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# Manual for the implementation of environmental, health, and safety standards for the control of locusts

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**Manual for the implementation of environmental, health, and safety standards  
for the control of desert locusts**

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## Contents

<b>Acknowledgements</b> .....	<b>vii</b>
<b>I. Introduction</b> .....	<b>1</b>
<b>II. Implementation process</b> .....	<b>1</b>
<b>II.1 Development of the EHS at national level</b> .....	<b>1</b>
<b>II.2 Validation of the EHS at national level</b> .....	<b>1</b>
<b>II.3. Appointment of a person responsible for implementation</b> .....	<b>2</b>
<b>II.4 Development of an Implementation Manual</b> .....	<b>2</b>
<b>II.5 Current status of implementation/ Baseline situation</b> .....	<b>2</b>
<b>II.6 Identifying priorities</b> .....	<b>2</b>
<b>II.7 Programming</b> .....	<b>2</b>
<b>II.8 Training</b> .....	<b>3</b>
<b>II.9 Monitoring of the implementation</b> .....	<b>3</b>
<b>III. Structure of the manual</b> .....	<b>3</b>
<b>Subject as defined in the EHS</b> .....	<b>4</b>
SOP No. Description of the SOP, as defined in the EHS. ....	4
<b>1. Choice of control strategy and methods</b> .....	<b>7</b>
SOP 1.1. Barrier treatments against gregarious hopper populations are favoured, if possible. ....	7
SOP 1.2. Treatments with entomopathogens are favored, if possible. ....	8
<b>2. Choice of the insecticide</b> .....	<b>10</b>
SOP 2.1. Only those insecticides registered in the country for locust control are used. ....	10
SOP 2.2. In the absence of registration, the insecticide has received a temporary authorization from the designated regulatory authority, including a quality analysis demonstrating compliance with the minimum requirements specified in the FAO Pesticide Specification. ....	12
SOP 2.3. Taking into account local conditions, only those insecticides that meet the human health criteria listed by the FAO (and based on the WHO classification of pesticides by hazard) are used. ....	13
SOP 2.4. Taking into account national regulations, only those insecticides that meet the environmental safety criteria listed by the FAO are used .....	15
<b>3. Procedures for procurement, tenders and donations</b> .....	<b>17</b>
SOP 3.1. The insecticide packaging is conform the UN Recommendations on the transport of dangerous goods. ....	17
SOP 3.2. Suppliers should guarantee that the insecticide meets the required quality criteria for a minimum duration of 2 years after importation in the country (for imported products), or after arrival on site at the locust control unit (for locally formulated products), when stored according to the FAO pesticide storage guidelines. .	18
SOP 3.3. Insecticide labels comply with SOPs set by the national pesticide registration authority, or, if absent, comply with FAO guidelines. ....	19
SOP 3.4. Insecticide quality meets FAO/WHO specifications, if the specifications exist for the technical and/or formulated product. ....	20
SOP 3.5. A certificate of quality analysis of the insecticide is provided by the supplier, issued by a quality control laboratory working according to GLP, and which is preferably independent of the supplier. The certificate contains the information defined in the FAO/WHO specifications. ....	22
SOP 3.6. The insecticide drums/containers have a bar code which allows their individual traceability. ....	23
SOP 3.7. An effective insecticide supply system is put in place to avoid the creation of obsolete stocks. ....	24
<b>4. Choice of the application equipment</b> .....	<b>25</b>
SOP 4.1. For aerial treatments: Only sprayers with rotary atomizers and electrical pumps are being used; spray aircraft are equipped with a DGPS and GPS linked to a flow meter. ....	25
SOP 4.2. For ground treatments by vehicle: only ULV sprayers with rotary atomizers are being used; spray vehicles are equipped with a GPS. ....	26
SOP 4.3. For ground treatments with portable sprayers: ULV sprayers with rotary atomizers are favoured. ....	27

SOP 4.4. For ground treatments with portable sprayers: If, during an invasion, ULV sprayers are not or not sufficiently available, medium volume sprayers can be used (e.g. for EC or SC formulations). .....	28
SOP 4.5. Each sprayer should have an appropriate calibration kit. ....	29
<b>5. Training of control staff.....</b>	<b>30</b>
SOP 5.1. All persons who handle or apply insecticides are trained before they start their work in the field. ....	30
SOP 5.2. All persons that handle or apply insecticides have obtained a certificate of professional competence before they start their work in the field. ....	31
<b>6. Organization and training of public health staff.....</b>	<b>32</b>
SOP 6.1. All health centers and medical practitioners in areas that will likely see control operations have received safety data sheets, poisoning treatment measures and other relevant toxicological information, for all the insecticides that may be used in the area. ....	32
SOP 6.2. "Strategic" health centers will be chosen to ensure that an intoxicated person can be transported there within a reasonable time. ....	33
SOP 6.3. Health staff (doctors, nurses, etc.) in strategically located health centers are trained in the recognition and treatment of intoxications that could be due to insecticides used in locust control. ....	34
SOP 6.4. Specific antidotes exist for the treatment of poisoning due to the insecticides used, and they are made available to strategic health centers and control teams in areas likely to be treated. ....	35
<b>7. Pesticide storage .....</b>	<b>36</b>
SOP 7.1. Permanent and semi-permanent insecticide storage is carried out in accordance with the FAO guidelines for pesticide storage. ....	36
SOP 7.2 Temporary storage of large quantities of insecticides during upsurges and plagues, is carried out in accordance with the FAO guidelines for pesticide storage. ....	37
SOP 7.3. Temporary storage of small quantities of insecticides is carried out in accordance with the FAO Desert Locust Guidelines. ....	38
SOP 7.4. All persons responsible for storage of locust control insecticides have received a training in pesticide stock management. ....	39
SOP 7.5. All personnel responsible for storage of locust control insecticides keeps stock records up to date. ....	40
SOP 7.6. FAO's Pesticide Stock Management System is used to track insecticide stocks across the country. ....	41
SOP 7.7. An environmental assessment is carried out before the construction of new pesticide stores. ....	42
<b>8. Pesticide transport.....</b>	<b>43</b>
SOP 8.1. International transport of locust control insecticides complies with international standards. ....	43
SOP 8.2. National transport of insecticides complies with the FAO Desert Locust Guidelines. ....	44
SOP 8.3. All drivers of vehicles carrying insecticides have received training on product handling and on emergency procedures in the event of accidents involving the products. ....	45
SOP 8.4. Any transport of insecticide must be accompanied by its shipping documents. ....	46
Outbreak, upsurge / plague. ....	46
Basic SOP. ....	46
Preparation.....	46
<b>9. Information and awareness of the public.....</b>	<b>47</b>
SOP 9.1. Information and awareness raising sessions are organized on precautionary measures for people living in the regions in which control operations can be carried out. ....	47
SOP 9.2. A general information campaign is conducted to inform the public that control operations will be carried out, on their possible risks, and on precautionary measures. ....	48
SOP 9.3. Before the control operations, Locust control teams have informed habitants close to areas to be treated, about precautions they should take.....	49
SOP 9.4. A system for filing complaints or reports of adverse effects of the locust control operations has been put in place.....	50
<b>10. Emergency plan.....</b>	<b>51</b>
SOP 10.1. An emergency plan is available and is triggered at the moment that an accident occurs with a locust insecticide.....	51
<b>11. Insecticide treatments .....</b>	<b>52</b>
SOP 11.1. Insecticide treatments are being carried out according to the principles described in the relevant FAO guidelines. ....	52
<b>12. Documentation of the control operations.....</b>	<b>53</b>
SOP 12.1. The insecticide treatment details are collected at each control operation and noted on the FAO Spray	

monitoring form.....	53
SOP 12.2. The actual application doses are measured, based on the area treated and the volume of insecticide applied.....	54
SOP 12.3. The coordinates of corner of the treated plots are recorded using GPS. ....	55
<b>13. Field operations bases .....</b>	<b>56</b>
SOP 13.1. Temporary field operations bases are located according to FAO Desert Locust guidelines, to ensure minimum risks to local populations. ....	56
SOP 13.2. Field operations bases are equipped with decontamination materials (buckets, absorbents, water, shovels, etc.) and are kept clean and free of waste. ....	57
SOP 13.3. A closed-circuit pumping system is available on each aerial operation base. ....	58
<b>14. Personal protective equipment .....</b>	<b>59</b>
SOP 14.1. Anyone handling insecticides have and use personal protective equipment suitable for their duties. .	59
SOP 14.2. Anyone with personal protective equipment have been trained in its proper use and maintenance. ...	60
SOP 14.3. A quantity of personal protective equipment, sufficient to equip all staff handling or applying pesticides for a period of 3 to 6 months, is permanently in stock. ....	61
SOP 14.4. Each locust control team is equipped at all times with a first aid kit and a personal decontamination kit (clean water, detergent, eye-wash bottle, etc.).....	62
<b>15. Sensitive areas.....</b>	<b>63</b>
SOP 15.1. All areas in the country that are sensitive to the ecological effects of insecticide applications are identified and mapped. ....	63
SOP 15.2. All areas in the country that are ecologically vulnerable to insecticide treatments have been identified in a GIS system. ....	64
SOP 15.3. Risk mitigation measures have been identified for each area sensitive to insecticide applications. ....	65
<b>16. Waiting periods.....</b>	<b>67</b>
SOP 16.1. For all insecticides that may be applied on crops intended for human consumption, pre-harvest intervals have been defined based on national maximum residue limits (MRLs) or on the Codex Alimentarius MRLs, if available.....	67
SOP 16.2. For all insecticides that may be applied on crops intended for human consumption, farmers are informed of the pre-harvest intervals they should observe. ....	68
SOP 16.3. For all insecticides that may be applied on pastures, livestock withholding periods have been defined based on national maximum residue limits (MRLs) or on the Codex Alimentarius MRLs, if available. ....	69
SOP 16.4. For all insecticides that may be applied on pastures, pastoralists and shepherds (nomads) are informed about the relevant livestock withholding periods and are urged to observe them. ....	70
SOP 16.5. Waiting periods for control staff between the insecticide application and re-entry in the treated plot are defined and observed, for all insecticides used. ....	71
<b>17. Monitoring of treatments .....</b>	<b>72</b>
SOP 17.1. At least one operationally independent team is available, specialized in monitoring human health, environmental impact, and application quality, and regularly carrying out monitoring exercises. ....	72
<b>18. Efficacy assessment .....</b>	<b>73</b>
SOP 18.1. Regular assessments of the biological efficacy of the control operations are conducted. ....	73
<b>19. Monitoring of human health.....</b>	<b>74</b>
SOP 19.1. A detailed medical examination is done before the start of the control campaign, of all personnel handling insecticides. The examination includes the establishment of an individual acetyl-cholinesterase (AChE) base level. Persons that may be highly susceptible to insecticides will not be assigned to work that includes these products.....	74
SOP 19.2. A personal insecticide use passport is kept during the control campaign for all persons handling insecticides. ....	75
SOP 19.3. Regular occupational health monitoring is conducted of all personnel handling insecticides, based on the frequency of application, the quantity of insecticides handled, and the results of previous AChE assessments. ....	76
SOP 19.4. A database is set up for recording and evaluation of cholinesterase inhibition.....	77
SOP 19.5. At the end of the control campaign a detailed medical examination is conducted of all personnel having handled insecticides. ....	78
SOP 19.6. Each person showing a plasma cholinesterase inhibition level of more than 40%, or an erythrocyte cholinesterase inhibition level of more than 30%, or whose health is otherwise adversely affected by an	

insecticide, will be withdrawn from all handling of insecticides. Those persons will be assigned other work within the control campaign until recovery to normal cholinesterase levels or of his/her health. ....	79
SOP 19.7. Any handling of human blood must be done by a health worker, or a person otherwise certified for this work.....	80
<b>20. Environmental monitoring .....</b>	<b>81</b>
SOP 20.1. An environmental monitoring assessment of the control operations is conducted on a regular basis. ....	81
SOP 20.2. A database, linked to a GIS, is created and used for the management of information on the environmental impact of locust control operations. ....	82
<b>21. Management of empty insecticide containers .....</b>	<b>83</b>
SOP 21.1. A system is put in place for the management of empty insecticide containers, including their storage, transport, rinsing crushing and disposal. ....	83
SOP 21.2. All empty containers of locust control insecticides are collected stored at a single place. ....	84
SOP 21.3. The empty and crushed containers are recycled or disposed in accordance with national regulations or relevant international standards.....	85
SOP 21.4. If empty containers need to be sent abroad for disposal or recycling, transboundary movements are conducted according to the Basel Convention. ....	86
<b>22. Management of left-over insecticides .....</b>	<b>87</b>
SOP 22.1. All insecticides that have not been used at the end of the control campaign are collected in a limited number of permanent pesticide stores.....	87
SOP 22.2. The quality of all insecticides produced two years ago or more is checked by chemical analysis at least once a year, unless previous analyses clearly justify a longer quality assessment interval.....	88
SOP 22.3. Insecticides that do no longer meet the FAO/WHO specifications with respect to acceptable impurity levels, or which have otherwise become unusable, will be set aside for environmentally sound disposal. ....	89
SOP 22.4. If obsolete insecticides need to be sent abroad for disposal or recycling, transboundary movements are conducted according to the Basel Convention, if required.....	90
<b>23. Internal monitoring of implementation of the EHS .....</b>	<b>91</b>
SOP 23.1. The national locust control unit (NCLU) appoints an environmental and health officer who is responsible for the implementation of the EHS.....	91
SOP 23.2. The person responsible for the internal monitoring puts in place, and maintains, a system for the documentation of the state of implementation of all the SOPs defined in the EHS Manual , to allow external auditing at all times.....	92
SOP 23.3. The person responsible for the internal monitoring elaborates each year a report on the state of implementation of the EHS. ....	93
<b>After-campaign pesticide stock management and cleaning of environmental contamination ...</b>	<b>94</b>
Containers .....	94
Dangers of improper disposal .....	94
The responsibility of industry and the government.....	94
Contaminated soil .....	94
The process.....	94
The costs.....	95
The FAO Programme, manuals and guidelines.....	95
Technical Guidelines:.....	95
Guidelines and Manuals .....	96
Updates of the Manual.....	96



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## Abbreviations and acronyms

<b>CLCPRO</b>	Commission for Controlling the Desert Locust in the Western Region
<b>(D)GPS</b>	(differential) global positioning system
<b>DLG</b>	FAO Desert Locust Guidelines
<b>EC</b>	emulsifiable concentrate
<b>EHS</b>	environmental, health and safety
<b>EIA</b>	environmental impact assessment
<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>GIS</b>	Geographical Information System
<b>GLP</b>	good laboratory practice
<b>LD50</b>	median lethal dose
<b>MRL</b>	maximum residue level
<b>NLCU</b>	national Locust Control Unit
<b>PPE</b>	personal protective equipment
<b>QA</b>	quality assurance
<b>SC</b>	suspension concentrate
<b>SMT</b>	specialized Monitoring Team
<b>SOP</b>	standard operation procedure
<b>ULV</b>	ultra low volume
<b>WHO</b>	World Health Organization

## **I. Introduction**

The Environmental, Health and Safety (EHS) Standard Operation Procedures (SOP) for the control of the Desert Locust define the procedures that should be followed in a Desert Locust control campaign to minimize the impact of the use of insecticides on human health and the environment.

