



DEVOTED TO REDUCING **MALARIA DEATHS**
& SUFFERING IN HUMANITARIAN CRISES

Indoor Residual Spraying (IRS) Campaigns



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



Objectives

- Understand where and why IRS can be used
- Understand how to plan an IRS campaign
- Understand how to organise IRS campaign implementation
- Understand how to monitor and report on progress



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



Indoor Residual Spraying is efficacious for malaria prevention if*

- **IRS is done in communities affected by endophilic mosquitoes, that is the vector for malaria;**
- **The insecticide is effective against the vector;**
- **The target population lives in shelters made of materials appropriate for spraying;**
- **The spray equipment meets the standards of the World Health Organisation for IRS;**



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



- **At least 85% of surfaces (homes) are sprayed to assure that the majority of mosquitoes are exposed to the insecticide;**
- **At least 85% of walls (2 metres high) are sprayed with insecticide before the high transmission period (rainy season)**

*Malaria control in complex emergencies: an inter-agency field handbook/World Health Organization et al. World Health Organization 2005.



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



Advantages of Insecticide Residual Spraying (IRS)

- Any thing people sleep in (huts, hospitals, plastic shelters, transit halls) can be sprayed
- Operationally feasible
- Cannot be looted or sold
- Community coverage effect over 85%
- IT WORKS!



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



Disadvantages of Insecticide Residual Spraying (IRS)

- Time
- Logistics
- Material resources/cost
- Access – during natural disasters/civil unrest can be difficult
- People absent from homes during spraying
- Dependent on skilled teams
- Safety for handlers/sprayers
- Impact variable depending on shelter materials
- Families have no control/or involvement?
- Fear of chemicals in communities
- Field supervision & monitoring

ALL OF THESE CAN BE OVERCOME!!



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



**What and where are you
intending to spray?**









Planning steps for the IRS Campaign

1. Procurement and storage of equipment
2. Mapping
3. Water provision
4. Team planning and recruitment
5. Sensitisation of the local authorities and the community
6. Training of spray team and organising campaign implementation
7. Monitoring + Reporting



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



1. Procure only WHO recommended insecticides, spray & safety equipment



How do you select the right insecticide?

- Only use WHO PQ recommended insecticides.
- Confirm which insecticide (and formulations) are registered in the country.
- Never purchase or import insecticides if they are not registered in the country unless you have specific permission in writing from the host government/authority.
- Check local and national resistance to the insecticides under consideration.
- Check suitability for the application intended (ITNs, IRS etc)
- Confirm availability
- Cost?



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**




World Health Organization
Prequalification of Medical Products
Since 2009

[Contact us](#) - [Glossary and Acronyms](#) [FAQ](#) [Complaints](#) [Feedback](#)

[Product Streams](#) [Events](#) [News](#) [MCTD](#) [ePOS](#) [About](#)

VCP
Vector Control Products

Vector Control Product List
Displaying 1 - 25 of 30
[Download list as CSV file](#)

Product Type: PQT/VC Ref Number: Title: Applicant:

[About Vector Control Products](#)
[Prequalification](#)

PQT/VC Ref Number	Product Name	Applicant	Product Type	Active Ingredient/Synergist	Date of Prequalification
004-018	2GARD	Tagros Chemicals India Pvt. Ltd	IRS	Clothianidin, Deltamethrin	18 Nov, 2021
012-001	Actellic 300CS	Syngenta Crop Protection AG	IRS	Pirimiphos-methyl	29 Jan, 2018
013-001		FMC Corporation	IRS	Bifenthrin	29 Jan, 2018
035-001	FastM	Saerfu (Henan) Agrochemical Co. Ltd	IRS	Bendiocarb	3 Sep, 2019
002-005	Fendona 10 SC	BASF AGRO B.V. Arnhem (NL) Freienbach Branch	IRS, ITN Self Treatment Kit	Alpha-cypermethrin	8 Dec, 2017
002-007	Fendona 5 WP	BASF AGRO B.V. Arnhem (NL) Freienbach Branch	IRS	Alpha-cypermethrin	8 Dec, 2017
002-006	Fendona 6 SC	BASF AGRO B.V. Arnhem (NL) Freienbach Branch	IRS, ITN Self Treatment Kit	Alpha-cypermethrin	8 Dec, 2017
P-00162		Envu (Environmental Science U.S. LLC.)	IRS	Bendiocarb	18 Apr, 2018
008-006	Fludora Fusion	Bayer S.A.S.	IRS	Clothianidin, Deltamethrin	13 Dec, 2018
012-003	ICON 10 CS - IRS	Syngenta Crop Protection AG	IRS	Lambda-Cyhalothrin	29 Jan, 2018
012-006	Icon WP	Syngenta Crop Protection AG	IRS	Lambda-Cyhalothrin	3 May, 2018
P-00161	K-Othrine Polyzone	Envu (Environmental Science U.S. LLC.)	IRS	Deltamethrin	29 Jan, 2018
P-00159	K-Othrine WG250	Envu (Environmental Science U.S. LLC.)	IRS	Deltamethrin	29 Jan, 2018
004-019	Klypson 500 WG	Tagros Chemicals India Pvt. Ltd	IRS	Clothianidin	14 Dec, 2021
P-09306	Lambda-cyhalothrin 10% WP	BR AGROTECH LIMITED	IRS	Lambda-Cyhalothrin	27 Jun, 2024
004-008	PALI 250 WG	Tagros Chemicals India Pvt. Ltd	IRS	Deltamethrin	28 Feb, 2018
007-002	Pendulum 10 SC	Gharda Chemicals Limited	IRS, ITN Self Treatment Kit	Alpha-cypermethrin	3 May, 2018
007-001	Pendulum 6 SC	Gharda Chemicals Limited	IRS, ITN Self Treatment Kit	Alpha-cypermethrin	3 May, 2018
004-012	REVIVAL 100 CS	Tagros Chemicals India Pvt. Ltd	IRS	Lambda-Cyhalothrin	28 Feb, 2018
004-010	REVIVAL 100 WP	Tagros Chemicals India Pvt. Ltd	IRS	Lambda-Cyhalothrin	3 May, 2018
004-004	RUBI 100 SC	Tagros Chemicals India Pvt. Ltd	IRS	Alpha-cypermethrin	8 Dec, 2017
004-002	RUBI 100 WP	Tagros Chemicals India Pvt. Ltd	IRS	Alpha-cypermethrin	8 Dec, 2017
004-005	RUBI 250 WG-SB	Tagros Chemicals India Pvt. Ltd	IRS	Alpha-cypermethrin	7 Dec, 2017
004-003	RUBI 50 SC	Tagros Chemicals India Pvt. Ltd	IRS	Alpha-cypermethrin	8 Dec, 2017
004-001	RUBI 50 WP	Tagros Chemicals India Pvt. Ltd	IRS	Alpha-cypermethrin	8 Dec, 2017

