

## Indoor Residual Spraying (IRS) Operations Supervision Checklist

<b>A. General Information:</b>		
a. Name of province:		
b. Name of district:		
c. Name of taluka:		
d. Name of health facility		
e. Date of visit:		
<b>B. Observation during visit</b>	<b>Yes</b>	<b>No</b>
1. Is district Indoor Residual Spray (IRS) micro-plan available with DHO?		
2. Is target population identified in taluka/UCs/health facilities/village?		
3. Is IRS user guide available at DHO/EDO office?		
4. Is supervisor/team leader present during spraying?		
5. Have spray persons been trained before spraying in this cycle?		
<b>C. Storage facility from spray viewpoint</b>	<b>Yes</b>	<b>No</b>
6. Is the storage facility situated away from domestic dwellings?		
7. Is the store tidy and well arranged?		
8. Is there a well-stocked first aid kit?		
9. Is the ledger book updated?		
<b>D. Soak pit and washing facilities</b>	<b>Yes</b>	<b>No</b>
10. Is the mixing of IRS chemical done away from community water supplies?		
11. Are there sufficient washing facilities/showers for the operators?		
12. Is there adequate soap for washing?		
<b>E. Household preparation</b>	<b>Yes</b>	<b>No</b>
13. Are the household members informed about vacating houses?		
14. How much time are household members given to vacate houses		
15. Are the householders instructed on what to do during and after the spraying in their houses?		

16. Are household items, including water, food, cooking utensils removed from the House before spray?		
17. Is heavy furniture moved to the center of the rooms and covered to allow easy access for spraying the walls?		
18. Are domestic animals and pets kept away from the house at the time of spray?		
<b>F. Workers' safety</b>	<b>Yes</b>	<b>No</b>
19. Are all spray men, team leaders, malaria supervisors wearing appropriate PPE?		
20. Is the PPE in good condition?		
21. Ask if the spray men/operators are comfortable or if they have any other comments about the protective clothing?		
<b>G. Mixing Insecticides</b>	<b>Yes</b>	<b>No</b>
22. Is the water filled up to the 10 liter mark on the spray pump?		
23. Is the insecticide sachet opened and contents poured/dropped in to the tank with no spilling and empty packaging is placed back in the haversack		
24. Has the spray men/operator done some agitation to dissolve the insecticide?		
25. Is the pump then pressurized to 55 psi and checked for leaks and re-shaken to mix?		
26. Are spray men/operators carrying the pumps correctly (pump held under the arm and the gauge in front)?		
<b>H. Applying insecticide</b>	<b>Yes</b>	<b>No</b>
27. Are the spray men/operators using the correct nozzle tip for the insecticide?		
28. Does the spray operator apply vertical swaths, 80 cm wide, with a 5 cm overlap, and with the tip of the nozzle 45 cm from the wall?		
29. Are they applying right speed of 5 seconds per 2 vertical meters?		
30. Are they regularly shaking the pumps and checking the pressure gauges to ensure the pressure stays between 55 and 35 psi?		
31. Is there any run off insecticide dripping from the walls?		
32. Are there any signs of leakage from any part on the spray pumps?		
<b>I. Spray men's/operator's conduct (ask Focal Person or supervisor)</b>	<b>Yes</b>	<b>No</b>
33. Are spray men/operators smoking while spraying?		
34. Are spray men/operators eating while spraying?		

35. Are spray men/operators carrying any food or cigarette?		
36. Are they polite to community?		
37. Do they look neat and presentable?		
38. Are they able to explain instructions to household members?		
39. Are they able to respond to the IRS FAQs?		
40. Do the spray men/operators carry out mobilization?		
41. Are houses correctly marked after spraying?		
<b>J. Daily post-spray operations</b>	<b>Yes</b>	<b>No</b>
42. Upon returning from the field, are spray pumps depressurized and left over insecticides in spray pumps poured into "Barrel # 1?"		
43. Are all unused and empty insecticides sachets surrendered by the spray men/operators and recorded by the team leaders/malaria supervisors?		
44. Is all PPE and equipment handed over to the team leader/malaria supervisor?		
45. At the end of day do all spray men/operators take a bath before leaving for their homes?		
46. Any other comments regarding IRS? If yes, please mention.		

