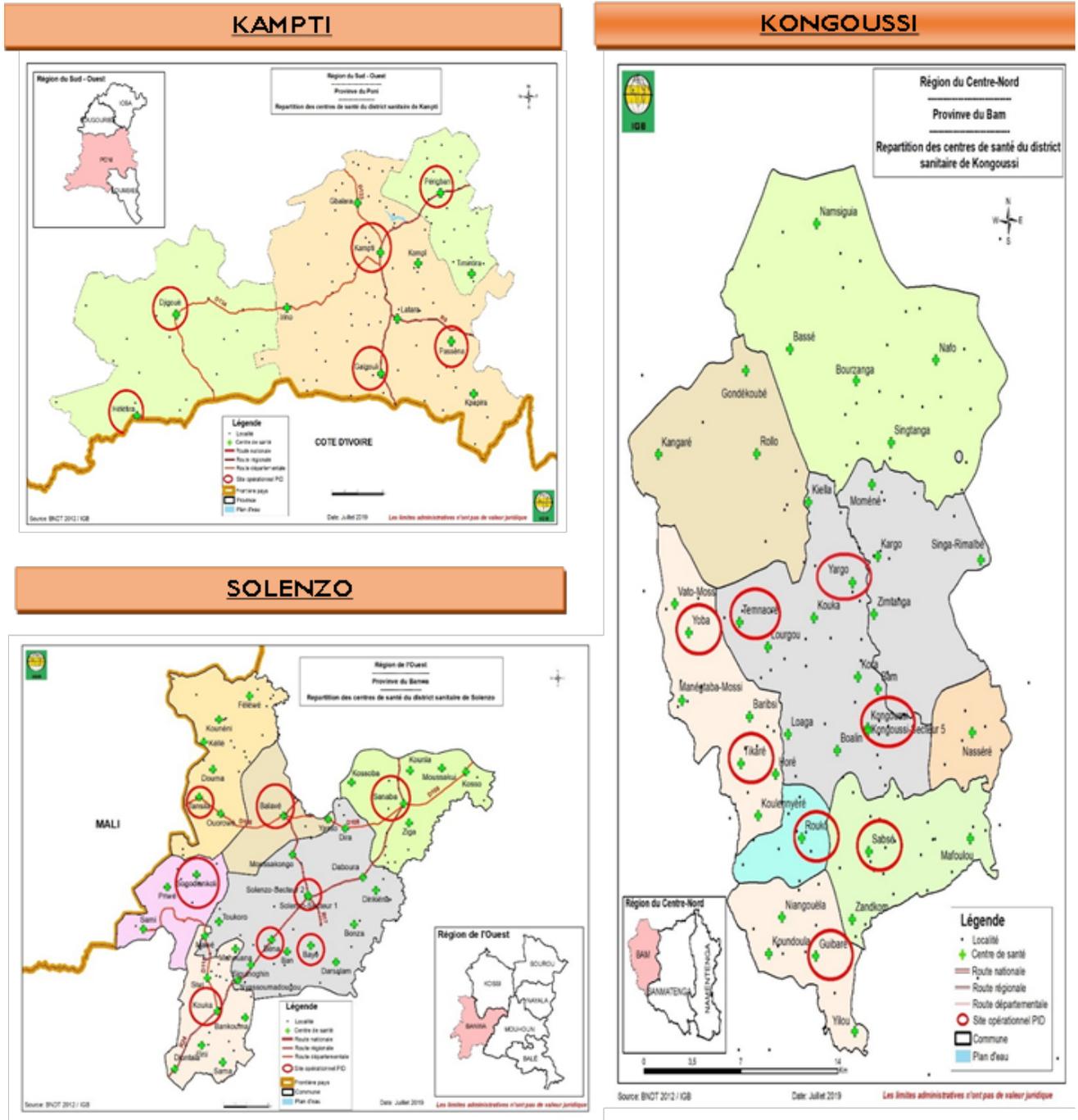
Full susceptibility of *An. gambiae* s.l. to pirimiphos-methyl and clothianidin was observed at all sites in 2018. This is in contrast to the 2017 results, which showed pirimiphos-methyl resistance in Gaoua, Kampti, Mangodara, and Solenzo. Subsequently, SumiShield 50WG was chosen for the 2019 IRS campaign in Kampti due to the higher frequency of pirimiphos-methyl resistance reported in 2017.

An. gambiae s.l. remains the main malaria vector in Burkina Faso in all regions sampled. Molecular analysis revealed that *An. gambiae* and *An. coluzzii* occur in sympatry in the Southwestern and Cascades regions, with *An. gambiae* s.s. predominating in Kampti and Mangodara. The Central and Northern areas were dominated by *An. coluzzii*. Few *An. arabiensis* were detected across all sites.

The proportion of *An. gambiae* s.l. infected with *P. falciparum* was highest in the Southwestern areas of Burkina Faso, with a mean infection rate > 6 percent (by polymerase-chain reaction [PCR]) in these four sites. The team detected *P. falciparum* infected *An. gambiae* s.l. in this area in June, with high positivity rates in August, September, and October from females collected both indoors and outdoors and as late as December in Southwestern sites and also in Segouenega, in the Northern region where parity rates were higher than in the Central and Northern sites.

The NMCP recently updated its national malaria strategic plan covering the period of 2016-2020 and recommended that non-pyrethroid IRS be used as a complementary vector control tool together with LLINs in locations where pyrethroid resistance occurs. This is partly due to the availability of new non-pyrethroid IRS formulations that can provide long-lasting control of pyrethroid resistance malaria vectors.

Figure 1: IRS Operational Sites in Burkina Faso



2. 2019 IRS PRE-SEASON ACTIVITIES

As stated in the 2019 VectorLink Burkina Faso work plan, the three objectives for 2019 included:

- Cover at least 85 percent of eligible structures found in all three districts of Kampti, Kongoussi, and Solenzo
- Increase national and local capacity in planning, implementing, and supervising IRS
- Implement cost-efficient activities to save funds and ensure ease of management

Given these objectives, VectorLink Burkina Faso aimed to cover approximately 221,255 structures in the three districts of Kampti, Kongoussi, and Solenzo (see Table 2), and to protect as many of the estimated 663,765 people living there as possible.

To achieve these objectives, VectorLink worked with several partners including the MoH and NMCP; whose activities included: 1) validation of IRS training and management tools, including information, education, and communication (IEC) tools, data collection and verification forms, report forms, checklists, etc.; 2) support with planning the IRS campaign; 3) training IEC mobilizers and SOPs; 4) supervision during the IRS campaign; and 5) support with validating data collected.

Table 2: Estimated Population in Targeted Districts of Kampti, Kongoussi and Solenzo

| Region | Districts | Targeted Population* | Estimated Eligible Structures |
|-------------------|-----------|----------------------|-------------------------------|
| South-West | Kampti | 88,137 | 29,379 |
| Center-North | Kongoussi | 258,495 | 86,165 |
| Boucle of Mouhoun | Solenzo | 317,133 | 105,711 |
| Total | | 663,765 | 221,255 |

* Estimate based on the 2018 IRS campaign data

2.1 IRS CAMPAIGN PLANNING

The 2019 IRS campaign is the second IRS campaign conducted by VectorLink Burkina since IRS was stopped in 2012. In collaboration with PMI and the NMCP, VectorLink Burkina Faso developed an IRS activity calendar (road map). The calendar identified schedules for advocacy, national planning, micro planning meetings, recruitment, training of trainers and training of SOPs and launch of the IRS campaign. The calendar also included logistics arrangements, materials distribution, and the environmental compliance assessment, among other spray-related tasks. The campaign started on June 6, 2019 and ended on July 11, 2019 in all districts, for a total of 30 operational days. Table 3 summarizes the activities the project undertook to plan for and organize the 2019 IRS campaign.

Table 3: 2019 Key IRS Planning and Organizational Areas

| | Activities implemented |
|--|--|
| IRS activities planning | National-level planning, March 21, 2019 District-level planning (micro-planning), and development of spray calendar respectively in Kampti (April 18-19), Kongoussi (April 23-24), and Solenzo (April 15-16). |
| Recruitment of Districts Coordinators and seasonal personnel | Recruitment of full time district coordinators and seasonal workers (finance assistants, site managers, team leaders, drivers, storekeepers, repair technicians, washers, water suppliers (March - May 2019)) |
| Personnel capacity-building | Training of VectorLink district staff, March 2019 Training of master trainers for NMCP, regions and district health team (April 1-3) District-level IRS training of trainers (May 13-17) Training of operations manager, environmental compliance officer, district coordinators, central and districts warehouses managers by the Home Office Director of Vector Control, Mr. Allan Were on best management of insecticides and warehouses (May 12-13) Training of SOPs and auxiliary staff (drivers, storekeepers, repair technicians, washers) (May 10- June 6) |
| Environment | Assessment of previously-used operational facilities at the district and secondary sites for rehabilitation, and identification of new sites as needed Pre-inspection (February 27-March 10), validation (May 12-27) of all IRS sites using smartphones Inspection of all transport vehicles prior to signing a rental contract Training on environmental management of IRS campaign |
| M&E (Monitoring and Evaluation) | Develop IRS and mobilization data collection tools for the mobile data collection pilot Develop IRS and mobilization instance in VectorLink collect database Recruitment of M&E assistants for support during the mobile data collection implementation Recruitment and training of six data clerks (DECs) to enter mobilization data Training on use of SMS for collecting and sending timely data and also on Directly Observed Spray (DOS) for M&E assistants, sites managers and team leaders (June 1 or June 2) |
| Operations | Advocacy at the provincial level on IRS information and local authorities' implications in supporting the 2019 IRS implementation activities in target districts (March 15-24) As in 2018, districts' office space and operational sites were provided free of charge by district health authorities and CSPA (Centre de Santé et Promotion Sociale/Center for Health and Social Promotion) Deployment of project district personnel to spray districts (finance assistants, logistics assistants, district coordinators, April 11) Validation of spray calendars, communication and supervision plans Production of training manuals and data collection tools Seasonal personnel's pre-IRS medical examination and pregnancy testing (May 24-June 5) Implementation of supervision tools, including smartphone use (June 6 – July 11) Coordination and monitoring of SOPs (June 6 – July 11) Monitoring of spray performance tracking sheet (June 6 – July 11) |
| Logistics | Physical inventory of existing equipment (July-August 2018; July 29-31, 2019) Quantification of insecticide and IRS equipment (September-November 2018) Review of quantification of all necessary supplies and materials (March 2019) |
| Communication | In collaboration with NMCP, developing IRS IEC plan and developing IEC materials and tools, IEC material production and distribution, and validating districts' IEC plans Participation in IEC activities supervision including the Health Post Chief Nurse/ Infirmier Chef de Poste (ICPs)'s orientation and IEC mobilizers and supervisors training Broadcasting IRS messages on local radio stations Diffusion of IRS messages in churches and mosques during the campaign |
| Administration & Finance, Procurement | IRS operations participants' agreements signing Vehicle rental tender process Development of seasonal workers payment process via the mobile payment system. |

2.2. LOGISTICS PLANNING AND PROCUREMENT

2.2.1 PERSONAL PROTECTIVE EQUIPMENT AND INSECTICIDE PROCUREMENT FOR THE 2019 IRS CAMPAIGN

VectorLink conducted an inventory of the warehouse in all three districts. The team developed a list of items to be procured locally and internationally. A full list of additional personal protective equipment (PPE) procured for the 2019 IRS campaign is included in Annex A.

In 2019, the project procured a total of 30,802 sachets of SumiShield and 6,110 sachets of Fludora Fusion. This procurement came as a complement to the 2018 leftover stock of 15,358 bottles of Actellic®300CS and 9,416 sachets of SumiShield.

2.2.2 PLANNING LOGISTICS AND TRANSPORTATION FOR THE 2019 IRS CAMPAIGN

Prior to the start of the spray campaign, the VectorLink Project staff conducted several field visits with NMCP. The VectorLink team also held meetings with local authorities and conducted an evaluation of the rehabilitation of operational sites.

Based on the decision to conduct the 2019 IRS operations in the same three districts, during the micro-planning workshop, the number of operational sites was determined based on the distance between the operational site and the spray sites. Renovation work done to operational sites followed the proper environmental safety standards listed in the PMI IRS Best Management Practices (BMP) Manual. All the operational sites were composed of the required infrastructures, such as soak pits, separate restrooms and changing areas for both men and women, water storage barrels, danger and emergency signs, an emergency contact list, as well as storage for both the insecticide and the spray materials.

The 22 operational sites were located in the health centers and were all provided free of charge by the government of Burkina Faso. Because of security reasons, the project suspended IRS activities in five sites (out of 13 sites) in the district of Kongoussi.

2.3. TRAINING

The VectorLink team, in close coordination with the National Malaria Control Program (NMCP) updated training materials in a review session before formally adopting the final training materials and tools. Master Trainers trained in 2018 underwent a three-day refresher training and in turn provided training to others involved in the implementation of spray activities.

In addition, the VectorLink Burkina Faso team received short term technical assistance from VectorLink team members from the Home Office in the United States, as well as the Regional Environmental Compliance Specialist from Senegal. Important components of the training sessions included: IRS concepts and planning, environmental compliance and personal safety, monitoring and evaluation of IRS, gender awareness, social behavior change concepts, communication and information transfer techniques, management of operational sites, insecticide and equipment handling, spray techniques and proper use of PPE, logistics, storage, management of IRS equipment.

A total of 2,045 people of whom 1,648 were men and 397 were women (26.6%) attended the trainings. Table 4 below provides details of the types of training and key topics covered.

Table 4: IRS Topics Covered during Trainings to Improve Spray Quality

| Type of Training | Participants trained | Key Topics Covered | Dates |
|---|--|---|-----------------|
| Refresher Master training | 22 | Overview of malaria epidemiology and prevention strategies, insecticide selection; logistics, storage, safe handling, and environmental compliance in IRS; IEC and community mobilization; compression pump components, use and maintenance of pumps (Goizper® brands); spray techniques; monitoring and supervision; data quality assurance; gender awareness; IRS leadership and management by objectives. | April 1-3, 2019 |
| Training of trainers for SOPs | 291 | Compression pump components, use and maintenance (Goizper®) of the pumps; spray techniques, filling out SOPs' data collection form, safety issues in IRS, and providing IEC messages through an interpersonal communication approach; gender inclusion and sexual harassment awareness. | May 13-17, 2019 |
| Training of Spray Operators | 679 (321 in Solenzo, 94 in Kampti and 264 in Kongoussi) | Insecticide and equipment handling, PPE usage; hazard management; environmental risk awareness; spray techniques; end-of-day clean-up; triple rinsing procedure; data collection; waste management; gender awareness. | May 27-31, 2019 |
| One-day dedicated training for Team Leaders | 109 (52 Solenzo, 14 Kampti and 43 Kongoussi) | Team Leaders' roles and responsibilities as first line supervisors of IRS operation, time keeping, daily health checks for SOPs, proper handling of spray equipment and materials, team and spray operator performance targets, use of PPE, household mobilization and safety, supervising insecticide mixing and pressurizing by the sprayer, supervising spray techniques, direct observation of spraying, triple rinsing procedure, first aid, repair and maintenance of spray pumps in the field, and supervision of end-of-day clean-up. | June 1, 2019 |
| Training of Community mobilizers | 581 (180 Kampti, 186 Kongoussi and 215 Solenzo) | Interpersonal communication and information transfer techniques, key IRS concepts; human health and environmental safety, behavior change concepts; IEC/BCC; M&E (filling out IRS and mobilization data forms). | June 1, 2019 |
| Training of Storekeepers | 26 (7 Kampti, 10 Kongoussi and 9 Solenzo) | First expired/first out arrangement; stock card management; PMI IRS BMPs on warehousing; Key IRS indicators, environmental compliance and safety issues; managing operational sites. | May 14-15 |
| Training of Pump Maintenance Technicians | 6 (2 from each of the 3 districts) | Spray pumps handling and preventive maintenance; calibration of spray equipment; assembling and maintenance of control flow valves; end-of-day clean-up; triple rinsing procedure. | April 29-30 |
| Washers | 71 | Environmental and personal safety during washing of coveralls. | June 2 |
| Security Guards | 44 | Security and safety of IRS equipment and premises | May 20 |

| Type of Training | Participants trained | Key Topics Covered | Dates |
|---|--|--|------------------|
| Drivers | 24 | Management of the operational sites' terrain; safe handling and transport of insecticides and spray teams; health and environmental safety; handling IRS commodities; spillage management | May/June/July |
| District Coordinators, Logistics and Finance Assistants | 8 (3 district coordinators , 4 finance assistants and 1 logistics assistant) | District office management, coordination between VectorLink and field government partners (DHMT, ICP, local authorities). Logistics management at district level, dispatching of IRS materials, monitoring warehouse and site secondary stores stock cards, regular inventory management, effective payment of field staff, monitoring of vehicle fuel consumption; payment tracking and documentation | April |
| M&E Assistants and data clerks | 3 M&E Assistants and 7 data entry clerks | Monitoring data collection, mobilization data entry, validation, and synchronization of data from the mobile data collection tablets | June 1 June 4 |
| Medical & Health staff | 100 (9 doctors and 91 ICPs) | Physiological mechanisms involved in intoxication, insecticide poisoning management; poisoning prevention and practices; health hazard and side-effect management mitigation, case management procedure was developed during doctors training and provided to ICP | May/June |

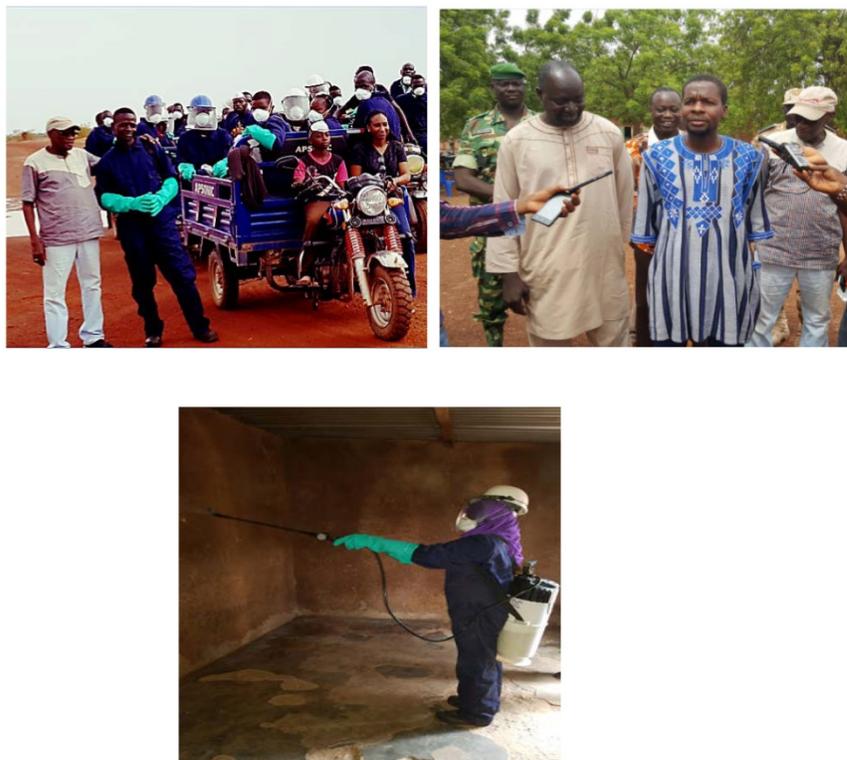
3. IMPLEMENTATION OF IRS ACTIVITIES

3.1. SPRAY CAMPAIGN LAUNCH CEREMONY

Burkina Faso's 2019 IRS Campaign started on June 6 and ended on July 11, 2019 in all three districts. To address the project's cost saving initiatives, as well as the security situation in-country, the project, in close coordination with the NMCP, made the decision to conduct mini launch ceremonies in each district, which were chaired by the province High Commissioner and attended by the local district authorities.