P-1156	SOVRENTA 15WP	Syngenta Crop Protection AG	IRS	Isocycloseram	11 Apr, 2025
001-00	SumiShield 50WG	Sumitomo Chemical Co., Ltd	IRS	Clothianidin	25 Oct, 2017
P-0013	Sylando 240 SC	BASF AGRO B.V. Arnhem (NL) Freienbach Branch	IRS	Chlorfenapyr	5 Dec, 2024
016-002		Mitsui Chemicals Crop & Life Solutions, Inc.	IRS	Etofenprox	22 Feb, 2018
P-03226	VECTRON T500	Chemicals Crop & Life Solutions, Inc.	IRS	Broflanilide	11 Mar, 2023



How many houses per tank?

- 10-L tank at 40ml/m² can spray approx. 250m²
- Eg) Budalangi – 3.5m x 3.5 m walls = 12.25m² x 4 walls = 49m²
- 1 tank sprays approx. 5 houses
- 1 pair of sprayers can spray approx. 15-20 houses per half day



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**





2. Mapping

Plan of the village to scale:

- **Zones / blocks,**
- **Focal Points / meeting points,**
- **Water points,**
- **Households / structures**
- **Geographical areas of high risk: marshes, flooded areas, lakes, ponds, high vegetation**



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



3. Water provision

- Areas to wash clothing / equipment, for the sprayers to take showers, to refill the spray cans, to have something to drink;
- If water points are not available it is recommended to have separate tanks with up to 1000 Litres available.
- Make sure that water supplies are labelled and that people use separate water supplies from those used for sprayer and clothing washing etc.



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**







UNHCR





**LOGISTICS
LOGISTICS
LOGISTICS**



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



4. Team Planning and Recruitment

IRS Team Sectors:

- Supervisors
- Sensitisation / Education
- Sprayers
- Washers (clothing, equipment)
- Water porters (if water system is not available in the village)



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



Criteria of Recruitment

Supervisors:

- The number recruited depends on the number of teams of sprayers
- Staff of DHO, Village Leaders, Teachers...

Sensitisers / Educators:

- The number recruited depends on the number of spray pumps available.
- He/She are capable of carrying heavy bags with educational materials
- He/She can read and write easily



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



Sprayers:

- The number of sprayers recruited will depend on the number of spray pumps available.
- He/She will be able to carry a 10 litre pump filled with water at least 100 meters with ease
- He/She can read and write easily
- He/She is at least 1m 60cm

Washers / Cleaners:

- The number recruited will depend on the number of teams of sprayers
- They can read



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



Water Porters

- The number recruited depends on the water points available in the village being sprayed
- These people are key to the operation as without a steady water supply the campaign will not work



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**





5. Sensitisation of Local Authorities

- Explain the goal of the IRS campaign
- Explain other benefits of the IRS for the community (kills other insects etc)
- Explain that the impact of the IRS is not immediate but its results can be seen (reduction in malaria cases) after one month
- Confirm that they will be part of the monitoring
- Gain their full support to mobilise volunteers maximise community acceptance



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**





Sensitising the Community

The job of the sensitisers / educators are to educate the heads of households by visiting house to house and to let everyone know:

- The purpose of the IRS and its safety for humans
- The hours of spraying each day.
- The objects to remove from their houses (all the kitchen utensils, food, water and all toys and other children's items)
- That the family and any animals need to stay out of the house when it is being sprayed.



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



- The importance of the family and animals to stay outside of the house until the insecticide is dry (1 hour – 2 hours).
- Placement of the sticker that indicates their house number and the date it was sprayed or another means of marking the house as sprayed.
- Please sweep the floor after entering the home to avoid animals eating dead insects.
- Do not wash or paint the walls after spraying.



