



Food and Agriculture
Organization of the
United Nations



The FAO Commission
for Controlling the Desert Locust
in the Central Region

**Report of the
FAO Commission for Controlling the Desert
Locust in the Central Region**

**Thirty First Session & Thirty Fifth Executive
Committee Meeting**

**Amman, Hashemite Kingdom of Jordan,
17 – 21 February 2019**

**Report of the
Thirty First Session & Thirty Fifth Executive
Committee Meeting**

FAO Commission for Controlling the Desert Locust in the Central Region

**Amman, Hashemite Kingdom of Jordan,
17 – 21 February 2019**

**Food and Agriculture Organization of the United Nations,
2019**

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of FAO.

© FAO, 2019

FAO encourages the use, reproduction and dissemination of material in this information product. Except where otherwise indicated, material may be copied, downloaded and printed for private study, research and teaching purposes, or for use in non-commercial products or services, provided that appropriate acknowledgement of FAO as the source and copyright holder is given and that FAO's endorsement of users' views, products or services is not implied in any way.

All requests for translation and adaptation rights, and for resale and other commercial use rights should be made via www.fao.org/contact-us/licence-request or addressed to copyright@fao.org.

FAO information products are available on the FAO website (www.fao.org/publications) and can be purchased through publications-sales@fao.org.

Table of Contents

Summary of recommendations	7
Report of the thirty first session	
• Introduction	9
• Opening Session	9
• Report of the Chairperson of the Commission	9
• Election of Chairperson and Vice Chairperson	9
• Adoption of the Agenda	10
• Election of the Drafting Committee	10
• Desert Locust Situation from February 2017 to February 2019, outlook and reporting	10
• Report of the activities of the Commission	11
a) Building national capacity.	11
b) Publications.	11
c) Research.	12
• Reports from the member countries	12
• Report of the activities of the Secretariat of the Commission and follow up of the recommendations of the 30 th Session	17
• New technologies: the use of drones in the survey of Desert Locust	18
• Post graduate study (Master Degree Study on Desert Locust science)	18
• National and regional Contingency planning	19
• Joint activities with the Desert Locust Commissions and Organizations	19
a) The Commission for Controlling the Desert Locust in the Western Region (CLCPRO) report.	19
b) The Commission for Controlling the Desert Locust in South-West Asia (SWAC) report.	19
c) The Desert Locust Control Organization for Eastern Africa (DLCO-EA) report.	20
d) US Agency for International Development (USAID).	20
• Election of members and Chairman of the Executive Committee	20
• Accounts for 2017 and 2018	20
• Contributions and arrears of member countries to the Commission's Trust Fund	20
• Work plan for 2019–2020	21
• Other business: Administrative and financial autonomy of the commission	21
• Date and place of the next Executive Committee and the Session of the Commission	22
• Adoption of the report of the 30th Session of the Commission	22
• Closure of the Session	22
Acknowledgements	23
Appendices:	
Appendix 1: List of participant	24
Appendix 2: Report of the Chairman of the Commission	28
Appendix 3: Desert Locust situation	32
Appendix 4a: Research	36
Appendix 4c: National capacity building	39
Appendix 5: Follow up of the recommendations of 30th Session	40
Appendix 6: New technologies (use of drones in Desert Locust survey)	43
Appendix 7: Training, research and publication	45
Appendix 8: National and regional contingency plans	50
Appendix 9: Accounts for 2017 and 2018	57
Appendix 10: Contributions and arrears of member countries	61
Appendix 11: Work plan and proposed budget for the years 2019 and 2020	64
Appendix 12: Other business	66



Participants of the Thirty first Session and the Thirty Fifth Executive Committee Meeting of the Commission for Controlling the Desert Locust in the Central Region, Amman, Hashemite Kingdom of Jordan, 17 – 21 February 2019

Summary of Recommendations

The 31st session meeting agreed on the following recommendations:

1. Member countries approved printing the Arabic and English standard operating procedures (SOPs) for Desert Locust sprayers, in addition to their translation into French, in coordination with the Western Region Commission (CLCPRO).
2. Participation in the workshop organized by CLCPRO to coordinate the implementation of research projects, giving priority to Desert Locust research.
3. The Commission should correspond with the Locust Control Units of the member countries to continue their efforts to encourage research institutes and universities to submit research proposals in Desert Locust topics.
4. Activating the competition for the award presented by the Commission in the field of Desert Locust research according to the terms previously set.
5. The Commission Secretariat is to organize and conduct a training course on survey and control operations in coordination with the Ministry of Agriculture of Iraq.
6. Some of the plant protection staff who are working in the invasion countries to participate DL control operations in the field during campaigns in frontline countries.
7. The Commission is to partly share in the procurement of the spray equipment for the Royal Air force aircraft R44 used in aerial control in Jordan.
8. The Commission Secretariat is to organize and conduct a training course on survey and control operations in coordination with the Public Authority of Agriculture Affairs & Fish Resources of Kuwait.
9. The Commission Secretariat is to organize and conduct a training course on survey and control operations and on EHS Standards in coordination with the Ministry of Agriculture of Lebanon.
10. The Commission Secretariat is to organize and conduct a training course on EHS Standards in coordination with the Ministry of Agriculture of Oman and to provide the ministry with 20 GPS and 20 compasses.
11. The Commission Secretariat to organize and conduct a training course on survey and control operations and a spray equipment operations and maintenance workshop, in coordination with the Ministry of Municipality and Environment of Qatar.
12. The Commission Secretariat is to organize and conduct a training on EHS Standards in coordination with the Ministry of Agriculture of Saudi Arabia.
13. The Secretary of the Commission is recommended to visit Syria, if possible, to explore ways of rehabilitating the Desert Locust unit through donors. In addition to the organization of a workshop on the maintenance of spray equipment and a training course survey and control training course and EHS.
14. Due to the current situation in Yemen, the Commission is to explore ways of supporting the DL centers, due to the importance of continuous follow up of the DL situation, in view of the DL development in some member countries.
15. Member countries suggested that a meeting should be arranged between the Commission and AGPM in the presence of Legal, Finance and Administrative departments of FAO HQ to discuss the request of the member countries.
16. The Secretary of the Commission is to address member countries on the new technology of using drones in DL survey and control and to obtain the needed clearance from the concerned authorities if drones will be used locally.
17. The Commission Secretariat is to contact the admission office of the Sudan University of Science and Technology to accept the students and start the registration process as soon as possible.

18. The regional contingency plan is endorsed and can be activated upon member countries payment of their contributions and the submission of their national contingency plans to the Secretariat of the Commission including human and financial resources.
19. Member countries endorsed the expenditure reports for 2017 and 2018.
20. Delegates of member countries that are in arrears should follow up with their governments on its payment to the Trust Fund of the Commission.
21. The delegate of United Arab Emirates is to follow the issue of raising the contribution with the concerned authorities, similar to other member countries.
22. Member countries to pay their annual contributions to the Trust Fund of the Commission and a portion of their arrears by the 31 December 2019, in view of the difficult position of the TF of the Commission.
23. The work plan for 2019 – 2020 was endorsed by the member countries.
24. The Secretary of the Commission is authorized, in consultation with the Chairman, to cover the cost of implementing any activities that are not reflected in the Commission workplan.
25. The session members recommended that the Assistant Director General in FAO Near East and North Africa office, in Cairo, to kindly invite the Secretary of the Commission to participate in the Near East Regional Conference (NERC), as an opportunity to present the Commission's role in the region and the intensive activities carried out by its member countries in the Desert Locust control and its damage to agriculture crops and pastures, in particular, nations that may be threatened to poverty and hunger.
26. The Commission's Administrative Assistant, Ms. Lidia AbdelShahid, is to be upgraded to grade 7 and the Driver, Mr. Mohsen Ibrahim Mohamed to grade 3, according to the organization's general staff salary scale.

Report of the Thirty first Session

Commission for Controlling the Desert Locust in the Central Region

Amman, Hashemite Kingdom of Jordan, 17 – 21 February 2019

Introduction

1. The Director-General of the Food and Agriculture Organization of the United Nations (FAO) invited member countries of the Commission: Bahrain, Djibouti, Egypt, Eritrea, Ethiopia, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, Syria, United Arab Emirates and Yemen, to attend the Thirty First Session of the Commission for Controlling the Desert Locust in the Central Region in Amman, Jordan, 17 – 21 February 2019.

