



# FAO Commission for Controlling the Desert Locust in the Central Region (CRC)

## **Towards better Desert Locust Risk Prevention Systems in the Central Region**

Report on the Regional Workshop

Hurghada, Egypt,

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*Keep control over what you can control...*

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## Acronyms

AGPMM	Locust and Transboundary Plant Pest and Diseases (EMPRES) entity at FAO HQ
CGRA	Cadre de Gestion du Risk Acridien
CP	Contingency Planning
CR	Central Region
CLCPRO	Commission régionale FAO de lutte contre le criquet pèlerin en Région occidentale
CRC	Commission for Controlling the Desert Locust in the Central Region
DeLCoPA	Desert Locust Contingency Planning Assistant
DL	Desert Locust
DLCO-EA	Desert Locust Control Organization for Eastern Africa
DLIS	Desert Locust Information Service
DRR/M	Disaster Risk Reduction/Management
eLERT	Locust Emergency prepaRedness Toolkit
eLocust	An hand-held data logger to record and send locust and ecology field data
EMPRES	Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases
FAO	Food and Agriculture Organization of the United Nations
GIS	Geographic Information System
GPS	Global Positioning System
HQ	Headquarters
NLCU	National Locust Control Unit
PP	Plant Protection
PPD	Plant Protection Directorate
PPE	Personal Protection Equipment
SVDN	Système de veille des dispositifs nationaux de lutte antiacridienne
SWAC	Commission for Controlling the Desert Locust in South-West Asia
ToR	Terms of Reference

## 1. Introduction and Background

Countries and the international community are increasingly taking note of the importance of better disaster risk prevention and management beyond its traditional technical conception such as industrial accidents because of a rising understanding of the negative impact of climate change and the consequences it may have on societies and economies beyond commonly experienced natural hazards. Global climate change models clearly indicate increasing temperatures with more droughts in some areas, but also unusual torrential rainfall in others.

As all living organisms are directly linked to climate, changing ecological conditions will have a large impact also on the bio-dynamics of plant pests. How the various insect pests, microorganisms and weeds will adapt to a changing environment, is difficult to predict and depends on how different external factors interact, as well as on how organizations and societies respond to climate-induced effects. But it is virtually certain that higher temperatures will increase the chances of pest outbreaks and incursions of new pests. First signs give good reasons to assume an increase of severe plant pest incidences due to changing ecological conditions. Also, other more common endemic migrant pests such as locusts may change their breeding and migration behaviour and patterns and might move into areas where they are currently not common.

The socio-economic and ecological impact that one of the most destructive locust species, the Desert Locust (DL) can have on societies has been documented on the example of the most recent locust upsurge in 2003-05, which affected the Central Region (CR)<sup>1</sup> and more severely the Western Region (WR)<sup>2</sup>. The crop losses in the Western Region were estimated by the FAO at 80% of the expected cereal production, and an estimated 1.3 million people were affected by the Desert Locust. The total cost of the control campaign and rehabilitation in Northwest Africa was estimated at over US\$ 270 million, plus US\$ 120 million for food aid, and more than 13 million hectares were sprayed with chemical pesticides in order to bring an end to the upsurge, but the environmental costs of the control operations were not accounted for.

Taking due consideration of global warming and increasing incidences of natural hazards in numbers and scale, disaster risk reduction has raised more and more political concern. The countries and the international community seek to reduce the vulnerability of social and biological systems to climate change and thus to balance the effects of global warming. In recent years, the focus has moved from mainly reactive to more proactive and comprehensive Disaster Risk Reduction and Management (DRR/M) approaches. In 2005, 168 governments adopted the Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities to disasters with the aim to preserve livelihoods affected by exceptional risk that, though unlikely, would have devastating consequences on people's livelihoods and national economies. The challenge now is to translate it into effective action at global, regional and national levels.

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<sup>1</sup> CRC member states: Bahrain, Djibouti, Egypt, Eritrea, Ethiopia, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, Syria, United Arab Emirates and Yemen.

<sup>2</sup> CLCPRO member states: Algeria, Burkina Faso, Chad, Libya, Mali, Mauritania, Morocco, Niger, Senegal and Tunisia.

## 2. The Challenge of Desert Locust Risk Prevention

An effective DL plague prevention strategy requires timely and well-coordinated actions and inputs from national, regional and international sources, each of which depends on accessing resources at short notice. It needs fire brigade-like national survey and control capacities maintained in all-time operational readiness, and suitable instruments and structures able to mobilize national, regional and international reinforcements rapidly.

With the aim to strengthen the preventive DL management capacity of locust-affected countries in order to reduce the risk that plagues will develop, the Desert Locust component of EMPRES (Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases) was initiated by FAO in mid 1994. The EMPRES (Desert Locust) programme became first operational in the CR in 1997 and covered the nine front-line countries Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan and Yemen, since it was believed that most DL plagues originate from the areas around the Red Sea.