This Manual for the implementation of SOPs for EHS has been developed to support the person responsible for the implementation of EHS at the National Locust Control Unit (NLCU). The Manual should facilitate the programming of activities to be carried out, structure the documentation of the state of implementation, and allow relatively easy monitoring of the extent to which the EHS has been achieved by the managers of the NLCU or by third parties.

The Manual presents a "model approach" for the implementation of the EHS. However, this approach is flexible and should not be applied too rigorously but adapted to the national situation and the specific organization of NLCU.

The objectives of the Manual are to:

- clarify responsibilities for the implementation of each Standard Operation Procedure (SOP);
- plan the activities to be carried out;
- allow the internal monitoring of the implementation process;
- ensure complete documentation of the implementation process;
- facilitate the external audit; and
- allow an easy adaptation to the national situation

## **II. Implementation process**

The process of implementing the SOPs for EHS will differ from country to country. The exact process will depend on several factors, including the regulatory and administrative situation in the country with respect to the structure of the NLCU, the degree of implementation of the standards of EHS at the start of the process, and the human and financial resources available.

The following steps are normally part of the process for the EHS implementation at the national level. However, the exact order and content of the steps may vary.

### **II.1 Development of the EHS at national level**

The regional EHS adopted by the environmental experts of the member countries of the Desert Locust Control Commission in the Western Region (CLCPRO) defines the "universal standards", applicable to the member countries of CLCPRO. This regional EHS should then be translated into a national EHS, introducing amendments or additions to ensure compliance with the national legislation applicable in this field and the provisions of the national policies or strategies adopted in the field of locust control.

### **II.2 Validation of the EHS at national level**

Validation of the EHS by the various actors involved at the national level is a key step, since its implementation does not depend solely on the NLCU. Other governmental and national non-governmental structures should participate to ensure compliance with their specific standards for EHS. These structures should agree on the content of the EHS and be involved in the programming of relevant activities.

The institutional anchoring of the implementation and, where appropriate, of monitoring and external audit, should be formalized during this stage. In principle, it is recommended that the implementation of EHS be under the direct responsibility of the NLCU, in order to ensure optimal integration between the (monitoring of) EHS and the daily activities of the NLCU. This recommendation is based on the belief that the EHS should be internalized at the NLCU if we want to achieve effective implementation. However, the monitoring of the implementation of EHS can be carried out by another structure. In some countries, an external audit is provided under national (usually environmental) legislation.

### **II.3. Appointment of a person responsible for implementation**

After national validation, the NLCU must appoint a person responsible for the implementation of the EHS. This person coordinates the entire implementation process, including: internal (within NLCU) and external (among the other structures involved) information exchange regarding the implementation of the EHS, programming of activities necessary to meet the standards of the EHS, activities of different sections of the NLCU and with the other structures involved in the implementation of the EHS,

The manager himself is therefore not responsible for the implementation of EHS SOPs, although certain SOPs may be directly under his mandate.

### **II.4 Development of an Implementation Manual**

An EHS Implementation Manual includes information and programming pages for EHS SOPs (see below). Some of this information, particularly any national changes to SOPs and technical guidelines, should be included (or amended) in the Manual to ensure that the content of the Manual follows exactly the content of the national EHS. This work is mainly administrative, and should be done by the EHS implementation manager, based on the validated national EHS.

In addition, for EHS SOPs, the primary responsible(s) for their implementation within the NLCU must be identified and formalized.

### **II.5 Current status of implementation/ Baseline situation**

It is important to initially establish the current implementation status of EHS standards. This description of the "starting situation" will identify which SOPs of the EHS are already in place, which gaps exist, and for which SOPs of the activities should be developed.

In addition, a good definition of the initial situation will subsequently facilitate EHS monitoring implementation. To do this, it is recommended to quantify, as much as possible, the verification indicators already at the time of the description of the current state.

### **II.6 Identifying priorities**

It will probably not be possible to set up and execute all the activities necessary to meet all the SOPs of the EHS. Human and financial resources, as well as the time available, will certainly limit the ability to execute in a given year. During the process of defining the EHS, it was suggested that its implementation would take two to three years, provided that the human and financial resources are available.

It will therefore be necessary to make short-term priorities regarding the SOPs to be put in place and the activities to be carried out. The choice of these priorities will depend, among others, on national policies for agriculture, the environment and human health, as well as the specific situation of EHS.

After the description of the current status of the implementation of the EHS (see 2.5), the identification of short-term priorities (over 1 to 2 years) should be made.

### **II.7 Programming**

For all the priorities identified, more detailed programming can be done. It concerns the various activities necessary to achieve compliance with priority SOPs. For EHS activity, the following questions should be answered:

- What should we do?
- Who will do it?
- What is the deadline?
- What resources are needed?

- What are the audit indicators?
- How to follow up?

The first four questions can only be answered at the national level. On the other hand, suggestions for the verification indicators and the information to be collected in order to be able to follow up are given in the sheets below.

## **II.8 Training**

A large number of agents at the level of the NLCU, but also in other national structures, are involved in the implementation of the EHS. Depending on the SOP, the actors are often different. However, all these agents must have the technical skills required to meet the SOPs defined in the EHS.

For a given SOP, the technical skills may already be present at a suitable level; they can be present but deserve reinforcement, or the necessary technical capacities are to be developed. In the last two cases, specific and targeted training is essential.

## **II.9 Monitoring of the implementation**

The internal monitoring of the implementation of the EHS will start with the description of the initial situation (see 2.5), which is carried out continuously during the implementation of the EHS. It is recommended that internal monitoring be done by the implementation manager at the NLCU level. Certain verification indicators and information to be collected and analyzed have been identified in the sheets below. Additional indicators and data to be collected may still be added, if considered useful, to better describe the progress of the achievement of EHS SOP.

Documenting the implementation of EHS SOPs will be a key activity in monitoring. In its present form, this Implementation Manual can be used to organize and archive the information and documentation which will form the basis of internal monitoring. In addition, it will facilitate any possible external audit of the implementation of the EHS.

## **III. Structure of the manual**

Every EHS SOP is summarized in one page in the manual, and suggestions are given regarding: a. implementation procedures, b. verification indicators, and c. information to be collected to verify the SOP's fulfilment.

It is recommended that the manual be designed in the form of (series of) file (s) where the different "forms - SOPs" appear as dividers. All the information necessary to monitor the implementation of the EHS will thus be stored in a secure place to ensure complete documentation. . The manual can be considered as a framework for organizing documentation and monitoring the implementation of the EHS. However, the EHS manager is free to organise the documentation in the most appropriate way.

Subject as defined in the EHS	
<b>Principle</b>	<p><b>SOP No. Description of the SOP, as defined in the EHS.</b></p> <p><b>Note:</b> If the SOP has been changed in the national EHS, it should also be changed according to the data sheet.</p>
<b>Type of campaign</b>  <b>SOP level</b>  <b>Campaign Phase</b>	<p>Type of campaign for which the SOP is applicable: recession/outbreak and/or upsurge/plague.</p> <p>Level of campaign for which the SOP is applicable: outbreak and/or upsurge/ plague.</p> <p>Phase of the campaign for which the SOP applies preparation and/or execution and/or after-campaign activities</p>
Implementation	
<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	<p>The person with primary responsibility for the implementation of the SOP, the Quality Assurance (QA) auditor</p> <p><b>Note:</b> Whenever possible, one person should be the QA auditor for the implementation of the SOP, so that responsibility is clear, and coordination is easier.</p>
<b>Technical guidelines to be consulted</b>	<p>Guidelines or technical SOPs that provide information about the SOP and/or its implementation</p> <p><b>Note:</b> If the additional technical guidance has been included in the national ECC, it should also be added in accordance with the SOP.</p>
<b>Procedure</b>	<p>Activities required or likely to be undertaken for the implementation of the SOP</p> <p><b>Note:</b> Suggestions for activities are being given here. These suggestions are not exhaustive, and the full list of activities are to be identified at the national level during the programming phase (see below).</p>
Programming	
<p><b>Note:</b> All programming should be done at the national level, based on the description of the baseline situation for the identified SOP and priorities. Programming should cover, as a minimum, the aspects below. It may be easier to attach the programming for each SOP on separate pages, if necessary, according to the framework required at the national level.</p>	
<b>Starting situation</b>	Description of the current state of implementation of the SOP and identification of gaps.
<b>Activities</b>	Description of the activities to be performed in order to meet the SOP.
<b>Actors</b>	Persons or sections of NLCU who are involved in the implementation of activities.
<b>Deadlines</b>	Planning of various activities over time, and deadlines for its completion.
<b>Resources</b>	Human and financial resources required for the implementation of the activities; funding sources available and/or identified.
Monitoring	
<b>Verification indicator(s)</b>	<p>Indicator(s) to measure the degree of implementation of the SOP</p> <p><b>Note:</b> Suggestions for indicators have been given here. However, these suggestions are not exhaustive and additional appropriate indicators can be identified at the national level.</p>

## Monitoring

### Information to be collected and analyzed to verify implementation

Information to be collected to validate and/or quantify the deployment verification indicator of the required SOP

**Note:** Suggestions for information to be collected and analyzed have been given here. However, these suggestions are not exhaustive and additional appropriate data can always be identified at the national level.

## Results

Data and/or information that could be included in the EHS monitoring documentation (attached to this page) to show the degree of implementation of the SOP, to facilitate any third-party verification or audit.

**Note:** This section refers to documentation that is considered necessary or useful to show, both internally and for third parties, the degree of implementation of the SOP. It is important to note that this section of the Manual should not duplicate all information available in other sections of NLCU. This would be an unnecessary duplication of documentation and a waste of time. Only summaries of results/data, or key information to understand the status of implementation of the SOP, should be attached. However, in all cases the location at NLCU where the original data can be accessed must be indicated



**Manual for the implementation of the Environmental  
and Health Safety Forms for Standard Operation  
Procedures**



## 1. Choice of control strategy and methods

<b>Principle</b>	<b>SOP 1.1. Barrier treatments against gregarious hopper populations are favoured, if possible.</b>
<b>Type of campaign</b>	Recession/Outbreak and upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation / Execution

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of NLCU Head of locust control operations
<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 5 - Organizing and Implementing a Campaign</a></li> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> </ul>
<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Inform and train treatment team leaders</li> </ul>

### Programming

<b>Starting situation</b>	
<b>Activities</b>	
<b>Actors</b>	
<b>Deadlines</b>	
<b>Resources</b>	

### Monitoring

<b>Verification indicator(s)</b>	<ol style="list-style-type: none"> <li>At least one insecticide suitable for barrier treatment is available: see pesticide database of Locust-pesticide management system (Locust-PMS)</li> <li>At least 70 %f gregarious larval populations, meeting the feasibility conditions, have been treated as a barrier</li> </ol>
<b>Information to be collected and analyzed to verify implementation</b>	<ul style="list-style-type: none"> <li>– Types and sizes of targets treated: Use the treatment database (e.g. RAMSES) and/or the archives of the prospection/hunt sheets to verify the implementation of this SOP.</li> </ul> <p>To calculate:</p> <ul style="list-style-type: none"> <li>○ The area of gregarious larval populations that meets the feasibility SOPs for barrier treatment.</li> <li>○ % of gregarious larval populations that meet feasibility conditions for barrier treatment</li> <li>○ The area of gregarious larval populations that has been treated as a barrier</li> <li>○ % of gregarious larval populations that have been barrier treated.</li> </ul>

### Results

<ul style="list-style-type: none"> <li>– Information about where the raw data used to verify implementation are located (which service/unit/office).</li> <li>– Environmental Assessment Documents</li> <li>– A summary of the results.</li> <li>– Justifications of all cases of non-compliance with the SOP.</li> <li>– In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.</li> <li>– Management of empty pesticides containers</li> </ul>
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## 1. Choice of control strategy and methods

<b>Principle</b>	<b>SOP 1.2. Treatments with entomopathogens are favored, if possible.</b>
<b>Type of campaign</b>	Recession/Outbreak and upsurge / plague.
<b>SOP level</b>	Supplementary SOP.
<b>Campaign Phase</b>	Preparation / Execution

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of NLCU Head of locust control operations
<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 5 - Organizing and Implementing a Campaign</a></li> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> <li>• Green Muscle User Manual</li> </ul>
<b>Procedure</b>	<ul style="list-style-type: none"> <li>• To define the conditions of feasibility of treatments with entomopathogens, at the national level.</li> <li>• To buy a minimum stock of entomopathogens, or to program its purchase.</li> <li>• Ensure appropriate storage for entomopathogens.</li> <li>• Train control teams in the use of entomopathogens.</li> </ul>

### Programming

<b>Starting situation</b>	
<b>Activities</b>	
<b>Actors</b>	
<b>Deadlines</b>	
<b>Resources</b>	

### Monitoring

<b>Verification indicator(s)</b>	<ul style="list-style-type: none"> <li>i. Feasibility conditions have been defined.</li> <li>ii. The entomopathogen is available; or its purchase has been scheduled</li> <li>iii. At least 15% of targeted hopperbands, meeting the feasibility conditions, were treated with entomopathogens<sup>1</sup></li> </ul>
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>- Types and sizes of targets treated: Use the archives of the prospection/hunt sheets to verify the implementation of this SOP.</li> </ul> <p>To Calculate:</p> <ul style="list-style-type: none"> <li>- - The population size that meets the feasibility SOPs for treatment with entomopathogens.</li> <li>- - % of populations that meet the feasibility conditions for treatment with entomopathogens.</li> <li>- - The area of populations that have been treated with entomopathogens.</li> <li>- - % of populations that have been treated with entomopathogens.</li> </ul>

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- .A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

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<sup>1</sup> This minimum is realistic for campaigns executed under normal conditions. In crisis situations, authorities may have other priorities

## 2. Choice of the insecticide

<b>Principle</b>	<b>SOP 2.1. Only those insecticides registered in the country for locust control are used.</b>
<b>Type of campaign</b>	Recession/Outbreak and upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation / Execution

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of NLCU and responsible for pesticide purchases
<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>List of pesticides registered by the National locust -PMS Pesticide Registration Authority</li> </ul>
<b>Procedure</b>	<ul style="list-style-type: none"> <li>To limit national tenders to licensed pesticide importers and formulators</li> <li>To inform donors of approved products (for international tenders).</li> </ul>

### Programming

#### Starting situation

#### Activities

#### Actors

#### Deadlines

#### Resources

### Monitoring

<b>Verification indicator(s)</b>	Only insecticides registered in the country for use against locusts are used (list of registered pesticides for DL control / Locust-PMS.
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>- List of Insecticides Registered for Desert Locust Control</li> <li>- List of insecticides purchased</li> <li>- List of insecticides used</li> </ul>

### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

<b>Choice of the insecticide</b>	
<b>Principle</b>	<p>2.1 : Only those insecticides registered in the country for locust control are used.</p> <p>2.2 In the absence of registration, the insecticide has received a temporary authorization from the designated regulatory authority, including a quality analysis demonstrating compliance with the minimum requirements specified in the FAO Pesticide Specification.</p>

**Table 2.1 – Registration status of insecticides purchased and used for the control of the Desert Locust**

Insecticide		Purchase			Locust Control Registration		Locust Control	
Commercial name	Common name	Batch No	Date of purchase	Quantity purchased	Registration number	Expiration date	Use Start Date	Out of stock date for this batch.