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**





6. Training the Spray Team

- A. Mapping (if maps are not already available of the camp, village or sub-district with the needed details)
- B. Safety clothing
- C. Preparation for spraying
- D. Spraying technique + maintenance of equipment
- E. Daily organisation of teams
- F. List of precautions
- G. Practical exercises



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



A. Cartography / Mapping

- The maps of the village must include any markings of zones within the village for working purposes, all focal points (community meeting points, mosque, church etc.), water points if there is not a proper water system
- All high risk geographic areas must be mapped. This included marshes, ponds, high vegetation areas, flooded areas etc. These areas will be used to determine where the spray campaign will commence as they are of high priority.



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



Koloma IDPs Site Overview

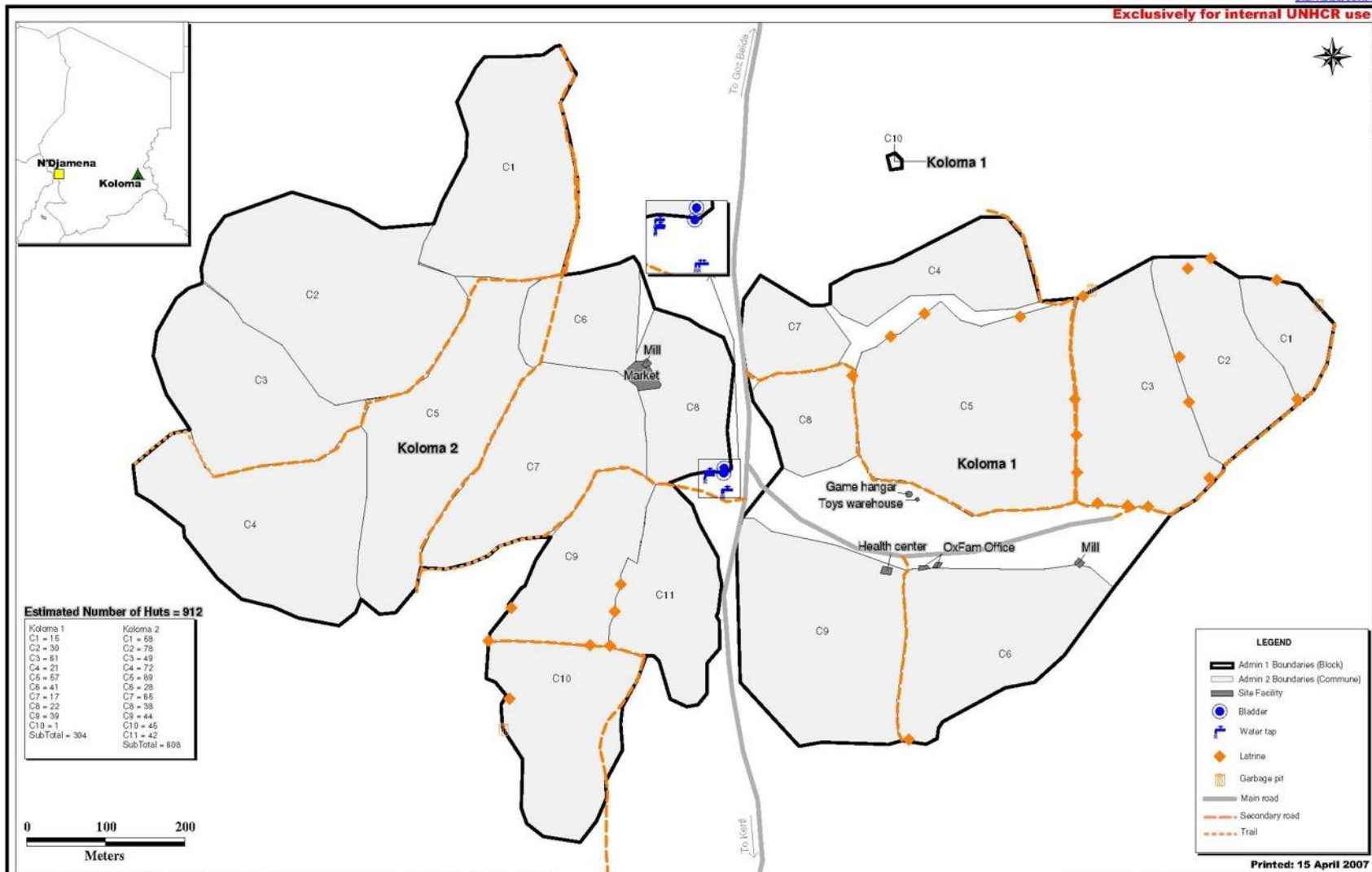
As of April 2007

PGDS in DOS

Population and Geographic Data Section
Division of Operational Support

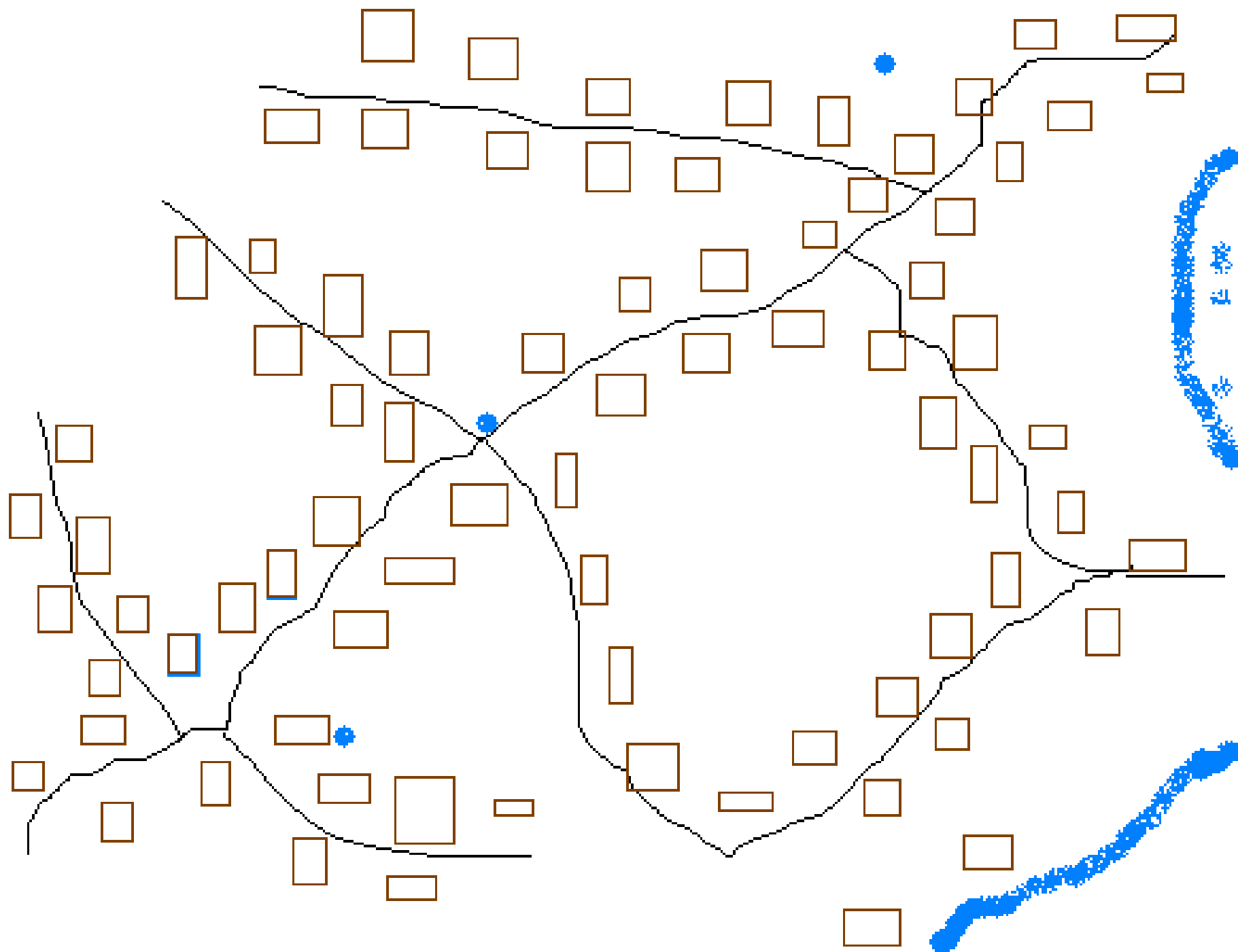
Email: koloma@unhcr.org

Exclusively for internal UNHCR use



The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Sources: UNHCR, Global Insight digital mapping - © 1998 Europa Technologies Ltd



- The maps must show each household, the number of structures per household, and the number of the home (address)
- The village leader will be responsible for verifying that all the homes reported as sprayed are sprayed. The maps will be used daily to mark coverage of IRS and for final checking with the village leaders. Any households not sprayed will be marked on the map and teams may be asked to return to spray the missing houses the next day.
- Ensure that a minimum of 85% of households are sprayed to achieve best impact



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



B. Protective Clothing

- Overalls
- Rubber Gloves
- Rubber Boots
- Baseball Hat
- Visor