The core elements of the EMPRES/CR risk prevention approach adopted by the FAO Commission for controlling the Desert Locust in the Central Region (CRC) remain:

- An enabling environment to support affected states in developing appropriate policies, institutional frameworks and regional cooperation for DL risk reduction and to strengthen the national and regional capacities to implement these.
- A harmonized national, regional and international DL early warning system and information management tools to allow permanent monitor of the DL developments to enhance decision-making in rapid response management, programming, prioritization and targeting.
- Enhanced preparedness through promoting good management practices and contingency planning to improve responses and to reduce potential negative impacts on livelihoods.

The impact of better DL risk management, investments in early warning systems, capacity building and contingency planning as part of the preparedness efforts became evident in the CR in terms of cost, area infested and treated, and crop damage during the DL crisis in 2003–05. The cost of the campaigns amounted to just US\$ 7 million. By contrast and in the absence of prevention systems, the total cost of the campaign in Northwest Africa was estimated at over US\$ 400 million.

However, after phasing out of the donor funded EMPRES/CR Programme in 2006 the challenges to the prevention system still exist in the CR despite all efforts in the past to strengthen risk preparedness of national and regional entities to react faster and more efficient to locust threats.

One major constraint is certainly the lack of attention attached to the locust phenomenon by the national and regional authorities during recession periods. Thus, the lack of investment to maintain and to further develop the achieved certainly remains an issue of high concern. National Locust Control Units (NLCU) often keep, for understandable reasons, only limited staff and control capacities during periods of low DL activities. In addition, the conditions and whereabouts of available recourses are often not known when urgently needed by the NLCU management, not to mention the technical capacities of the locust staff and situation of equipment and resources in other crop protection departments. The NLCUs often react too slow and face severe difficulties in mobilizing additional capacities on a short notice when running against the tide. Additional staff is usually mobilized too late and often lack the necessary technical skills to be effective during the control operations.

In the event of an onset of a locust outbreak the NLCU management is often basing their decisions on the assumption that locust infestations detected by the survey teams represent the real situation and thus ignoring that the extent of the potential danger could be much higher than perceived. Equally, the possible impact of the available resources to cope with the situation is often not well assessed. Both factors may lead on the one hand to an underestimation of the actual danger and

overestimation of the own forces on the other and thus delay initiating mobilization of additional resources early enough.

Recent DL outbreaks in the CR clearly demonstrated that poorly equipped and fragile countries are experiencing emergency<sup>3</sup> situations much earlier than better-resourced and more stable countries, and are quickly running short of supplies such as pesticides with only limited financial capacities to replenish their stocks on time. But also most of the better equipped countries experience enormous organizational problems to appropriately react to irregularly occurring DL outbreaks or upsurges.

But above all economic and logistical constraints, most of the affected countries do not have the adequate coordination capacities to direct and steer emergency operations under high public pressure or to anticipate emergency assistance early enough either from national sources, neighbouring countries or the international community. Partially this can be attributed to the absence of clearly defined national and regional Incidence Command Systems (Steering Committees), the high turnover of senior government officials in various participating ministries, but as well to politically motivated reasons to acknowledge the severity of the incidence and to issue an alert timely.

Most of the emergency operations are geared to destroy as many of the locust infestations as possible without taking social, environmental and security issues and conditions adequately into consideration. This omission in the planning process can seriously affect the success of the operations due to unexpected resistance from the local population or opposition groups and can have as consequence that locust swarms remain unchecked and escape into neighbouring countries.

Since locust swarms can move quickly over large distances, joint cross-border operations might be critical. But in many cases required standing partnership agreements that would allow control teams or spray aircraft to enter the territory of a neighbouring country or to join forces does not exist in the CR.

Thus extraordinary measures and resources are required in order to deal with locust upsurge situations. But there are ways to reduce risks and to limit livelihood impacts, by addressing the root causes and increasing the national and regional emergency prevention and contingency planning capacities to cope.

### 3. The Workshop

The five-day workshop was organized according to the CRC biennial work-plan 2015-17, endorsed by its member countries in the 29<sup>th</sup> Session of the Commission in Dubai, United Arab Emirates from 23 to 27 November 2014. The workshop was conducted at the Steigenberger Al Dau Beach Hotel in Hurghada, Egypt from 15 to 19 February 2015.

The senior managers and the locust information officers from the NLCUs of Egypt, Ethiopia, Eritrea, Oman, Saudi Arabia, Sudan and Yemen attended the workshop. In addition to the CR front-line countries also senior representatives from the Desert Locust Control Organization for Eastern Africa (DLCO-EA) and representatives from member countries from the South-West Asian Desert Locust Commission (SWAC) from Afghanistan, India and Iran as well as the SWAC, CRC and CLCPRO Secretaries participated in the workshop (see list of participants, Annex 6.1). As resource persons the former CRC Secretary and the software developer from Heron Group Ltd were invited.

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<sup>3</sup> An emergency situation occurs in case an incident (e.g. a locust upsurge or plague) goes **beyond** the capacity of a society, group or organization, or to cope with the situation, which requires extraordinary measures to be taken and resources in order to effectively deal with the incident ... *but could also be a consequence of inadequate preparedness.*

The CRC Secretary officially opened and closed the workshop.