## 2. Choice of the insecticide

<b>Principle</b>	<b>SOP 2.2. In the absence of registration, the insecticide has received a temporary authorization from the designated regulatory authority, including a quality analysis demonstrating compliance with the minimum requirements specified in the FAO Pesticide Specification.</b>
<b>Type of campaign</b>	Upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation / Execution

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of NLCU and responsible for pesticide purchases
<b>Technical guidelines to be consulted</b>	National or regional pesticide registration authority
<b>Procedure</b>	<ul style="list-style-type: none"> <li>• To limit national tenders to licensed products</li> <li>• To inform donors of approved products (for international tenders).</li> </ul>

### Programming

<b>Starting situation</b>	
<b>Activities</b>	
<b>Actors</b>	
<b>Deadlines</b>	
<b>Resources</b>	

### Monitoring

<b>Verification indicator(s)</b>	In the absence of a registration, the pesticide will have received provisional emergency authorization from the registration authority.
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– List of Insecticides Registered for Desert Locust Control</li> <li>– List of insecticides purchased</li> <li>– List of insecticides used</li> <li>– Management of empty containers and unused pesticides after campaign</li> </ul>

### Results

<ul style="list-style-type: none"> <li>– Information about where the raw data used to verify implementation are located (which service/unit/office).</li> <li>– Environmental Assessment Documents</li> <li>– A summary of the results.</li> <li>– Justifications of all cases of non-compliance with the SOP.</li> <li>– In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.</li> </ul>
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## 2. Choice of the insecticide

<b>Principle</b>	<b>SOP 2.3. Taking into account local conditions, only those insecticides that meet the human health criteria listed by the FAO (and based on the WHO classification of pesticides by hazard) are used.</b>
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<b>Type of campaign</b>	Recession/Outbreak and upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Preparation / Execution
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### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of NLCU SMT Officers
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> <li>• <a href="#">Report of the Locust Pesticide Referee Group recommendations to FAO</a></li> <li>• <a href="#">WHO classification of pesticides by hazard</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Ensure that each pesticide applicator works only with the appropriate insecticide classes according to his or her level of training and supervision (Guideline No. 6: Figure 9).</li> <li>• Inform donors of international calls for tenders</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	Each operator used only the pesticides appropriate for their level of training and supervision.
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– List of insecticides purchased</li> <li>– List of insecticides used</li> <li>– Sheet, for each operator, listing the quantities of each insecticide product used during the campaign.</li> </ul> <p>To compare: The level of training and supervision for each operator with the insecticides used.</p> <p>To Calculate: % of operators who used pesticides of a WHO class higher than the one considered appropriate.</p>
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications for all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

<b>2.3</b>	<b>Choice of the insecticide</b>	
	<b>Principle</b>	Taking into account the local circumstances, only those insecticides are being used which conform to the human health criteria listed by FAO (and based on the WHO classification of pesticides by hazard).

**Tableau 2.3 – Checklist of Restrictions on the Availability and Use of Pesticides**

<b>Insecticide used, in stock or on order</b>		<b>WHO formulation Class</b>				<b>Usage restrictions</b>	
Commercial name (formulation)	Common name	LD50 of a.i. (mg/kg b.w.)	% of a.i. in the formulation	LD50 of formulation <sup>2</sup> (mg/kg b.w.)	WHO Class of the formulation	Recommended Operator Code: [A, B, C]	Use near habitations? [yes/no]

<sup>2</sup> The LD50 of the formulation may be calculated based on the LD50 of the active ingredient and its concentration in the formulation; or (better) it may be available in the registration dossier or in the chemical safety data sheet of the product.



## 2. Choice of the insecticide

<b>Principle</b>	<b>SOP 2.4. Taking into account national regulations, only those insecticides that meet the environmental safety criteria listed by the FAO are used</b>
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<b>Type of campaign</b>	Recession/Outbreak and upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Preparation / Execution
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### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of NLCU SMT Officers
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> <li>• <a href="#">Report of the Locust Pesticide Referee Group recommendations to FAO</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Make a typology and map of the different national areas likely to be treated during the campaign.</li> <li>• Identify appropriate insecticides for the different types of areas likely to be treated (DLG No. 6: Figure 10).</li> <li>• Limit the purchase to insecticides appropriate for the different types of areas to be treated Ensure that the different ecological areas in the country are treated with the appropriate insecticides</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	The different national zones are only treated with environmentally appropriate insecticides.
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– List and maps of ecosystems likely to be exposed to treatments</li> <li>– List of insecticides purchased</li> <li>– Treatment Mapping</li> <li>– For each ecosystem, identify: <ul style="list-style-type: none"> <li>– % of treatments with insecticides that represent an environmental risk to that ecosystem</li> <li>– % of the total ecosystem area treated with insecticides with a low environmental risk for this ecosystem</li> </ul> </li> </ul>
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

<b>2.4</b>	<b>Choice of the insecticide</b>	
	<b>Principle</b>	Taking into account the local circumstances, only those insecticides are being used which conform to the environmental criteria listed by FAO.

**Table 2.4 – Checklist of Restrictions on the Availability and Use of Pesticides**

<b>Insecticide used, in stock or on order</b>		<b>WHO class of the formulation</b>			<b>Usage restrictions</b>	
Commercial name of formulation	Common name	High risk	Medium risk	Low risk	Ecosystems / regions / areas nationally at high risk	Measures taken

### 3. Procedures for procurement, tenders and donations

<b>Principle</b>	<b>SOP 3.1. The insecticide packaging is conform the UN Recommendations on the transport of dangerous goods.</b>
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<b>Type of campaign</b>	Recession/Outbreak and Upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation

#### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Pesticide Procurement Manager
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<b>Technical guidelines to be consulted</b>	<a href="#">United Nations Recommendations on the Transport of Dangerous Goods - rev. 15 (2007)</a>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Include this technical SOP in calls for tenders</li> <li>• Carry out a packaging check at the time of delivery</li> </ul>
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#### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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#### Monitoring

<b>Verification indicator(s)</b>	<ul style="list-style-type: none"> <li>i. % of tenders requiring packaging SOPs</li> <li>ii. % of liters of insecticides meeting packaging SOPs</li> </ul>
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Attach technical specifications for calls for tenders</li> <li>– Packaging control reports</li> </ul>
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#### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

### 3. Procedures for procurement, tenders and donations

<b>Principle</b>	<b>SOP 3.2. Suppliers should guarantee that the insecticide meets the required quality criteria for a minimum duration of 2 years after importation in the country (for imported products), or after arrival on site at the locust control unit (for locally formulated products), when stored according to the FAO pesticide storage guidelines.</b>
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<b>Type of campaign</b>	Recession/Outbreak and upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation

#### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Pesticide Procurement Manager
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">Manual on development and use of FAO and WHO specifications for pesticides (2006)</a></li> <li>• <a href="#">Provisional guidelines on tender procedures for the procurement of pesticides.</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Include this technical SOP in calls for tenders.</li> <li>• Require an independent quality control certificate at the time of (or just before) delivery (see 4.5).</li> <li>• Carry out quality control of insecticides in stock once a year.</li> </ul>
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#### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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#### Monitoring

<b>Verification indicator(s)</b>	<ul style="list-style-type: none"> <li>i. % of batches of insecticides not meeting quality SOPs for 2 years</li> <li>ii. % of liters of insecticides not meeting quality SOPs for 2 years</li> </ul>
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Technical specifications for tenders</li> <li>– Insecticide quality control reports or certificates at the time of delivery, and annual control reports afterwards.</li> </ul>
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#### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

### 3. Procedures for procurement, tenders and donations

<b>Principle</b>	<b>SOP 3.3. Insecticide labels comply with SOPs set by the national pesticide registration authority, or, if absent, comply with FAO guidelines.</b>
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<b>Type of campaign</b>	Recession/Outbreak and upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Preparation
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#### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Pesticide Procurement Manager
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• National/regional SOPs for pesticide labelling</li> <li>• Where appropriate: <a href="#">Guidelines on good labelling practice of pesticides (2015)</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Include this technical SOP in calls for tenders</li> <li>• Perform a label check at the time of delivery</li> </ul>
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#### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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#### Monitoring

<b>Verification indicator(s)</b>	<ul style="list-style-type: none"> <li>i. % of tenders requiring labelling SOPs</li> <li>ii. % of liters of insecticides meeting labelling SOPs</li> </ul>
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Technical specifications for tenders</li> <li>– Copy of the label of each batch of pesticides</li> <li>– Label control reports</li> </ul>
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#### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

### 3. Procedures for procurement, tenders and donations

Principle	<b>SOP 3.4. Insecticide quality meets FAO/WHO specifications, if the specifications exist for the technical and/or formulated product.</b>	
Type of campaign	Recession/Outbreak and upsurge / plague.	
SOP level	Basic SOP.	
Campaign Phase	Preparation	

#### Implementation

Primary person(s) responsible for implementation (QA auditor(s))	Pesticide Procurement Manager	
Technical guidelines to be consulted	<ul style="list-style-type: none"> <li>• <a href="#">Manual on development and use of FAO and WHO specifications for pesticides (2010)</a></li> <li>• <a href="#">FAO &amp; WHO specifications for pesticides</a></li> </ul>	
Procedure	<ul style="list-style-type: none"> <li>• Include this technical requirement in calls for tenders</li> <li>• Require an independent quality control certificate at the time (or just before) delivery (see 4.5)</li> <li>• Create and apply a monitoring sheet for each batch of pesticide (see PSMS)</li> <li>• Perform quality control of insecticides once a year.</li> </ul>	

#### Programming

Starting situation	
Activities	
Actors	
Deadlines	
Resources	

#### Monitoring

Verification indicator(s)	<ul style="list-style-type: none"> <li>i. % of insecticide batches meeting FAO &amp; WHO specifications</li> <li>ii. % of liters of insecticides meeting FAO &amp; WHO specifications</li> </ul>
Information to be collected and analyzed in order to be able to verify implementation	<ul style="list-style-type: none"> <li>– Technical specifications of calls for tenders</li> <li>– Quality control certificates</li> <li>– Annual quality control reports</li> </ul>

#### Results

<ul style="list-style-type: none"> <li>– Information about where the raw data used to verify implementation are located (which service/unit/office).</li> <li>– Environmental Assessment Documents</li> <li>– A summary of the results.</li> <li>– Justifications of all cases of non-compliance with the SOP.</li> <li>– In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.</li> </ul>
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<b>3.4</b>	<b>Procedures for procurement, tenders and donations</b>	
	<b>Principle</b>	Insecticide quality meets FAO/WHO specifications, if such specifications exist for the technical and/or formulated product.

**Table 4.4 – Insecticide quality monitoring**

Insecticide in stock			Delivery				Quality control			End of stock
Commercial name of formulation	Common name	Batch No.	Date of delivery	Date of production or formulation	Certificate of analysis provided [Yes / No]	Compliant Product Specification FAO/WHO <sup>3</sup> [Yes / No]	Date of sampling	Compliant Product Specification FAO/WHO [Yes / No]	Deviation observed	Date [Exhaustion or obsolete]

<sup>3</sup> Verification of conformity for products for which a FAO/WHO specification has been established where applicable, verification of deviation of the a.i. concentration from the certificate of analysis supplied on delivery.

### 3. Procedures for procurement, tenders and donations

<b>Principle</b>	<b>SOP 3.5. A certificate of quality analysis of the insecticide is provided by the supplier, issued by a quality control laboratory working according to GLP, and which is preferably independent of the supplier. The certificate contains the information defined in the FAO/WHO specifications.</b>
<b>Type of campaign</b>	Recession/Outbreak and upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation

#### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Pesticide Procurement Manager
<b>Technical guidelines to be consulted</b>	<a href="#">Manual on development and use of FAO and WHO specifications for pesticides (2016)</a>
<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Include this technical SOP in calls for tenders</li> </ul>

#### Programming

<b>Starting situation</b>	
<b>Activities</b>	
<b>Actors</b>	
<b>Deadlines</b>	
<b>Resources</b>	

#### Monitoring

<b>Verification indicator(s)</b>	A quality certificate of the insecticide is available for all lots of products purchased or received.
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Technical specifications of calls for tenders</li> <li>– Insecticide Certificates of Analysis</li> </ul> <p>Calculate:</p> <ul style="list-style-type: none"> <li>– % of insecticide batches with the appropriate certificate of analysis</li> <li>– % of liters of insecticides with the appropriate certificate of analysis</li> </ul>

#### Results

<ul style="list-style-type: none"> <li>– Information about where the raw data used to verify implementation are located (which service/unit/office).</li> <li>– Environmental Assessment Documents</li> <li>– A summary of the results.</li> <li>– Justifications of all cases of non-compliance with the SOP.</li> <li>– In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.</li> </ul>
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### 3. Procedures for procurement, tenders and donations

#### Principle

**SOP 3.6. The insecticide drums/containers have a bar code which allows their individual traceability.**

#### Type of campaign

Recession/Outbreak and upsurge / plague.

#### SOP level

Supplementary SOP.

#### Campaign Phase

Preparation

### Implementation

#### Primary person(s) responsible for implementation (QA auditor(s))

Pesticide Procurement Manager

#### Technical guidelines to be consulted

- FAO barcode system for pesticides management (PSMS) or equivalent database

#### Procedure

- Include this requirement in calls for tenders.
- Carry out a label check at the time of delivery.

### Programming

#### Starting situation

#### Activities

#### Actors

#### Deadlines

#### Resources

### Monitoring

#### Verification indicator(s)

All insecticide drums / barrels are bar-coded.

#### Information to be collected and analyzed to be able to verify implementation

- Technical specifications for tenders for insecticides
- Label control reports

Calculate:

- % of bar-coded insecticide batches
- % of liters of insecticides with barcode on it

### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

### 3. Procedures for procurement, tenders, and donations

#### Principle

**SOP 3.7. An effective insecticide supply system is put in place to avoid the creation of obsolete stocks.**

#### Type of campaign

Recession/Outbreak and upsurge / plague.