In attendance of each ceremony were the district administrative, political, religious leaders, health authorities, the SOPs of the selected site, and the VectorLink team. In addition, local radios including Radio Lotamou (Solenzo), Radio Television of Burkina (RTB) Gaoua (for Kampti), la voix du Lac and Nerwaya (Kongoussi) took part in the events. Remarks regarding the importance of IRS, role of local leaders and spraying best practices were addressed by the VectorLink representative and the Chief Medical officer in each district. District authorities also committed to supporting IRS activities, including addressing false rumors and assisting with community mobilization. The ceremonies were followed by visits at the household level with the district officials, where spray teams conducted insecticide mixing, verification of mobilization activities, household preparation and spray.

Figure 2: Mini-Launch Ceremony in Yilou Village of Kongoussi District



3.2. SHORT-TERM TECHNICAL ASSISTANCE

The VectorLink Home Office Director of Vector Control, Technical Program Manager, Monitoring and Evaluation (M&E) Specialist, Regional Environmental Compliance Officer, traveled to Burkina Faso to provide short-term technical assistance (SITA) to the VectorLink team in-country before and during the implementation of the 2019 spray campaign.

3.3. SPRAY OPERATION AND SUPERVISION

3.3.1. SPRAY OPERATIONS

In collaboration with the district local authorities, the health system at the district and CSPA level, recruited all spray personnel (SOPs, team leaders, mobilizers, coordinators, supervisors, storekeepers, etc.) based on recruitment criteria shared by the project. The number of spray operations teams was based on the average number of 13 structures that a SOP could treat in a day. VectorLink Burkina provided all technical (training, monitoring, etc.) and logistical (store, soak pit, PPE, equipment supply, insecticide, consumables, transport, etc.) support required for the spray operations in the three districts. VectorLink project staff and NMCP, regional and DHMT supervisors were deployed to the sites during the implementation phase to provide supervision support.

Implementation Logistics

Spray materials and IRS supplies were dispatched to the different spray sites prior to the start of the spray campaign. Throughout the campaign, an assessment of the spray materials was done at the district level and all needs were addressed to avoid stock-out.

Household Preparation and Resident Safety

SOPs received instructions about actions to be taken before, during, and after a house has been sprayed, such as:

- Move out household items furniture, cooking materials, and all food prior to spraying
- Move all furniture that cannot be moved from the home to the center of the room and cover it with a tarpaulin
- Advise occupants to stay outside the home during spraying for two and a half hours after spraying
- If people are unable to be removed from the house, postpone the spraying of this structure for the mop-up period if possible
- Keep children and domestic animals far from structures

Supervisors ensured that house preparation was performed efficiently and to the desired standards.

Structure Marking

Structure marking during the spray operations aims to provide information related to the spray date, the code of the SOP who sprayed the structure, household code (six digits) and the spraying status of the structure (P: sprayed, NP: not sprayed or X: awaiting spraying during mop-up). SOPs conducted this marking, and supervision allowed them to ensure it was properly done (Figure 3).

Figure 3: Marking of Structure by SOPs and Corrective Action by Supervisor



Marking structures with chalk during the spray campaign was extremely helpful for mop-up operations as it was easy to erase the previous marking according to the new spraying status (sprayed/unsprayed) of the house.

Operational Site Coordination

VectorLink Burkina hired 22 site managers to manage spray operations in the three targeted districts. They were supported by two or three ICPs in each site. The DHMT provided two supervisors per district. Table 5 below outlines the operations site managers and supervisors per district.

Table 5: Operations Site Managers and Supervisors per District

| District | Operations Site | Site Managers | Supervisor ICP | Team Leaders | District Supervisors (DHMT) | NMCP, DRS, Environment and Agriculture |
|------------------|-----------------|---------------|----------------|--------------|-----------------------------|--|
| Kampti | 6 | 6 | 4 | 14 | 2 | 5 |
| Kongoussi | 8 | 8 | 11 | 43 | 3 | 5 |
| Solenzo | 8 | 8 | 12 | 52 | 5 | 5 |
| Total | 22 | 22 | 27 | 109 | 10 | 15 |

Data Collection Verification:

VectorLink Burkina collected information through data collection verification (DCV) forms at the household level on household spray status. Households were randomly selected to provide a sample population. After filtering households' data from the database, M&E assistants compared them with DCV form findings to match head of household, structures and rooms found, and spray status. DCVs enabled greater accuracy of data reported by SOPs and facilitated the mop-up process. Anomalies found were compiled during the evening meetings and used to relay feedback messages and corrective actions by spray teams. The DCV was housed in the same CommCare platform as the supervisory forms.

Job Aid Messages:

Throughout the campaign, the VectorLink Burkina team sent daily messages reminding supervisors, SOPs, team leaders, and storekeepers about mandatory breakfast, proper wearing of personal protective equipment (PPE), gender related instructions, the daily number of targeted structures and non-consumption of food while on duty.

Composition and Management of Spray Teams

In collaboration with NMCP and the DHMT, the district health authorities provided operational sites and warehouses to the VectorLink team free of charge. VectorLink Burkina Faso has a team in each district comprising of one district coordinator, one logistics assistant, and one accountant. The district coordinator is responsible for managing IRS implementation in all sites in the district. The logistics assistant ensures the preparedness of all sites, the dispatching of materials and IRS supplies in all sites, and conducts periodic inventories. The accountant assists the district coordinator and logistics assistant with financial aspects and ensures proper procedures are followed.

In each operational site, the composition of IRS staff comprised of seasonal workers including one manager, a storekeeper, a pump technician, site guards, washers, water fetchers, and team leaders heading teams of SOPs and mobilizers. Each team had an average of five SOPs. SOPs reported directly to the team leader, who in-turn reported to the site manager. The site manager worked very closely with the ICP to supervise the SOPs and to adjust the daily spray calendar when needed. The site manager reports to the VectorLink district coordinator. One site can cover more than one CSPS and each CSPS has one ICP; in collaboration with the DHMT, the ICPs supervise spray operations each day during the 30 operational days.

During the campaign period, spray operations took place from Monday to Saturday, while Sundays were rest days. The 547 SOPs recruited were divided into 109 spray teams. The number of spray teams per district was determined by the estimated number of targeted eligible structures found in each district, as well as the geographic accessibility of the site. Table 6 illustrates the distribution of spray teams by district.

Table 6: Distribution of Spray Teams by District

| Districts | No. of spray teams | No. of eligible structures found by SOPs in 2019 |
|--------------|--------------------|--|
| Kampti | 14 | 24,377 |
| Kongoussi | 43 | 85,341 |
| Solenzo | 52 | 110,764 |
| Total | 109 | 220,482 |

3.3.2. SPRAY SUPERVISION

IRS Campaign Supervision by VectorLink Burkina Staff

VectorLink Burkina staff, including the COP, Operations Manager, ECO, M&E Manager, Database Manager, IEC Coordinator, Procurement/Logistics Coordinator, IT Manager and Drivers traveled to the field based on the supervision plan. Following the supervision plan, counterparts from NMCP, DRS and the Representative of Agriculture and Environment department traveled to the field to provide supportive supervision to seasonal staff using smartphones with CommCare applications. The purpose of their visits was to ensure that IRS campaign activities were performed properly. Supervision activities, implemented through smartphones with CommCare applications, included but were not limited to:

- Observing SOP performance including house preparation, spray practices by direct observation in eligible structures, house marking, filling forms and compliance to other instructions
- Evaluating the support provided to SOPs by team leaders and proximity supervisors, and the proper filling of forms and checklists
- Evaluating the performance of storekeepers in the management of commodities, equipment, and products
- Assessing compliance to instructions regarding the handling of insecticide and other contaminated equipment, including PPE
- Addressing concerns raised by beneficiaries, seasonal staff, and other individuals involved in IRS operations
- Checking the performance of each SOP team using the daily performance tracking sheet
- Ensuring the quality of beneficiary mobilization and solving problems of refusal with further sensitization and advocacy

The VectorLink Burkina team, NMCP, DRS, and DHMT followed field activities and daily spray progress closely using daily updates that the district and operation site managers sent via SMS and also by accessing the vectorlink collect database. These messages noted the number of structures sprayed each day (based on the site manager's review of the spray cards turned in daily) and any issues that arose in the field. This reporting allowed the VectorLink Burkina team to track progress against the IRS schedule, and to identify any campaign issues that needed quick action from the team.

A total of 10 government officials contributed to the supervision of the campaign. This year, the Secretary General of the MoH, accompanied by the Director of the Population Health Protection, conducted a visit to Kongoussi to observe spray activities, interview beneficiaries and discuss with district teams about spray related aspects. The NMCP Director also conducted a field supervision to Sabce and Kongoussi.

A total of seven NMCP staff members, the three Regional Health Directors (DRS), three Regional Focal Points (RPS) and three to five DHMT staff for each district conducted supervision visits during the spray campaign. The daily debriefing meetings were often chaired by the District Medical Officer or the representative of the DRS.

Table 7 provides a breakdown of the supervision activities performed by local authorities during the 2019 IRS campaign.

Table 7: Breakdown of Supervision by Government Structures

| Government Level | Office | Number of People | Supervised Activities |
|------------------|--|------------------|--|
| National | <ul style="list-style-type: none"> • Secretary General • Director of Population Health Protection • NMCP Coordinator • NMCP M&E Manager • NMCP Vector Control Focal Point • Other NMCP Supervisors | 10 | <ul style="list-style-type: none"> • MOH authorities: IEC and mobilization activities, spray operations (storekeeper performance, end of spray day clean up), M&E and data collection • Other NMCP supervisors: All steps of spray operations (Morning mobilization, Transportation of SOPs, DOS, End of Spray Day clean up, Storekeeper performance, DCV), IEC and mobilization activities, M&E and data collection |
| Regional | DRS (one from each DRS and The regional Director himself) | 6 | IEC and mobilization, environmental compliance, spray operations, M&E, trainings |
| District | DHMT | 10 | IRS training, mass mobilization, spray operations, M&E |
| | Provincial Director of Environment (or representative) | 3 | Environmental compliance (inspection of spray operations) |

mHealth Use

Dimagi LLC conducted capacity building of the VectorLink Burkina staff in using the mobile system for reporting. The team supervised the set-up of the online server for reporting via CommCare, a cloud based platform that automatically aggregates data submitted via SMS and through the application on the smartphones. The site-level spray progress was monitored through Telerivet (application that allows one to send and receive SMS messages through an Android phone).

Dimagi and the VectorLink Burkina M&E team then built the capacity of mobile tool users and rolled out the mHealth component. This included reviewing the training materials and other system support. The VectorLink home office staff provided remote back-end support during IRS activities, including closely monitoring the performance monitoring tracker results and configuring the job aids and mobile supervisory forms.

The system enabled VectorLink Burkina staff and supervisors to conduct standard supervision, access daily spray data quickly, conduct data verification at the household level and remind temporary staff about regulations and operational procedures. The system minimized paperwork, enabled real time sharing of data and increased both the use of mobile technology and results-based decision making.

The mHealth reporting tools for data collection and verification, which VectorLink Burkina used throughout the spray campaign, included:

Supervisory Application

Supervisors filled out the CommCare application forms on morning mobilization and transportation, household preparation and SOPs performance, storekeeper's performance and end of day clean-up. These forms were filled out and submitted to the CommCare system and provided information on field activities, spray performance and red flags during the campaign. A total of 13 red flags out of 124 supervisory forms were submitted, which included 3 cases of incomplete wearing of PPE, 7 cases of leakage of pumps, and 3 cases of marking issues, which were all addressed during the campaign.

Directly Observed Spraying (DOS)

VectorLink Burkina used the DOS approach for supervision. The DOS form represents a tool used by team leaders to evaluate the insecticide mixing and spray techniques performed by SOPs based on standard procedures. Team leaders use the form during the spray campaign to ensure that their spray teams mixed the insecticide well and used high quality spraying techniques. Each spray day, team leaders observed the mixing of insecticide and spraying technique of each SOP under his/her supervision and recorded their findings, related to insecticide mixing, triple rinsing of the bottle, correct use of PPE, house preparation, spraying techniques, pump integrity, end of day clean-up, insecticide consumption, etc. This allowed for on-the-spot corrective actions when necessary.

Daily Health Team Leader Checklist

The daily health team leader checklist was used to assess SOPs' health status at the beginning of each spray day. The team leaders filled out this tool at the beginning of the day. The tool allows the team to monitor the health status of SOPs to perform spraying, including verifying that they have eaten breakfast, the presence of certain symptoms like fatigue and dizziness, weak performance of the SOP the previous day, and proper use of PPE.

Daily Performance Monitoring Tracking Sheet

The project team explained the importance of the daily performance tracking tool to site supervisors, SOPs, and team leaders during the training of trainers and training of SOPs. At the end of each day, team leaders and storekeepers completed the sheet with nine indicators to gauge overall performance. The indicators recorded included: number of SOPs who worked, number of structures found, number of structures sprayed, number of insecticide bottles used, insecticide stock balance, average number of structures sprayed per bottle of insecticide, average number of structures sprayed per SOP, number of SOP supervisions completed, and number of red flags/ issues recorded. This performance tracking tool enabled the VectorLink, NMCP and district health supervision teams to strengthen the capacity of team leaders.

SMS-Based Performance Monitoring Tracker

At the end of the spray day, team leaders collect all spray data from the SOPs, which they report on the team leader forms. These team leaders' forms are then used by the storekeepers at a particular spray site to report on the daily spray performance of that site. The daily performance monitoring tracker reports, which include four operational indicators (total number of SOPs who worked that day; total number of structures found by SOPs; total number of structures sprayed; and the total number of insecticide bottles used at the operational site) are then sent to the gateway phone linked to the Telerivet system. The gateway phone then sent the data to the Dimagi LLC server for processing and storage. The data was shared with supervisory staff from NMCP, Regional Directorate of Health (DRS), DHMT and VectorLink Burkina. Performance monitoring tracker data provided a spray progress overview and timely information for decision making purposes through a dashboard developed for this purpose.

3.4. LOGISTICS AND STOCK MANAGEMENT

3.4.1. INSECTICIDE FOR THE 2019 IRS CAMPAIGN

The project procured a total of 36,912 sachets of insecticide (30,802 sachets of SumiShield 50WG and 6,110 sachets of Fludora Fusion) in 2019 for the spray campaign. The project already had a stock of 24,774 units of insecticide (15,358 bottles of Actellic and 9,416 sachets of SumiShield).

3.4.2. DISPATCHING OF IRS MATERIALS TO OPERATIONS SITES

VectorLink Burkina distributed PPE, insecticide and other IRS equipment to all 22 operational sites before the start of the IRS campaign. The team experienced some delays in delivering the spray materials as planned,

specifically the coveralls/PPE due to delayed customs clearance process. Annex A summarizes the distribution of key PPE to each of the operation sites.

3.4.3. STOCK MANAGEMENT DURING THE IRS CAMPAIGN

The VectorLink Burkina team used Inventory Control Cards (ICC) and the stock registers to double track each item in the central warehouse and operation sites. In spite of the training of storekeepers, most of them made some mistakes during the first few days of the campaign.