### **3.1. Workshop Programme**

The workshop was conducted in an interactive manner, leaving sufficient room for participants to contribute with their experience to the findings. The proposed programme included a series of practical exercises in the field as well as in the classroom (for more details, see the Workshop Agenda in Annex 6.2).

The workshop objectives were to reach a common understanding among participating CR front-line countries of the rationale and the procedures of regional and national contingency planning in the context of CRC's locust emergency prevention strategy, and to encourage the CR Commission and participating NLCUs in making more appropriate use of contingency planning procedures and tools on a routine basis as part of their normative activities.

### **3.2. Experiences in Locust Emergencies**

In order to set the scene for the workshop a documentary was presented at the beginning of the first day. The movie demonstrated on the example of locust control operations conducted in Ethiopia in 2008 the many logistical and operational difficulties the teams are usually facing in the field as a result of poor preparedness. Most of the participants saw the movie for the first time and were deeply impressed of how well the footage captured the difficulties in the field.

During the discussions the participants acknowledged the logistical challenges to cope with fast moving locust swarms under tough conditions. They mentioned that it is extremely difficult to monitor vast areas and that the survey teams are often confronted with communication problems with the NLCU HQ. As a result, many of the infested areas remain undetected and DL developments are sometimes getting worse than expected. Consequently, the control teams are running quickly short of supplies, specifically of pesticides. In this situation NLCUs are relying to a high degree on good cooperation with other agriculture offices to fill the gaps. But they experience in many cases problems to rapidly mobilize additional capacities from other government departments such as vehicles and staff.

The participants also pointed out that the logistical arrangements are not always well set-up in many countries to cope effectively with the pest, and gave the example of equipment not always well prepositioned in the field bases. Other examples given were related to administrative problems e.g. when financial support from the government is needed. In case funds are being released, they are either too limited or made available when it is too late. But even if sufficient funds are being released on time, the NLCU management is often being confronted with either unreliable services providers, or that the material ordered is not available when actually needed.

Governments often have the tendency to acknowledge the locust threat too late and react panicky when realizing the danger. Thus uncoordinated interference by policy-makers puts additional pressure on the locust management and can severely hamper the control performance.

Other constraints faced by the participants in emergency operations are in some cases related to operating in insecure areas, specifically in border areas, as well as environmental concerns of local population.

### **3.3. Field Simulation**

Day two was confined to a field simulation about 25 km west of Hurghada in a valley of the Red Sea Mountain Ranges. The task was, to find and to control as many of the locust infestations as possible within six hours.







For this purpose eight mock infestations, simulated by saw dust, were laid out, and a NLCU and Plant Protection (PP) Head Office as well as one Field Base set up before the beginning of the workshop (see map).

Map 1: Layout of the field exercise



#### Symbols:

	Head Office
	Field Base
	Starting Point
	Infestation

The participants were split into two groups (see Annex 6.3):

- **Group 1** (14 participants) was tasked to survey the target area and to control as many of the infestations as possible with the available material and within the given time;
- **Group 2** (7 participants) acted as observers, and was requested to take note of the decisions made, the actions taken and of the performance of Group 1.

Among Group 1 various responsibilities were assigned:

- One NLCU Management Team comprising-
  - 1 Director NLCU,
  - 1 Operations/Logistics Officer,
  - 1 Locust Information Officer.
- Under NLCU Head Office the following Field Teams were appointed-
  - 1 Survey Team of 2 persons,
  - 1 Control Team of 3 persons,
  - 1 Base Team of 2 persons.
- NLCU Head Office has been seconded by a PPD Head Office comprising-
  - 1 PPD Director,
  - 3 PPD Officers (Reserve mixed Survey and Control Team).

The available equipment (see Annex 6.4) was distributed to the NLCU, PPD Offices and the Field Base. After the briefing, the Locust Information Officer received a phone call from a “Scout” informing the NLCU that locust swarms had been observed in a certain area, considered as unconfirmed report, to be verified, and provided the exact GPS coordinates (the Starting Point). Thus, the exercise was opened.

The challenges now were:

- How would the teams organize themselves?
- What instructions the NLCU management would give to the teams?
- Would the Survey Team find all of the infestations?
- How much of the infested areas would effectively be controlled?
- Would the Control Team check the equipment and calibrate the sprayers before leaving to the field?
- How would the Field Teams interact and communicate with the NLCU Head Office?
- How would the teams react to various obstacles such as bad communication between the field and Head Office, vehicle breakdown, malfunctioning equipment and shortage of pesticides and how would they manage those difficulties?
- How would PPD and NLCU collaborate?

The assessment criteria were:

- Number of infestations detected and controlled,
- Quality of instructions given by the management,
- Orientation of the teams in the field,
- Compliance with basic survey and control principles,
- Equipment thoroughly checked,
- Management of encountered difficulties,
- Communication between Head Office and the field,
- Timeliness of assistance received from PPD.

The next morning of day three of the workshop the Observers reported their finding to the plenary and came up with the following results:

#### **General Remarks:**

Out of eight locust infestations only three were detected. This result confirmed the common assumption that the detection rate is only about 30% under the real conditions! And out of the three located infestations only one had been controlled with mixed results.