#### SOP level

Basic SOP.

#### Campaign Phase

Preparation

### Implementation

#### Primary person(s) responsible for implementation (QA auditor(s))

Head of NLCU  
Head of Pesticide stocks

#### Technical guidelines to be consulted

#### Procedure

- Establish an effective inventory management system
- Establish an effective system for estimating insecticide needs
- To set up a mechanism for re-formulating insecticides that have expired but can be re-used

### Programming

#### Starting situation

#### Activities

#### Actors

#### Deadlines

#### Resources

### Monitoring

#### Verification indicator(s)

- i. The quantity of current obsolete insecticides created annually has decreased
- ii. The quantity of insecticides permanently in stock is reasonable in relation to the likely annual use and the duration of delivery

#### Information to be collected and analyzed in order to be able to verify implementation

- Quantities of insecticides purchased
- Quantities of insecticides in stock
- Justifications for estimates of SOPs (e.g., infestation forecasting future; logistical response capabilities)
- Insecticide delivery times from identification of need
- Shelf-life of insecticides under local conditions

### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

#### 4. Choice of the application equipment

<b>Principle</b>	<b>SOP 4.1. For aerial treatments: Only sprayers with rotary atomizers and electrical pumps are being used; spray aircraft are equipped with a DGPS and GPS linked to a flow meter.</b>
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<b>Type of campaign</b>	Recession/Outbreak and upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Execution
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#### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of NLCU Head of locust control operations
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 4 - Locust Control</a></li> <li>• <a href="#">FAO Desert Locust Guidelines No. 7 – Appendices</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Ensure that tenders for the rental of treatment aircraft require rotating atomizers, an electric pump and (D)GPS in combination with a flow meter.</li> <li>• Make sure that the treatment aircraft used are equipped with rotating atomizers, electric pump and (D)GPS linked to a flow meter.</li> </ul>
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#### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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#### Monitoring

<b>Verification indicator(s)</b>	All treatment aircraft properly equipped.
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Technical specifications for each treatment aircraft.</li> <li>– Areas treated for each treatment aircraft.</li> <li>– Calls for tender for the rental of treatment aircraft.</li> <li>– Ensure that only of properly equipped processing aircraft are included</li> </ul>
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#### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

#### 4. Choice of the application equipment

<b>Principle</b>	<b>SOP 4.2. For ground treatments by vehicle: only ULV sprayers with rotary atomizers are being used; spray vehicles are equipped with a GPS.</b>
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<b>Type of campaign</b>	Recession/Outbreak and upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Execution
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#### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of locust control operations
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 4 - Locust Control</a></li> <li>• <a href="#">FAO Desert Locust Guidelines No. 7 – Appendices</a></li> <li>• <a href="#">FAO Guidelines on minimum requirements for ground-based locust and grasshopper sprayers</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Ensure that tenders for vehicle-mounted sprayers require ULV devices with rotary atomizers.</li> <li>• Ensure that the treatment vehicles used are equipped with sprayers with rotary atomizers and GPS</li> </ul>
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#### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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#### Monitoring

<b>Verification indicator(s)</b>	<p>All mounted treatment vehicles properly equipped</p> <p>i. The total area of ground treatment was treated by vehicles being properly equipped</p>
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Technical specifications for each treatment mounted treatment vehicle and its sprayer used during the campaign.</li> <li>– Areas treated by each treatment mounted treatment vehicle.</li> <li>– Tenders for vehicle-mounted sprayers.</li> </ul> <p>Calculate:</p> <ul style="list-style-type: none"> <li>– % of correctly equipped treatment vehicles.</li> <li>– Total area of ground treatments that was treated by vehicles being properly equipped.</li> </ul>
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#### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that an indication of the corrective action that has been proposed and/or taken.

#### 4. Choice of the application equipment

Principle	<b>SOP 4.3. For ground treatments with portable sprayers: ULV sprayers with rotary atomizers are favoured.</b>
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Type of campaign	Recession/Outbreak and upsurge / plague.
SOP level	Basic SOP.
Campaign Phase	Execution

#### Implementation

Primary person(s) responsible for implementation (QA auditor(s))	Head of locust control operations
Technical guidelines to be consulted	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 4 - Locust Control</a></li> <li>• <a href="#">FAO Desert Locust Guidelines No. 7 – Appendices</a></li> <li>• <a href="#">FAO Guidelines on minimum requirements for ground-based locust and grasshopper sprayers</a></li> </ul>
Procedure	<ul style="list-style-type: none"> <li>• Ensure that tenders for vehicle-mounted sprayers require ULV devices with rotary atomizers.</li> <li>• Ensure that ULV sprayers are used with rotary atomizers.</li> </ul>

#### Programming

Starting situation

Activities

Actors

Deadlines

Resources

#### Monitoring

Verification indicator(s)	<ul style="list-style-type: none"> <li>i. % of hand-held sprayers used during the crop year complying with the SOP</li> <li>ii. % of the total area of ground treatments that was treated with handheld sprayers that meet the SOP</li> </ul>
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Information to be collected and analyzed in order to be able to verify implementation	<ul style="list-style-type: none"> <li>– Technical specifications for each hand sprayer</li> <li>– Areas treated by hand sprayer</li> <li>– Tenders for hand sprayers</li> </ul> <p>Calculate:</p> <ul style="list-style-type: none"> <li>– % of hand-held sprayers meeting the SOP.</li> <li>– Total area of ground treatments that were treated with the hand-held sprayers complying with the SOP.</li> </ul>
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#### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

#### 4. Choice of the application equipment

Principle	<b>SOP 4.4. For ground treatments with portable sprayers: If, during an invasion, ULV sprayers are not or not sufficiently available, medium volume sprayers can be used (e.g. for EC or SC formulations).</b>
Type of campaign	Plague.
SOP level	Basic SOP.
Campaign Phase	Execution

#### Implementation

Primary person(s) responsible for implementation (QA auditor(s))	Head of locust control operations
Technical guidelines to be consulted	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 4 - Locust Control</a></li> <li>• <a href="#">FAO Desert Locust Guidelines No. 7 – Appendices</a></li> <li>• <a href="#">Guidelines on Minimum SOPs for Agricultural Pesticide Application Equipment - Part 1: Hand-held (Operator Carried) Sprayers.</a></li> <li>• <a href="#">Guidelines on Minimum SOPs for Agricultural Pesticide Application Equipment - Part 2: Vehicle-mounted and Trailed Sprayers.</a></li> </ul>
Procedure	<ul style="list-style-type: none"> <li>• Ensure that medium volume hand-held sprayers are used only if ULV sprayers are lacking, and only during periods of invasion.</li> </ul>

#### Programming

Starting situation	
Activities	
Actors	
Deadlines	
Resources	

#### Monitoring

Verification indicator(s)	<ul style="list-style-type: none"> <li>i. % of hand-held sprayers used during the crop year complying with the SOP</li> <li>ii. % of the total area of ground treatments that was treated with handheld sprayers that meet the SOP</li> </ul>
Information to be collected and analyzed in order to be able to verify implementation	<ul style="list-style-type: none"> <li>- Technical specifications for each type of medium volume hand-held sprayer</li> <li>- Areas treated for each type of medium volume handheld sprayer</li> </ul> <p>Calculate:</p> <ul style="list-style-type: none"> <li>- % of medium volume handheld sprayers used during the season</li> <li>- % of the total area of ground treatments that was treated with medium volume handheld sprayers.</li> </ul>

#### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

#### 4. Choice of the application equipment

Principle	<b>SOP 4.5. Each sprayer should have an appropriate calibration kit.</b>
Type of campaign	Recession/Outbreak and upsurge / plague.
SOP level	Basic SOP.
Campaign Phase	Preparation / Execution

#### Implementation

Primary person(s) responsible for implementation (QA auditor(s))	Head of locust control operations
Technical guidelines to be consulted	<a href="#">FAO Desert Locust Guidelines No. 4 - Locust Control</a>
Procedure	<ul style="list-style-type: none"> <li>• Purchase and distribution of calibration kits</li> </ul>

#### Programming

Starting situation	
Activities	
Actors	
Deadlines	
Resources	

#### Monitoring

Verification indicator(s)	% of treatment teams having its calibration kit for the treatment devices at its possession
Information to be collected and analyzed in order to be able to verify implementation	<ul style="list-style-type: none"> <li>– Outlet vouchers for treatment devices and/or calibration kits</li> <li>– Field Treatment Monitoring Reports</li> </ul> Calculate: <ul style="list-style-type: none"> <li>– % of treatment devices having their calibration kit.</li> </ul>

#### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

5. Training of control staff	
Principle	<b>SOP 5.1. All persons who handle or apply insecticides are trained before they start their work in the field.</b>
Type of campaign	Recession/Outbreak and upsurge / plague.
SOP level	Basic SOP.
Campaign Phase	Preparation / Execution
Implementation	
Primary person(s) responsible for implementation (QA auditor(s))	Head of NLCU Responsible for training / information HR manager (centralized and decentralized level)
Technical guidelines to be consulted	<a href="#">FAO Guidelines on the Organization and Implementation of Training Program and Certification Procedures for Operators of Pesticide Application Equipment (2001)</a>
Procedure	<ul style="list-style-type: none"> <li>• Develop training modules for each group of person handling pesticides (storekeepers, applicators, drivers and workers who handle pesticides, etc.).</li> <li>• Organize regular training sessions</li> <li>• Set up training history sheets for each person in the personnel department</li> <li>• Instruct the decentralized control services to send new agents who will handle pesticides first for training.</li> </ul>
Programming	
Starting situation	
Activities	
Actors	
Deadlines	
Resources	
Monitoring	
Verification indicator(s)	All applicators and other pesticide handlers are trained before beginning their field work.
Information to be collected and analyzed in order to be able to verify implementation	<ul style="list-style-type: none"> <li>– List of personnel who handle pesticides (storekeepers, applicators, drivers and workers who handle pesticides, ...).</li> <li>– Start date of the contract and/or date of the first field mission.</li> <li>– Training history sheet received by from Each person</li> <li>– List of organized training courses</li> </ul> <p>Calculate for each type of personnel, and possibly each location:</p> <ul style="list-style-type: none"> <li>– % of people who received relevant training before starting their activities</li> <li>– % of people who received relevant training after starting their activities</li> <li>– % of people who have not (yet) received relevant training</li> </ul>
Results	
<ul style="list-style-type: none"> <li>– Information about where the raw data used to verify implementation are located (which service/unit/office).</li> <li>– Environmental Assessment Documents</li> <li>– A summary of the results.</li> <li>– Justifications of all cases of non-compliance with the SOP.</li> <li>– In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.</li> </ul>	



## 5. Training of control staff

<b>Principle</b>	<b>SOP 5.2. All persons that handle or apply insecticides have obtained a certificate of professional competence before they start their work in the field.</b>
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<b>Type of campaign</b>	Recession/Outbreak and upsurge / plague.
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<b>SOP level</b>	Supplementary SOP.
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<b>Campaign Phase</b>	Preparation / Execution
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### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of NLCU Responsible for training / information HR manager (centralized and decentralized level)
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<b>Technical guidelines to be consulted</b>	<a href="#">FAO Guidelines on the Organization and Implementation of Training Program and Certification Procedures for Operators of Pesticide Application Equipment (2001)</a>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Create a certification system for pesticide applicators</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	All applicators and other persons handling pesticides are in possession of a Certificate of Qualification before the start of the field work.
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Training history sheet received by each person</li> <li>– Calculate for each type of personnel, and possibly each location: <ul style="list-style-type: none"> <li>– % of people applying or handling pesticides who have a certificate of qualification</li> </ul> </li> </ul>
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

<b>6. Organization and training of public health staff</b>	
<b>Principle</b>	<b>SOP 6.1. All health centers and medical practitioners in areas that will likely see control operations have received safety data sheets, poisoning treatment measures and other relevant toxicological information, for all the insecticides that may be used in the area.</b>
<b>Type of campaign</b>	Recession/Outbreak and upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation / Execution
<b>Implementation</b>	
<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	SMT Officers
<b>Technical guidelines to be consulted</b>	<a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a>
<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Collect chemical safety data sheets, poisoning treatment measures, and other relevant toxicological information for all insecticides used.</li> <li>• Prepare an information package for health centers and medical offices. If possible, in collaboration with the National Poison Control Centre or Unit, or the Ministry of Health</li> <li>• Identify health centers and doctors' offices, in areas likely to be treated, that should receive the information package. [in collaboration with the Ministry of Health].</li> <li>• Distribute the information packages [through the Ministry of Health].</li> <li>• Ensure updates if new insecticides are ordered/received</li> </ul>
<b>Programming</b>	
<b>Starting situation</b>	
<b>Activities</b>	
<b>Actors</b>	
<b>Deadlines</b>	
<b>Resources</b>	
<b>Monitoring</b>	
<b>Verification indicator(s)</b>	<ol style="list-style-type: none"> <li>The information package for health centers has been prepared</li> <li>All health centers and doctors' offices in the areas likely to have been exposed to insecticide treatments, have received the information package</li> </ol>
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– List of health centers</li> <li>– Distribution list of information packages</li> <li>– Field Monitoring Reports</li> </ul> <p>Calculate: % of health centers and doctors' offices in areas susceptible to see insecticide treatments that have received the information package</p>
<b>Results</b>	
<ul style="list-style-type: none"> <li>– Information about where the raw data used to verify implementation are located (which service/unit/office). Information about where the raw data used to verify implementation are located (which service/unit/office).</li> <li>– Environmental Assessment Documents</li> <li>– A summary of the results.</li> <li>– Justifications of all cases of non-compliance with the SOP.</li> </ul>	

## Results

In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 6. Organization and training of public health staff

<b>Principle</b>	<b>SOP 6.2. "Strategic" health centers will be chosen to ensure that an intoxicated person can be transported there within a reasonable time.</b>
<b>Type of campaign</b>	Recession/Outbreak and upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation

## Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	SMT Officers
<b>Technical guidelines to be consulted</b>	
<b>Procedure</b>	Identify, in collaboration with the Ministry of Health, strategic health centers

## Programming

**Starting situation**

**Activities**

**Actors**

**Deadlines**

**Resources**

## Monitoring

<b>Verification indicator(s)</b>	At least two health centers have been selected to ensure that a person poisoned during control operations can be transported there within a reasonable time.
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"><li>– List of strategic health centers, with contact persons</li><li>– Distances between the chosen strategic health centers and the probable areas locust control</li><li>– Travel time between the selected strategic health centers and the probable locust control areas</li></ul>

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 6. Organization and training of public health staff