C. Preparation for Spraying

- Make sure the cover is hanging on the outside of the pump
- Fill the pump just to the line indicated at the interior of the pump with water
- Place the sachet of insecticide inside the pump (do not cut the sachet if it is water soluble)



- Close the cover and pump ten times; shake the pump to insure that the insecticide and water are well mixed;
- When you arrive at the first house to be sprayed continue to pump until you reach 55 psi



- Always wear the spray pump on your shoulder
- Always place the lance in place while it is not being used
- Keep the spray pump closed after it has been pressurised.



D. Spraying Technique + Maintenance of Equipment

- The pump must **ALWAYS** be pressurised between 25 and 55 psi at all moments.
- Spray the walls and roof up to 2 metres high;
- Start the spraying from the bottom of the wall and continue up to the top, keep a distance of 45 cm between the end of the lance (nozzle) and the wall at **ALL** times.
- Use WHO IRS handbook as training tool.



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



Teaching volunteers how to spray correctly

- ***Manual for Indoor Residual Spraying: Application of Residual Sprays for Vector Control. World Health Organization. Communicable Disease Control, Prevention and Eradication. WHO Pesticide Evaluation Scheme. World Health Organization 2005.**



- Continue the same technique from top to bottom with an overlap of spray on the wall of 10 cm.
- The width of the spray should always be 75cm
- Measure the time of your spraying by counting 100, 101, 102, 103, 104 for each height of 2 metres



After each days IRS:

- Depressurise the pump and throw away any remaining insecticide in a latrine, or a deep pit dug specifically for insecticide waste.
- NEVER throw away insecticide in a source of potable/drinkable water
- NEVER throw away empty sachets of insecticide. Bring the packages to the supervisor. All sachets must be disposed of by ripping them and putting them in the pit / latrine.
- NEVER burn empty insecticide sachets.