At the beginning of each spray day, the storekeeper issued insecticide bottles/sachets to team leaders, who documented the number of bottles/sachets that they received. Thereafter, the storekeeper immediately entered the amount provided to the team leaders on the ICC and registered this amount to ensure accurate stock balances. At the end of each IRS campaign day, SOPs turned in their stock of bottles/sachets (empty and full) to the team leader, who submitted them to the storekeeper. The storekeeper recorded the full bottles/sachets on the ICC, updated the stock balance, and registered the used bottles on a daily utilization record form. The data on this form helped the VectorLink team in calculating trends in insecticide use. To validate the insecticide inventory, storekeepers worked with VectorLink Burkina logistics staff to compare the ICC for the unused insecticide bottles/sachets with the daily utilization records. This comparison also allowed the VectorLink team to note if SOPs were using too little or too much insecticide when spraying and if various operation sites needed more insecticide.

With respect to PPE, every morning, team leaders and storekeepers organized, distributed and signed out all PPE to be used for spray operations. Warehouse managers also organized and distributed all PPE to the washers and other IRS staff as needed. At the end of each day, all PPE were turned over to the washers for cleaning. After the PPE were washed, the washers turned the PPE over to the storekeepers and team leaders who completed another inventory to ensure that all the equipment was returned.

Additionally, the storekeepers prepared a comprehensive weekly stock report and submitted it to the VectorLink Burkina assistant logistics. The Logistics Assistant then generated aggregated total stock balances for the IRS campaign and noted where PPE and insecticide needed to be sent from the central warehouse to prevent stock outs.

Each day, the site manager sent the amount of insecticide used and remaining insecticide balance to the mHealth platform through SMS.

During the IRS campaign, supervisors conducted warehouse inspections in each operational site to monitor movement of materials and insecticides and to ensure environmental compliance. Supervisors ensured that storekeepers promptly updated their records and confirmed that records matched physical stock counts in the stores. VectorLink Burkina gave special attention to insecticide stocks, including empty bottles/sachets that SOPs returned from the field.

3.5. PAYMENT OF SEASONAL STAFF

In 2019, to ensure timely and safe payment of seasonal workers, the team moved towards the mobile payment system via Orange. Each payee had a registered Orange phone number, through which payments were sent. The mobile payment system has proven to be very effective as it allowed the project to make payments remotely in a timely, cost efficient and secure manner. In terms of cost efficiency, the project paid a small transfer fee per transaction and did not have to incur the additional expenses (perdiems, fuel, car rental costs, security forces presence, etc.) associated with in-person payments by the project staff. In addition, the mobile payment system helped the team manage payments without the high risk of carrying and handling large amounts of cash in the field.

While the mobile payment system had benefits, the team experienced some challenges during its implementation, such as:

- Return of the funds to Orange within 48 hours in the event that beneficiaries did not retrieve the funds from one of the Orange kiosks: in this case, the project had to formally reinitiate another payment request to Orange to those beneficiaries who did not report to the kiosk within 48 hours of funds transfer.
- Beneficiaries providing wrong phone numbers or change phone numbers: Orange tested all beneficiaries' phone numbers prior to initiating payments. In several instances, the phone numbers did not match the beneficiaries' names, which Orange automatically rejected; thus, the process of obtaining the right phone numbers for hundreds of beneficiaries and making sure that those phone numbers were registered with Orange, was very lengthy.

In spite of all these challenges, the mobile payment system was a very useful tool during the implementation of the 2019 spray campaign. The beneficiaries were satisfied with the payment method and it was pretty easy to verify the payment status to all individuals.

Because of the lengthy process to put a contract in place and to verify each individual phone number through which payments confirmations are sent, a lesson learned for the team during the implementation of the mobile payment pilot is to start the process early enough to avoid potential delays.

4. ENTOMOLOGY

Entomological surveillance is essential in providing data for decision making. Cone bioassay data generated is used to assess the quality and efficacy of vector control interventions, including IRS. In Burkina Faso, the Institute of Research on Health Sciences /Institut de Recherches en Sciences de la Santé (IRSS) conducted all entomological monitoring activities, including the quality of spraying.

4.1. IRS QUALITY ASSAYS

Three insecticides, Actellic 300CS (active ingredient pirimiphos-methyl) of the organophosphate (OP) class, SumiShield 50WG (with Clothianidin as active ingredient) of the neonicotinoid class, and Fludora Fusion (active ingredient clothianidin and deltamethrin) were selected for the 2019 spray campaign (see Table 8 below). Quality assurance cone bioassay testing was conducted as per PMI guidance in all three districts within 14 days of spraying. In each district, two sites or villages (treated with SumiShield 50WG, one site with Actellic 300CS and two sites with Fludora Fusion) were sampled using wall bioassay tests in five randomly selected houses in the villages (see table 8). The two sites (villages) per district were separated by at least 20km.

Table 8: Location of Quality Assurance Cone Tests, Insecticide Sprayed and Number of Houses Tested

| District | Insecticide Sprayed | Village for cone bioassay | Houses tested |
|-----------|---------------------|---------------------------|---------------|
| Kampti | Fludora Fusion | Loglona | 5 |
| | Fludora Fusion | Kampti center | 5 |
| Solenzo | SumiShield WG | Molé | 5 |
| | SumiShield WG | Solenzo center | 5 |
| Kongoussi | SumiShield WG | Ylou | 5 |
| | Actellic CS | Kongoussi Center | 5 |

4.2. RESULTS

Overall mortality for houses treated with SumiShield 50WG, Fludora® Fusion and Actellic CS was 100% up to 2 months after spraying for both the insectary colony and wild *An. gambiae* s.l (figure 9 -11). Control mortality rates were low (<5%). The 100% mortality rate was recorded in wall bioassays for mud and cement substrates in all districts. These results indicate that spray application was conducted to an acceptable quality level in the houses tested.

Monthly exposures using susceptible *An. gambiae* s.s Kisumu and wild *An. gambiae* s.l will continue on a monthly basis.

Figure 4: Percentage Mortality of Susceptible Insectary Colony and wild *An. gambiae* s.l. after Cone Bioassay in Houses Sprayed with Pirimiphos-Methyl CS in Kongoussi District (0, 1 and 2 months after IRS)

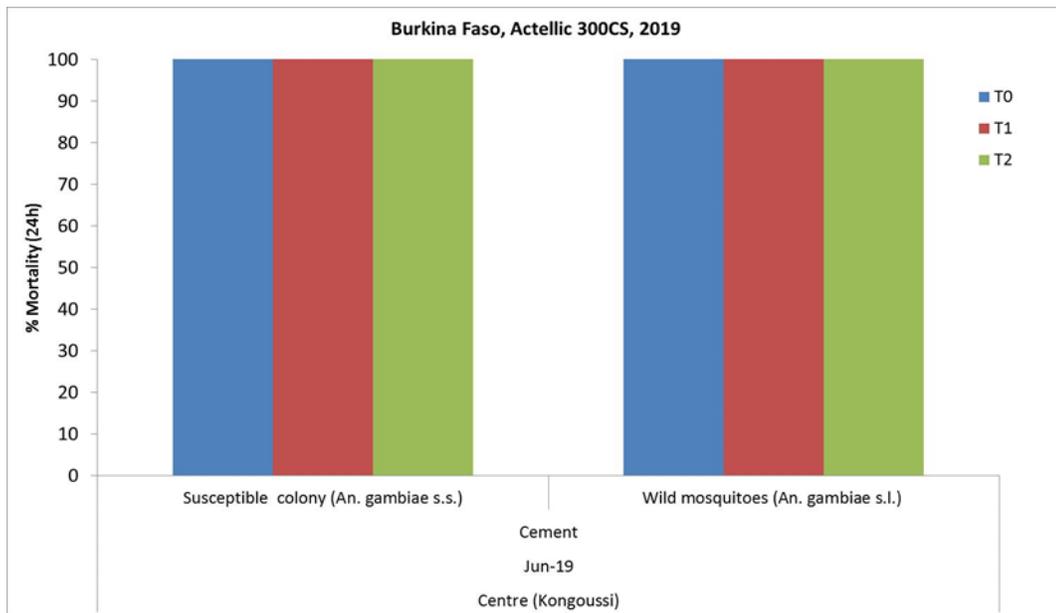


Figure 5: Percentage Mortality of Susceptible Insectary Colony after Cone Bioassay in Houses Sprayed with Clothianidin (SumiShield WG) in Solenzo and Kongoussi Districts (0, 1 and 2 months after IRS)

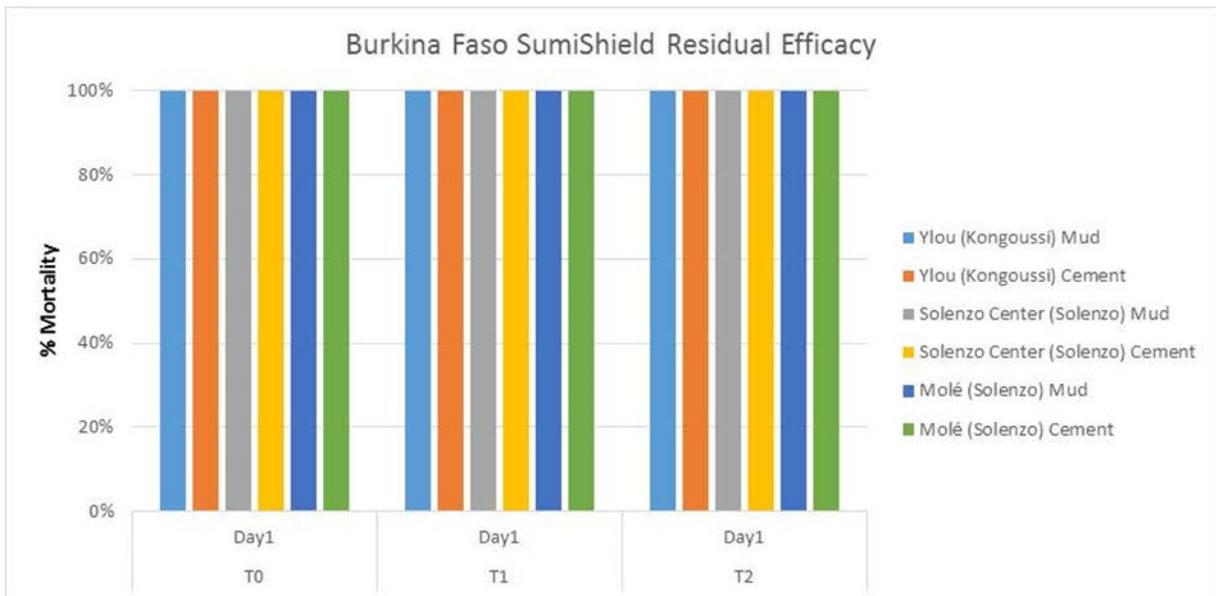
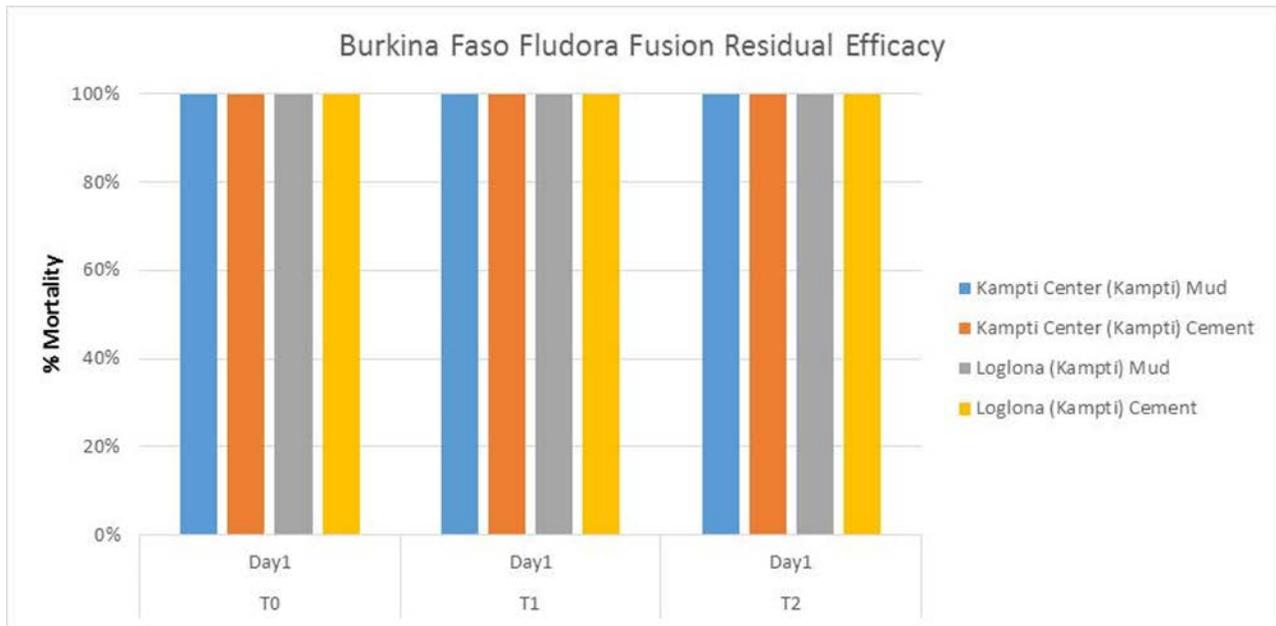


Figure 6: Percentage Mortality of Susceptible Insectary Colony after Cone Bioassay in Houses Sprayed with Clothianidin + Deltamethrin (Fludora Fusion WP-SB) in Kampti District (0, 1 & 2 months after IRS)



5. MONITORING AND EVALUATION

Monitoring and evaluation for the 2019 IRS campaign closely followed the processes outlined in the annual VectorLink Work Plan and the VectorLink M&E Plan. The full M&E Plan can be found in Annex B.

5.1 KEY OBJECTIVES AND APPROACH

The key objectives of VectorLink Burkina M&E activities were as follows:

- Ensure consistency of data collected and the data entry process through a robust data management and reporting system
- Streamline and standardize data and information flows to minimize errors and facilitate timely reporting
- Ensure the security and storage of IRS data for future reference through the establishment and application of appropriate protocols
- Communicate IRS data and information to stakeholders in a clear and timely manner
- Document lessons learned and good practices observed in the implementation of project activities and build on them to improve future campaigns

5.2 DATA MANAGEMENT AND PROCESSING

In 2019, VectorLink Burkina Faso transitioned from the Microsoft Access database to the new VectorLink Collect database. The database was developed using the District Health Information Software 2 (DHIS-2) system, for mobilization and spray data entry, cleaning, and reporting. The new system had multiple advantages including the ability to have real time view of data entry progress, development of dashboards, and the ability to create pivot tables to track performance and remote interaction with the system from any location. The project granted access to the database to the different stakeholders, including MOH, NMCP, PMI Mission and the VectorLink project staff.

Before the start of the campaign, the M&E and operations teams worked together to gather the needed tools that would enable roll out of the database (i.e., geographical information at the village level, personnel codes which uniquely identify the seasonal staff in the program, and spray targets to sub location level). These were then set up into the system prior to the start of the campaign to enable entry and reporting.

5.2.1 DATA COLLECTION AND ENTRY

VectorLink Burkina Faso implemented mobile data collection in 2019 using tablets by the SOPs at the household level for the 2019 IRS campaign in the three IRS targeted district. The team developed a data collection form on the ODK Collect application associating images to the different variables on the form for an easy use of the form by SOPs. SOPs and mobilizers collected data during daily field work. In regards to spray data, the team leader crossed checked the paper form against the data collected on the tablets for accuracy and completeness before proceeding to a second verification with the site manager to ensure that all relevant sections were filled out correctly and that the form was signed off and ready to be synchronized to the server. A total of 547 spray operators collected data using tablets with the ODK collect application.

The SOP form on the tablet had validation rules, logic check and skip logic built into the form to minimize data entry errors. SOPs were also asked to report the data captured on the tablet unto the hard copy for comparison at the end of the day. To strengthen the data quality process, the team set-up the ODK Collect Application in a way that only completed forms were sent to the server. At the end of day, the tablet generated a summary table of the

data captured throughout the day to facilitate the verification process with the team leaders and operational site managers. As the spray data was synchronized at the end of day, data was available the same day in the VectorLink Collect database and on the dashboard with all relevant details, such as reasons for not spraying, which represented valuable information during the evening debriefing meeting and planning for the next day.

Mobilization data came from the IEC supervisor to the site manager, who after verification, handed the data forms over to the M&E assistant. The M&E assistants and the district coordinators worked together to ensure that all the forms are sent to the data entry center in order to be entered into Vectorlink Collect database. Mobilization data was entered into the VectorLink Collect database by data clerks using the Desktop Event Capture Application, an offline data entry platform with built-in validation checks to ensure accurate data entry even in places with no internet connectivity. It was installed on every data entry clerk's computer, pointing to the live server where data was synced at the end of each day.

5.2.2 DATA QUALITY ASSURANCE

Data quality assurance tools including the Data Collection Verification (DCV), DOS Form and Data Entry Verification Form helped to improve supervision and ultimately the quality of data collection and data entry during the 2019 spray campaign. The three M&E assistants recruited helped to improve data quality supervision, data synchronization and resolution of the tablets' issues.