<b>Principle</b>	<b>SOP 6.3. Health staff (doctors, nurses, etc.) in strategically located health centers are trained in the recognition and treatment of intoxications that could be due to insecticides used in locust control.</b>
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<b>Type of campaign</b>	Recession/Outbreak and upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Preparation / Execution
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### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	SMT Officers Training Manager
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<b>Technical guidelines to be consulted</b>	<a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Prepare training materials (see 6.1)</li> <li>• Train the "master trainers" (if needed)</li> <li>• Organize training sessions for health workers</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	<ol style="list-style-type: none"> <li>Training materials regarding the recognition and treatment of intoxications have been prepared.</li> <li>At least one health worker in all the strategic health centers is trained in the recognition and treatment of insecticide poisoning.</li> </ol>
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– List of health workers who participated in the trainings;</li> </ul> <p>Calculate the % of strategic health centers with at least one trained staff member.</p>
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office). Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 6. Organization and training of public health staff

<b>Principle</b>	<b>SOP 6.4. Specific antidotes exist for the treatment of poisoning due to the insecticides used, and they are made available to strategic health centers and control teams in areas likely to be treated.</b>
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<b>Type of campaign</b>	Recession/Outbreak and upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Preparation / Execution
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### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	SMT Officers
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<b>Technical guidelines to be consulted</b>	<a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Inventorying the availability of antidotes in strategic health centers</li> <li>• Have the necessary antidotes available</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	All strategic health centers have antidotes for treatment of intoxications
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Lists of antidotes available at the beginning of the campaign in strategic health centers</li> <li>– Reports of visits to strategic health centers at the beginning of the campaign, and possibly during the campaign.</li> </ul>
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	Calculate: % of strategic health centers with antidotes available at the beginning of the campaign
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

7. Pesticide storage	
<b>Principle</b>	<b>SOP 7.1. Permanent and semi-permanent insecticide storage is carried out in accordance with the FAO guidelines for pesticide storage.</b>
<b>Type of campaign</b>	Recession/Outbreak and upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation

Implementation	
<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of Pesticide stocks
<b>Technical guidelines to be consulted</b>	<a href="#">FAO Guidelines: Pesticide Disposal 3 - Pesticide Storage and Stock Control</a>
<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Inspect all (semi-)permanent warehouses of insecticides used for locust control.</li> <li>• Develop a program for rehabilitating and/or equipping the warehouses (as required).</li> <li>• Gradually rehabilitate and/or equip warehouses.</li> </ul>

Programming	
<b>Starting situation</b>	
<b>Activities</b>	
<b>Actors</b>	
<b>Deadlines</b>	
<b>Resources</b>	

Monitoring	
<b>Verification indicator(s)</b>	All (semi-)permanent warehouses of insecticides used for locust control have been inspected at least once and meet the criteria of the FAO guidelines.
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	– Annual warehouse inspection reports: verification of the "10 rules for proper storage and management of pesticide stocks" (Annex 3 of the FAO Guidelines)

Results	
	<ul style="list-style-type: none"> <li>– Information about where the raw data used to verify implementation are located (which service/unit/office). Information about where the raw data used to verify implementation are located (which service/unit/office).</li> <li>– Environmental Assessment Documents</li> <li>– A summary of the results.</li> <li>– Justifications of all cases of non-compliance with the SOP.</li> <li>– In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.</li> </ul>

## 7. Pesticide storage

<b>Principle</b>	<b>SOP 7.2 Temporary storage of large quantities of insecticides during upsurges and plagues, is carried out in accordance with the FAO guidelines for pesticide storage.</b>
<b>Type of campaign</b>	Upsurge / plague.
<b>SOP level</b>	Supplementary SOP.
<b>Campaign Phase</b>	Preparation / Execution

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of Pesticide stocks
<b>Technical guidelines to be consulted</b>	<a href="#">FAO Guidelines: Pesticide Disposal 3 - Pesticide Storage and Stock Control</a>
<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Inspect all (semi-)permanent warehouses of insecticides used for locust control.</li> <li>• Develop a program for rehabilitating and/or equipping the warehouses (as required).</li> <li>• Gradually rehabilitate and/or equip warehouses.</li> </ul>

### Programming

**Starting situation**

**Activities**

**Actors**

**Deadlines**

**Resources**

### Monitoring

<b>Verification indicator(s)</b>	All temporary storage facilities for large quantities of insecticides used for locust control have been inspected at least once and meet the standards of the FAO guidelines.
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	– Annual warehouse inspection reports: verification of the "10 rules for proper storage and management of pesticide stocks" (Annex 3 of the FAO Guidelines)

### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 7. Pesticide storage

<b>Principle</b>	<b>SOP 7.3. Temporary storage of small quantities of insecticides is carried out in accordance with the FAO Desert Locust Guidelines.</b>
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<b>Type of campaign</b>	Recession/Outbreak, upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Execution
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### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Locust control team officers
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<b>Technical guidelines to be consulted</b>	<a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Have the necessary equipment for the temporary storage of small quantities of insecticides</li> <li>• Train control units on storage SOPs (see 5.1)</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	All temporary storage facilities for large quantities of insecticides used for locust control have been inspected at least once and meet the SOPs of the FAO guidelines.
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	– Reports of missions to monitor control operations
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.



## 7. Pesticide storage

<b>Principle</b>	<b>SOP 7.4. All persons responsible for storage of locust control insecticides have received a training in pesticide stock management.</b>
<b>Type of campaign</b>	Recession/Outbreak, upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Execution

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of Pesticide stocks Training Manager
<b>Technical guidelines to be consulted</b>	<a href="#">FAO Guidelines: Pesticide Disposal 3 - Pesticide Storage and Stock Control</a>
<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Develop a training module on pesticide stockpile management</li> <li>• Train those in charge (storekeepers) of storing insecticides</li> </ul>

### Programming

<b>Starting situation</b>	
<b>Activities</b>	
<b>Actors</b>	
<b>Deadlines</b>	
<b>Resources</b>	

### Monitoring

<b>Verification indicator(s)</b>	All managers of all insecticide warehouses have been trained in inventory management
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– List of inventory managers / storekeepers</li> <li>– List of persons trained</li> <li>– Program/content of training conducted</li> </ul>

### Results

<ul style="list-style-type: none"> <li>– Information about where the raw data used to verify implementation are located (which service/unit/office).</li> <li>– Environmental Assessment Documents</li> <li>– A summary of the results.</li> <li>– Justifications of all cases of non-compliance with the SOP.</li> <li>– In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.</li> </ul>
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## 7. Pesticide storage

<b>Principle</b>	<b>SOP 7.5. All personnel responsible for storage of locust control insecticides keeps stock records up to date.</b>
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<b>Type of campaign</b>	Recession/Outbreak, upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation / Execution / Post campaign

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of Pesticide stocks Storekeepers Locust control unit responsible
<b>Technical guidelines to be consulted</b>	<a href="#">FAO Guidelines: Pesticide Disposal 3 - Pesticide Storage and Stock Control</a>
<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Elaborate and print a SOP register of pesticide storage</li> <li>• Train storekeepers &amp; control unit managers on the use of the register</li> <li>• Collect and check copies of records regularly</li> </ul>

### Programming

**Starting situation**

**Activities**

**Actors**

**Deadlines**

**Resources**

### Monitoring

<b>Verification indicator(s)</b>	A storage record is kept for all warehouses and temporary insecticide storage sites.
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Model of the SOP pesticide storage register</li> <li>– Results of warehouse inspections and audit of records</li> </ul> <p>Calculate: % of warehouses with storage register</p>
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 7. Pesticide storage

### Principle

**SOP 7.6. FAO's Pesticide Stock Management System is used to track insecticide stocks across the country.**

### Type of campaign

Recession/Outbreak, upsurge / plague.

### SOP level

Supplementary SOP.

### Campaign Phase

Preparation / Execution / Post campaign

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

Head of the NLCU  
Responsible for pesticide stocks

### Technical guidelines to be consulted

[FAO Pesticide Stock Management System \(PSMS\)](#)

### Procedure

- Train managers involved in the storage of pesticide use PSMS
- Introduce the different elements of the PSMS (output / transport cards, bar codes, etc.)
- Train the storekeepers concerned

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

PSMS is used to monitor insecticide stocks across the country

### Information to be collected and analyzed in order to be able to verify implementation

- Description of the implementation of the PSMS at national level
- List of people trained in the use of the PSMS
- Regular “download” of PSMS reports

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 7. Pesticide storage

### Principle

**SOP 7.7. An environmental assessment is carried out before the construction of new pesticide stores.**

### Type of campaign

Outbreak, upsurge / plague.

### SOP level

Supplementary SOP.

### Campaign Phase

Preparation / Execution / Post campaign

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

Head of the NLCU

### Technical guidelines to be consulted

[FAO Environmental Management Tool Kit \(EMTK\)](#)

### Procedure

- Commission an EIA for each new warehouse construction plan
- Apply the EMTK criteria in the EIA

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

- i. The EIA was commissioned
- ii. The construction conforms to the recommendations of the EIA

### Information to be collected and analyzed in order to be able to verify implementation

- EIA Report

## Results

- Indicate where the raw data used for the verification of implementation are located (which service/unit/office).
- Environmental Assessment Documents
- Provide a summary of the results.
- Provide justifications for any non-compliance with the SOP.
- In the event of non-compliance, indicate what corrective action has been proposed and/or taken.

<b>8. Pesticide transport</b>	
<b>Principle</b>	<b>SOP 8.1. International transport of locust control insecticides complies with international standards.</b>
<b>Type of campaign</b>	Recession/Outbreak, upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation / Execution / Post campaign

<b>Implementation</b>	
<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of NLCU
<b>Technical guidelines to be consulted</b>	<a href="#">United Nations Recommendations on the Transport of Dangerous Goods - rev. 15 (2007)</a>
<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Include international transport SOPs in tenders for insecticides</li> <li>• Inform partners supplying the insecticide that cross-border transport must be carried out according to international SOPs.</li> </ul>

<b>Programming</b>	
<b>Starting situation</b>	
<b>Activities</b>	
<b>Actors</b>	
<b>Deadlines</b>	
<b>Resources</b>	

<b>Monitoring</b>	
<b>Verification indicator(s)</b>	International SOPs for cross-border transport are respected
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– SOPs as specified in the United Nations National Recommendations.</li> <li>– International transport inspection reports</li> </ul>

<b>Results</b>	
	<ul style="list-style-type: none"> <li>– Information about where the raw data used to verify implementation are located (which service/unit/office).</li> <li>– Environmental Assessment Documents</li> <li>– A summary of the results.</li> <li>– Justifications of all cases of non-compliance with the SOP.</li> <li>– In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.</li> </ul>

## 8. Pesticide transport

### Principle

**SOP 8.2. National transport of insecticides complies with the FAO Desert Locust Guidelines.**

### Type of campaign

Recession/Outbreak, upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Preparation / Execution / Post campaign

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

Responsible for the transport of pesticides

### Technical guidelines to be consulted

- [FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment](#)
- National standards for the Transportation of Pesticides or Hazardous Chemicals

### Procedure

- Equipping transport vehicles with loading and emergency equipment
- Train drivers (see 8.3)

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

Pesticide transport recommendations in DLG-6 are followed as minimum standards

### Information to be collected and analyzed in order to be able to verify implementation

- Lists of purchases of equipment for the transport of pesticides
- Transportation Inspection Report

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 8. Pesticide transport

<b>Principle</b>	<b>SOP 8.3. All drivers of vehicles carrying insecticides have received training on product handling and on emergency procedures in the event of accidents involving the products.</b>
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<b>Type of campaign</b>	Outbreak, upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Preparation
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### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Responsible for the transport of pesticides Training manager
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> <li>• National SOPs for the Transportation of Pesticides or Hazardous Chemicals</li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Develop a training module for drivers of vehicles carrying pesticides</li> <li>• Train drivers (see 5.1)</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	<ol style="list-style-type: none"> <li>A training module for drivers has been developed.</li> <li>All drivers transporting insecticides are trained in the use of insecticides.</li> </ol>
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– List of drivers transporting insecticides</li> <li>– List of training participants</li> <li>– Inspection of transport activities</li> </ul>
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 8. Pesticide transport

<b>Principle</b>	<b>SOP 8.4. Any transport of insecticide must be accompanied by its shipping documents.</b>
<b>Type of campaign</b>	<b>Outbreak, upsurge / plague.</b>
<b>SOP level</b>	<b>Basic SOP.</b>
<b>Campaign Phase</b>	<b>Preparation</b>

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Responsible for the transport of pesticides
<b>Technical guidelines to be consulted</b>	<a href="#">FAO Pesticide Stock Management System (PSMS)</a>
<b>Procedure</b>	<ul style="list-style-type: none"> <li>To prepare the documents for sending pesticides</li> <li>To require verification of shipping documents at the start and end of transport</li> </ul>

### Programming

<b>Starting situation</b>	
<b>Activities</b>	
<b>Actors</b>	
<b>Deadlines</b>	
<b>Resources</b>	

### Monitoring

<b>Verification indicator(s)</b>	Any transport of insecticide is accompanied by its shipping documents.
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>List of transportations of pesticides during the campaign</li> <li>Shipping documents</li> <li>Inspection of transport activities</li> <li>Analysis of shipping documents</li> </ul>

### Results

<ul style="list-style-type: none"> <li>Indicate where the raw data used for the verification of implementation are located (which service/unit/office).</li> <li>Environmental Assessment Documents</li> <li>Provide a summary of the results.</li> <li>Provide justifications for any non-compliance with the SOP.</li> <li>In the event of non-compliance, indicate what corrective action has been proposed and/or taken.</li> </ul>
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9. Information and awareness of the public	
<b>Principle</b>	<b>SOP 9.1. Information and awareness raising sessions are organized on precautionary measures for people living in the regions in which control operations can be carried out.</b>
<b>Type of campaign</b>	Recession/Outbreak, upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation & Execution
Implementation	
<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Responsible for training / information
<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> <li>• National Communication Strategy</li> </ul>
<b>Procedure</b>	<p>Develop a national communication plan:</p> <ul style="list-style-type: none"> <li>• Identify areas where the population should be made aware of the necessity of precautionary measures</li> <li>• Identify target groups that should be informed about precautionary measures</li> <li>• Develop the messages to be conveyed</li> <li>• Choose the most appropriate information/awareness tools for the identified target groups</li> <li>• Identify the structures that are best placed to raise awareness</li> <li>• Make a schedule for awareness raising</li> </ul>
Programming	
<b>Starting situation</b>	
<b>Activities</b>	
<b>Actors</b>	
<b>Deadlines</b>	
<b>Resources</b>	
Monitoring	
<b>Verification indicator(s)</b>	<ol style="list-style-type: none"> <li>i. The communication plan has been developed</li> <li>ii. Populations living in all areas that can receive insecticide treatments are informed about the precautionary measures.</li> </ol>
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Communication plan</li> <li>– List of areas and targets for awareness raising</li> <li>– List of areas treated during the campaign</li> <li>– Outreach Activity Reports</li> </ul> <p>Calculate: degree of outreach coverage in the areas concerned</p>
Results	
<ul style="list-style-type: none"> <li>– Information about where the raw data used to verify implementation are located (which service/unit/office).</li> <li>– Environmental Assessment Documents</li> <li>– A summary of the results.</li> <li>– Justifications of all cases of non-compliance with the SOP.</li> <li>– In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.</li> </ul>	