#### **Management:**

The NLCU Management Team had difficulties to locate the communicated infestation on the map and missed giving clear instructions to the Survey Team. The Locust Information Officer did not inquire more details on the nature of the infestation from the source of information. In the following events, the communication between Survey and NLCU Management Teams was poor at times. Consequently the Head Office was unable to develop a clear picture of the situation in the field and to make suitable decisions. In addition, the responsibilities within the Management Team were not clear and lead to conflicting or averse decisions. The NLCU Management had no idea of the distribution of the equipment and the movements of the field teams and eventually lost control over the operations. Thus, reinforcement from PPD was mobilized too late to be effective. Obviously, the NLCU Management was not on the top of the development and had no “Plan B” (Contingency Plan) at hand.

#### **Survey Operation:**

The Survey Officers were not well trained and had obvious difficulties to operate the GPS and eLocust III equipment, and left the Head Office without asking instructions from the

Management. While in the field, the Survey Team completely ignored the Field Base to inquire more details of the situation. In addition, no spare parts such as batteries were taken to the field. As a result the eLocust III device could no longer be used after the batteries went flat. There was no clear leadership and cooperation within the Team. At times the Survey Team split to do foot transects without prior consultation. In general, there was no clear assessment approach or obvious survey methodology applied. At times there was no communication possible with the Management, but no alternatives were explored to get in touch with the NLCU Head Office, for instance through contacting the Field Base. After the detection of some of the infestations, it took long time to direct the Control Team to the areas and no details were given about the nature and size of the infestation. As a result, the Control Team lost time before they eventually started spraying.

#### **Control Operation:**

Same as for the Survey Team, the Control Team faced difficulties handling the GPS and eLocust III equipment and did not take all control materials to the field, for instance flags to demarcate the infested area were left behind. In addition, they failed to check the equipment and do the calibration of the sprayers before leaving the Head Office and thus did not only lose valuable time during operation in the field, but also contaminated the environment by spilling pesticides. The control carried out was not only delayed, but also ineffective because the sprayers were not kept in the correct position (too high). As for the Survey Team, there was no clear leadership obvious and the Field Base has not adequately been involved in the operations. Furthermore, there was no good practical consultation with the Survey Team and no good communication with the Head Office.

#### **Conclusion:**

After the Observers' presentations, the participants discussed the findings and agreed that the field exercise demonstrated most of the common mistakes and errors that happen under real conditions in large-scale control operations. For example:

- No proper advanced planning of the operations,
- Bad management and maintenance of the equipment,
- No defined command system and no proper decision-making processes,
- The staff is often neither technically nor practically competent enough,
- Lack of good teamwork,
- Importance of good communication between Field and Head Office and interaction between the Field Teams neglected,
- Management overwhelmed by the development and handling the many difficulties.

It was clear to the participants in real terms this locust control campaign would have ended up in a complete disaster with no impact on the locust population, but at a high social and economic cost.

### **3.4. Preparedness and Contingency Planning**

As a result of the field simulation it was obvious that more efforts are necessary to raise the level of preparedness and to develop common instruments and tactics. It became clear that when confronted with massive locust swarms, anything that can go wrong will go wrong, and that the NLCUs are often challenged with multiple political, logistical and technical issues they might not be in full control of. Consequently, it is recommended to remain confident and keep grip on those issues that could be controlled as much as possible in order to preserve sufficient capacities to deal with the still remaining uncertainties and unexpected issues. In short, there is a high need for better contingency planning at the national but also at the regional levels, particularly if issues of climate change adaptation are being taken into consideration more seriously.

### 3.4.1 Contingency Planning Principles

In order to develop a basic understanding of Contingency Plans (CP) in locust risk prevention, a short presentation was given, highlighting the principle idea of contingency planning as a tool to anticipate specific threats at local, national and regional levels (e.g., wildfires, earthquakes, floods but also outbreaks of human, animal and plant pests and diseases), and establishing operational procedures for response, based on expected resource requirements and capacities. It thus includes identifying, strengthening and organizing resources and capacities so as to reach a level of preparedness for timely and effective response to a potential disaster.

As largely acknowledged, time pressure and lack of resources are the most acute problems in the event of locust invasions. Thus the benefits of CPs are:

- To allow time to deal with anticipated operational, political and social problems (including security issues or opposition from the local population) before the onset of a locust crisis;
- To have a better idea of the potential impact of the recourses and possible needs;
- To provide an opportunity to identify constraints and focus on operational issues;
- To help reinforcing coordination mechanisms by clarifying roles and responsibilities;
- To allow NLCUs to put in place measures of enhanced preparedness.

In short, it was explained that contingency planning is all about *emergency preparedness*, and that the process can basically be broken down into the simple questions:

- What is going to happen?
- What are we going to do about it?
- What can we do ahead of time to get better prepared?

It involves making decisions in advance about:

- The management of human and financial resources,
- Coordination and communications procedures, and
- being aware of a range of technical and logistical requirements.

It ensures that agreements and arrangements are recorded and in place so that necessary actions can be taken in order to enhance reaction.

In a nutshell, a CP is a **management tool**, which helps to ensure timely and effective provision of resources to reinforce the locust operations when a major outbreak or invasion occurs.