Data Collection Verification (DCV) Form

This tool is used during randomized household visits to verify the accuracy of the data collected in the field, to ensure that the data recorded on the daily SOP forms matches the information households reported. Corrective actions on observed anomalies including inaccuracies (over or underestimation) of structures, under-coverage of sprayed structures, counting of eligible structures in food stores, etc.

Directly Observed Spray (DOS) Form

Team leaders used the DOS Form to supervise and improve the performance of the SOPs and spray quality. The most commonly observed errors include the excessive use of insecticide in some operational sites (removal of the regulator by SOPs or low speed of spraying), improper mixing of insecticide and improper household marking.

Data Cleaning

As the electronic data collection system could not generate IRS numbers automatically, the IRS numbers were printed on paper forms beforehand, which created an opportunity to have duplicate IRS numbers. At the end of the campaign, the team used the Duplicate IRS Finder Application to identify and correct all duplicates in the system.

Data Tracking, Storage, and Security

This year, VectorLink Burkina Faso implemented the mobile data collection at the spray operator level in order to improve data quality and availability of data in a timely manner for rapid decision making purposes

5.3. Data Reporting to Stakeholders

A summary of progress reports are below:

- **Weekly Progress Report:** submitted once a week to PMI and other partners (NMCP and to the health districts). This report provides a high-level summary of weekly spray progress toward operational targets.
- **Daily District Summary Report:** This report is sent to the project technical leads and to the district coordinators for critical feedback and daily planning. The technical leads and the district coordinators use the data provided in the daily report to address any performance related matters. The report provides information on structures found and sprayed, spray progress and coverage, insecticide use, number of

SOPs who worked, and the average number of structures sprayed per SOP for each operations site and district.

- The VectorLink Collect dashboard was available to all the stakeholders to access and monitor spray progress.

Figure 7: Spray Data Sharing with Stakeholders



5.4 mHEALTH RESULTS

SMS Reminder: A total of 2,243 reminders were sent to the seasonal cadres (Team Leaders and Supervisors) during the 30 operational days of the 2019 IRS campaign. The SMS reminders focused on environmental compliance (proper wearing of PPE) and SOPs’ performance (reminders of the number of structures to be sprayed every day to reach the goal).

- Mobile based supervisory tools: 411 DCV forms and 2,780 supervisory forms successfully completed.
- Mobile Performance Tracker: Supervisors submitted daily reports on four key targets indicators (i.e., the number structures found or sprayed) via SMS. A total of 193,097 sprayed structures were tracked via SMS against 201,931 sprayed structures captured with IRS data collection forms in the three intervention districts. Data gathered through SMS informed daily decision-making, but the data collected through data collection forms remained the project’s official data source, given that these forms collected more comprehensive information and underwent thorough data entry verification and cleaning process. Table 12 shows the comparison between the two data sources.

Table 9: Comparison of SMS Structures to Confirmed Structures

| | Data Collection Form | SMS |
|------------------------------|----------------------|---------|
| Number of structures found | 220,482 | 211,785 |
| Number of structures sprayed | 201,901 | 193,097 |
| Coverage rate | 91.6% | 91.1% |

5.5 STRUCTURES FOUND AND POPULATION PROTECTED

5.5.1 STRUCTURES FOUND

During the 2019 IRS campaign, 201,931 structures were sprayed out of 221,255 structures found by SOPs in the three health districts with a coverage rate of 91.6%. The overall coverage rate and spray coverage for each district is described in Table 13.

Table 10: Spray Coverage Based on Structures Found by SOPs per District

| Region | District | Targeted Structures | Eligible Structures Found by SOPs | Eligible Structures Sprayed in 2018 | Coverage Rate 2018 |
|-------------------|-----------|---------------------|-----------------------------------|-------------------------------------|--------------------|
| South West | Kampti | 29,379 | 24,377 | 21,129 | 86.7 |
| Center North | Kongoussi | 86,165 | 85,341 | 79,117 | 92.7 |
| Boucle Du Mouhoun | Solenzo | 105,711 | 110,764 | 101,655 | 91.8 |
| Total | | 221,255 | 220,482 | 201,901 | 91.6 |

A total of 18,581 structures found were not sprayed; the main reasons for structures not sprayed included: the household's refusal to remove belongings outside during rainfall, transformation of certain rooms in an eligible structure into granaries and illness of an inhabitant. Table 14 provides a breakdown of the reasons structures were not sprayed by district and by reason. In addition, some beneficiaries mentioned that they did not like the smell of Actellic.

Table 11: Reasons for Not Spraying a Structure by District

| District | Structure Found | Sick person inside | Closed | Funeral | Refusal | Missed | Transformed into granary | Other | All Reason not sprayed | |
|--------------------|-----------------|--------------------|--------|---------|---------|--------|--------------------------|-------|------------------------|----------|
| | | | | | | | | | # | progress |
| Kampti District | 24,377 | 80 | 845 | 68 | 1,712 | 130 | 32 | 381 | 3,248 | 13.32% |
| Kongoussi District | 85,341 | 178 | 3,905 | 55 | 1,613 | 222 | 185 | 55 | 6,213 | 7.28% |
| Solenzo District | 110,764 | 176 | 1,982 | 37 | 4,084 | 481 | 1,956 | 327 | 9,043 | 8.16% |
| Burkina Faso | 220,482 | 434 | 6,732 | 160 | 7,409 | 833 | 2,173 | 763 | 18,504 | 8.39% |

5.5.2 POPULATION PROTECTED

The 2019 IRS campaign provided protection to 587,248 people, including 281,103 men (47.9 %) and 306,145 women (52.1%). Those protected included vulnerable populations: 92,809 children under five years old (15.8 %) and 11,959 pregnant women (2.0%). Table 15 provides a breakdown of the population protected during the 2019 IRS campaign per commune.

Table 12: Population Protected During 2019 IRS Campaign per District

| Districts | Total Population | | | Pregnant Women | Children <5 years |
|-----------|------------------|---------|---------|----------------|-------------------|
| | Men | Women | Total | | |
| Kampti | 32,819 | 37,442 | 70,261 | 1,323 | 11,821 |
| Kongoussi | 102,113 | 117,116 | 219,229 | 4,218 | 35,240 |
| Solenzo | 146,171 | 151,587 | 297,758 | 6,418 | 45,748 |
| Total | 281,103 | 306,145 | 587,248 | 11,959 | 92,809 |

5.6 INSECTICIDE USE AND SOP PERFORMANCE

During the spraying campaign, SOPs used 33,885 sachets of SumiShield 50WG, 15,358 bottles of Actellic CS300 and 5,326 sachets of Fludora Fusion to spray 201,901 structures. Each SOP sprayed an average of 13 structures per day and about 3.7 structures were treated per bottle or sachet of insecticide. Table 16 provides a breakdown of the average number of structures covered by one bottle, per district.

The project had estimated an average of 4.8 structures per bottle of insecticide based on the 2018 spray data. However, during the field supervision, the team noticed an excessive use of insecticide on the wall as spray operators removed the control flow valve (CFV) from the sprayers in order to increase the flow of insecticide to the wall. In addition, an important quantity of mixed insecticide at the end of the spray day was returned at several sites due to a significant number of refusals, as well as the lack of accessibility to very remote structures within certain sites. All issues reported during field supervision were brought to the team's attention for immediate corrective action. The issues were quickly addressed during morning mobilization, where the spray teams were given strict guidance/reminder about spraying techniques and the rule on zero return of mixed insecticide. This corrective action brought the average structure per bottle/sachet to about 4 structures per bottle after few days.

Table 13: Insecticide Used per District

| Districts | Structures Sprayed | Insecticide Used* | | | # of Structures per Bottle |
|------------------|--------------------|-------------------|------------|----------------|----------------------------|
| | | Actellic | SumiShield | Fludora Fusion | |
| Kampti | 21,159 | 0 | 0 | 5,324 | 4.0 |
| Kongoussi | 79,117 | 15,358 | 4,951 | 0 | 3.9 |
| Solenzo | 101,655 | 0 | 28,934 | 0 | 3.5 |
| Total | 201,831 | 15,358 | 33,885 | 5,326* | 3.7 |

**Two (2) sachets of insecticide were used for Entomological monitoring activities by IRSS*

At the end of the campaign, there was a total of 7,115 full bottles/sachets of insecticide left: 0 bottle of Actellic CS300 and 6,331 sachets of SumiShield 50 WG with an expiration date of June 2021 and 784 sachets of Fludora Fusion with an expiration date of February 2021. The leftover insecticide will be used for the 2020 spray campaign in Burkina Faso.

6. ENVIRONMENTAL COMPLIANCE

In accordance with the Supplemental Environmental Assessment (SEA) amended and approved in 2018, the VectorLink-Burkina project used Sumishield in the district of Kongoussi and Solenzo; Actellic was used in Kongoussi and Fludora Fusion was used in Kampi. In reference to the PMI BMP, there was a need for a robust monitoring system to ensure that environmental compliance requirements were adhered to during the IRS campaign so as to protect spray personnel (i.e., project staff, seasonal staff, beneficiaries), and the environment. Activities performed to protect these potential components are presented below.

6.1. PRE-SEASON ENVIRONMENTAL COMPLIANCE ASSESSMENT

As in 2018, most IRS operational sites were established within the CSPS, which provided enough space and facilities and established IRS as part of the health center activities. The VectorLink Burkina team conducted the initial and final pre-spray environmental compliance assessment (PSECA) using a smartphone with the Open Data Kit (ODK) application for each operations site. Each form completed by the ECO was submitted and then scored information was sent to a central database through an automated server at Abt's home office. The server analyzed the submitted data and identified sites as qualifying or non-qualifying for hosting IRS operations. Table 17 summarizes the repairs completed in each site prior to the 2019 IRS campaign.

The Burkina VectorLink project set-up/rehabilitated a total of 23 soak pits and 22 storage rooms at the operational sites for the 2019 IRS campaign. Each operational site had separate toilets, showers, and changing areas for men and women.

Table 14: Construction/Rehabilitation and Refurbishment of 2019 Operational Sites

| District | Number of sites | Site Established (rinsing area, soak pit, storeroom, fence, etc.) |
|------------------|-----------------|---|
| Kampti | 6 | 6 rinsing areas established 6 storage facilities refurbished 6 fences |
| Kongoussi | 8 | 8 rinsing areas established 8 storage facilities refurbished 8 fences |
| Solenzo | 8 | 9 rinsing areas established 9 storage facilities refurbished 8 fences |

Figure 8: SOP Training at the Permanent Soak Pit and Mobile Soak Pit Level



IRS poison management is the responsibility of everyone with guidance given by the Abt home office Environmental Compliance Team. The initial PSECA noted the availability of atropine in 22 health facilities.

The team had planned to use 12 mobile soak pits during the spray campaign; however, due to security reasons, camping was no longer an option as the risk of mistaking the spray operators for militant groups at the camping sites at night was high. The team piloted the use of Tyvek suits at the Helintira operational site in Kampti district and the two-piece Guatemala PPE at the Kampti operational site. A survey conducted on the use of the Tyvek suits showed that 100% (25/25) of Tyvek users complained that the Tyvek suits were too hot and would only last about three to four days as they were easily damaged during all of the SOPs' movements on and off the tricycles; thus, they did not recommend it for future campaigns. Regarding the Guatemala suit, 84% (21/25) of users preferred it over the traditional cotton/polyester as it was lighter in weight and easily removable when necessary.

In May 2019, a total of 844 seasonal personnel (including 164 women) were examined as part of the pre-IRS medical check-up in all districts including 381 in the district of Solenzo, 131 in the district of Kampti, and 332 in the district of Kongoussi. These 164 women underwent pre-campaign pregnancy tests, all of whom tested negative.

6.2. MID- POST-SPRAY ENVIRONMENTAL INSPECTIONS

The environmental compliance inspections were based on standard VectorLink checklists, which included: spray operators morning mobilization and transport vehicle inspection; homeowner preparation and SOP performance; storekeeper performance; and end-of-day cleanup. Supervisors were charged with the task of providing corrections and guidance to SOPs on the spot. At the end of each inspection, the team held a general discussion on the status, achievements, shortcomings, and constraints found, and forwarded the recommendations for further corrective actions to site managers and to VectorLink supervisors. For SOPs and Team leaders' transportation, VectorLink provided tricycles or allowed SOPs to use their own bicycles. The use of motorbikes was forbidden because of the risks of accident due to high speed. Vehicles (6) were mostly used for district team supervision and dispatching of IRS materials to operational sites.

In July 2019, a second pregnancy test was conducted for all relevant female seasonal workers. No positive test was recorded.

The VectorLink Burkina team conducted post-spray inspections in all three districts from July 18 to July 26 for Kongoussi, Kampti and Solenzo. Using smartphones, data was recorded for each of the 22 IRS sites, 3 districts storerooms and 1 warehouse; all forms were uploaded to the cloud database, which is accessible by the home office.

6.3. INCIDENTS ENCOUNTERED DURING THE IRS OPERATIONS

The VectorLink Burkina team experienced two incidents during the 2019 spray campaign. The incidents were reported to the PMI team within the 48-hour incident reporting deadline.

Table 15: Summary of Incident Cases Recorded during the 2019 IRS Campaign

| | Incidents | Location | Date |
|----|---|--------------------|---------------|
| 1. | Incident involving the Burkina Faso Monitoring and Evaluation Specialist who experienced non-insecticide related medical issues | Kongoussi District | June 24, 2019 |
| 2. | Road accident involving a tricycle driver carrying a group of spray operators | Solenzo District | June 27, 2019 |

6.4. IRS WASTE DISPOSAL

At the operational site level, solid waste was inventoried separately, placed into boxes, and labeled. At the end of the spray operations, VectorLink Burkina collected solid wastes for proper disposal. This waste included gloves and plastic sheets with holes decontaminated by washing and sun-drying, and packaged for disposal. It also included used masks, empty Actellic bottles, empty SumiShield and Fludora Fusion sachets which team members packaged and transferred to the district warehouses in Kongoussi, Solenzo and Kampti for disposal.

Two different methods will be used to dispose of waste. These methods include incineration and recycling (for solid waste with high-density of polyethylene, particularly the insecticide bottles), and burying of used low-density polyethylene such as unusable gloves. VectorLink signed an agreement with SAPHYTO (African company of phytosanitary products and insecticides) for the recycling of Actellic empty bottles and the incineration of empty SumiShield and Fludora Fusion sachets. Table 19 illustrates the types of solid waste, disposal methods and sites.

Table 16: 2019 Burkina Waste Quantification Chart

| Waste Type | Amount of Waste | Disposal Method | Disposal Site | Date of Disposal |
|--|----------------------|--|--------------------------------|---------------------|
| Empty bottles Actellic 300CS | 15,358 Bottles | Recycling | SAPHYTO Recycling Plant | July 29–October 31 |
| Non Contaminated Cardboard | 391 Boxes | Used as containers for bags or vials of insecticides | SAPHYTO Re-use or incineration | July 29–October 31 |
| Non Contaminated and Contaminated Cardboards damaged | 1,419 units | Incineration | District Hospital | July 29– October 30 |
| Empty sachet of SumiShield | 33,885 sachets | Incineration | SAPHYTO | July 29– October 30 |
| Empty sachet of Fludora Fusion | 5,326 sachets | Incineration | SAPHYTO | July 29– October 30 |
| Tyvek | 47 | Incineration | SAPHYTO | July 29– October 30 |
| Wipe uses | 2 boxes of 144 wipes | Incineration | SAPHYTO | July 29– October 30 |
| Nose Covers | 18,113 Units | Incineration | District Hospital | July 29– October 30 |

7. IEC ACTIVITIES

The VectorLink Burkina Faso focused on several IEC strategies that included: advocacy informational meetings at the district level for local leaders, religious and traditional leaders, door to door sensitization, IRS posters, banners, town criers, and radio messages broadcasting, community meetings, messages during churches and mosques services. The IEC messaging also focused on the continued use of long lasting insecticide treated nets (ITNs), seasonal malaria chemoprevention (SMC), and intermittent treatment for pregnant women (ITP). All communication activities and key messages were discussed and planned with the NMCP IEC unit. Messages from local radio shows and town criers included information about IRS and the insecticide used during the 2019 campaign and as well as unfounded rumors from the 2018 campaign. Radio talks or broadcasts were organized in each district by the VectorLink staff in collaboration with the district health medical team (DHMT), regional and NMCP supervisors.

Prior to implementing the IEC activities, ICPs, who trained the SOPs, received training during the training of trainers from May 13 – 17, 2019. The project conducted a separate training on June 1, 2019 for Mobilizers and their supervisors.

7.1. IEC ACTIVITIES

IEC activities were led by the VectorLink Burkina Faso IEC Coordinator and supported by IEC supervisors at the field level.

Mobilization

Door-to-door mobilization was carried out two days before the spray campaign in all districts. Mobilizers used for the 2019 spray campaign in Burkina Faso were the community health workers, who were well known in the village. In addition, door-to-door mobilization was conducted throughout the campaign, generally two days prior to the arrival of the SOPs in the different localities. They reminded beneficiaries on safety precautions and house preparation during IRS operations as well. In addition, in light of the security situation in-country, mobilizers displayed pictures of fully-dressed spray operators to show how the spray operators would look upon arrival at the household level; this allowed the project to gain trust from the community and to prevent any type of misidentification with militant groups.