## 9. Information / awareness of the public

### Principle

**SOP 9.2. A general information campaign is conducted to inform the public that control operations will be carried out, on their possible risks, and on precautionary measures.**

### Type of campaign

Upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Preparation

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

Responsible for training / information

### Technical guidelines to be consulted

- [FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment](#)
- National Communication Strategy

### Procedure

- Develop a national communication plan:
- Identify areas where populations should be informed about the necessity of precautionary measures
  - Identify targets that should be informed about precautionary measures
  - Develop the messages to be conveyed
  - Choose the most appropriate information/awareness tools for the identified targets
  - Identify the structures that are best placed to raise awareness
  - Make a schedule for awareness raising

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

- i. The communication plan has been developed
- ii. One or more information campaigns for the general public have been carried out

### Information to be collected and analyzed in order to be able to verify implementation

- Communication plan
- Content of the information campaign
- Information activities (e.g. print articles, radio spots, television spots, brochures, etc.).
- Evaluation report the quality and effectiveness of outreach activities

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 9. Information and awareness of the public

<b>Principle</b>	<b>SOP 9.3. Before the control operations, Locust control teams have informed habitants close to areas to be treated, about precautions they should take.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Execution
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### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Responsible for training / information Locust control team Officers
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> <li>• National Communication Strategy</li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Elaborate a form with the information to be transmitted by the control teams to the populations present in the areas surrounding the plots to be treated.</li> <li>• Train the control teams (see 5.1).</li> <li>• Note the villages/habitats/people who have been informed by the control teams.</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	<ol style="list-style-type: none"> <li>The communication plan has been developed</li> <li>One or more information campaigns for the general public have been carried out</li> </ol>
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Sheet with the information to be transmitted</li> <li>– Distribution list of the form</li> <li>– List of villages/habitats/people informed by the wrestling teams</li> <li>– Monitoring reports</li> </ul>
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 9. Information and awareness of the public

<b>Principle</b>	<b>SOP 9.4. A system for filing complaints or reports of adverse effects of the locust control operations has been put in place.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Responsible for training / information or SMT Officers
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### Technical guidelines to be consulted

<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Develop a national system for collecting complaints about the side effects of locust treatments.</li> <li>• Setting up this system</li> <li>• Inform the general public of the existence of the system</li> </ul>
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### Programming

#### Starting situation

#### Activities

#### Actors

#### Deadlines

#### Resources

### Monitoring

<b>Verification indicator(s)</b>	National system for collecting complaints about side effects or impact observations of locust treatments is operational
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Description of the system</li> <li>– Complaints or comments made by the general public</li> </ul>
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 10. Emergency plan

### Principle

**SOP 10.1. An emergency plan is available and is triggered at the moment that an accident occurs with a locust insecticide.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Preparation

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

Head of NLCU

### Technical guidelines to be consulted

### Procedure

- Develop the emergency plan that is triggered in the event of an accident with a locust insecticide
- Validate the emergency plan
- Disseminate the emergency plan among the governmental and non-governmental structures involved.
- Test the emergency plan

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

National system for collecting complaints about side effects or impact observations of locust treatments is operational

### Information to be collected and analyzed in order to be able to verify implementation

- The contingency plan in case of an accident with a locust insecticide is developed and validated
- The emergency plan in case of an accident with locust insecticide is operational

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 11. Insecticide treatments

### Principle

**SOP 11.1. Insecticide treatments are being carried out according to the principles described in the relevant FAO guidelines.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Execution

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

Head of locust control operations

### Technical guidelines to be consulted

- [FAO Desert Locust Guidelines No. 4 – Locust Control](#)
- [FAO Desert Locust Guidelines No. 6 – Precautions for Human Health and the Environment](#)
- [Training of Trainers Manual on the Desert Locust](#)
- [FAO - SOP Operating Procedures \(SOP\) for Desert Locust Ground Control.](#)
- [FAO - SOP Operating Procedures \(SOP\) for Desert Locust Survey and Control by Air](#)

### Procedure

- Train and retrain control agents (see 5.1)
- Equip control teams (see 3)
- Ensure maintenance of treatment devices
- Monitoring of control operations (see 18, 19 & 20))

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

- i. The recommended doses are respected (acceptable deviation  $\approx \pm 20\%$ )
- ii. Treatments have acceptable efficacy (>90% mortality, for chemical insecticides)

### Information to be collected and analyzed in order to be able to verify implementation

- Forms and/or the database of the treatments
- Reports from field monitoring missions

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 12. Documentation of the control operations

### Principle

**SOP 12.1. The insecticide treatment details are collected at each control operation and noted on the FAO Spray monitoring form.**

Type of campaign	Recession/Outbreak & upsurge / plague.
SOP level	Basic SOP.
Campaign Phase	Execution

### Implementation

Primary person(s) responsible for implementation (QA auditor(s))	Head of locust control operations
Technical guidelines to be consulted	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 4 - Locust Control</a></li> <li>• <a href="#">FAO Desert Locust Guidelines No. 7 - Appendices</a></li> </ul>
Procedure	<ul style="list-style-type: none"> <li>• Elaborate national forms (if needed)</li> <li>• Train control team officers</li> <li>• Collect and analyze all treatment information, on a national level.</li> <li>• Have a database with details of the treatments</li> </ul>

### Programming

#### Starting situation

#### Activities

#### Actors

#### Deadlines

#### Resources

### Monitoring

Verification indicator(s)	<ol style="list-style-type: none"> <li>A treatment form is adopted at the national level</li> <li>Details of insecticide applications are collected for each treatment</li> </ol>
Information to be collected and analyzed in order to be able to verify implementation	<ul style="list-style-type: none"> <li>– Treatment details (in database form)</li> </ul> <p>Calculate: % inclusion of the different key information of the treatment in the database</p>

### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 12. Documentation of the control operations

### Principle

**SOP 12.2. The actual application doses are measured, based on the area treated and the volume of insecticide applied.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Execution

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

Head of locust control operations

### Technical guidelines to be consulted

- [FAO Desert Locust Guidelines No. 4 - Locust Control](#)
- [FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment](#)

### Procedure

- Equip the control teams with GPS
- Train agents (see 5.1)

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

Actual application rates are measured for all treatments

### Information to be collected and analyzed in order to be able to verify implementation

– Application details (in database form)

Calculate: % of treated areas and volumes of insecticide applied that are actually measured.

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.



## 12. Documentation of the control operations

<b>Principle</b>	<b>SOP 12.3. The coordinates of corner of the treated plots are recorded using GPS.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Execution

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of locust control operations
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 4 - Locust Control</a></li> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Equip the control teams with GPS</li> <li>• Train agents (see 5.1)</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	The coordinates of each treated plot are collected
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	– Locust Control Operations Database
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	Calculate: % of treated plots for which contact information was collected.
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

### 13. Field operations bases

<b>Principle</b>	<b>SOP 13.1. Temporary field operations bases are located according to FAO Desert Locust guidelines, to ensure minimum risks to local populations.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Execution
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#### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of locust control operations
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<b>Technical guidelines to be consulted</b>	<a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Define the criteria for locating operational bases</li> <li>• Train control team officers (see 5.1)</li> <li>• Inform the population about the risks (see 9.3)</li> </ul>
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#### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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#### Monitoring

<b>Verification indicator(s)</b>	The location of the operational bases does not pose a risk to the surrounding populations.
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Distances and directions from operational bases to settlements</li> <li>– Mission reports of the SMTs</li> </ul>
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#### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

### 13. Field operations bases

<b>Principle</b>	<b>SOP 13.2. Field operations bases are equipped with decontamination materials (buckets, absorbents, water, shovels, etc.) and are kept clean and free of waste.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Execution
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#### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of locust control operations
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<b>Technical guidelines to be consulted</b>	<a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Have a standard decontamination/remediation kit available</li> <li>• Equip the bases with sanitation equipment</li> <li>• Train teams in the use of this equipment (see 5.1)</li> </ul>
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#### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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#### Monitoring

<b>Verification indicator(s)</b>	<ol style="list-style-type: none"> <li>i. Each operational base and pumping stand is equipped with sanitation equipment</li> <li>ii. Each operational base and pumping stand is healthy</li> </ol>
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Decontamination Materials Order Lists</li> <li>– List of decontamination equipment available in each operational base and pumping stand</li> <li>– Exit vouchers for decontamination equipment</li> <li>– Mission reports of the SMTs</li> </ul>
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#### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

### 13. Field operations bases

#### Principle

**SOP 13.3. A closed-circuit pumping system is available on each aerial operation base.**

#### Type of campaign

Recession/Outbreak & upsurge / plague.

#### SOP level

Basic SOP.

#### Campaign Phase

Execution

### Implementation

#### Primary person(s) responsible for implementation (QA auditor(s))

Head of locust control operations

#### Technical guidelines to be consulted

#### Procedure

- Include a closed-circuit pumping system in tenders to air processing contracts
- Equip the other operational bases with closed-circuit pumping systems

### Programming

#### Starting situation

#### Activities

#### Actors

#### Deadlines

#### Resources

### Monitoring

#### Verification indicator(s)

Each operational base is equipped with a closed-circuit pumping system.

#### Information to be collected and analyzed in order to be able to verify implementation

- List of pumping equipment available at each operational base
- Technical specifications of calls for tenders
- Equipment release vouchers
- Mission reports by the SMTs

### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 14. Personal protective equipment

<b>Principle</b>	<b>SOP 14.1. Anyone handling insecticides have and use personal protective equipment suitable for their duties.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation & Execution

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of locust control operations SMT Officers
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> <li>• <a href="#">FAO PPE List</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Define (and standardize) the types of PPE appropriate at the national level.</li> <li>• Have sufficient quantities of PPE available</li> <li>• Distribute the PPE to all concerned agents</li> <li>• Fill out the PPE use form for the control team leaders (e.g. FAO spraying form)</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	<ol style="list-style-type: none"> <li>Forms on the use of PPE are appropriately completed and available</li> <li>All persons handling insecticides have and use appropriate PPE.</li> </ol>
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– PPE Order Lists</li> <li>– PPE exit vouchers</li> <li>– Reports/Processing operation forms</li> <li>– Monitoring mission reports</li> </ul>
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 14. Personal protective equipment

### Principle

**SOP 14.2. Anyone with personal protective equipment have been trained in its proper use and maintenance.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Preparation

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

Responsible for training / information

### Technical guidelines to be consulted

- [FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment](#)

### Procedure

- Train the agents concerned (see 5.1)

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

Each person handling insecticides has a training certificate

### Information to be collected and analyzed in order to be able to verify implementation

- List of trained agents
- List of agents handling pesticides during the campaign.

Calculate: % of pesticide handlers who were trained.

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 14. Personal protective equipment

<b>Principle</b>	<b>SOP 14.3. A quantity of personal protective equipment, sufficient to equip all staff handling or applying pesticides for a period of 3 to 6 months, is permanently in stock.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Preparation
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### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of locust control operations SMT Officer
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Determine the number of actors who will handle pesticides for the next 6 months.</li> <li>• Have sufficient quantities of PPE available</li> <li>• Position PPE in strategic locations</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	A sufficient batch of PPE is in stock for 6 months of operation.
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– PPE Order Lists</li> <li>– Estimated number of staff involved</li> <li>– Monthly PPE inventory balance sheet</li> </ul>
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Calculate:

<ul style="list-style-type: none"> <li>– % and duration of PPE coverage for all agents who could handle pesticides for the next 6 months</li> </ul>
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 14. Personal protective equipment

<b>Principle</b>	<b>SOP 14.4. Each locust control team is equipped at all times with a first aid kit and a personal decontamination kit (clean water, detergent, eye-wash bottle, etc.)</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Preparation & Execution
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### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of locust control operations SMT Officer
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Determine the number of treatment teams to be mobilized during the campaign.</li> <li>• Have sufficient quantities of first aid and decontamination kits and replacement materials available</li> <li>• Position the kits in strategic locations.</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	All treatment teams are equipped with a first aid kit.
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– List of orders for kits and kits</li> <li>– Exit vouchers</li> </ul>
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.



## 15. Sensitive areas

<b>Principle</b>	<b>SOP 15.1. All areas in the country that are sensitive to the ecological effects of insecticide applications are identified and mapped.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	SMT Officer
<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> </ul>
<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Identify sensitive areas</li> <li>• Collect data for mapping (existing maps, digital data, analog data)</li> </ul>

### Programming

**Starting situation**

**Activities**

**Actors**

**Deadlines**

**Resources**

### Monitoring

<b>Verification indicator(s)</b>	All areas sensitive to insecticide treatments at the national level are identified and mapped
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– List of sensitive areas</li> <li>– Mapping of sensitive areas</li> </ul>

### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 15. Sensitive areas

<b>Principle</b>	<b>SOP 15.2. All areas in the country that are ecologically vulnerable to insecticide treatments have been identified in a GIS system.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
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<b>SOP level</b>	Supplementary SOP.
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<b>Campaign Phase</b>	Preparation
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### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	SMT Officer
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• - Introduce/adapt already digitized maps</li> <li>• - Digitize additional data (as needed)</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	All insecticide sensitive areas at the national level are available in a GIS system.
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	– Digitized mapping of sensitive areas
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 15. Sensitive areas

### Principle

**SOP 15.3. Risk mitigation measures have been identified for each area sensitive to insecticide applications.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Preparation

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

SMT Officer

### Technical guidelines to be consulted

- [FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment](#)

### Procedure

- Identify risk mitigation measures for each sensitive area
- Assess the effectiveness and operational feasibility of mitigation measures.

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

For each area sensitive to insecticide treatments, risk mitigation measures are identified.