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



- **Fill the pump half full with clean water**
- **Place the cover and shake the pump to clean all of the interior surfaces of the sprayer**
- **Pressurise the pump to 45 psi and spray the water to clean the inside of the lance.**
- **Take off the handle and place the filter in water to clean**
- **Take off the nozzle and place it in a container of water. If there is any debris in the nozzle use a small piece of wood or best a tooth brush to clear. Do not use a piece of wire or blow in the nozzle to clean it!**



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**





- If there are any leaks then the component parts should be cleaned separately and then reassembled with new washers where needed.
- Clean the exterior of the pump
- Dry the interior and exterior of the pump; make sure there is no water in the tubing or the lance.
- Store the equipment somewhere secure overnight ready for use the next morning.



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



E. Daily organisation of teams

- Morning Responsibilities
- Afternoon Responsibilities



Morning Responsibilities

Supervisors:

- Determine the « zones » of work in the village
- Verify the plan from the day before
- Sign in list – list of spray men/women presence
- Place a sachet of insecticide in each of the pumps

Sprayers:

- Dress in the protective clothing
- Receive the « zone » of work for the day
- Fill the sprayer with water

Sensitisers / Educators:

- Receive « zone » of work for the day



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**











Afternoon Responsibilities

Supervisors

- Verify that sprayers materials have been washed correctly
- Verify condition of spray equipment
- Collect the mapping of the zones (what households have been sprayed, which ones need to be returned to)
- Collect data

Sprayers

- Wash and stock sprayers, wash and stock protective clothing.
- Hand in all maps and data collected



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



Sensitisers / Educators

- Inform the supervisors of any problems encountered

Washers

- Wash and dry the protective clothing.

Water Porters (If being used)

- Refill any reserve water storage tanks ready for the next day.



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



F. List of Precautions

- **Wear ALL protective clothing during the entire IRS campaign. NEVER work with insecticide without wearing your coveralls, gloves, boots and visor.**
- **NO SMOKING while implementing a spraying campaign.**
- **NO EATING while implementing a spraying campaign.**
- **NO DRINKING ALCOHOL during a spraying campaign.**
- **Do NOT rub your face or eyes while working during the spraying campaign.**



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



- If you get insecticide in your face or eyes, rinse your eyes with water immediately and wash your face with soap and water.
- If you are not feeling well, inform your supervisor immediately.
- NEVER throw away empty insecticide packages. Take them immediately to the supervisor for disposal.
- NEVER throw insecticide on the ground or in a water source. ONLY throw it away in a pit or a latrine.



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



- **Wash your hands and face well with soap and water after you have finished spraying and before eating / drinking / smoking at the end of the day.**
- **Take a bath / shower at the end of the day after spraying and cloth yourself in clean clothes.**
- **If you receive insecticide on your clothing, remove them and wash them IMMEDIATELY.**
- **When you wash your clothing at home, wash them SEPARATELY from your other clothing. Use soap and water.**



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



7. Monitoring and Reporting

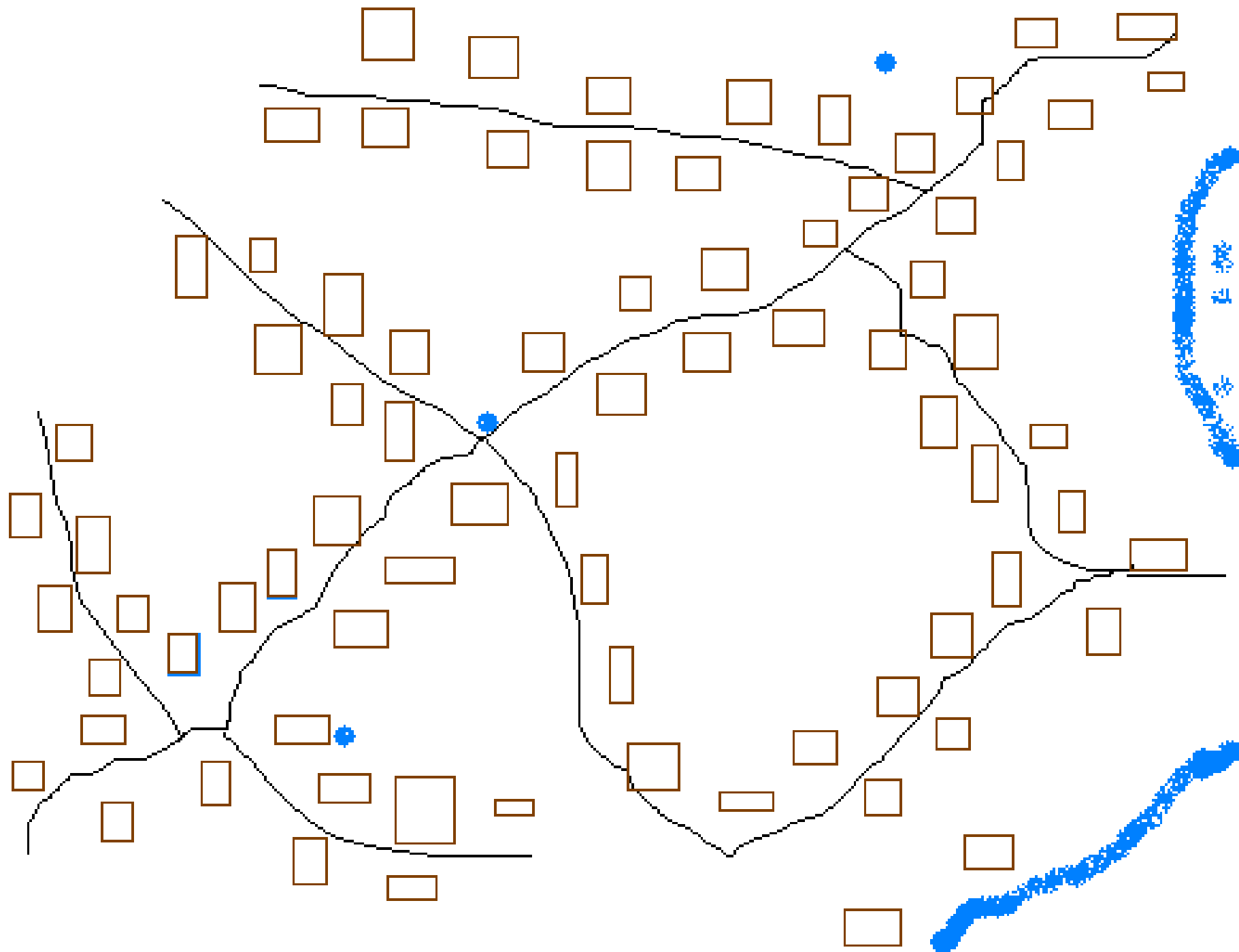
The following data MUST be collected EACH DAY:

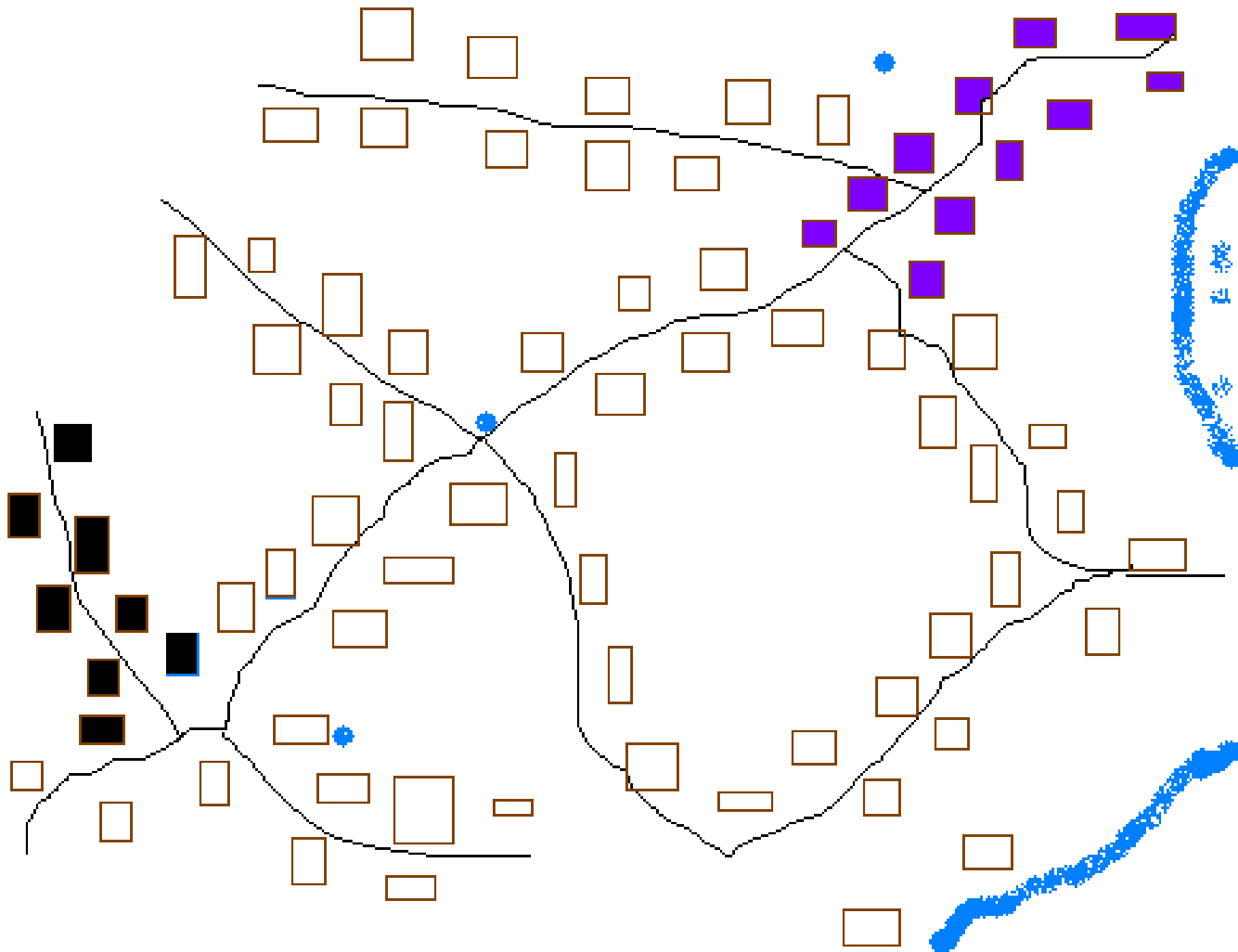
- **Number of sachets of insecticide used.**
- **Number of households / homes sprayed.**
- **Number of households / homes NOT sprayed.**