### **K. In Door Residual Spraying (IRS) Database**

Sr. No.	1	2	3	4	5	6	7
Name of FLCL							
UC							
District							
Name of households							
Contact number							
Total Rooms							
Sprayed							
Un-sprayed							
No. of Child < 5							
No. PL							
Total no. of family members							
Refused							
Insecticides Used							

**Name & designation of the monitor:**

**Signatures:**

**Date of visit:**

## Guidelines on Indoor Residual Spray (IRS) Operations Supervision Checklist

(All the following questions require response, in Yes or No, through OBSERVATION)

### A. General Information

Write down the name of province, district, taluka, health facility and date of visit.

### B. Observation during visit

1. Is district Indoor Residual Spray (IRS) micro-plan available with DHO?  
Check the availability of District micro-plan.
2. Is target population identified in taluka/UCs/health facilities/village?  
Target population should have been identified. Check the record for reporting of malaria cases in that particular area, highlighting the high prevalence of malaria cases.
3. Is IRS user guide available at DHO/EDO office?  
Check the availability of user guide at DHO/EDO office. IRS user guide provides information on the areas to be sprayed, SOPs for spraying, frequency of spraying and precautions/safety measures for the health personnel and household.
4. Is supervisor/team leader present during spraying?  
Check for the presence of designated supervisor/team leader at the time of field operation by using any documentary evidence.
5. Have spray persons been trained before spraying in this cycle?  
Check their training status where and when they were trained. Verify from the record/certificate and ask the relevant staff about training status.

### C. Storage facility from spray point

6. Is the storage facility situated away from domestic dwellings?  
Check the location of storage facility. It should be away from schools, animal feed depots, water courses and residential homes (generally 100 meters away).
7. Is the store tidy and well arranged?  
The store should be visited for the provision of following:
  - i. Thick polyethylene sheeting on floor (if surface is not concrete or otherwise impermeable)
  - ii. Wooden pallets
  - iii. Ramps at entrance to contain leakage
  - iv. Entrance door with lock to prevent unauthorized entry
  - v. Secured windows and ventilators to prevent unauthorized entry
  - vi. Fire-fighting equipment: fire extinguisher and fireproof blanket
  - vii. Empty pesticide containers (preferably salvage drums that can contain a whole 200-litre drum)
  - viii. Empty bags to repack heavily damaged or leaking containers
  - ix. Self-adhesive warning labels for marking containers
  - x. First aid kit
  - xi. Stock record sheets
  - xii. Spill response kit

8. Is there a well-stocked first aid kit?

Check the first aid kit along with its constituents. The following are minimum requirements of a first aid kit:

- Band aids
- Gauze
- Antibiotic Cream
- Eye wash
- Hydrocortisone Cream/Calamine
- Aspirin

9. Is there a updated ledger book?

Check for the availability of ledger book as well as whether its entries are accurate, complete and updated. Check some of the entries with receipt and issue vouchers.

#### **D. Soak Pit and Washing Facilities**

10. Is the mixing of IRS chemical done away from community water supplies?

Observe the location/distance where the spray men are mixing. Preferably it should be 100 meters away from water supply.

11. Are there sufficient washing facilities/showers for the operators?

Check for the availability of water and appropriate washing/shower facilities.

12. Is there adequate soap for washing?

Check for the availability of sufficient quantity of soap.

#### **E. Household preparation**

13. Are the household members informed about vacating a house?

Ample information should be given to household, as he/she can vacate house.

14. Is the household members given time to vacate houses?

An ample time should be given to household, as he/she can vacate house.

15. Are the households instructed on what to do during and after the spraying of the houses?

*Examine whether following instructions have been given satisfactorily and followed by the household  
(Informational campaigns and mobilization are critical to ensure the safety of residents)*

- Advise occupants to stay outside the home during spraying and for at least two hours after spraying.
- If persons are unable to be removed from the house, prohibit spraying.
- Move all animals outside the home and tether or cage away from the house during spraying, and for two hours after spraying.
- Advise residents to keep children away from the house during spraying.
- Advise residents not to prepare food in close proximity to the house during spraying.