### Information to be collected and analyzed in order to be able to verify implementation

- List of realistic and feasible mitigation measures by sensitive area

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 15. Sensitive areas

<b>Principle</b>	<b>SOP 15.4. Risk mitigation measures are taken for each area sensitive to insecticide applications.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Execution

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	SMT Officer
<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> </ul>
<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Implement the risk mitigation measures to be applied to the national level</li> <li>• Train control teams on risk mitigation measures (see 5.1)</li> </ul>

### Programming

**Starting situation**

**Activities**

**Actors**

**Deadlines**

**Resources**

### Monitoring

<b>Verification indicator(s)</b>	Treatments in sensitive areas were carried out in compliance with the recommended mitigation measures.
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Treatment Mapping</li> <li>– Mapping of sensitive areas</li> <li>– Treatment reports</li> <li>– Overlaying of treatments and sensitive areas, and verification that mitigation measures have been reported for required situations.</li> <li>– Report of monitoring missions</li> <li>– Calculate: % of treatments in/near sensitive areas that have been monitored mitigation.</li> </ul>

### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 16. Waiting periods

<b>Principle</b>	<b>SOP 16.1. For all insecticides that may be applied on crops intended for human consumption, pre-harvest intervals have been defined based on national maximum residue limits (MRLs) or on the Codex Alimentarius MRLs, if available.</b>
<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	SMT Officer
<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> </ul>
<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Having waiting periods for each insecticide</li> <li>• Analyze pesticide residues (for waiting time confirmation, if necessary)</li> </ul>

### Programming

#### Starting situation

#### Activities

#### Actors

#### Deadlines

#### Resources

### Monitoring

<b>Verification indicator(s)</b>	Deficiency periods have been defined for all pesticides that could be used on crops for human and animal consumption.
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– List of waiting periods</li> <li>– List of insecticides used during the campaign</li> <li>– Results of residue analyses (if applicable)</li> </ul>

### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 16. Waiting periods

<b>Principle</b>	<b>SOP 16.2. For all insecticides that may be applied on crops intended for human consumption, farmers are informed of the pre-harvest intervals they should observe.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Execution & post-campaign
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## Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	SMT Officer Locust control team Officers
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Train treatment team staff (see 5.1)</li> <li>• Sensitize farmers (see 9.1)</li> <li>• Conduct residue analyses on treated crops / agricultural products (for confirmation of compliance with the SOP)</li> </ul>
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## Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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## Monitoring

<b>Verification indicator(s)</b>	Residue analysis results are in compliance with MRLs/SOPs
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Types and areas of crops treated during the season for each insecticide used</li> <li>– Assessment of the awareness activities of the farmers</li> <li>– Results of pesticide residue analyses</li> </ul>
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## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 16. Waiting periods

<b>Principle</b>	<b>SOP 16.3. For all insecticides that may be applied on pastures, livestock withholding periods have been defined based on national maximum residue limits (MRLs) or on the Codex Alimentarius MRLs, if available.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Preparation
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### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	SMT Officer
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Having waiting periods for each insecticide</li> <li>• Analyze pesticide residues (for waiting periods confirmation, if necessary)</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	Waiting periods have been defined for all pesticides that could be used on pastureland.
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– List of waiting periods</li> <li>– List of insecticides used during the campaign</li> <li>– Results of residue analyses (if applicable)</li> </ul>
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 16. Waiting periods

### Principle

**SOP 16.4. For all insecticides that may be applied on pastures, pastoralists and shepherds (nomads) are informed about the relevant livestock withholding periods and are urged to observe them.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Preparation

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

SMT Officer  
Locust control team Officers

### Technical guidelines to be consulted

[FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment](#)

### Procedure

- Train treatment team staff (see 5.1)
- Sensitize nomads and shepherds (see 9.1)
- Conduct observations of compliance with waiting periods

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

Nomads and shepherds are informed of the waiting periods between treatment and re-entry period for livestock

### Information to be collected and analyzed in order to be able to verify implementation

- Area of pasture treated for each insecticide used
- List of awareness activities for nomads and shepherds

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.



## 16. Waiting periods

### Principle

**SOP 16.5. Waiting periods for control staff between the insecticide application and re-entry in the treated plot are defined and observed, for all insecticides used.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Preparation & Execution

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

SMT Officer  
Locust control team Officers

### Technical guidelines to be consulted

[FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment](#)

### Procedure

- Have re-entry times for each insecticide used.
- Train treatment team staff (see 5.1)

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

- i. Cholinesterase inhibition tests do not show unacceptable exposure (for OP and CA insecticides)
- ii. Internal exposure tests (e.g. urine, blood) do not show unacceptable exposure (for other insecticide groups)

### Information to be collected and analyzed in order to be able to verify implementation

- List of re-entry deadlines
- List of insecticides used during the campaign
- Results of internal agent exposure analysis

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 17. Monitoring of treatments

<b>Principle</b>	<b>SOP 17.1. At least one operationally independent team is available, specialized in monitoring human health, environmental impact, and application quality, and regularly carrying out monitoring exercises.</b>
<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation & Execution

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of NLCU SMT Officer
<b>Technical guidelines to be consulted</b>	<a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a>
<b>Procedure</b>	<ul style="list-style-type: none"> <li>Put in place, at a minimum, one dedicated monitoring team.</li> <li>Train team members</li> <li>Equip the team with appropriate equipment and logistical means</li> </ul>

### Programming

#### Starting situation

#### Activities

#### Actors

#### Deadlines

#### Resources

### Monitoring

<b>Verification indicator(s)</b>	At least one team specialized in treatment monitoring has been set up and is operational.
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>List of agents being part of the monitoring teams</li> <li>Agent skills (expertise, experience, training)</li> <li>Monitoring reports</li> </ul>

### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 18. Efficacy assessment

<b>Principle</b>	<b>SOP 18.1. Regular assessments of the biological efficacy of the control operations are conducted.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Preparation & Execution

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of NLCU Head of locust control operations
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 4 - Locust Control</a></li> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Define SOP methods for efficacy assessment</li> <li>• Train treatment team staff (see 5.1)</li> <li>• Train agents for SMTs (see 17.1)</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	The biological efficacy of the treatments is checked regularly, at least for 10% of the interventions.
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Efficacy data collected by treatment teams (rapid assessments = treatment forms)</li> <li>– Effectiveness data collected by the monitoring teams (dedicated evaluations = monitoring forms)</li> <li>– Effectiveness reports</li> </ul>
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 19. Monitoring of human health

<b>Principle</b>	<b>SOP 19.1. A detailed medical examination is done before the start of the control campaign, of all personnel handling insecticides. The examination includes the establishment of an individual acetyl-cholinesterase (AChE) base level. Persons that may be highly susceptible to insecticides will not be assigned to work that includes these products.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Preparation
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### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	SMT Officer
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> <li>• <a href="#">Checklist for medical practitioners involved in the monitoring of cholinesterase inhibition in pesticide handlers (CERES-Locustox 2021)</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Establish an appropriate medical examination protocol for pesticide operators</li> <li>• Identify the physician(s) who will perform the medical examination</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	<ol style="list-style-type: none"> <li>i. A medical examination protocol has been developed</li> <li>ii. An appropriate medical examination report is available for all agents involved in the treatment or handling of pesticides.</li> </ol>
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Staff List</li> <li>– Medical examination reports</li> </ul>
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Calculate: % of agents who have undergone an appropriate medical examination

### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 19. Monitoring of human health

### Principle

**SOP 19.2. A personal insecticide use passport is kept during the control campaign for all persons handling insecticides.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Execution

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

SMT Officer  
Locust control team Officers

### Technical guidelines to be consulted

- [FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment](#)
- [Checklist for medical practitioners involved in the monitoring of cholinesterase inhibition in pesticide handlers \(CERES-Locustox, 2021\)](#)

### Procedure

- Elaborate an individual pesticide handling sheet
- Empower Locust control team Officers to manage the sheets.
- Create a database to allow post-campaign analysis of the data (see also 19.4).
- Collect copies of the data sheets each time the team goes to the central database.
- Process the collected data

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

- An individual pesticide handling sheet is developed
- An individual record of pesticide handling during the campaign is kept for each pesticide handler.

### Information to be collected and analyzed in order to be able to verify implementation

- List of agents & their tasks
- Individual pesticide handling records (or database)

Calculate: % of pesticide handlers who kept an individual pesticide handling record.

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 19. Monitoring of human health

<b>Principle</b>	<b>SOP 19.3. Regular occupational health monitoring is conducted of all personnel handling insecticides, based on the frequency of application, the quantity of insecticides handled, and the results of previous AChE assessments.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Execution
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### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	SMT Officer
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> <li>• <a href="#">Checklist for medical practitioners involved in the monitoring of cholinesterase inhibition in pesticide handlers (CERES-Locustox, 2021)</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Define the frequency of medical monitoring</li> <li>• Organize medical care (central or decentralized)</li> <li>• Carry out medical monitoring</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	Regular medical monitoring was carried out for all personnel involved in the treatment or handling of pesticides.
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– List of agents &amp; their tasks</li> <li>– List of medical Monitoring performed</li> </ul> <p>Calculate: % of agents having undergone a regular medical examination</p>
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 19. Monitoring of human health

<b>Principle</b>	<b>SOP 19.4. A database is set up for recording and evaluation of cholinesterase inhibition.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
<b>SOP level</b>	Supplementary SOP.
<b>Campaign Phase</b>	Preparation, execution & post-campaign

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	SMT Officer
<b>Technical guidelines to be consulted</b>	<a href="#">Checklist for medical practitioners involved in the monitoring of cholinesterase inhibition in pesticide handlers (CERES-Locustox, 2021)</a>
<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Train health monitoring staff in the use of the database</li> <li>• Use the database (see also 19.2)</li> </ul>

### Programming

**Starting situation**

**Activities**

**Actors**

**Deadlines**

**Resources**

### Monitoring

<b>Verification indicator(s)</b>	A database is used for monitoring cholinesterase inhibition.
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	– Description of the management system (database)

### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 19. Monitoring of human health

<b>Principle</b>	<b>SOP 19.5. At the end of the control campaign a detailed medical examination is conducted of all personnel having handled insecticides.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
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<b>SOP level</b>	Supplementary SOP.
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<b>Campaign Phase</b>	Post-campaign
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### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	SMT Officer
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> <li>• <a href="#">Checklist for medical practitioners involved in the monitoring of cholinesterase inhibition in pesticide handlers (CERES-Locustox, 2021)</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Organize medical monitoring (central or decentralized)</li> <li>• Carry out medical monitoring</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	A medical check-up was carried out after the end of the campaign for all personnel involved in the treatment or handling of pesticides.
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– List of agents &amp; their tasks</li> <li>– List of medical monitoring performed</li> </ul>
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	Calculate: % of agents who underwent an end-of-campaign medical examination
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.



## 19. Monitoring of human health

### Principle

**SOP 19.6. Each person showing a plasma cholinesterase inhibition level of more than 40%, or an erythrocyte cholinesterase inhibition level of more than 30%, or whose health is otherwise adversely affected by an insecticide, will be withdrawn from all handling of insecticides. Those persons will be assigned other work within the control campaign until recovery to normal cholinesterase levels or of his/her health.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Execution

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

SMT Officer  
Head of locust control operations

### Technical guidelines to be consulted

- [FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment](#)
- [Checklist for medical practitioners involved in the monitoring of cholinesterase inhibition in pesticide handlers \(CERES-Locustox, 2021\)](#)

### Procedure

- Ensure regular medical examination of all staff involved (see 19.1 & 19.3).
- Withdraw agents that have exceeded the maximum acceptable cholinesterase inhibition threshold

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

The agents concerned have been identified and kept away from contact with insecticides.

### Information to be collected and analyzed in order to be able to verify implementation

- List of agents & their tasks
- Results of the medical monitoring carried out
- Measures taken for the agents concerned

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 19. Monitoring of human health

### Principle

**SOP 19.7. Any handling of human blood must be done by a health worker, or a person otherwise certified for this work.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Preparation, execution & post-campaign

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

SMT Officer

### Technical guidelines to be consulted

### Procedure

- Include a health agent or sworn person on the monitoring teams that monitor cholinesterase inhibition.

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

A health care worker or a sworn person is always part of the monitoring teams doing cholinesterase inhibition monitoring.

### Information to be collected and analyzed in order to be able to verify implementation

- List of agents on the monitoring teams

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 20. Environmental monitoring

### Principle

**SOP 20.1. An environmental monitoring assessment of the control operations is conducted on a regular basis.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Execution & post-campaign

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

SMT Officer

### Technical guidelines to be consulted

[FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment](#)

### Procedure

- Elaborate and implement an environmental monitoring program

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

An environmental impact assessment of the treatments was carried out regularly, at least for 10% of the interventions.

### Information to be collected and analyzed in order to be able to verify implementation

- Environmental monitoring report(s)

Calculate: % of interventions for which an environmental monitoring was carried out

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 20. Environmental monitoring

### Principle

**SOP 20.2. A database, linked to a GIS, is created and used for the management of information on the environmental impact of locust control operations.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Execution & post-campaign

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

SMT Officer

### Technical guidelines to be consulted

[FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment](#)

### Procedure

- Develop a database linked to a GIS

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

A system for managing information on the impact of locust treatments has been set up.

### Information to be collected and analyzed in order to be able to verify implementation

- Description of the treatment impact information management system

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 21. Management of empty insecticide containers

<b>Principle</b>	<b>SOP 21.1. A system is put in place for the management of empty insecticide containers, including their storage, transport, rinsing crushing and disposal.</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
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<b>SOP level</b>	Basic SOP.
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<b>Campaign Phase</b>	Preparation
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### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of Pesticide stocks Head of NLCU
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<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> <li>• <a href="#">FAO Guidelines on management options for empty pesticide containers (2008)</a></li> </ul>
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<b>Procedure</b>	<ul style="list-style-type: none"> <li>• Develop an empty container management system</li> <li>• Setting up the logistics</li> <li>• Buy the equipment</li> <li>• Train pest control officers on the management of empty containers (see 5.1)</li> </ul>
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### Programming

<b>Starting situation</b>	
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<b>Activities</b>	
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<b>Actors</b>	
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<b>Deadlines</b>	
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<b>Resources</b>	
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### Monitoring

<b>Verification indicator(s)</b>	An empty container management system has been put in place.
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<b>Information to be collected and analyzed in order to be able to verify implementation</b>	– Description of the treatment impact information management system
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### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 21. Management of empty insecticide containers

<b>Principle</b>	<b>SOP 21.2. All empty containers of locust control insecticides are collected stored at a single place. .</b>
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<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Execution & post-campaign

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	Head of Pesticide stocks Locust control team Officers
<b>Technical guidelines to be consulted</b>	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> <li>• <a href="#">FAO Guidelines on management options for empty pesticide containers (2008)</a></li> </ul>
<b>Procedure</b>	<ul style="list-style-type: none"> <li>• See 21.1</li> <li>• Set up a control system ("accounting") for the recuperation of empty drums / cans</li> </ul>

### Programming

**Starting situation**

**Activities**

**Actors**

**Deadlines**

**Resources**

### Monitoring

<b>Verification indicator(s)</b>	100% of empty drums / cans of locust pesticide are collected and gathered
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	<ul style="list-style-type: none"> <li>– Insecticide delivery vouchers/lists (number of drums / cans)</li> <li>– Insecticide use data (number of drums / cans)</li> <li>– Entry record of empty containers at the storage facility</li> <li>– Report(s) of verification mission(s) at the level of the storage warehouses (if applicable)</li> </ul> <p>Calculate: % of containers taken out during the campaign that are recuperated (empty) after the campaign</p>

### Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 21. Management of empty insecticide containers

### Principle

**SOP 21.3. The empty and crushed containers are recycled or disposed in accordance with national regulations or relevant international standards.**

Type of campaign	Recession/Outbreak & upsurge / plague.
SOP level	Basic SOP.
Campaign Phase	Post-campaign

## Implementation

Primary person(s) responsible for implementation (QA auditor(s))	Head of Pesticide stocks Locust control team Officers
Technical guidelines to be consulted	<ul style="list-style-type: none"> <li>• <a href="#">FAO Desert Locust Guidelines No. 6 - Precautions for Human Health and the Environment</a></li> <li>• <a href="#">FAO Guidelines on management options for empty pesticide containers (2008)</a></li> </ul>
Procedure	<ul style="list-style-type: none"> <li>• Identify existing national regulations for the recycling or disposal of empty pesticide containers.</li> <li>• Where applicable, identify international SOPs</li> <li>• Draw up a plan for recycling or disposing of empty containers</li> <li>• Train the agents involved or establish a contract with a specialized company</li> <li>• Set up the control of operations</li> </ul>

## Programming

Starting situation

Activities

Actors

Deadlines

Resources

## Monitoring

Verification indicator(s)	All compacted empty drums / cans have been recycled or disposed of in accordance with current national regulations and international SOPs.
Information to be collected and analyzed in order to be able to verify implementation	<ul style="list-style-type: none"> <li>– National regulations and/or international SOPs</li> <li>– Recycling or disposal plan</li> <li>– Contract with specialized company (if needed)</li> <li>– Relationship to the results of the recycling or disposal activity</li> <li>– Report of an independent inspection of recycling or disposal operations (if applicable)</li> </ul>

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 21. Management of empty insecticide containers

### Principle

**SOP 21.4. If empty containers need to be sent abroad for disposal or recycling, transboundary movements are conducted according to the Basel Convention.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Post-campaign

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

Head of Pesticide stocks

### Technical guidelines to be consulted

- [Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.](#)

### Procedure

- Get informed on the obligations of the exporting country under the Basel Convention
- Implement measures to meet the obligations of the exporting country

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

Transboundary movements of empty containers would be carried out in accordance with the Basel Convention, if required.