Depending on the village size, in each village, one or more IEC mobilizers is chosen for door-to-door communication. In total, 581 IEC mobilizers (186 in Kongoussi, 215 in Solenzo and 180 in Kampti) participated in the IRS campaign. All participated in a one-day training on June 1, 2019 that focused on messaging and effective communication techniques, messages to be delivered to households and filling in mobilization data collection forms. IRS posters were posted in each health facility to magnify IRS campaign.

Town Criers

In Burkina Faso, town criers were used in larger towns, in particular in Kampti town and in areas where spraying was not completed as planned due to either heavy rainfall or scattered households. The town crier, in collaboration with the ICP, site manager, and heads of villages, informed household owners of the specific arrival date of the spray operators, date changes and reminded them of safety precautions before and after the spray.

Radio Broadcasts

Four community radio stations, two in Kongoussi, one in Kampti, and one in Solenzo, were contracted to broadcast the IRS campaign messages in French and in local languages. Messages focused on the benefits of spray, structures eligible for spray, and precautions that households needed to take to facilitate spray operations.

In addition, radio broadcasts were conducted in Kongoussi and Solenzo with VectorLink staff, NMCP, Regional Health Directorate / Direction Régionale de la Santé (DRS) and district staff members to reinforce population awareness for IRS acceptance.

The radio station contracts covered the period from May 25 to July 08, 2019. Each radio station in Kongoussi and Solenzo broadcasted 30 times IRS messages. In Kampti, where radio waves were pretty weak in some areas, IRS messages were broadcasted 20 times in reachable areas.

Moreover, some activities were developed to increase the population's acceptance to IRS, specifically in Kampti district. These activities included community meetings in six (6) villages, mass sensitization with town criers at public market places and messages in churches, mosques and other community audiences.

7.2. IEC ACTIVITIES AND OUTCOMES

Home owners received educational information from IEC mobilizers. Difficulties faced by IEC mobilizers included the absence of household owners during IEC visits, and conflicts with scheduled cultural ceremonies, particularly in Kampti. Table 21 below presents an overview of the mobilization results among IRS sites.

Table 17: Overview of Mobilization Results

| IRS SITES | Households sensitized | Acceptance of IRS | Eligible structures identified | Population Sensitized | | | Households not sensitized | Non-acceptance of IRS |
|---------------------------|-----------------------|-------------------|--------------------------------|-----------------------------------|---------------------------------|-----------------------------|---------------------------|-----------------------|
| | | | | Females reached with IRS messages | Males reached with IRS messages | Total Population Sensitized | | |
| Kampti district | | | | | | | | |
| Djigoue | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Galgouli | 793 | 793 | 2,695 | 2,086 | 1,831 | 3,917 | 73 | 0 |
| Helintira | 653 | 646 | 1,970 | 1,678 | 1,358 | 3,036 | 4 | 7 |
| Kampti | 1,979 | 1,905 | 4,801 | 4,727 | 3,310 | 8,037 | 145 | 74 |
| Passena | 770 | 760 | 2,817 | 2,108 | 1,560 | 3,668 | 50 | 10 |
| Perigban | 514 | 508 | 844 | 1,170 | 751 | 1,921 | 47 | 6 |
| Total Kampti | 4,709 | 4,612 | 13,127 | 11,769 | 8,810 | 20,579 | 319 | 97 |
| Kongoussi district | | | | | | | | |
| Guibare | 616 | 614 | 4275 | 3252 | 1856 | 5108 | 30 | 2 |
| Kongoussi | 1,771 | 1,734 | 4,812 | 3,797 | 3,268 | 7,065 | 115 | 41 |
| Rouko | 1,759 | 1,751 | 7,385 | 5,457 | 4,159 | 9,616 | 0 | 8 |
| Sabce | 120 | 119 | 346 | 222 | 179 | 401 | 7 | 1 |
| Temnaore | 622 | 620 | 2,949 | 2,360 | 1,809 | 4,169 | 4 | 2 |
| Tikare | 1,097 | 1,066 | 3,093 | 2,874 | 2,306 | 5,180 | 15 | 24 |
| Yalka | 2,684 | 2,663 | 6,141 | 3,437 | 2,867 | 6,304 | 118 | 21 |
| Yoba | 1,105 | 1,098 | 3,771 | 2,748 | 2,287 | 5,035 | 40 | 7 |
| Total Kongoussi | 9,774 | 9,665 | 32,772 | 24,147 | 18,731 | 42,878 | 329 | 106 |
| Solenzo district | | | | | | | | |
| Balave | 1,571 | 1,566 | 4,088 | 3,022 | 2,810 | 5,832 | 61 | 5 |
| Baye | 461 | 460 | 1,540 | 935 | 714 | 1,649 | 9 | 1 |
| Bena | 1,997 | 1,988 | 8,300 | 5,942 | 5,119 | 11,061 | 36 | 9 |
| Kouka | 577 | 577 | 2,123 | 1,428 | 1,124 | 2,552 | 11 | 0 |
| Sanaba | 1,381 | 1,368 | 4,941 | 2,662 | 2,471 | 5,133 | 21 | 12 |
| Sogodjankoli | 1,141 | 1,107 | 3,861 | 3,133 | 2,957 | 6,090 | 92 | 34 |
| Solenzo | 1,369 | 1,340 | 4,869 | 4,191 | 3,741 | 7,932 | 110 | 29 |
| Tansila | N/A | N/A | N/A | N/A | N/A | A/N | N/A | N/A |
| Total Solenzo | 8,497 | 8,406 | 29,722 | 21,313 | 18,936 | 40,249 | 340 | 90 |
| Grand Total | 22,980 | 22,683 | 75,621 | 57,229 | 46,477 | 103,706 | 988 | 293 |

7.3. WORLD MALARIA DAY

The VectorLink COP joined Burkina Faso NMCP and other health stakeholders to commemorate the 2019 World Malaria Day hosted on June 28, 2019 coupled with the launch of the LLINs distribution in Bobo Dioulasso. The Minister of Territorial Administration, Decentralization and Social Cohesion chaired the ceremony in the presence of the Minister of Health, the United States (U.S.) Ambassador to Burkina Faso and his delegation, the Governor of Haut Bassin Region, the World Health Organization (WHO) Resident Advisor in Burkina Faso and the Burkina Faso World Fund Representative.

Figure 9: World Malaria Day ceremony commemoration



8. GENDER MAINSTREAMING

VectorLink Burkina recognizes gender equality and female empowerment as development goals in their own right as well as approaches to achieving its vector control goals. The project identifies and then addresses inequalities between men and women across spray operations.

All training modules included sessions on gender issues, working directly with the District Health Management Team and ICPs in the recruitment of women as seasonal workers. Staff shared information on the importance of hiring female SOPs and presented data that show that women are as effective as their male counterparts in terms of structures sprayed per day. The project emphasized placing qualified women into supervisory roles and into highly gender-segregated roles, such as team leader, site manager, and storekeepers.

Approaches to gender mainstreaming included:

- Promotion of a respectful working environment through the project's sexual harassment policy for all employees, including seasonal workers. Gender training was conducted during the training of site managers. Posters on sexual harassment and sexual violence were posted at all the operational sites in French.
- Ensuring that recruitment, mobilization, and training include women and respect women's time constraints (when possible).
- Ensuring women have accommodations in operational sites where they feel safe and comfortable, including separate bathrooms and showers equipped with sanitary bins and PPE in appropriate sizes.
- Creating a buddy system so that at least two women are together on each spray team.
- Providing sex-disaggregated data for all indicators, as appropriate.
- Used micro-planning meetings with all district and sector authorities to discuss the importance of increasing the number of women SOPs during IRS operations.

Figure 10: Female SOPs and Washers



During the 2019 IRS campaign, during all meetings with authorities particularly the advocacy ones, the project encouraged all stakeholders to give more chance to women who wanted to participate in IRS. This year, women represented 21.04 percent of the seasonal staff, with females occupying 100 percent of washer's roles and less than 7 percent of the six other cadres. This represents a slight increase compared to the 2018 spray campaign, where women represented 19.82% of the seasonal workers. The project experienced challenges related to persistence of some cultural and religious traditions practiced in the IRS intervention areas that have hindered the achievement of its female recruitment target in IRS activities. Local gender norms limit women's mobility, give men decision-making power over women's employment and call into question the appropriateness of IRS work for women. Table 22 provides details on female participation during the 2019 IRS campaign.

Table 18: Seasonal Workers Disaggregated by Gender during the 2019 IRS Campaign

| Category | Female | Male | Total | % of female |
|------------------------------------|------------|--------------|--------------|---------------|
| Mobilizers | 113 | 468 | 581 | 19.44% |
| Team Leaders | 18 | 91 | 109 | 16.51% |
| Site supervisors | 35 | 237 | 272 | 12.87% |
| Sector IEC Assistants& Supervisors | 16 | 77 | 93 | 17.20% |
| Spray Operators | 106 | 441 | 547 | 19.38% |
| Data Clerks | 1 | 6 | 7 | 14.29% |
| Site Manager | 1 | 21 | 22 | 4.55% |
| Washers | 70 | 0 | 70 | 100% |
| Storekeepers | 2 | 24 | 26 | 7.69% |
| Assistants Finance | 2 | 2 | 4 | 50% |
| Cell IEC Mobilizers | 13 | 9 | 22 | 59.09% |
| Adverse Effects Teams (Clinicians) | 21 | 118 | 139 | 15.11% |
| Total | 398 | 1,494 | 1,891 | 21.04% |

9. IRS COUNTRY CAPACITY BUILDING

In 2019, VectorLink built the capacity of local staff and government counterparts, exposing them to new IRS implementation ideas and methods. As part of a hands-on approach to capacity building, NMCP/vector control unit officers were fully involved in the supervision of IRS in the three target districts. In addition, to strengthen ownership, medical officers and the district health team, regional health team (Regional Director and/or Health Promotion Manager) and the provincial levels of Environment participated in IRS supervision in their respective districts; furthermore, ICPs were involved in the daily supervision of IRS activities and updating the spray progress calendar in collaboration with the site managers and VectorLink district team.

10. POST-SEASON ACTIVITIES

10.1. SUMMARY OF POST-SPRAY ACTIVITIES

Post-spray activities included the following important activities:

- Demobilization of equipment from secondary warehouses to district warehouses (Kampti, Kongoussi and Solenzo)
- Release of all rented vehicles and tricycles
- Decontamination of secondary warehouses and rinsing areas
- Preparation of the final pay statements of seasonal workers and other vendors for pending invoices
- Repairing and maintaining spray pumps and other IRS material including PPE
- Inventory of equipment
- Proper disposal of waste generated during the campaign: recycling, incineration, grinding, etc.
- Post-campaign environmental inspection
- Evaluation meeting at national level, with the participation of representatives from the Ministry of Health including the NMCP, representatives from regional and district levels, the Ministry of Environment, Agriculture and administrative and local authorities and PMI Burkina.

10.2. DEMOBILIZATION OF COMMODITIES

VectorLink cleaned all IRS materials after the end of spray operations. The project then transported materials from IRS sites to the district warehouses (Kampti, Kongoussi and Solenzo) for the next campaign. The VectorLink team, with support from government stakeholders, conducted post-spray site decontamination, decommissioning and environmental compliance inspections in all IRS sites. The purpose of the post-IRS inspections was to ensure the collection and safe disposal of all wastes from each operational site, leaving the sites in an environmentally compliant condition. After the VectorLink Burkina project restored the sites to a well-maintained state and made them safe for the surrounding communities, the VectorLink team formally handed the sites back to the CSPS for safekeeping until the next IRS campaign.

10.3. INVENTORY ASSESSMENT

Immediately after the end of the spray campaign, all warehouses conducted a post-IRS inventory assessment. The inventory assessment report provides an update on the commodities the project used during the campaign and those remaining for future use. The report further indicates quantities of new, used, damaged or missing (requiring service or repairs) items. In addition, it provides a list of items scheduled for disposal. Subsequent to this, the VectorLink team conducted comprehensive insecticide reconciliation in all secondary warehouses and all unused insecticides and empty bottles/sachets were recorded. All empty bottles have been transferred by SAPHYTO, a company specialized in contaminated wastes management (SAPHYTO) to Ouagadougou for recycling. Annex A shows the most current post-IRS inventory details.

11. CHALLENGES, LESSONS LEARNED AND RECOMMENDATIONS

11.1. CHALLENGES

The main challenges experienced during the 2019 IRS campaign included the following:

- Some ICPs were not available for IRS supervision as planned due to other pressing health center activities. Note that during the campaign period, health agents including ICPs and physicians were on strike, which impacted the implementation of IRS activities. This was noticeable in Kampti where health agents were heavily involved in IRS activities as site managers or storekeepers.
- Low adherence to VectorLink's selection criteria for seasonal staff recruitment at the district level in some operational sites. For instance, some spray team members selected by the district staff did not meet the required literacy level to fill out forms, despite literacy requirements being included in the selection criteria.
- Continued challenges to recruit a gender-balanced team led to low levels of female participation in all roles except washers.
- Low internet coverage didn't allow timely synchronization of data in some operational sites leading to delays in data reporting.
- Refusals cases are recorded particularly in more urban settings such as Kampti and Solenzo towns.
- The project piloted mobile payment system in 2019. The major challenges associated with this new payment system for VectorLink Burkina included invalid phone numbers provided by seasonal workers and late withdrawal of funds by seasonal workers, which led to funds being returned back to Orange within 48 hours.
- Because of the security situation, the project had to conduct a daily check-in with the local security forces (gendarmerie, police) in all three districts in order to assess whether or not it was safe enough for the spray teams to be deployed to the field. In addition, some of the spray teams did not feel comfortable wearing their PPEs while riding on the tricycles as they could have been mistaken for militant groups by the local government forces or vice versa; therefore, they were allowed to change into their spray gear upon arrival at the spray site. The security situation in-country also prevented the team from installing mobile soak pits in very remote sites due to concerns of potential misidentification of SOPs for militant groups while camping at night.
- While the mobile data collection was successfully implemented, the team still experienced some delays in synchronizing data from few remote sites that lacked network coverage; therefore, the tablets from those remote sites had to be transported once a week to nearby sites with network coverage in order to synchronize all data.
- Insecticide wastage/overuse: an excessive use of insecticide was observed during the first few weeks of the campaign. Some SOPs removed the CFVs from the sprayer for a quicker wall coverage, and with the high refusal rates and bad road conditions during rainy days, the spray teams returned to the operational sites with an important volume of mixed insecticide.
- The Tyvek suits that were piloted during the 2019 spray campaign lasted only three to four days and the SOPs that wore the suits complained of being very hot with the suits on.

11.2. LESSONS LEARNED / RECOMMENDATIONS

- The participation of government leaders and health managers in IRS operations enhances their interest and ownership of the project activities. It was acknowledged during the thematic working group sessions that activities were better coordinated between government counterparts and the project in 2019 compared to 2018. The team will continue improving communication and coordination between VectorLink and partners (NMCP) through better IRS activities planning (micro-planning, training and supervision).
- While the mobile payment system is a very secure way to pay seasonal workers, advance planning to gather all correct information (i.e. phone numbers) is necessary.
- Identify ways to facilitate the daily synchronization of data at the remote operational sites with limited or no network.
- While it is a great capacity building aspect, it is very challenging to recruit health system agents as site managers considering that they may not be fully committed during the spray campaign due to their active role at the health center level. Thus, further discussions will take place with the NMCP to put in place strict rules or identify other supervision options from the district health teams.
- In close coordination with the district level authorities who are involved in the seasonal workers' recruitment, emphasize on the need of respecting recruitment requirements (i.e. education level, etc.).
- Continue to monitor the security situation on a daily basis through the checklist that the team developed and in close collaboration with the government security forces in order to make informed decisions about whether or not it is safe to deploy the spray teams to certain areas.
- Emphasize the proper use of sprayers and insecticide usage during training sessions to both the trainers and the spray operators; communicate to the team that removal of CFVs from the sprayers would lead to disciplinary actions.
- Because of the low quality of the Tyvek suits that were piloted this year, the team would recommend choosing another type of suits for the teams that would use mobile soak pits in remote areas (if security allows).
- Continue to advocate for an increased participation of female workers.