Invitations were also addressed to the Commission for Controlling the Desert Locust in the Western Region (CLCPRO), the Commission for Controlling the Desert Locust in South-West Asia (SWAC), the Desert Locust Control Organization for Eastern Africa (DLCO-EA), Republic of South of Sudan, Islamic Development Bank (IDB), the Cooperation Council for the Arab States of the Gulf (GCC), League of Arab States and United States Agency for International Development (USAID).

Opening Session

2. On the 17th of February 2019, Under the auspices and on behalf of H.E. Eng. Ibrahim Shahahda, Minister of Agriculture and Minister of Environment, Hashemite Kingdom of Jordan, and on his behalf, Eng. Mahmoud Al Gamaan, Deputy Minister, opened the 31st Session, in the presence of Mr. Nasredin HagElamin, FAO Representative in Jordan. Mr. HagElamin welcomed all the participants on behalf of the Director General of FAO, pointing out the role of the organization since its establishment on food security and eradication of hunger. The Executive Secretary of the Commission, Mr. Mamoon AlAlawi, gave a summary of the current Desert Locust situation in Eritrea, Egypt, Saudi Arabia and Yemen, and to the operations undertaken, advising member countries to monitor the Desert Locust development. He also added that many related topics will be discussed in the working papers relating to new technology in DL survey and contingency planning. Eng. Mahmoud Al Gamaan stated the role of the Ministry of Agriculture in Desert Locust management to ensure food security and welcomed the participants in Jordan.
3. The 31st Session of the Commission took place during the period 17-21 February 2019, with the presence of delegates of member countries: Egypt, Eritrea, Ethiopia, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, Syria, United Arab Emirates and Yemen, with regrets from Bahrain and non-participation of Djibouti, in addition to Team Leader of the Locusts and Transboundary Plant Pests and Diseases Group at FAO headquarters, Secretaries of the Commissions for Controlling the Desert Locust in the Western and South West Asia Regions, Director of the Desert Locust Control Organization for Eastern Africa and a Senior representative from USAID and a number of consultants and observer. (Appendix 1).

Report of the Chairperson of the Commission

4. The Chairman of the Commission in its Thirtieth Session, Eng. Saleh Mohamed Al-Abri, thanked the Hashemite Kingdom of Jordan for hosting the 31st Session and presented a detailed report on the activities implemented by the Secretariat of the Commission, pointing out that each activity will be discussed further in its working paper, wishing member countries' representatives good deliberations and recommendations. He pointed out the good collaboration between the member countries, the Desert Locust Commissions and Organizations and the Secretariat of the Commission. Finally Mr. Al-Abri wished the participants a successful meeting and a good stay in Jordan (Appendix 2).

Election of Chairperson and Vice Chairperson

5. The delegate of Jordan, Mr. Setan Al-Serhan, was unanimously elected as the Chairman of the 31st Session of the Commission, with Mr. Mohamed bin Hussein Al Shamrani, the delegate of Saudi Arabia, as the Vice-Chairman.

Adoption of the Agenda

6. The agenda was endorsed by the session members as per the following:

Opening

- Opening of the 31st Session.
- Report of the Chairperson of the Commission.
- Election of Chairperson and Vice Chairperson.
- Adoption of the Agenda.
- Election of the Drafting Committee.

Commission technical activities

- Desert Locust situation from February 2017 to February 2019.
- Development and capacity building:
 - (a) Building national capacity.
 - (b) Advocacy and publications.
 - (c) Research.
- Member countries activity reports.
- Follow up on the 30th Session recommendations.
- New technologies (use of drone in the survey of Desert Locust).
- Postgraduate study.
- National and regional contingency plans.
- Desert Locust Commissions reports:
 - (a) Report of Desert Locust Commission in the Western Region (CLCPRO).
 - (b) Report of Desert Locust Commission in the Swath-West Asia (SWAC).
 - (c) Report of Desert Locust Control Organization for Eastern Africa (DLCO-EA).