### Information to be collected and analyzed in order to be able to verify implementation

- Obligations of the exporting country
- Copies of documentation required by the Basel Convention
- Report of the treatment of empty containers by the importing country (= country of waste treatment)

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.



## 22. Management of left-over insecticides

### Principle

**SOP 22.1. All insecticides that have not been used at the end of the control campaign are collected in a limited number of permanent pesticide stores.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Post-campaign

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

Head of Pesticide stocks

### Technical guidelines to be consulted

#### Procedure

- To identify the storehouses intended for the storage of insecticide leftovers
- To set up a system of recuperation and storage of the leftovers of insecticides

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

All insecticides not used at the end of the campaign were collected into a limited number of storehouses.

### Information to be collected and analyzed in order to be able to verify implementation

- List of stores concerned
- Quantities of insecticide leftovers stored after the campaign
- Description of storage conditions (e.g. inspection missions)

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 22. Management of left-over insecticides

### Principle

**SOP 22.2. The quality of all insecticides produced two years ago or more is checked by chemical analysis at least once a year, unless previous analyses clearly justify a longer quality assessment interval.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Preparation & post-campaign

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

Head of Pesticide stocks

### Technical guidelines to be consulted

- [FAO/WHO Pesticide Specifications](#)

### Procedure

- Identify batches of insecticides requiring quality control
- Make a contract with a specialized laboratory
- Take samples
- Send samples for laboratory analysis

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

The quality of all insecticides that were produced two years ago or more is known

### Information to be collected and analyzed in order to be able to verify implementation

- List of insecticide stocks that were produced two or more years ago
- Contract with a specialized laboratory
- Results of the analyses

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 22. Management of left-over insecticides

### Principle

**SOP 22.3. Insecticides that do no longer meet the FAO/WHO specifications with respect to acceptable impurity levels, or which have otherwise become unusable, will be set aside for environmentally sound disposal.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Preparation & post-campaign

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

Head of Pesticide stocks

### Technical guidelines to be consulted

- [FAO Pesticide Disposal Series 4 - Disposal of large quantities of obsolete pesticides in developing countries.](#)
- [FAO Pesticide Disposal Series. 12. Environmental Management Tool Kit for Obsolete Pesticides. 2009](#)

### Procedure

- Identify national regulations in operation for the disposal of insecticide leftovers.
- Where applicable, identify international SOPs
- Develop a plan for the disposal of insecticide leftovers
- Establish a contract with a specialized company for disposal
- Set up the control of operations

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

Non-usable insecticides have been disposed according to the following procedures Environmentally acceptable

### Information to be collected and analyzed in order to be able to verify implementation

- National regulations and/or international SOPs applied
- Disposal plan
- Contract with specialized company
- Relationship to the results of the disposal activity
- Report of an independent inspection of disposal operations

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 22. Management of left-over insecticides

### Principle

**SOP 22.4. If obsolete insecticides need to be sent abroad for disposal or recycling, transboundary movements are conducted according to the Basel Convention, if required.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Post-campaign

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

Head of Pesticide stocks

### Technical guidelines to be consulted

- [Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.](#)

### Procedure

- Obtain information about the obligations of the exporting country under the Basel Convention
- Implement measures to meet the obligations of the exporting country

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

Transboundary movement of leftover insecticides would be carried out in accordance with the Basel Convention, if required.

### Information to be collected and analyzed in order to be able to verify implementation

- Obligations of the exporting country
- Copies of documentation required by the Basel Convention
- Ratio of the treatment of insecticide leftovers by the importing country (= country of waste processing)

## Results

- Information about where the raw data used to verify implementation are located (which service/unit/office).
- Environmental Assessment Documents
- A summary of the results.
- Justifications of all cases of non-compliance with the SOP.
- In the event of non-compliance, an indication of the corrective action that has been proposed and/or taken.

## 23. Internal monitoring of implementation of the EHS

### Principle

**SOP 23.1. The national locust control unit (NLCU) appoints an environmental and health officer who is responsible for the implementation of the EHS.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Preparation

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

Head of NLCU

### Technical guidelines to be consulted

### Procedure

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

A person responsible for the internal monitoring of the implementation status of the EHS is appointed and operational.

### Information to be collected and analyzed in order to be able to verify implementation

Appointment letter from the head of NLCU

## Results

- Provide justifications for possible non-compliance with the SOP.
- In case of non-compliance, indicate what corrective measures have been proposed and/or taken.

## 23. Internal monitoring of implementation of the EHS

### Principle

**SOP 23.2. The person responsible for the internal monitoring puts in place, and maintains, a system for the documentation of the state of implementation of all the SOPs defined in the EHS Manual , to allow external auditing at all times.**

### Type of campaign

Recession/Outbreak & upsurge / plague.

### SOP level

Basic SOP.

### Campaign Phase

Preparation, execution & post-campaign

## Implementation

### Primary person(s) responsible for implementation (QA auditor(s))

EHS's internal monitoring responsible

### Technical guidelines to be consulted

### Procedure

## Programming

### Starting situation

### Activities

### Actors

### Deadlines

### Resources

## Monitoring

### Verification indicator(s)

A system for documenting the status of implementation of the EHS is in place and kept up to date.

### Information to be collected and analyzed in order to be able to verify implementation

## Results

- Provide justifications for possible non-compliance with the SOP.
- In case of non-compliance, indicate what corrective measures have been proposed and/or taken.

## 23. Internal monitoring of implementation of the EHS<sup>4</sup>

<b>Principle</b>	<b>SOP 23.3. The person responsible for the internal monitoring elaborates each year a report on the state of implementation of the EHS.</b>
<b>Type of campaign</b>	Recession/Outbreak & upsurge / plague.
<b>SOP level</b>	Basic SOP.
<b>Campaign Phase</b>	Post-campaign

### Implementation

<b>Primary person(s) responsible for implementation (QA auditor(s))</b>	EHS's internal monitoring responsible
<b>Technical guidelines to be consulted</b>	
<b>Procedure</b>	

### Programming

<b>Starting situation</b>	
<b>Activities</b>	
<b>Actors</b>	
<b>Deadlines</b>	
<b>Resources</b>	

### Monitoring

<b>Verification indicator(s)</b>	An annual report on the status of implementation of the EHS has been developed.
<b>Information to be collected and analyzed in order to be able to verify implementation</b>	

### Results

- Provide justifications for possible non-compliance with the SOP.
- In case of non-compliance, indicate what corrective measures have been proposed and/or taken.

<sup>4</sup> External audit of the EHS: An external audit of the state of implementation of these Standards is conducted by an independent national institution designated to this end and not part of the EHS Manual.

## After-campaign pesticide stock management and cleaning of environmental contamination<sup>5</sup>

“FAO’s Programme on the Prevention and Disposal of Obsolete Pesticides is working to inform authorities about the handling of after-campaign cleaning operations and obsolete pesticide stocks.

### Containers

Disposal of used containers is an ongoing problem that poses a severe threat to the environment and public health. Empty pesticide containers are highly valued property. Even though it is usually impossible to remove all traces of toxic chemicals from pesticide containers, people often use them for storing fuel or even food and water. This unsafe practice must be discouraged.

### Dangers of improper disposal

A common practice is the burying or burning of waste pesticides and empty containers. But buried chemical waste can contaminate soil and groundwater, while burning pesticides and containers releases highly toxic fumes. Containers and contaminated materials can be dumped in landfills or other general waste collection sites. Still, most of these sites aren’t designed to prevent toxic materials from leaking into the ground or being washed out by rain into water bodies, and such sites are usually scavenged. Useful items such as pesticide containers are reclaimed.

### The responsibility of industry and the government

Most pesticide users can’t dispose of pesticides and related waste materials safely. Under [The International Code of Conduct on Pesticide Management](#), manufacturers and distributors of pesticides are expected to provide facilities that allow pesticide users to dispose of empty containers and pesticide-related waste materials safely. National and local authorities must help with the disposal of farmers’ and householders’ pesticide-related waste through schemes for collecting small quantities of pesticides, used containers and contaminated materials. FAO provides technical advice and guidance to assist in taking the necessary measures to reduce the risks posed by used pesticide containers.

### Contaminated soil

Obsolete pesticides may be improperly stored, with pesticides leaking out of corroded drums into the soil and groundwater and powders spread by wind, posing a serious health and environmental threat to nearby communities.

### The process

Cleaning up contaminated water and soil is part of any obsolete pesticide disposal operation. It is costly, and technically complex. Cleanup usually focuses first on the removal of the source of contamination (the pesticides themselves) and decontamination of soil and water is generally addressed on the basis of risk analysis. Depending on the results of the chemical analysis and risk assessment, there are three basic ways of dealing with contaminated soil and water:

- removing the contamination by excavating the soil and pumping-up of groundwater;
- containing the contamination by covering contaminated soil with buildings, asphalt or another impermeable layer, and preventing contaminated groundwater from flowing downstream;
- preventing human contact with the contamination by covering the contamination with clean soil, fencing-off contaminated areas and closing contaminated wells.

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<sup>5</sup> <https://www.fao.org/agriculture/crops/obsolete-pesticides/resources0/en/>



## The costs

Removing contamination is more expensive than containing it, which in turn is more expensive than taking protective measures. But it ends the problem once and for all. Containment and protective measures are effective only for as long as they are maintained and their proper maintenance may be difficult to ensure over a long period of time.

## The FAO Programme, manuals and guidelines

The FAO Programme has published a reference manual for [assessing soil contamination](#) to assist developing countries to make sound decisions about how to deal with the problem in the most cost-effective manner. FAO is also working to develop cost effective methods for dealing with pesticide contaminated soil in developing countries.

### Technical Guidelines:

#### FAO Pesticide Disposal Series 12: Environmental Management Tool Kit for Obsolete Pesticides (EMTK) – Vol. 1

- A. Environmental risk assessment
- B. Prioritization of stores
- C. Regional prioritization and risk tracking

#### FAO Pesticide Disposal Series 13: Environmental Management Tool Kit for obsolete pesticides (EMTK) - Vol 2

- D. Selection of collection centers
- E. Management of collection centers
- F. Transport planning

#### FAO Pesticide Disposal Series 14: The Preparation of Inventories of Pesticides and Contaminated Materials\*

- Inventory planning

#### FAO Pesticide Disposal Series 15: Environmental Management Tool Kit for obsolete pesticides (EMTK) – Vol. 3<sup>6</sup>

- G. Safeguarding strategy
- H. Disposal strategy
- I. Environmental Assessment report and Environmental Management Plans

#### FAO Pesticide Disposal Series 16: Environmental Management Tool Kit for obsolete pesticides (EMTK) – Vol. 4<sup>7</sup>

- J. Zoning of workplaces
- K. Risk assessment
- L. Standard Operating Procedures
- M. Selection and use of equipment
- N. Health, safety and environment plan

#### FAO Pesticide Disposal Series 17: Environmental Management Tool Kit for obsolete pesticides (EMTK) – vol. 5

- O. Pesticide contaminated site identification and prioritization
- P. Preliminary risk assessment and design of the detailed site investigation
- Q. Data analysis and generic quantitative risk assessment

#### FAO Pesticide Disposal Series 18: Environmental Management Tool Kit for obsolete pesticides (EMTK) – vol. 6

- R. Risk reduction strategy design
- S. Risk reduction implementation strategy design
- T. Development of risk mitigation plans

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<sup>6</sup> Publication no. 14, 15 and 16 have been produced with the financial assistance of the European Union. The views expressed herein can in no way be taken to reflect the official opinion of the European Union.

<sup>7</sup> Publication no. 14, 15 and 16 have been produced with the financial assistance of the European Union. The views expressed herein can in no way be taken to reflect the official opinion of the European Union.

- U. Development of the environmental management plan

## **Rapid Environmental Assessment (REA) investigator handbook**

### **Guidelines and Manuals**

[FAO Pesticide Disposal Series 2 - Prevention of accumulation of obsolete pesticide stocks](#)

[FAO Pesticide Disposal Series 3 - Pesticide storage and stock control manual](#)

[FAO Pesticide Disposal Series 4 - Disposal of bulk quantities of obsolete pesticides in developing countries](#)

[FAO Pesticide Disposal Series 7 - Guidelines for the management of small quantities of unwanted and obsolete pesticides](#)

[FAO Pesticide Disposal Series 8 - Assessing soil contamination: A reference manual](#)

[FAO Pesticide Disposal Series 10 - FAO Training Manual for inventory taking obsolete pesticides](#)

[FAO Pesticide Disposal Series 11 - Country guidelines](#)

### **Updates of the Manual**

To maximize the applicability of the Manual, updates will be released regularly. Users are therefore invited to submit proposals for corrections and additions to the FAO: Shoki Al-Dobai, Locusts and Transboundary Plant Pests and Diseases Team, via email address: [shoki.aldobai@fao.org](mailto:shoki.aldobai@fao.org)



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