Figure 11: Logistical Challenges and Problem Solving at the Community Level



ANNEX A: PROCUREMENT (LOCAL & INTERNATIONAL) AND POST SPRAY STOCK BALANCE

IRS Commodities and Inventory

| Item | Initial Stock before IRS Campaign | Stock after Campaign | Defective Items after IRS Campaign and Consumables | Stock Usable in 2020 |
|--|-----------------------------------|----------------------|--|----------------------|
| Cordova N95 Respirator Mask w/Exhale Valve | 22,817 | 24,897 | 0 | 2,489 |
| Gateway Molded Clear Polycarbonate Faceshield | 2,500 | 2,056 | 367 | 1,689 |
| Lime Mesh Vest w/1 Reflective Tape, One size Fits Most | 200 | 236 | 0 | 236 |
| Man First Aid Kit | 107 | 102 | 40 | 87 |
| Best 22--mil Green Nitrile Chemical Glove 19" Long | 1,240 | 1,267 | 185 | 1,174 |
| Atlas 772 Nitrile Coated Chemical Glove, Cotton Lined | 228 | 204 | 15 | 189 |
| Gateway Molded Clear | | 12,160 | 2,220 | 9,940 |
| Quarrow 70 Lumen LED Head Lamp with Adjustable Strap for One Size Fits | 308 | 1,099 | 15 | 1,084 |
| Rayovac Ultra Pro AA A Cell Alkaline Battery, Shrink Wrapped | 132 | 2,893 | 325 | 2,568 |
| Tingley Black PVC Boot, Plain Toe | 1,296 | 1,045 | 2 | 1,043 |
| Yellow PVC/Polyester Apron | 108 | 109 | 31 | 78 |
| Pyramex White Hard Hat w/4-pt Pinlock Suspension | 895 | 1,465 | 28 | 1,437 |
| Pyramex Dielectric Nylon Universal Faceshield Bracket | 700 | 1,179 | 516 | 663 |
| Pump to spray | 650 | 807 | 97 | 710 |
| Filtatech | 15 | 15 | 0 | 15 |
| Fire extinguisher | 34 | 34 | 0 | 34 |
| Thermometers | 23 | 34 | 2 | 32 |

| Item | Initial Stock before IRS Campaign | Stock after Campaign | Defective Items after IRS Campaign and Consumables | Stock Usable in 2020 |
|------------------------------|-----------------------------------|----------------------|--|----------------------|
| Cooler 60L | 13 | 35 | 8 | 27 |
| Water Tank of 500L | 13 | 17 | 0 | 17 |
| Plastic keg 100L | 21 | 31 | 1 | 30 |
| Plastic keg 160L | 40 | 86 | 0 | 86 |
| Plastic keg 200L | 52 | 167 | 68 | 99 |
| Pot 1L | 414 | 747 | 20 | 727 |
| Bucket 20L + cover | 363 | 200 | 55 | 145 |
| Plastic Bucket 10L | 1,038 | 981 | 08 | 973 |
| Bassin 40L | 166 | 239 | 19 | 220 |
| Plastic chair | 198 | 198 | 0 | 198 |
| Plastic table | 32 | 32 | 0 | 32 |
| Solar fans | 33 | 29 | 4 | 29 |
| Solar Lamps | 26 | 21 | 14 | 7 |
| Solar Pan | 3 | 10 | 0 | 10 |
| Calculator | 116 | 165 | 22 | 143 |
| Flipchart | 20 | 32 | 2 | 30 |
| Operators bags3 | 614 | 637 | 191 | 446 |
| Pell/brush | 622 | 290 | 5 | 285 |
| Laundry brushes | 110 | 453 | 56 | 397 |
| Socks for operators | 308 | 828 | 372 | 456 |
| Broom for court | 34 | 41 | 37 | 4 |
| Plastic Broom | 61 | 54 | 5 | 49 |
| Toothbrush | 699 | 719 | 136 | 555 |
| Hard Brush | 68 | 54 | 0 | 54 |
| Towel | 105 | 136 | 33 | 103 |
| Mat | 0 | 0 | 0 | 0 |
| Trash | 28 | 28 | 15 | 13 |
| Amazon tablet Fire 7 | 699 | 699 | 5 | 694 |
| Amazon tablet Fire 7 charger | 699 | 692 | 7 | 692 |
| Hoozo tablet | 5 | 5 | 0 | 5 |

| Item | Initial Stock before IRS Campaign | Stock after Campaign | Defective Items after IRS Campaign and Consumables | Stock Usable in 2020 |
|----------------------------|-----------------------------------|----------------------|--|----------------------|
| Onatel Modem | 18 | 18 | 0 | 18 |
| Huawei Wi-Fi pocket | 8 | 8 | 0 | 8 |
| Smartphones Samsung J1 ACE | 44 | 44 | 0 | 44 |

ANNEX B: MONITORING AND EVALUATION PLAN

| # | Performance Indicator | Data Source(s) and Reporting Frequency | Disaggregation(s) | Annual Targets and Results | | | | | | | | | |
|--|---|--|-------------------|----------------------------|---------|---------|---------|---------|--------|---------|--------|---------|--------|
| | | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | |
| | | | | Target | Result | Target | Result | Target | Result | Target | Result | Target | Result |
| Objective 1: Implementation of Malaria Vector Control Interventions | | | | | | | | | | | | | |
| 1.1 | Successfully execute IRS and other malaria vector control programs | | | | | | | | | | | | |
| 1.1.1 | Number and percentage of complete annual country work plans developed and submitted on-time | Project records Annually | Country | 1; 100% | 1;100% | 1; 100% | 1; 100% | 1; 100% | | 1; 100% | | 1; 100% | |
| 1.1.2 | Number of eligible structures targeted for spraying | Project records Annually | Country | 245,192 | 266,765 | 266,765 | 221,255 | TBD | | TBD | | TBD | |
| 1.1.3 | Number of eligible structures sprayed with IRS | Project records Annually | Country | 208,413 | 258,766 | 258,766 | 201,901 | TBD | | TBD | | TBD | |
| 1.1.4 | Percentage of total structures targeted for spraying that were sprayed with a residual insecticide (Spray Coverage) | Project records Annually | Country | 85% | 97.0% | 85% | 91.3% | 85% | | 85% | | 85% | |

| # | Performance Indicator | Data Source(s) and Reporting Frequency | Disaggregation(s) | Annual Targets and Results | | | | | | | | | |
|-------|---|--|---|----------------------------|--|---------|---|--------|--------|---------|--------|---------|--------|
| | | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | |
| | | | | Target | Result | Target | Result | Target | Result | Target | Result | Target | Result |
| 1.1.5 | Number of people protected by IRS | Project records Annually | Country Sex Pregnant women Children <5 | 867,715 | 766,374 Males: 363,340 Females: 403,034 Pregnant Women: 14,183 Child<5: 125,206 | 663,765 | 587,248 Males: 281,103 Females: 306,145 Pregnant Women: 11,959 Child<5: 92,809 | TBD | | TBD | | TBD | |
| 1.1.6 | Number and percentage of vector control project country programs submitting an EOSR within 45 days after the end of spray (including completing MEP and Environmental Mitigation and Monitoring Report (EMMR)) | Project Annually | Country | 1; 100% | 1; 100% | 1; 100% | 1; 100% | 1;100% | | 1; 100% | | 1; 100% | |
| 1.1.7 | Number of IRS country programs that conduct a Post-spray Data Quality Audit within 90 days of spray completion | Data Collection Forms Annually | Country | N/A | N/A | N/A | N/A | TBD | | TBD | | TBD | |
| 1.1.8 | Number of Insecticide Treated Nets (ITNs) distributed, by channel | Project Records Annually | Country Channel | N/A | N/A | TBD | | TBD | | TBD | | TBD | |
| 1.1.9 | Number and percentage of ITN country programs that conduct at least one process assessment of the quality of ITN distribution planning, the quality of household registration, and or ITN distribution implementation during a mass ITN distribution campaign | Project Records Annually | Country Channel | N/A | N/A | TBD | | TBD | | TBD | | TBD | |

| # | Performance Indicator | Data Source(s) and Reporting Frequency | Disaggregation(s) | Annual Targets and Results | | | | | | | | | |
|------------|---|--|---|----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | |
| | | | | Target | Result | Target | Result | Target | Result | Target | Result | Target | Result |
| 1.1.10 | Number and percentage of ITN country programs with operational routine monitoring systems for continuous ITN distribution, disaggregated by channel | Project Records Annually | Country Channel | N/A | N/A | TBD | | TBD | | TBD | | TBD | |
| 1.1.11 | Number and percentage of countries completing ITN durability monitoring data collection on time as planned in a given project year | Project Records Annually | Country | N/A | N/A | TBD | | TBD | | TBD | | TBD | |
| 1.2 | Provide technical assistance and planning support for IRS and other integrated malaria vector control activities | | | | | | | | | | | | |
| 1.2.1 | Number of VC project training workshops targeting NMCP and other host country staff | Project Training Records Annually | Country Technical Area Job Function | N/A | N/A | TBD | | TBD | | TBD | | TBD | |
| 1.2.2 | Number of NMCP and other vector control host country staff accessing DHIS2 | DHIS2 Logs Annually | Country Job Function | N/A | N/A | 15 | 15 | TBD | | TBD | | TBD | |
| 1.3 | Ensure safe and judicious use of insecticides and other malaria vector control products | | | | | | | | | | | | |
| 1.3.1 | Number of vector control personnel trained in environmental compliance and personal safety standards in vector control implementation | Project Training Records Annually | Country Sex (# and %) Job Function | 2,171 | 2,227 | 2227 | 2045 | TBD | | TBD | | TBD | |
| 1.3.2 | Number of health workers receiving insecticide poisoning case management training | Project Training Records Annually | Country Sex (# and %) | 66 | 98 | 70 | 70 | TBD | | TBD | | TBD | |
| 1.3.3 | Number of adverse reactions to pesticide exposure documented | Incident Report Forms Annually | Country Type of Exposure | 0 | 0 | 0 | 0 | 0 | | 0 | | 0 | |

| # | Performance Indicator | Data Source(s) and Reporting Frequency | Disaggregation(s) | Annual Targets and Results | | | | | | | | | |
|-------|---|--|--|----------------------------|---|--------|--|--------|--------|--------|--------|--------|--------|
| | | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | |
| | | | | Target | Result | Target | Result | Target | Result | Target | Result | Target | Result |
| 1.4 | Strengthen capacity of NMCPs, vector control personnel, and other institutions to implement and manage IRS and other vector control activities | | | | | | | | | | | | |
| 1.4.1 | Total number of people trained to support VC in targeted areas | Project Training Records Annually | Country Sex (# and %) VC Intervention Type | 2,205 | 2,227 Males : 1789 Females :438 | 2227 | 2045 Males : 1648 Females :397 | TBD | | TBD | | TBD | |
| 1.4.2 | Number of people trained during IRS Training of Trainers | Project Training Records Annually | Country Sex (# and %) | 128 | 274 Males: 240, 87.9% Females: 34, 12.5% | 274 | 275 Males: 240, 87.3% Females : 35, 12.7% | TBD | | TBD | | TBD | |
| 1.4.3 | Total number of people hired to support VC in target districts | Project Records Annually | Country Sex (# and %) Job Function VC Intervention Type | 1,808 | 1,147 M: 958, 83.5% F: 189, 16.5% SOPs: 749 TLs: 125 Supervisors: 273 IRS | 1147 | 2045 M: 1,648; 80.58% F: 397, 19.41% SOPs: 547 TLs:109; Supervisor : 272 IRS | TBD | | TBD | | TBD | |
| 1.4.4 | Number of government/district officials who acted as supervisors during VC campaigns | Project Records Annually | Country VC Intervention Type | 33 | 36 Males : 32 Females :4 | 36 | 33 Males : 29 Females: 4 | TBD | | TBD | | TBD | |

| # | Performance Indicator | Data Source(s) and Reporting Frequency | Disaggregation(s) | Annual Targets and Results | | | | | | | | | |
|-------|---|--|--|----------------------------|--|---------------|--|----------|--------|----------|--------|----------|--------|
| | | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | |
| | | | | Target | Result | Target | Result | Target | Result | Target | Result | Target | Result |
| 1.5 | Promote gender equality in all facets of planning and implementation | | | | | | | | | | | | |
| 1.5.1 | Number of women hired to support VC campaigns | Project Records Annually | Country Returning female seasonal workers hired in a more senior capacity | 632; 35% | 4538; 19,67% | 572, 25% | 398, 26.9% | TBD; 45% | | TBD; 50% | | TBD; 50% | |
| 1.5.2 | Number and percentage of women hired in supervisory roles in target areas for vector control activities | Project Records Annually | Country VC Intervention Type Job Function | 78; 50% IRS | Females 36, 13.19% Team Leaders 24; 19.20% Site Manager: 1; 3.03% NMCP:1; 16.67% ICP:10, 0.99% | 36 IRS | Females 38/36, 105.5% Team Leaders 18; (18/109) 16.5% Site Manager: 1; (1/22) 4.7% NMCP : 3; (3/9); 33% ICP : 16/77, 20.7% | TBD; 50% | | TBD; 50% | | TBD; 50% | |

| # | Performance Indicator | Data Source(s) and Reporting Frequency | Disaggregation(s) | Annual Targets and Results | | | | | | | | | |
|------------|--|--|--|----------------------------|---|------------|--|--------------|--------|--------------|--------|--------------|--------|
| | | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | |
| | | | | Target | Result | Target | Result | Target | Result | Target | Result | Target | Result |
| 1.5.3 | Number and percentage of staff (permanent and seasonal) who have completed gender awareness training | Project Training Records Annually | Country Sex | 2,006; 100% | 2227/2006; 110% Males : 1789/2227; 80,33% Females: 438/2227; 19,67% | 2045; 100% | 2045 /2045; 100% Males : 1648 /2045; 80,6% Females: 397/2045; 19,4% | TBD; 100% | | TBD; 100% | | TBD; 100% | |
| 1.5.4 | Number and percentage of women in senior leadership roles in VectorLink country offices | Project Records Annually | Country Sex (# and %) | 2; 50% | 1/2; 50% | 1; 50% | 1; 50% | TBD; 50% | | TBD; 50% | | TBD; 50% | |
| 1.6 | Implement and support social behavioral change communication and mobilization activities | | | | | | | | | | | | |
| 1.6.1 | Number of radio spots and talk shows aired | Project Records Annually | Country VC Intervention Type | 120 | 120 | 120 | | TBD | | TBD | | TBD | |
| 1.6.2 | Number of print materials disseminated | Project Records Annually | Country VC Intervention Type | 140 | 140 | 140 | 140 | TBD | | TBD | | TBD | |
| 1.6.3 | Number of people reached with vector control and/or SBCC messages via door-to-door messaging | Project Records Annually | Country VC Intervention Type Sex | 867,715 | 63,348* Door-to-door by IEC mobilizers (messaging was mostly done via radio spots) | 63,348 | 103,706 | TBD | | TBD | | TBD | |

| # | Performance Indicator | Data Source(s) and Reporting Frequency | Disaggregation(s) | Annual Targets and Results | | | | | | | | | |
|------------|---|--|---------------------------------|----------------------------|----------|-----------|-------------|-----------|--------|-----------|--------|-----------|--------|
| | | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | |
| | | | | Target | Result | Target | Result | Target | Result | Target | Result | Target | Result |
| 1.6.4 | Number and percentage of people who feel that the proposed action (sleeping under an ITN/accepting IRS) will reduce their risk of malaria | Project Records Annually | Country | N/A | N/A | TBD | | TBD | | TBD | | TBD | |
| 1.6.5 | Number and percentage of people with a favorable attitude toward the practice/product (i.e., ITNs, IRS) | Project Records Annually | Country VC Intervention Type | N/A | N/A | TBD | | TBD | | TBD | | TBD | |
| 1.6.6 | Number and percentage of people who believe that the majority of their friends and community members practice the behavior | Project Records Annually | Country VC Intervention Type | N/A | N/A | TBD | | TBD | | TBD | | TBD | |
| 1.7 | Environmental compliance | | | | | | | | | | | | |
| 1.7.1 | Number and percentage of SEAs (with EMMPs) or Letter Reports submitted at least 60 days prior to the commencement of vector control campaigns | Project Records Annually | Country | 1; 100% | 1; 100% | TBD; 100% | | TBD; 100% | | TBD; 100% | | TBD; 100% | |
| 1.7.2 | Number and percentage of permanent and mobile soak pits inspected and approved prior to IRS campaigns | Project Records Annually | Country Soak Pit Type | 34; 100% | 34; 100% | 22; 100% | 23/23, 100% | TBD; 100% | | TBD; 100% | | TBD; 100% | |
| 1.7.3 | Number and percentage of storehouses inspected and approved prior to IRS campaigns | Project Records Annually | Country Storehouse Type | 37; 100% | 36; 97% | 37; 100% | 23/23, 100% | TBD; 100% | | TBD; 100% | | TBD; 100% | |
| 1.7.4 | Number and percentage of fixed soak pits that are compliant with PMI's Best Management Practices | Project Records Annually | Country | 30; 88% | 34; 100% | 34; 70% | 23/23, 100% | TBD; 80% | | TBD; 90% | | TBD; 90% | |

| # | Performance Indicator | Data Source(s) and Reporting Frequency | Disaggregation(s) | Annual Targets and Results | | | | | | | | | |
|---|---|--|-------------------------------------|----------------------------|---------|---------|---------|--------------|--------|--------------|--------|--------------|--------|
| | | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | |
| | | | | Target | Result | Target | Result | Target | Result | Target | Result | Target | Result |
| 2. Entomological and Epidemiological Data to Drive Decision-Making | | | | | | | | | | | | | |
| 2.1 | Vector control activities monitored via entomological and epidemiological data | | | | | | | | | | | | |
| 2.1.1 | Number and percentage of project-supported entomological sentinel sites established to monitor vector bionomics and behavior (vector species, distribution, seasonality, feeding time, and location) | Entomological Reports Annually | Country VC Intervention Type | 6; 100% | 6;100% | 6; 100% | 6,100% | TBD; 100% | | TBD; 100% | | TBD; 100% | |
| 2.1.2 | Number and percentage of entomological monitoring sentinel sites measuring all five basic PMI entomological monitoring indicators (i.e., species composition, abundance, and seasonality of malaria vector; insecticide susceptibility and resistance intensity; mechanism of resistance; quality assurance and residual efficacy monitoring of IRS programs; or vector behavior: feeding time &, location) | Entomological Reports Annually | Country VC Intervention | 6; 100% | 6;100% | 6; 100% | 6; 100% | TBD; 100% | | TBD; 100% | | TBD; 10% | |
| 2.1.3 | Number and percentage of entomological monitoring sentinel sites measuring at least one advanced PMI indicator (i.e., identification of mosquito infectivity; parity rates; or blood-meal analysis) | Entomological Reports Annually | Country VC Intervention | 6; 100% | 6; 100% | 6; 100% | 6; 100% | TBD; 100% | | TBD; 100% | | TBD; 100% | |

| # | Performance Indicator | Data Source(s) and Reporting Frequency | Disaggregation(s) | Annual Targets and Results | | | | | | | | | |
|-------|---|--|---------------------------------|----------------------------|----------|-----------|--------|--------------|--------|--------------|--------|--------------|--------|
| | | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | |
| | | | | Target | Result | Target | Result | Target | Result | Target | Result | Target | Result |
| 2.1.4 | Number and percentage of insecticide resistance testing sites that tested at least one insecticide from pyrethroid, organophosphate, carbamate, clothianidin, and chlorfenapyr insecticides | Entomological Reports Annually | Country Insecticide Type | 21; 100% | TBD | 21; 100% | | TBD; 100% | | TBD; 100% | | TBD; 100% | |
| 2.1.5 | Number of wall bioassays conducted within 2 weeks of spraying to evaluate the quality of IRS | Entomological Reports Annually | Country | 90 | 90 | 90 | | TBD | | TBD | | TBD | |
| 2.1.6 | Number and percentage of cone bioassays conducted within two weeks of spraying with greater than 98% test mortality recorded | Entomological Reports Annually | Country (# and %) | 90; 100% | 90, 100% | 90 | | TBD | | TBD | | TBD | |
| 2.1.7 | Number of wall bioassays conducted after the completion of spraying at monthly intervals to evaluate insecticide decay | Entomological Reports Annually | Country Insecticide Type | 540 | TBD | 540 | | TBD | | TBD | | TBD | |
| 2.1.8 | Number of vector susceptibility tests for different insecticides conducted in selected sentinel sites | Entomological Reports Annually | Country Insecticide Type | 5 | TBD | 5 | | TBD | | TBD | | TBD | |
| 2.1.9 | Number of countries with an integrated vector control analytics dashboard available for decision making | Project Records Annually | Country | N/A | N/A | TBD; 100% | | TBD; 100% | | TBD; 100% | | TBD; 100% | |