##### *Upon completion of spraying:*

- Residents must sweep floors free of residual pesticide and insects killed from the spraying and drop them in latrine pits, or in lieu of a latrine pit, dig a hole and bury the swept material. Do not allow children or animals inside until this has been completed.
- Advise residents not to plaster or paint walls after walls have been sprayed.
- If skin itches after re-entrance into the home, wash with soap and water; for eye irritation, flush eyes with water; for respiratory irritation, leave the home for fresh air; if ingested, contact program staff or go to nearest health facility.
- When spillage has occurred, restrict access and cover the spill with earth, sand, etc.; no attempt should be made to wash away the spill with water or other liquids.

16. Are household items, including water, food, cooking utensils removed from the house before spray? (Observe the house at the time of spray) Clear homes of mats or rugs, furniture, cooking implements and all foodstuffs prior to spraying.

17. Is heavy furniture moved to the center of the room and covered to allow easy access for spraying the walls?  
Observe the house at the time of spray and also ask the question to the household.
18. Are domestic animals and pets kept away from the house during spray?  
Observe the house at the time of spray and/or also ask the household

## **F. Worker safety**

19. Are all spray men, team leaders, malaria supervisors wearing appropriate PPE?  
Check the staff whether they are really wearing Personnel Protection Equipment (PPE) in accordance to WHO health and safety regulations. All persons working on IRS must be adequately protected against potential harm due to exposure from pesticides. All persons with potential direct contact or exposure to pesticides during handling, transportation, storage, use and cleaning of pesticides or pesticide contaminated materials must wear appropriate personal protective clothing in accordance with the safety instructions on the product label or material safety data sheet.
20. Is the PPE in good condition?  
Check the PPE.
21. Ask if the spraymen/operators are comfortable or if they have any other comments about the protective clothing?  
Discuss with the staff about their reservations, if any and also see the suggestions to improve the PPE.

## **G. Mixing insecticides**

22. Is the water filled up to the 10 liter mark on the spray pump?  
Observe the spray men at the time of filling the spray pump
23. Is the insecticides sachet opened and contents poured/dropped into the tank with no spilling, and empty packaging placed back in the sack?  
Check/observe the process.
24. Has the spray men/operator done some agitation to dissolve the insecticide?  
Observe during dissolving the ingredients of pesticide spray (e.g. ratio of water to pesticide varies according to the manufacturer's instruction). The pesticide may be:
  - a. mixed separately in a bucket and poured into the sprayer, or
  - b. added directly to the water-filled spray pump.
 Scenario (b) should be practiced when using water-soluble sachets, tablets and pesticides granules, as these formulations mix readily with water.
25. Is the pump then pressurized to 55 psi and checked for leaks and re-shaken to mix?  
When the sprayer has been filled with water to the maximum level indicated on the tank, the lid of the tank is fitted and the sprayer pumped until the pressure gauge shows 55 psi (3.8 bar). Every full stroke gives about 1 psi. Therefore, about 55 full strokes are required to reach the working pressure. Hissing sounds should not be present as these indicate possible leaks.
26. Are spray men/operators carrying the pumps correctly (pump held under the arm and the gauge in front)?  
Observe the spray men during operation.

## **H. Applying insecticide**

27. Is the spray man/operator using the correct nozzle tip for the insecticide?  
Standardized nozzles should be used throughout the IRS program, although different types are necessary for different pesticides and surfaces (absorbent and non-absorbent). Currently, there are two nozzles, both are fan type (TEEJET) and differ only in their through put per minute at 40 psi (276 kPa). Specifications are as follows: HSS 8002/8001 or HSS 8002E/8001E nozzle tips.  
HSS = Hardened Stainless Steel  
80 = 800 (angle of spraying fan)  
02 = 0,2 US. gallons (757 ml) per minute, or

01 = 0,1 US. gallons (378 ml) per minute

E = Even (consistent uniform coverage requiring no overlapping of spray).

The 8002 nozzle should typically be used for:

- Application of DDT
- Application of synthetic pyrethroids/carbamates on absorbent surfaces (e.g., mud and unpainted cement)

The 8001 nozzle should typically be used for:

- Application of synthetic pyrethroids/carbamates on nonabsorbent surfaces (e.g., painted surfaces)

28. Does the spray operator apply vertical swaths, 80 cm wide, with a 5 cm overlap, and with the tip of the nozzle 45 cm from the wall?