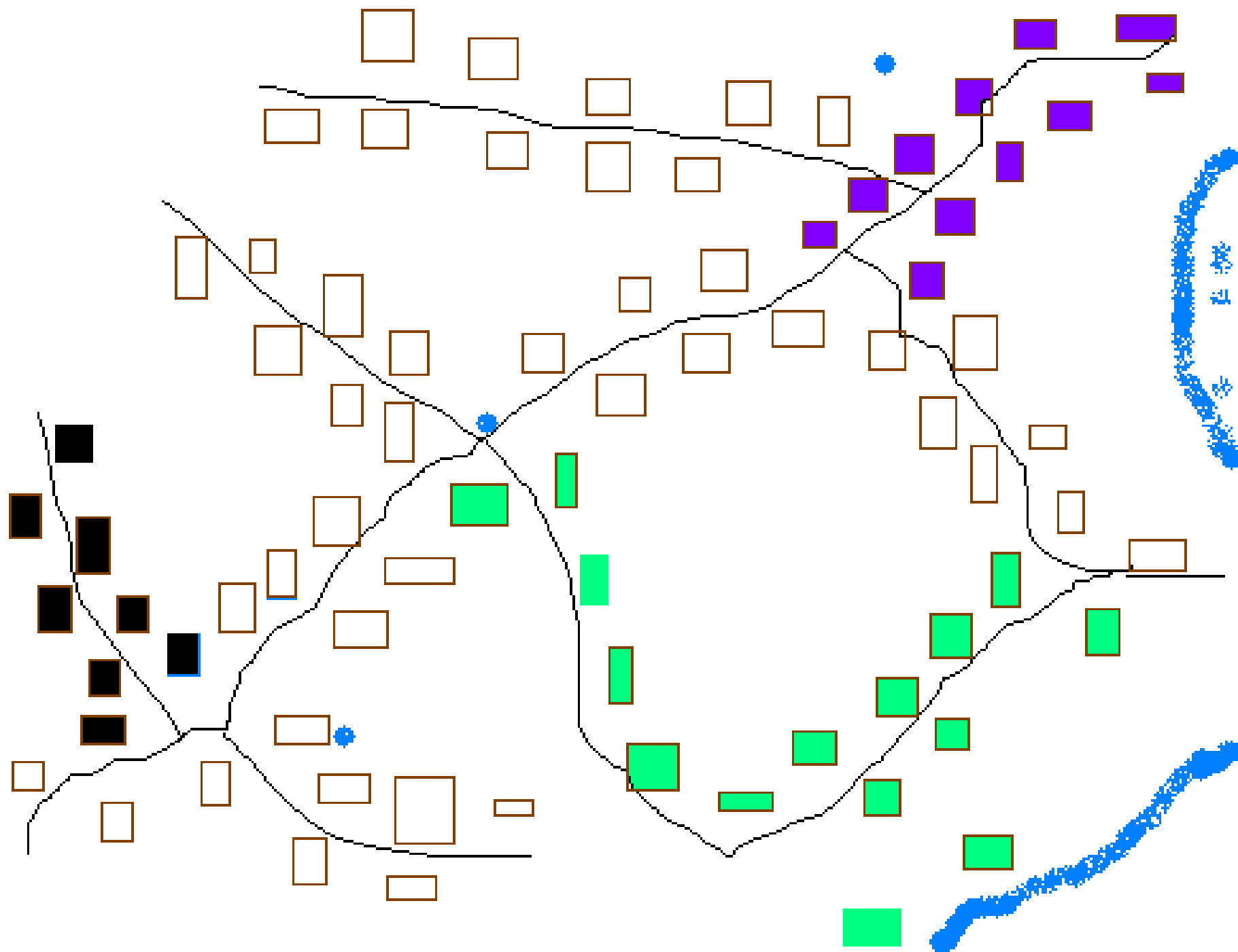


DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**









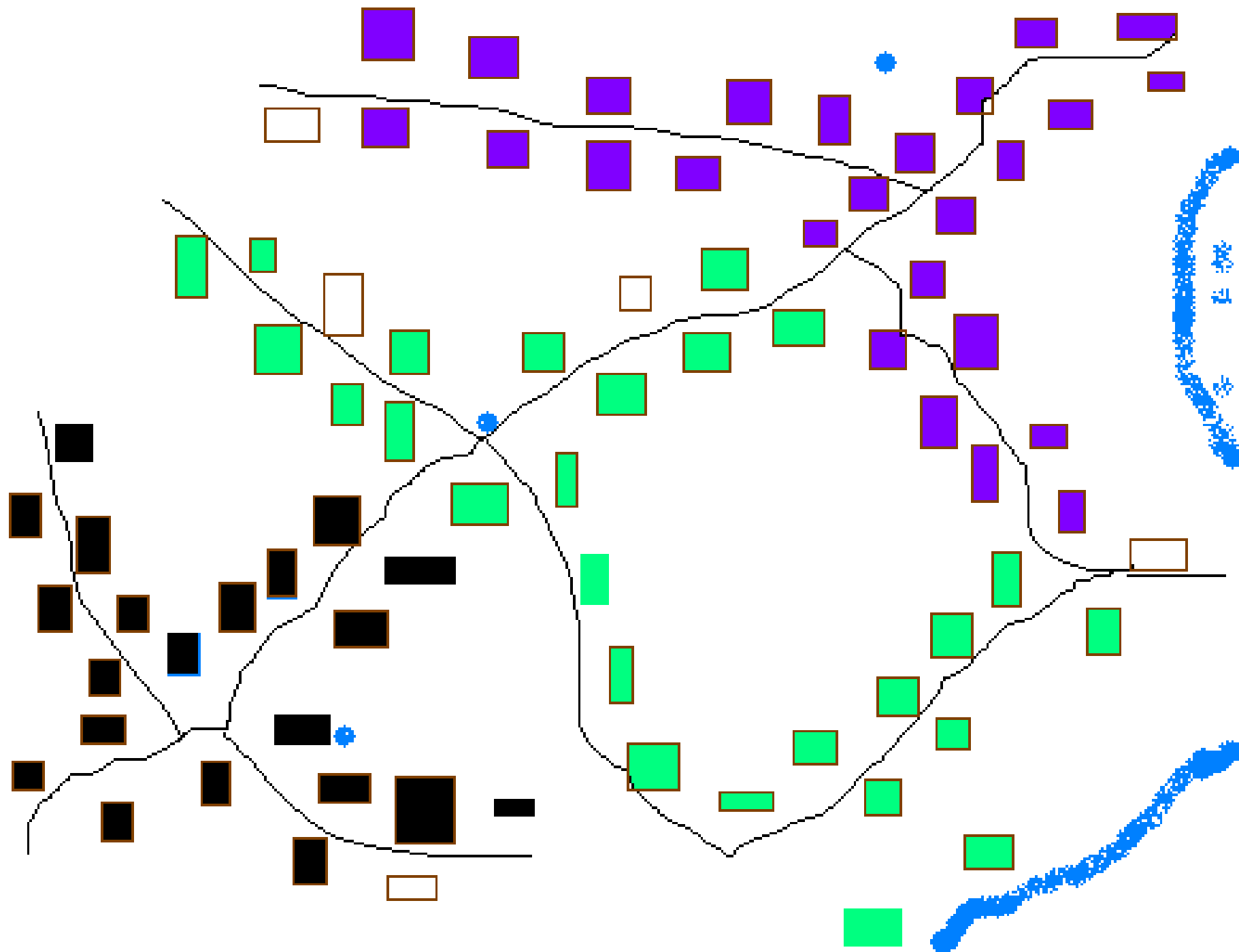
Target coverage of IRS:

- >85% of all structures that people sleep in
.....but keep going!
- Houses
- Hospitals
- Orphanages
- Schools



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**







RESUME DES RAPPORTS JOURNALIERS DE PULVERISATION

LOCATION/MILLAGE

[illegible]

Determination of Impact

- It is not easy to show health impacts.
- Most programmes will only have the capacity to monitor and report on coverage of IRS achieved.
- This is usually adequate as IRS impact is known to be equivalent to LLINs if household coverage exceeds 85% and it is well done.



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



For those wishing to try and show a health impact the most feasible option is to collect:

- Number of cases of malaria confirmed + all cause attendance, in the health facility serving the IRS community during the month preceding the IRS campaign.**
- Number of cases of confirmed malaria + all cause attendance in the year that preceded the IRS campaign;**
- Number of cases of confirmed malaria + all cause attendance during the months (track for 3 months min) after the IRS campaign.**

NOTE:

Impact is not immediate and cases will continue to be reported during the month after the campaign.



**DEVOTED TO REDUCING MALARIA DEATHS
& SUFFERING IN HUMANITARIAN CRISES**