¹ Assuming six months of bioassay collection at the three sites (30 bioassays * 3 sites per month for 6 months)

| # | Performance Indicator | Data Source(s) and Reporting Frequency | Disaggregation(s) | Annual Targets and Results | | | | | | | | | |
|------------|---|--|--|----------------------------|--------------------|-----------|---------|--------------|--------|--------------|--------|--------------|--------|
| | | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | |
| | | | | Target | Result | Target | Result | Target | Result | Target | Result | Target | Result |
| 2.1.10 | Number of staff (VectorLink-contracted or non-VectorLink) trained in entomological monitoring | Project Training Records Annually | Country Sex (# and %) Job Function | 8 | 10 | 5 | | TBD | | TBD | | TBD | |
| | | | | | Males : 7, 70% | | | | | | | | |
| | | | | | Females :3, 30% | | | | | | | | |
| 2.2 | NMCPs develop country-level IRS and other malaria vector control strategies | | | | | | | | | | | | |
| 2.2.1 | Number and percentage of countries with an integrated malaria vector control strategy, including a plan for monitoring and managing insecticide resistance supported by the project | Project Records Annually | Country | N/A | N/A | TBD; 100% | 1, 100% | TBD; 100% | | TBD; 100% | | TBD; 100% | |
| 2.2.2 | Number and percentage of countries with integrated data and visualization landscaping for vector control decision making complete | Project Records Annually | Country | N/A | N/A | TBD; 100% | 1, 100% | TBD; 100% | | TBD; 100% | | TBD; 100% | |
| 2.2.3 | Number and percentage of countries that implement sub-national insecticide as part of an IRM strategy | Project Records Annually | Country | N/A | N/A | TBD; 100% | 1, 100% | TBD; 100% | | TBD; 100% | | TBD; 100% | |
| 2.3 | Build capacity of NMCPs and local institutions to collect, analyze, and use data for strategic malaria control decision-making | | | | | | | | | | | | |
| 2.3.1 | Number of individuals trained from NMCPs and national institutions to review and interpret data for integrated vector control decision making | Project Training Records Annually | Country Job Function Organization | N/A | N/A | TBD | | TBD | | TBD | | TBD | |

| # | Performance Indicator | Data Source(s) and Reporting Frequency | Disaggregation(s) | Annual Targets and Results | | | | | | | | | |
|--|---|--|---|----------------------------|---------|-----------|---------|--------------|--------|--------------|--------|--------------|--------|
| | | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | |
| | | | | Target | Result | Target | Result | Target | Result | Target | Result | Target | Result |
| 2.3.2 | Proportion of targeted individuals who report using new analytical tools and/or skills in their planning, resourcing, implementation, or measurement activities | Capacity Assessments Thrice Over Project Life | Country Job Function Organization | N/A | N/A | TBD | | TBD | | TBD | | TBD | |
| 3. Procure insecticides for IRS and support the delivery and storage of IRS and other malaria vector control products | | | | | | | | | | | | | |
| 3.1 | Cost-effective procurement mechanism established | | | | | | | | | | | | |
| 3.1.1 | Number and percentage of insecticide procurements that had a pre-shipment QA/QC test at least 60 days prior to spray campaign | Procurement Records Annually | Country Insecticide Type | 1; 100% | 1; 100% | TBD; 100% | 1; 100% | TBD; 100% | | TBD; 100% | | TBD; 100% | |
| 3.1.2 | Number and percentage of insecticide procurements received on-time to allow for the initiation of spray operations as scheduled | Procurement Records Annually | Country Insecticide Type | 1; 100% | 1; 100% | TBD; 100% | 1; 100% | TBD; 100% | | TBD; 100% | | TBD; 100% | |
| 3.1.3 | Number and percentage of targeted countries with international equipment procurements, including PPE, received on-time to allow for the initiation of vector control campaigns as scheduled | Procurement Records Annually | Country VC Intervention Type | 1; 100% | 1; 100% | TBD; 100% | 1; 100% | TBD; 100% | | TBD; 100% | | TBD; 100% | |
| 3.1.4 | Number and percentage of targeted countries with local procurements for PPE received on-time to allow for the initiation of spray operations as scheduled | Procurement Records Annually | Country | 1; 100% | 1; 100% | 1; 100% | | 1; 100% | | 1; 100% | | 1; 100% | |
| 3.1.5 | Number and percentage of countries with PPE procured according to workforce composition | Procurement Records Annually | Country | N/A | N/A | 16; 100% | | TBD; 100% | | TBD; 100% | | TBD; 100% | |

| # | Performance Indicator | Data Source(s) and Reporting Frequency | Disaggregation(s) | Annual Targets and Results | | | | | | | | | |
|----------------------|--|---|--|----------------------------|----------|-----------|----------|--------------|--------|--------------|--------|--------------|--------|
| | | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | |
| | | | | Target | Result | Target | Result | Target | Result | Target | Result | Target | Result |
| 3.2 | Robust inventory management and logistics systems established | | | | | | | | | | | | |
| 3.2.1 | Number and percentage of logistics and warehouse managers trained in vector control supply chain management | Project Training Records Annually | Country VC Intervention Type Sex | 36; 100% | 40;100% | TBD; 100% | | TBD; 100% | | TBD; 100% | | TBD; 100% | |
| 3.2.2 | Number and percentage of operations site warehouses where physical inventories can be verified by daily stock records | Inventory and Stock Records Annually | Country Insecticide Type | 36; 100% | 36; 100% | TBD; 100% | 22, 100% | TBD; 100% | | TBD; 100% | | TBD; 100% | |
| 3.2.3 | Number and percentage of IRS countries that successfully completed spray operations without an insecticide stock-out | Inventory and Stock Records Annually | Country Insecticide Type | 1; 100% | 1; 100% | 16; 100% | | TBD; 100% | | TBD; 100% | | TBD; 100% | |
| 4. Innovation | | | | | | | | | | | | | |
| 4.1 | Conduct operational research or monitoring to scale up new tools, methods, and approaches | | | | | | | | | | | | |
| 4.1.1 | Number of operational research studies on promising new tools or new methods/approaches to existing tools that are implemented | Project Records Annually | Type of Innovation | N/A | N/A | TBD | | TBD | | TBD | | TBD | |
| 4.2 | Create and share knowledge through dissemination of best practices and lessons learned | | | | | | | | | | | | |
| 4.2.1 | Number of innovations, best practices, and other data or lessons learned shared with other partners or international institutions for global reporting on the Vector Learning Exchange | Project Records Annually | Country Technical Area | N/A | N/A | TBD | | TBD | | TBD | | TBD | |

| # | Performance Indicator | Data Source(s) and Reporting Frequency | Disaggregation(s) | Annual Targets and Results | | | | | | | | | |
|------------|---|--|---------------------------------|----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | |
| | | | | Target | Result | Target | Result | Target | Result | Target | Result | Target | Result |
| 4.2.2 | Number of individual members who use the Vector Learning Exchange | Project Records Annually | N/A | 12 | 12 | 12 | 15 | TBD | | TBD | | TBD | |
| 4.2.3 | Number of symposia and/or presentations submitted to and accepted at global conferences | Project Records Annually | Country Technical Area | N/A | N/A | TBD | | TBD | | TBD | | TBD | |
| 4.2.4 | Number of success stories written or videos produced and shared on the VectorLink project website | Project Records Annually | Country | 2 | 3 | 3 | | TBD | | TBD | | TBD | |
| 4.2.5 | Number of peer-reviewed journal articles submitted and accepted | Project Records Annually | Technical Area | N/A | N/A | TBD | | TBD | | TBD | | TBD | |
| 4.2.6 | Number of critical guidance, standards, or plans that incorporate disseminated findings/best practices | Project Records Annually | Technical Area | N/A | N/A | TBD | | TBD | | TBD | | TBD | |
| 4.3 | Develop and deploy cost-savings approaches | | | | | | | | | | | | |
| 4.3.1 | Number of innovative or novel approaches implemented to achieve cost savings in IRS and integrated malaria vector control programs | Project Records Annually | Country VC Intervention Type | TBD | | TBD | | TBD | | TBD | | TBD | |
| 4.3.2 | Number of cost effectiveness assessments of existing approaches in the implementation of IRS and integrated malaria vector control programs | Project Records Annually | Country VC Intervention Type | 1 | 1 | 1 | 1 | 1 | | 1 | | 1 | |

| # | Performance Indicator | Data Source(s) and Reporting Frequency | Disaggregation(s) | Annual Targets and Results | | | | | | | | | |
|-------|--|--|--|----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | |
| | | | | Target | Result | Target | Result | Target | Result | Target | Result | Target | Result |
| 4.4 | Cultivate public-private partnerships | | | | | | | | | | | | |
| 4.4.1 | Number of private sector entities engaged with to establish public private partnerships to increase the quality and coverage of malaria vector control activities globally | Project Records Annually | Country Private Sector Organization | 1 | 1 | TBD | | TBD | | TBD | | TBD | |

ANNEX C: NUMBER OF PEOPLE TRAINED

| Categories of Persons Trained | Training on IRS Delivery | | | | | | | | | | Other Trainings | | | | | | | | | | | | | | Total | | |
|-------------------------------------|--------------------------|-----|---------------------|-----|--------------|---|--------------------|----|-----------------------|---|-----------------------------------|----|--|-----|----------------|----|-----------------------------|---|-------------------|----|---------------|----|---------|-----|-------|--------------------|------|
| | Training of Trainers | | Spraying Operations | | Data Capture | | Logistics Training | | Technical Maintenance | | Structure Enumeration/ IEC TOT | | Structure Enumeration/ IEC Training | | Poison Control | | Environmental Compliance | | Coveralls Washing | | Fire Security | | Finance | | | Transport Security | |
| | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F | | M | F |
| district coordinator | 3 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | 3 |
| Site Supervisors | 223 | 35 | | | | | | | | | | | | | | | | | | | | | | | | | 258 |
| Spray Operators | | | 550 | 106 | | | | | | | | | | | | | | | | | | | | | | | 656 |
| Team Leaders | | | 91 | 18 | | | | | | | | | | | | | | | | | | | | | | | 109 |
| Data Entry Clerks | | | | | 6 | 1 | | | | | | | | | | | | | | | | | | | | | 7 |
| Logisticians | | | | | | | 0 | 0 | | | | | | | | | | | | | | | | | | | 0 |
| District Store Keepers | | | | | | | 3 | 0 | | | | | | | | | | | | | | | | | | | 3 |
| Sector Store Keepers | | | | | | | 23 | 2 | | | | | | | | | | | | | | | | | | | 25 |
| Finance Assistants | | | | | | | | | | | | | | | | | | | | | | 2 | 2 | | | | 4 |
| Pump Technicians | | | | | | | | | 6 | 0 | | | | | | | | | | | | | | | | | 6 |
| Sector IEC Assistants & Supervisors | | | | | | | | | | | 42 | 16 | | | | | | | | | | | | | | | 58 |
| sup.IEC Mobilizers | | | | | | | | | | | | | 9 | 18 | | | | | | | | | | | | | 27 |
| Village IEC Mobilizers | | | | | | | | | | | | | 468 | 113 | | | | | | | | | | | | | 581 |
| Adverse Effects Teams | | | | | | | | | | | | | | | 53 | 21 | | | | | | | | | | | 74 |
| Environmental Compliance Officers | | | | | | | | | | | | | | | | | 3 | 0 | | | | | | | | | 3 |
| Washers | | | | | | | | | | | | | | | | | | 0 | 70 | | | | | | | | 70 |
| Security Guards | | | | | | | | | | | | | | | | | | | | 44 | 0 | | | | | | 44 |
| Drivers | | | | | | | | | | | | | | | | | | | | | | | | 8 | 0 | | 8 |
| Drivers tricycle | | | | | | | | | | | | | | | | | | | | | | | | 109 | 0 | | 109 |
| TOTAL M/F | 226 | 35 | 641 | 124 | 6 | 1 | 26 | 2 | 6 | 0 | 42 | 16 | 477 | 131 | 53 | 21 | 3 | 0 | 0 | 70 | 44 | 0 | 2 | 2 | 117 | 0 | 2045 |
| TOTAL/Training | | 261 | | 765 | | 7 | | 28 | | 6 | | 58 | | 608 | | 74 | | 3 | | 70 | | 44 | | 4 | 117 | | 2045 |

*Counted towards indicator 1.4.1 - Total number of people trained to support IRS in targeted areas.

ANNEX D: ENVIRONMENTAL MITIGATION AND MONITORING REPORT

| List each Mitigation Measure from column 3 in the EMMP (EMMT Part 2 of 3) | Status of Mitigation Measures | List any outstanding issues relating to required conditions | Remarks |
|---|--|---|---|
| 1. Education, Technical Assistance, Training | STTA from the Regional Environmental Compliance Officer, orientation and training on mobile soak pit, supervision and training of site storekeepers | N/A | N/A |
| 2. Research and Development | Activities entrusted to IRSS (Institute of Research on Health Sciences) (Center complying with international guidelines). | N/A | N/A |
| 2.a) Implement laboratory environmental, health, and safety (EHS) manuals with standard operating procedures (SOPs), or use existing SOPs, for laboratory operations in accordance with country-specific compliance mechanisms. | An EHS Manual / Standard Operating Procedures is available, appropriate and in accordance with the PMI, WHO and country recommendations for safety, use of personal protective equipment (if necessary), spill prevention and training. | N/A | N/A |
| 2.b) Implement SOPs for the safe storage, transport, and use of equipment, chemical reagents, insecticides, and supplies in conformance with international best practices (e.g., WHO, FAO) and host country requirements | Training is provided on the safe storage, transportation and use of equipment, chemical reagents, insecticides and supplies in accordance with international best practices and host country requirements. Routine visits confirmed the effective implementation of these measures. | N/A | N/A |
| 2.c) Provide training to workers on the approved SOPs or Waste Management Plan (WMP) developed for properly handling and disposing of wastes. | Standard operating procedures (SOP) or waste management plan (WMP) training approved for proper handling and disposal of waste is provided to workers | N/A | N/A |
| 3. Public Health Commodities | N/A | N/A | N/A |
| 4. Small-Scale Construction | VectorLink Burkina Faso has identified already built infrastructures such as insecticide storage stores, toilets, locker rooms and equipment stores. The only facilities built are sumps and wash areas. The drilling of the sumps has generated soil. This soil was used for backfilling and creating the slope of the washing area | N/A | Operational sites are located within the health facilities compounds (hospitals, health centers, etc.), and schools. Some stores are concessions given by the population. |
| 5. Small-Scale Water and Sanitation | N/A | N/A | N/A |