Pesticides should be applied in vertical swaths 80 cm wide (2.46 feet). Swaths should overlap by 5 cm. The walls of the room should be sprayed in downward and upward motions.

To ensure the correct swath width, the spray tip should be about 45 cm (1.48 feet) from the wall. The spray operator should lean forwards as he/she sprays from top of the wall and move back as he/she brings the nozzle downwards. The process should be continued, moving in a clockwise direction until the room is completed.

29. Are they applying right speed of 5 seconds per 2 vertical meters?

The spray speed should cover one meter every 2.2 seconds, i.e., 4.5 seconds for a 2 m high wall. Timing may be aided by counting "one thousand and one – one thousand and two – one thousand and three - ..."

30. Are they regularly shaking the pumps and checking the pressure gauges to ensure the pressure stays between 55 and 35 psi?

31. Is there any run off of insecticide dripping from the walls?

The nozzle should not drip when the trigger on/off valve is released. If there is dripping and/or puddling at bottom of the wall, spray operators should be instructed to wipe these areas with a rag.

32. Are there any signs of leakage from the any part of the spray pumps?

Observe the spray pumps for any leakage. There should be no leaks along the lance and hose, especially where hose joins tank and trigger on/off valve.

All the above mentioned points require keen observation by the monitor (Point No 26-31)

## **I. Spraymen's/operator's conduct**

**(All the following questions require response, in Yes or No, through OBSERVATION)**

33. Are spraymen/operators smoking while spraying?

34. Are spraymen/operators eating while spraying?

Eating, drinking and smoking while applying pesticides must be strictly forbidden. IRS operations can be physically demanding under harsh environments and may tempt spray operators to break this rule.

35. Are spraymen/operators carrying any food or cigarette?

Check the operators if they are carrying food or cigarette.

36. Are they polite to community?

Check the attitude of spraymen towards the community, they are serving by asking the community members.

37. Do they look neat and presentable?

Check whether they really present themselves well.

38. Are they able to explain instructions to household members?

The spraymen should gain the confidence of households so that they can explain the operation in an understandable/local language manner.

39. Are they able to respond to the IRS Frequently Asked Questions (FAQs)?

Check the knowledge of spray men by asking few questions.

40. Do the spray men/operators carry out mobilization?  
Team leader should gather the head of household and should talk about the importance of spraying and hazards of non-spraying. Moreover he should try to build the confidence of community and ask for few community volunteers to accompany the spray team.
41. Are houses correctly marked after spraying?  
Check few houses whether those have been marked according to protocols.

## **J. Daily post-spray operations**

**(All the following questions require response in, Yes or No, through OBSERVATION)**

42. Upon their turning from the field, are spray pumps depressurized and left over insecticides in spray pumps poured into "Barrel#1."  
Observe the procedure.
43. Are all unused and empty insecticides sachets surrendered by the spray men/operators and recorded by the team leaders/malaria supervisor?  
The team leader writes down the number of sachets given to each spray operator. Marking each of the sachets makes it easy to identify which team and eventually what spray operator had custody of any given sachet. Both the spray operators and the team leaders have their separate sachet inventory cards.
44. Is all PPE and equipment handed over to team leader/malaria supervisor?  
At the end of each day, clean PPE's are handed over to team leader. Equipment should be maintained through daily cleaning. To clean spray equipment, first rinse cans thoroughly with water from the progressive rinse. Remove the nozzle and add about 4 L of fresh water to the tank. Pressurize the sprayer to x psi and flush water through system. Release tank pressure.
45. At end of day, do all spray men/operators take a bath before leaving for their homes?  
After spray operation, spray personnel should wash their faces and hands. If showers are available, then spray personnel should take shower.
46. Any other comments regarding IRS?  
Monitor can write down comments after thorough examination of spray operation. The supervisor should give his comments on the basis of examination of the record, observation and interaction with the team and the community. He should comment on all the above mentioned areas/sections, spotlighting grey areas, issues and specific recommendations.

## **K. In Door Residual Spraying (IRS) Database**

The team leader will ensure complete and accurate data entry in IRS database at the end of operation. The supervisor will examine the database thoroughly and for his satisfaction, he should cross validate data entry from household/community.

*In the last, monitor will write down his name, designation and sign along with date of visit.*