As the requirements for national CPs might vary from country to country because of the economic and structural differences and their strategic position in the context of the regional prevention system, no blanket CP has been presented. But a hand-out was distributed to the participants in English and in Arabic languages, which reflects most of the important areas and components that could serve as a guideline helping countries to outline their own CPs and risk management structures. Nevertheless, and as requested, a proposed standard template has been developed (see Annex 6.5) for further discussion and adoption by the CRC member states.

Since an effective CP will need the support of many parties of the NLCU, e.g. the MoA and other ministerial offices, the presenter recommended developing the national CP in a participatory workshop process involving all the actors, who will be required to work together in the event of an emergency. This process should be led by a focal person, ideally from the national Disaster Management Unit. It was further highlighted that contingency planning is an on-going process and the CP needs to be analysed and updated regularly and need to be linked to regional levels to ensure effective cross-border coordination and response to large-scale upsurges or plagues.



### 3.4.2 The CLCPRO Contingency Planning Example

Following the recommendation of the multilateral evaluation of the 2003-05 campaign in the Western Region to “develop CPs for the medium- and long-term management of the Desert Locust risk, including action plans for locust monitoring and control at national, regional and international levels”, CLCPRO-EMPRES undertook, since 2007, substantial efforts introducing the concept of contingency planning in the national and regional locust risk prevention system.

The Secretary of CLCPRO explained that the overall locust risk management framework<sup>4</sup> adopted in the Western Region that involves two basic components:

- **The Prevention Plan**, managed by the NLCUs of the front-line countries in recession periods with the aim to improve the overall management capacity of the NLCU and thus to reduce the risk that an emergency situation develops,
- **The Emergency Plan**, governed by an inter-ministerial Incidence Command structure<sup>5</sup> of the front-line *and* invasion counties for the event that a locust incident risks to increase and exceeding the national capacities and resources, and external assistance is needed.

While the Prevention Plan aims at sustaining the overall vigilance by monitoring the potential breeding areas and to guarantee early warning and rapid reaction in case of locust outbreaks, the objective of the Emergency Plan is to secure smooth and efficient inter-departmental and agency coordination of emergency response actions such as advanced planning and forecasting, logistics and operations management, information transmissions and communication, protection of the environment and human health and campaign evaluation.

Standard templates had been developed and adopted by all CLCPRO member states and implemented with good results. Front-line countries had no difficulties to implement the Prevention Plan as it mirrors the normative activities of the NLCUs, and the advantages of the Emergency Plan became obvious in the 2012 and 2013 upsurges. Specifically the latter proved its importance in creating and facilitating interaction between different ministries and better coordinated actions.

However, while practicing the contingency planning approach several difficulties had been observed, which require constant fine-tuning and adjustment.

### 3.4.3 Preparedness tools

Taking into account the experiences made during the 2003-05 locust crises and the many difficulties encountered, FAO addressed some of the core issues to reduce reaction time and to boost performance in emergencies. For instance, basic questions such as where to quickly find critical and reliable information when needed? And how to assess operational and structural gaps and needs of affected countries on a comparatively short notice and with good confidence? As a result of these reflections, two web-applications were developed to help in the risk preparedness process: **the Locust Emergency preparedness Toolkit (eLERT)**<sup>6</sup> and the **Desert Locust Contingency Planning Assistant (DeLCoPA)**<sup>7</sup>.

- eLERT aims at providing operational support to affected countries and stakeholders to improve the timeliness of locust emergency response. It provides important information on critical aspects such as pesticides registered for locust control, technical specifications of recommended equipment, suppliers, standard contract for aerial operators and consultants to reinforce the response capacities in the field, contact lists of important partners, rosters of

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4 Cadre de Gestion du Risk Acridien (CGRA)

5 Poste de Commande

6 eLERT Portal: <https://sites.google.com/site/elertsite/>

7 DeLCoPA Portal: <http://delcopa.herongroupllc.com/>

consultants, etc. The eLERT should help people and agencies to act more effectively in coping with locust threats. It is a dynamic and interactive online database. It allows easily sharing and updating of information by different parties involved in locust emergency prevention and operations such as NLCUs, FAO Representations, regional and international organizations, and other UN organizations.

- The Desert Locust Contingency Planning Assistant (DeLCoPA) was developed to help the NLCUs to be better prepared to cope more effectively with the incident of a Desert Locust emergency. It provides guidance to identify and mitigate constraints, gaps or operational and structural weaknesses. The process should help to reinforce response and coordination mechanisms and to clarify roles and responsibilities before an emergency and to put in place measures that enhance preparedness prior to an emergency developing and to provide valuable arguments for approaching donors for assistance in an emergency.

It is expected that NLCU Directors in consultation with the Locust Information Officer, the Campaign Officer, and others periodically use this tool during recession periods to identify gaps in organizational structure, operations, and contingency plans; to perform "what if" scenarios before implementing changes; and as an instructional tool to teach the important aspects of a NLCU, its interrelations with other agencies, and why its activities are important.