Indicators of the Programme

- Coverage = Number of structures sprayed / Number of structures in the target areas (%)
- Amount of insecticide used per structure = amount of insecticide used / Number of structures sprayed (%) this is a measure of the efficiency and the correct utilisation of the insecticide.
- Acceptability of spraying = % of households that refused to have their homes sprayed.
- The % of pumps that were correctly maintained and were always in good state of function at the end of the campaign.
- Acceptability after IRS = % heads of households who complained after a spray campaign.

*Malaria control in complex emergencies: an inter-agency field handbook/World Health Organization et al. World Health Organization 2005.



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**



Structuring an IRS Campaign Report

- Situation (Background)
- Justification
- Method and organisation of campaign
- IRS materials used
- Results (Coverage - % of households sprayed, % acceptance of IRS after spraying, efficacy / proper use of insecticide)
- Conclusions et recommendations



DEVOTED TO REDUCING **MALARIA DEATHS**
& **SUFFERING IN HUMANITARIAN CRISES**





The leading agency devoted to reducing malaria deaths and suffering in humanitarian crisis

PROGRAMME REPORT GENEVA GLOBAL
December 2007



©S.Hoibak/The MENTOR initiative

Reinforcing Effective Malaria Control for the Most Vulnerable IDP and Host
Communities in Dar Sila, Eastern Chad