| List each Mitigation Measure from column 3 in the EMMP (EMMT Part 2 of 3) | Status of Mitigation Measures | List any outstanding issues relating to required conditions | Remarks |
|---|---|--|---|
| 6. Nutrition | N/A | N/A | N/A |
| 7. Vector Control-IRS | | | |
| 1.a) Insecticide selection for any USAID-supported malaria program is subject to the criteria listed in the USAID Programmatic Environmental Assessment, country SEAs, and host country requirements. | VectorLink Burkina Faso operates under a Supplemental Environmental Assessment (SEA) approved by USAID in 2016. The SEA covers the nationwide use of all WHO-recommended insecticides for IRS (with the exception of DDT), including pyrethroids, organophosphates, carbamates, and chlorfenapyr (once recommended by World Health Organization Pesticide Evaluation Scheme) for the period 2016-2020. The Environmental Compliance Certificate issued in 2018 by BUNEE (National Environmental Assessment Office) in Burkina Faso remains valid. | Low capacity for insecticide analysis in the country | The analysis of the insecticide is done by a private laboratory via Plant Protection Directorate (DPV) |
| 1.b) Procurement and inventory logs must be maintained. | Procurement and inventory logs are regularly updated | N/A | N/A |
| 1.c) Ensure storage facility and personal protective equipment (PPE) are appropriate for the active ingredient used and in accordance with approved SOPs. | Storage facilities were refurbished and inspected by the ECO to ensure environmental compliance prior to the start of IRS operations. Appropriate PPE was provided to all staff involved in IRS operations. | N/A | N/A |
| 1.d) Distribute insecticides to facilities that can manage such commodities safely in storage, use, and disposal (i.e., in a manner generally equivalent to Implementing partner's own SOWs/WMP). | All sites are inspected to ensure the proper management of insecticide storage, use, and disposal. | Facilities for quality control of insecticides in the country remain low | All environmental compliance gaps noticed in storage facilities during the PSECA were corrected prior to the start of the IRS campaign. |
| 2.a) Inspect and certify vehicles used for insecticide or team transport prior to contract. | Six vehicles used for the transportation during the campaign were inspected and certified according to best practices. 109 three-wheeled motorcycles have been inspected and certified. They were used to transport the operators during the campaign. All vehicles inspected received a certificate of conformity. | N/A | N/A |
| 2.b) Train drivers | All drivers were trained in safe handling and transport of insecticides; human, personal health, and environmental safety; handling IRS commodities; and spill management. They also received a certificate of training | N/A | N/A |
| 2.c) Ensure availability of cell phone, personal protective equipment (PPE) and spill kits during insecticide transportation. | All drivers had their cell phone and PPE on board; every transport vehicle was provided with a spill kit and first aid kits. | N/A | N/A |

| List each Mitigation Measure from column 3 in the EMMP (EMMT Part 2 of 3) | Status of Mitigation Measures | List any outstanding issues relating to required conditions | Remarks |
|--|--|---|--|
| 2.d) Initial and 30-day pregnancy testing for female candidates for jobs with potential insecticide contact. | 164 female candidates for IRS operations participated in the initial pregnancy screening. The pregnancy testing took place from May 27 to June 05, 2019 in all districts. All the pregnancy tests were negative. The second pregnancy test took place from June 24 to July 4, 2019. The tests results from the second pregnancy revealed no pregnancy cases. | N/A | N/A |
| 2.e) Health test all spray team members for duty fitness. | A medical check-up for 884 seasonal staff was conducted few days before the IRS campaign started. | N/A | N/A |
| 2.f) Procure, distribute, and train all workers with potential insecticide contact on the use of PPE. | All seasonal workers received full PPE and were trained on PPE usage; and insecticide spill management. | N/A | N/A |
| 2.g) Train operators on mixing insecticides and the proper use and maintenance of application equipment. | All spray operators were trained on insecticide mixing hazard management; environmental risk awareness; spray techniques; end-of-day clean-up; and the triple rinsing procedure in addition to proper pump maintenance. | N/A | N/A |
| 2.h) Provide adequate facilities and supplies for end-of-day cleanup. | All the area flushing and evacuation of effluent have been designed to collect all effluents. These areas have been inspected and approved before the start of the operations of the IRS. | N/A | N/A |
| 2.i) Enforce application and clean-up procedures. | All supervisors are required to enforce application and clean-up procedures. | N/A | The team leaders, site supervisors, and site coordinator received daily automated messages to enforce application and clean-up procedures. |
| 3.a) Implement Information, Education and Communication (IEC) campaigns to inform homeowners of responsibilities and precautions, including washing itchy skin and going to health clinic if symptoms develop and do not subside | Mobilizers and public criers were tasked with educating households on safety procedures (i.e. waiting 2.5 hours before entering the rooms that were sprayed); households were also instructed to wash itchy skin if necessary and go to the clinic if the symptoms do not subside. | N/A | N/A |
| 3.b) Ensure health facility staff are aware of insecticide poisoning management | Before the start of the campaign, the district health teams were trained on the management of insecticide side effects, and also on measures taken in cases of poisoning. Documentation on technical characteristics, precautionary measures and measures to be taken in case of organophosphate poisoning was published at each operational site level. | N/A | N/A |
| 4.a) Storage facilities and transportation vehicles must be physically secured to prevent theft. | Each store has a double locking system and the operational sites have 24-hour guards (day and night). | N/A | N/A |

| List each Mitigation Measure from column 3 in the EMMP (EMMT Part 2 of 3) | Status of Mitigation Measures | List any outstanding issues relating to required conditions | Remarks |
|---|--|---|---|
| 4.b) Maintain records of all insecticide receipts, issuance, and return of empty containers. | 27 storekeepers were trained on the proper warehouse management including the maintenance of all records with a focus on insecticide and PPEs. | N/A | N/A |
| 4.c) Conduct analysis comparing number of houses treated vs. number of containers used. | 201,901 structures were treated with 54,557 units of insecticide: one bottle treated on average 3.7 houses. | N/A | 7,115 units of insecticides are in stock and will be used during the next campaign (784 sachets of Fludora Fusion expire in February 2021; and 6,331 sachets of SumiShield, in June 2021) |
| 4.d) Examine houses treated to confirm application | Directly Observed Spray was conducted by supervisors to assess the quality of spray technique. | N/A | N/A |
| 4.e) Perform physical inventory counts during the application season. | Storekeepers are trained to perform physical inventory counts during the campaign. The storekeepers regularly performed the physical inventory counts. They are often helped with physical count tasks by supervisors. | Stocks of nose masks sometime were not updated in register. Stock cards are often poorly informed | Appropriate recommendations for the tracking of nose mask's use will be made for future campaigns. It is necessary to strengthen the training of storekeepers and to further improve follow-up. |
| 5.a) For shipments of insecticide over water, sachets/ bottles will be packed in 220 liter open top barrels with a water-tight top and a locking ring, or in a similar durable container. Waterproof labeling must be affixed to the barrel, with the identity of the pesticide, number of bottles inside, the weight, the type of hazard posed by the contents, and the personal protective equipment to be worn when handling the barrel. | PMI VectorLink Burkina Faso did not transport insecticide over water during the course of the IRS campaign. | N/A | N/A |
| 5.b) Train applicators on the SEA operational requirements, SOPs, PMI BMPs, and approved WMP, developed for the safe and effective storage, distribution, application, and disposal of insecticides | SOPs were trained on BMP guidelines and Burkina Faso environmental compliance's laws which included SOPs and the WMP. | N/A | N/A |
| 5.c) Ensure application equipment and PPE are appropriate for the active ingredient used and in accordance with approved SOPs, and maintain equipment to avoid leaks. | SOPs and other seasonal workers donned the appropriate PPE for Organophosphates during spraying and clean-up in accordance with approved standard operating procedures. | N/A | N/A |
| 5.f) Maintain application equipment | The pumps are washed and stored at the end of the day after the progressive rinsing. Pumps are repaired whenever necessary. | There is often a deficiency in the external cleaning of the pumps. | Advanced training of pump technicians is planned for the management of more complex breakdowns. |
| 5.g) No application of insecticides within 30 yards of beekeeping sites | During training, spray operators were ordered not to spray beekeeping sites and other protected areas. | N/A | N/A |

| List each Mitigation Measure from column 3 in the EMMP (EMMT Part 2 of 3) | Status of Mitigation Measures | List any outstanding issues relating to required conditions | Remarks |
|---|--|--|--|
| 6.a) Handling, treatment, and disposal of nonhazardous (general waste) and hazardous wastes must be in accordance with the approved WMP/SOPs and the PMI BMPs. The WMP, which outlines SOPs for managing waste processes, must be in accordance with PMI best practices and host country requirements | <ul style="list-style-type: none"> • VectorLink to work with Saphyto, a structure specialized in the management of hazardous waste (empty SumiShield, empty Fludora Fusion and empty bottles of Actelic) for recycling and incineration. • Other contaminated wastes, such as masks, torn gloves, and other wastes, are to be incinerated in the district incinerators. • All incinerators are inspected and certified according to the standards in force in Burkina Faso before considering any incineration action • Uncontaminated or decontaminated and reusable waste is left at the disposal of the operators | Absence of specialized institutions for the management of certain types of wastes (batteries and other metal wastes) | Research is underway to find other battery recycling structures and ink cartridges |
| 6.b) Choose sites for disposal of liquid wastes, including fixed and mobile soak pit sites according to PMI BMPs | Burkina Faso waste management plan has met all requirements of the country and the 22 CFR. | N/A | N/A |
| 6.c) Construct fixed and mobile soak pits with charcoal according to the BMPs to adsorb insecticide from rinse water | <p>All soak pits were constructed to standards required for the proper disposal of liquid waste during the campaign.</p> <p>12 mobile soak pits were planned to be used during the campaign; however, for security reasons, no mobile sump was used.</p> <p>All fixed soak pits contained charcoal according to BMPs to adsorb insecticide from rinse water.</p> | N/A | Fixed sumps are built in all operational sites |
| 6.d) Maintain soak pits as necessary during season | Soak pits have been maintained as necessary during season. Weeds were removed near the rinsing areas. Those with a bad slope were repaired | N/A | N/A |
| 6.e) Monitor waste storage and management during campaign | Every day, the waste is inventoried by the storekeeper and stored. At the end of the campaign, all waste is sent to the District warehouse for disposal | N/A | N/A |
| 6.f) Monitor disposal procedures post-campaign | Post-campaign disposal procedures are underway, monitoring is ongoing and disposal certificates will be issued by the recycling companies. | N/A | N/A |
| 7.a) Wastes will only be disposed in incinerators that comply with PMI BMPs Collect and maintain treatment and disposal documents and records on file | Incinerators of SAPHYTO comply with the PMI BMPs standards. | N/A | N/A |
| 7.b) Country-level USAID EC documentation must contain guidance on proper disposal of wastes | Waste management plan was developed and followed up by the PMI VectorLink Burkina Faso Environmental Compliance Officer. | N/A | N/A |

| List each Mitigation Measure from column 3 in the EMMP (EMMT Part 2 of 3) | Status of Mitigation Measures | List any outstanding issues relating to required conditions | Remarks |
|--|---|---|---------|
| 7. Vector Control - Testing of Insecticide-Treated Nets. | | | |
| 1. Store nets only in storerooms secured with sturdy doors, locks, and barred windows | Mosquito nets in the countryside, ready to be distributed, are stored in centenarians. Routine mosquito nets are stored in shops. In both cases, the doors are locked and the premises are kept secure. | N/A | N/A |
| 7. Vector Control -Distribution of Insecticide-treated Nets | | | |
| Where there is evidence of misuse for fishing, assess the extent of misuse and collaborate across sectors (Ministries of Health, Environment, and Agriculture) to develop a sustainable, locally relevant solution | Messages about the proper use of ITNs are given to beneficiaries during distribution. | N/A | N/A |
| Store LLINs in dry, ventilated facilities | ITNs are stored in dry places. | N/A | N/A |
| Store in a secure facility to prevent theft or unauthorized access. Post guard or use barred windows as needed | TNs are stored in a health facility and secure to prevent theft or unauthorized access. | N/A | N/A |
| Do not store LLINs with food, feed, or potable water supplies | LLINs are not stocked with food, feed or drinking water | N/A | N/A |
| Provide worker training on the proper handling of LLINs | Trainings are provided to logisticians and some health workers on proper handling of LLINs | N/A | N/A |
| Ensure that SBCC materials and outreach activities are coordinated with ITN distribution activities during campaigns, and include guidelines on how to properly wash and maintain LLINs (e.g., discourage disposal of wash water in sensitive ecosystems, discourage washing and rinsing LLINs in water bodies) | LLIN maintenance messages are given to the recipient (not to wash frequently, not to use scented soap for washing, not to dispose of wash water in the wild) | N/A | N/A |
| Ensure that SBCC messages inform campaign distributors and local communities about the potential harm to human health and environment if bags and baling materials are reused; support the development of a communication plan that provides messages on best practices for handling and disposing of bags and baling materials. | During the distribution of LLINs, packaging is kept by the distributing agents and destroyed at the health center level. The population does not have access to the packaging. | N/A | N/A |
| 8. Emergency Response | N/A | N/A | N/A |

ANNEX E: DCV FORM



Campagne de pulvérisation intra domiciliaire Fiche de vérification des données sur le terrain



Date de vérification: _____ Nom du superviseur: _____ District: _____ CSPS: _____ Secteur/Village: _____

| N° | Nom du Chef de Ménage | NOMERO DE STRUCTURE | Statut (Cocher) | | Si Non Pulvérisée, Indiquer la raison* (Voir raisons en bas de page) | Date de Pulvérisation ou de non pulvérisation (Date de passage de l'opérateur) | Code de l'Opérateur (qui a pulvérisé la structure) | Code du Mobilisateur (qui a sensibilisé le ménage) | Total des Habitants | Total des femmes enceintes | Total des enfants <5 ans |
|----|-----------------------|---------------------|-----------------|----------------|--|--|--|--|---------------------|----------------------------|--------------------------|
| | | | Pulvérisée | Non Pulvérisée | | | | | | | |
| 1 | | LLHLLLLLLI | | | | | | | | | |
| 2 | | LLHLLLLLLI | | | | | | | | | |
| 3 | | LLHLLLLLLI | | | | | | | | | |
| 4 | | LLHLLLLLLI | | | | | | | | | |
| 5 | | LLHLLLLLLI | | | | | | | | | |
| 6 | | LLHLLLLLLI | | | | | | | | | |
| 7 | | LLHLLLLLLI | | | | | | | | | |
| 8 | | LLHLLLLLLI | | | | | | | | | |
| 9 | | LLHLLLLLLI | | | | | | | | | |
| 10 | | LLHLLLLLLI | | | | | | | | | |
| 11 | | LLHLLLLLLI | | | | | | | | | |
| 12 | | LLHLLLLLLI | | | | | | | | | |
| 13 | | LLHLLLLLLI | | | | | | | | | |
| 14 | | LLHLLLLLLI | | | | | | | | | |
| 15 | | LLHLLLLLLI | | | | | | | | | |

* Raison de non pulvérisation: 1= Malade, 2= Fermée, 3=Funérailles, 4=Refus, 5= Rater, 6= Eligible mais transformée en Grenier/Cuisine, 7=Autres

ANNEX F: SPRAY OPERATION FORM

Paper Form



Numero de la fiche
00001

FICHE DE L'OPERATEUR

DATE: / / /DISTRICT: / / /SITE: / / /CSPS: / / /SECTEUR/VILLAGE: / / /

NOM ET PRENOM DE L'OPERATEUR: / / /CODE DE L'OPERATEUR: / / /CODE DE CHEF D'EQUIPE: / / /SIGNATURE: / / /

BOUTEILLES\SACHETS RECUES: / / / BOUTEILLES\SACHETS PLEINES RETOURNEES: / / /BOUTEILLES\SACHETS VIDES RETOURNEES: / / /

BOUTEILLES\SACHETS PERDUES\ENDOMMAGEES/ / /

| N° de la structure | Nom et prenom du chef de ménage ou du répondant | Sexe du répondant (Encercler) | | Structures Pulvérisées | | Si Structures non Pulvérisées, pourquoi? * | Nombre de personnes vivant dans la structure *** | Dont Combien d'Hommes | Dont combien de femmes | Dont combien de Femmes enceintes | Dont combien d'enfants < 5 | Nombre de chambre/piece | | Avez-vous des moustiquaires imprégnées | | Moustiquaires Imprégnées | | | |
|--------------------|---|-------------------------------|---|------------------------|-----|--|--|-----------------------|------------------------|----------------------------------|----------------------------|-------------------------|------------|--|-----|--|---|---|--|
| | | | | Oui | Non | | | | | | | Trouvée | Pulvérisée | Oui | Non | Nombre total de personnes dormant sous MILDA | Nombre d'enfants < 5 dormant sous MILDA | Nombre de femmes enceintes dormant sous MILDA | |
| 100001 | | F | M | | | | | | | | | | | | | | | | |
| 100002 | | F | M | | | | | | | | | | | | | | | | |
| 100003 | | F | M | | | | | | | | | | | | | | | | |
| 100004 | | F | M | | | | | | | | | | | | | | | | |
| 100005 | | F | M | | | | | | | | | | | | | | | | |
| 100006 | | F | M | | | | | | | | | | | | | | | | |
| 100007 | | F | M | | | | | | | | | | | | | | | | |
| 100008 | | F | M | | | | | | | | | | | | | | | | |
| 100009 | | F | M | | | | | | | | | | | | | | | | |
| 100010 | | F | M | | | | | | | | | | | | | | | | |
| 100011 | | F | M | | | | | | | | | | | | | | | | |
| 100012 | | F | M | | | | | | | | | | | | | | | | |
| 100013 | | F | M | | | | | | | | | | | | | | | | |
| Total | | | | | | ** | | | | | | | | | | | | | |

Nombre total de structures Trouvées: Nombre total de structures Traitées:

* Raison de non pulvérisation: 1= Malade, 2= Fermée, 3=Funérailles, 4=Refus, 5= Rater, 6= Eligible mais transformée en Grenier/Cuisine, 7=Autres

** NE PAS ADDITIONNER, Ecrire le chiffre qui indique la raison la plus courante

*** Toutes les personnes vivant dans la structure

Electronic Form (on the tablet)