The test-versions of both resources were used with good results in the Red Locust crisis in 2008 and presented to CRC front-line countries in 2009 for comments. As a result of the assessment, some slight modifications were made. But the integration of the applications at the NLCUs of the CR did not produce the expected results. It was assumed that the reasons were because NLCUs were not well enough aware of the advantages, not sufficiently known, or too difficult to use.

In order to find out and to receive feedback on possible improvements, both applications were presented to the workshop participants and requested to exercise eLERT and DeLCoPA in four groups of four to five persons on the examples of Eritrea, Sudan, Yemen and Oman.

The participants intensively tested the preparedness tools on day four and concluded that both applications are very useful and easy to operate.

Generally, the participants were very satisfied of the contents and material in **eLERT**. More specifically, they suggested considering also female consultants in the list of national consultant as in the case of the roster for international consultants. It was mentioned that the example contract for aircraft hire might not fit the requirement of all countries. It was clarified that the contract was meant mainly for internal FAO purposes, but it could also be used as reference and adapted to the specific national conditions. Some participants would welcome a standard emergency assistance demand format included in the eLERT database that could help countries formulating their emergency requests.

As to **DeLCoPA**, it was considered easy to exercise, well structured and very useful for improving preparedness levels. The participants pointed out that the application helps to identify and correct operational and structural gaps and to generate better decisions. However, the following details were suggested for improvement:

- The option to correct input errors should be made easier;
- Equally, the rating scale and False/True options were found confusing in some places and does not fit in all case to the questions and should be kept more specific;
- The definition of field "Teams" was not clear and should be clarified that one team consists of a minimum of two vehicles;
- For many participants it was not obvious how to export (safe/print) reports and results for further processing in official documents;
- It was suggested to view the results on a map to monitor the preparedness levels also in the other countries;
- Finally, a strong request was made to translate DeLCoPA into Arabic.

## 4. Conclusion and Recommendations

The final workshop evaluation on day five revealed that the workshop topic was very relevant for the work of most the participants (96%) and contributed to a better understanding of the contingency planning concept (88% approval rate). Eighty six percent of the participants found their initial expectations fully met and appreciated the workshop methodology (91%) as well as the workshop moderation (90%). Eighty seven percent found that the workshop was very well organized and appreciated (88%) the provided services. Most participants were satisfied with the workshop period (five days), but one participant was of the opinion that the workshop could have been a bit longer.

Reflecting the workshop discussions and findings, a set of follow-up actions has been formulated to CRC and the NLCUs to improve the locust emergency response performance in the CR.

### Recommendations to CRC:

1. Taking into account the possible impact of climate change on the locust behaviour and considering the weakest link in the regional prevention chain in an increasingly volatile environment, and the consequences inaccessible and restricted as well as of ecological sensitive areas may have for the overall DL risk management framework, CRC should develop and implement a regional CP;
2. The regional CP should take care of facilitating cross-border operations in cooperation with other regional bodies such as DLCO-EA and should consider the development and validation of standing partnership agreements between countries;
3. Noting the importance of sound emergency response coordination mechanisms, CRC should establish a regional Incidence Command Framework, to be activated in the onset of locust emergencies and aligned to the DLIS threat levels, with clearly defined mandate and structure;
4. CRC should provide due support to front-line countries in developing national CPs and the establishment of national Incident Command Systems or inter-ministerial Steering Committees by taking advantage of the example in the Western Region;
5. CRC should examine the introduction of the online capacity monitoring system *Monitoring System of National Locust Control Preparedness* (SVDN) established in the Western Region as replacement for the currently used MS Excel based data record sheets;
6. In order to improve and to maintain the vital regional communication systems, CRC should assist NLCUs in the front-line countries with poor Internet facilities or access;
7. Acknowledging the difficulties to carry out control operations with chemical pesticides in ecological sensitive or restricted areas, CRC should support the establishment of sizable strategic reserve stocks with bio-pesticides during recession periods;
8. Confirming the importance of regular emergency exercises, CRC is being requested to assure support to at least one simulation per year in one of the front-line countries;
9. With respect to web-based resources **eLERT** and **DeLCoPA**, CRC is being requested to stimulate and follow-up the use of both applications and to support regular regional/national trainings;
10. CRC in collaboration with AGPMM should ensure regular up-dating of the eLERT database and should ensure translation of the Manual for Environment Impact Monitoring also in English and Arabic languages;
11. In relation to DeLCoPA, CRC is being requested to support the development of a new stand-alone interface including a CP component and a GIS version for global viewing.

### Recommendations to NLCUs:

1. Noticing the relevance of contingency planning as critical preparedness and risk management tool and as a basic requirement to facilitate access to international emergency assistance, NLCUs are urged to undertake all efforts in preparing national CPs in consultation with other critical national stakeholders, approved and supported by the national governments and CRC;

2. The CPs of the front-line countries should include a Prevention and Emergency Plan, taking care of operational obstacles such as insecure and environmentally sensitive areas including alternative response options; the CPs should be reviewed and updated on a yearly basis;
3. Affected countries should establish Locust Incidence Command Frameworks (inter-ministerial Steering Committees) with clear mandates and functions;
4. Understanding the benefits of good resources management the NLCUs commit themselves to ensure proper maintenance of equipment and store keeping as part of the Prevention Plan during recession periods and will take care of regular staff training on standard survey and control and other subjects with at least one national training course for NLCU and PPD staff per year.
5. NLCUs should conduct on a yearly basis emergency exercises/simulations during calm periods;
6. With regard to web-based resources **eLERT** and **DeLCoPA**, NLCUs are requested to make regular use of both tools and to contribute to their up-dating and improvement;
7. NLCUs should exercise DeLCoPA within the team at least twice per year to check the preparedness level and assess the gaps. The identified gaps should be addressed in the updated Prevention Plan;
8. NLCUs assure that DeLCoPA outputs are regularly being sent to the CRC Secretariat.

## 5. Performance of the Locust Risk Prevention System

The workshop took note of the weaknesses of the current locust prevention system in the CR and made sensible suggestions for improvement. It is thus hoped that the participants take full ownership of the findings and assume all efforts implementing the recommendations made. It should be kept in mind that the reality check of the contingency planning process is when countries and CRC are confronted with locust incidences exceeding their capacities and rapid and targeted actions are required. Ultimate success indicators for better Desert Locust risk management in the CR, better preparedness and good contingency planning are:

- *The on-set of looming DL emergencies identified at earliest possible stage;*
- *The reaction time reduced (as compared to previous emergency operations);*
- *Additional resources mobilized in quality and quantity more rapidly and on time;*
- *National and international resources and funds used more effectively;*
- *No serious adverse pesticide incidents on human health and the environment observed;*
- *No serious impacts of the DL on peoples' livelihoods observed.*



## 6. Annex

### 6.1 List of Participants

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## 6.2 Workshop Agenda

**Timetable:** 08:30 – 10:00: Morning Session (1);  
10:00 – 10:30: Coffee Break;  
10:30 – 12:30: Morning Session (2);  
12:30 – 13:30: Lunch Break;  
13:30 – 15:00: Afternoon Session (1);  
15:00 – 15:30: Coffee Break;  
15:30 – 17:00: Afternoon Session (2).

### Day 1:

- Opening remarks
- Expectations and introduction,
- Presentation of Ethiopia case study,
- Joint stocktaking of past experience in locust emergencies,
- Joint stocktaking of participants' understanding of Preparedness and Contingency Planning,
- Preparation of field exercise/role play (Instructor: *M. Butrous*).

### Day 2:

- Field exercise.

### Day 3:

- Evaluation of the field exercise and lessons learnt,
- PowerPoint presentations:
  - Contingency Planning principles (Presenter: *C Pantenius*),
  - The CLCPRO experience (Presenter: *M Lemine*)
- Presentation of Contingency Planning tools:
  - eLERT (Presenter: *E. Khalifa*),
  - DeLCoPA (Presenter: *B. Miller*).

### Day 4:

- 4 Groups exercising the eLERT and DeLCoPA tools,
- Plenary: Presentation of group findings, feedback and joint evaluation of CP tools.

### Day 5:

- Group work: Recommendations and future actions,
- Presentation of findings and general discussion,
- Conclusions and WS assessment,
- Closing remarks.

### 6.3 Distribution of Field Simulation Actors

Set-up	Function	Actors	Observers
NLCU HQ	Director (LCU)	Heruy Asgedom (ERI)	Mohamed Lemine (CLCPRO)
	Operations Officer/ Supplies Manager (LCU)	Kamal Suleiman (SDN)	Yahya Lachin (EGY)
	Locust Information Officer (LCU)	Nassor Al Harthy (OMA)	Stephen Njoka (DLCO-EA)
Field Base	Base Manager	Felege Elias (DLCO-EA)	
	Radio Operator	Emad Kameel (EGY)	
Survey Team	Survey Officer 1	Adel Al Sheibani (YEM)	Keith Cressman (FAO)
	Survey Officer 2	Meray Al Qahtani (KSA)	Mirajan (AFG)
Control Team	Control Officer 1	Saeed Turkistani (KSA)	Mehdi Ghaemian (IRN)
	Control Officer 2	Mohamed Riad (EGY)	Dereje Mekonnen (ETH)
	Control Officer 3	Tedros Sium (ERI)	
PPD HQ	Director (PPD)	J.N. Thaker (IND)	
	PP Officers	Zebdwos Salato (ETH)	
		Hussei Abaker (SDN) Abdulah Al Sayani (YEM)	

## 6.4 List of Materials and Equipment for the Field Exercise

Item	QTY
Walky talkie	3
Map of Hurghada area	1
GPS	3
Anemometer	2
Tachometer	2
eLocust III	2
Stop Watch	2
Compass	2
ULV Hand-held Sprayers	6 (3 functional, 3 non-functional)
Flag	4
Measuring Cylinder	2 size 100 ml
Survey and Control Form	6
Personnel Protection Equipment	4
Battery	12 for ULV Sprayers (Additional 4 flat batteries)
	12 for GPS
Funnel	2 small size
Vegetable Oil	4 L of one litre each
Double Cabin Pick-up vehicles	3
Shovel	2
Bucket	2
Spanner and Screw Driver	One set

## 6.5 Model for National Contingency Plans

Item	Contents
<b>Title</b>	<b>National Desert Locust Contingency Plan</b> <ul style="list-style-type: none"> <li>Country:</li> <li>Date:</li> <li>Issue: (e.g. 01/2015)</li> </ul>
<b>Signatures</b>	Ministry of Agriculture, Ministry of Finance, Ministry of Cooperation others...
<b>Acronyms</b>	
<b>1 General Overview and Background</b>	<ul style="list-style-type: none"> <li>General information about the Desert Locust risk to the country including historical data on the scale of previous emergencies,</li> <li>Potential socio-economic impact of a locust emergency on agricultural production and on livelihoods,</li> <li>Locust risk reduction strategy and tactics applied by the country,</li> <li>Measures taken to reduce impact of control operations on human health and the environment,</li> </ul>
<b>2 Organizational and Logistical Arrangements</b>	<ul style="list-style-type: none"> <li>Mandate, functions and structure of the NLCU, including field stations, permanent and temporary warehouses/stores, number and location of survey and control teams and other teams, airstrips etc.</li> <li>Responsibilities and functions of other Ministries or government agencies involved,</li> <li>National inter-agency arrangements and agreements,</li> <li>Partnership agreements with neighbouring countries, international/regional organizations and other institutions,</li> <li>Communication and public relations arrangements,</li> </ul>
<b>3.1 Risk Assessment</b>	<ul style="list-style-type: none"> <li>Likely locust developments (global, regional and national) and information on the potential scale and timing of the risk by making reference to the FAO Desert Locust Information Service (DLIS).</li> </ul>
<b>3.2 Risk Preparedness Assessment</b>	<ul style="list-style-type: none"> <li>Currently available resources,</li> <li>Assessment of the potential impact of the available resources,</li> <li>Insecure and inaccessible areas,</li> <li>Ecological sensitive areas,</li> <li>DeLCoPA results.</li> </ul>
<b>4 Rapid Intervention Arrangements</b>	<ul style="list-style-type: none"> <li>Set-up of the national Incident Command System (Mandate, structure, members, responsibilities, activation arrangements etc.),</li> <li>Agreed trigger and mobilization mechanisms,</li> <li>Emergency operation coordination mechanisms (Set-up, ToRs, lines of command, reporting system etc.),</li> </ul>
<b>5.1 Preparedness Plan</b>  Scheduled and planned normative NLCU activities	<ul style="list-style-type: none"> <li>Locust information management and reporting,</li> <li>Survey operations – period and areas (summer, winter, spring),</li> <li>Staff training courses (trainees, departments and topics),</li> <li>Joint preparedness assessments and deliberations,</li> <li>Alert exercises and simulations,</li> <li>Assessment of possible intervention options in- or outside inaccessible areas,</li> <li>Assessment of intervention options inside ecological sensitive areas and precaution measures to be taken,</li> <li>Inspection and maintenance of equipment, buildings and airstrips,</li> <li>Procurements of equipment and investments in building constructions and staff recruitments,</li> <li>Budget plan,</li> </ul>

Item	Contents
<b>5.2 Emergency Response Plan</b>  Extraordinary NLCU activities	Emergency response actions: <ul style="list-style-type: none"> <li>• In close interaction with DLIS, tracking of actual and predicted locust movements,</li> <li>• Declaration of an emergency situation,</li> <li>• Activation of the inter-ministerial Steering Committee (weekly meetings at the MoA),</li> <li>• Establishment of Locust Emergency Operations Coordination and Briefing Office (daily morning meetings),</li> <li>• Regular briefing of the government and the local population, preparation of press releases,</li> <li>• Mobilization of additional staff, equipment and funds from national sources,</li> <li>• Mobilization of NLCU Task Force and logistics support teams,</li> <li>• Establishment of inter-disciplinary campaign evaluation and environmental assessment teams,</li> <li>• Mobilization and activation of survey and control teams, and aircraft,</li> <li>• Prepositioning and movement of teams and equipment (according to predicted locust situation),</li> <li>• Mobilization of international emergency funds,</li> <li>• Procurement of material, hiring of aircraft etc.,</li> </ul>
<b>Appendices</b>	<ul style="list-style-type: none"> <li>• Definitions</li> <li>• Organograms</li> <li>• NLCU staff lists incl. positions</li> <li>• Lists of trained PPD staff which could be called upon,</li> <li>• List of registered pesticides for locust control (Active Ingredient, Commercial name, Formulation)</li> <li>• Inventories (pesticides, spray equipment, vehicles, survey and communication equipment, PPEs etc. and their location),</li> <li>• Check lists,</li> <li>• Standard Operating Procedures,</li> <li>• Maps (locust breeding areas, infested areas, movements, restricted areas, distribution of field bases etc.)</li> <li>• National partner institutions,</li> <li>• Regional and international partners,</li> <li>• Contact lists of important counterparts/decision makers in other government departments and divisions,</li> <li>• Lists of important suppliers national and abroad,</li> </ul>

*(N.B.: This template is by no means to be understood as final or complete)*