Admin and Financial managements

- Election of members and Chairperson of the Executive Committee.
- Accounts for 2017 and 2018.
- Status of contributions and arrears of the Commission's Trust Fund.
- Work plan and budget for 2019-2020.
- Other business.
- Date and place of the next Session and Executive Committee of the Commission.

Recommendations and closing

- Adoption of the report of the 31st Session of the Commission.
- Closure of the Session.

Election of the Drafting Committee

7. The representatives from Oman, Qatar and Yemen were elected as members of the Drafting Committee. The Commission took the responsibility of the secretariat.

Desert Locust Situation from February 2017 to February 2019, outlook and reporting

8. The Senior Locust Forecasting Officer at FAO Headquarters, Mr. Cressman, presented the Desert Locust situation from 2017 to present and the forecast of expected developments until early summer for the Central Region. The locust situation remained calm until November 2018 when groups of adults started to form in the summer breeding areas of eastern Sudan where good rains fell in the previous two months. In 2018, two cyclones occurred that brought heavy rains to the Horn of Africa, southern Arabia and parts of the Empty Quarter, good rains fell on the coast of Eritrea in July, and a third cyclone occurred in October in eastern Yemen, southern Oman and the Empty Quarter. The good rains in Sudan and Eritrea led to an outbreak on the Red Sea coast near their common border where two generations of breeding caused hopper bands and swarms to form. In January 2019, a few swarms crossed the Red Sea while other swarms formed and moved from the Empty Quarter to the interior of Saudi Arabia and UAE. Control operations commenced in December and have treated at least 86 000 ha so far, including more than 39 000 ha treated by air in Sudan and Saudi Arabia.

Second-generation swarms will start to form in Eritrea by early March, followed by Sudan and Saudi Arabia. As conditions become dry along both sides of the Red Sea, the swarms will move during March and April to the interior of Saudi Arabia where one generation of breeding will occur this spring. The scale and extent of this breeding will depend on the success of current control operations and spring rainfall in the interior. There is a low risk that a few small groups or perhaps a swarm may appear in southern Jordan during periods of southerly winds. A few swarms are likely to reach the Nile Valley in northern Sudan after March.

The next four months from March to June will be critical in maintaining survey and control operations in all countries in order to reduce the scale of migration to the spring breeding areas, the subsequent breeding and any potential migration from the spring to the summer breeding areas in the interior of Sudan and along the Indo-Pakistan border.

The quality and timeliness of reporting from frontline-countries to DLIS and CRC remain good. It was noted that reliable Internet connection, which is mainly problematic in Eritrea and Sudan, is required in all locust offices to receive eLocust3 data and report to FAO. Countries were reminded that (a) maps presented in national locust bulletins should contain a caption explaining what the map is showing; (b) RAMSES data should match what is reported in the bulletins, and (c) all survey and control teams should be equipped with eLocust3 and use it correctly, (Appendix 3).

Report on the activities of the Commission:

9. The Secretary of the Commission presented a comprehensive report on the activities implemented during February 2017 to February 2019, which included:

a) Building national capacity:

Regional activities 2017:

Three national training courses were conducted as follows: Pesticides Stock Management System (PSMS) workshop in cooperation with CLCPRO, during 27-31 March 2017 in Agadir, Morocco and the Desert Locust Information officers' workshop, in Cairo, Egypt. 7-11 May 2017. A Regional Aerial training course, in cooperation with DLCO-EA, in Moshi, Tanzania during 17-21 July 2017.

Regional activities 2018:

One regional training course and three workshops were held in 2018 as follows: a Regional training course on the organization and preparation of Desert Locust campaigns in Port Sudan, Sudan during 4 to 11 February 2018 and Desert Locust Information Officers workshop in Cairo, Egypt during 15-19 July 2018. In addition to holding Desert Locust Contingency Planning workshop during 30 September - 4 October, 2018, and a Regional workshop on the Use of Bio-pesticides in Desert Locust Control Operations; *Metarhizium acridum* (Green Muscle®), during 7-11 October 2018, both in Hurghada, Egypt.

National activities 2017:

Four national training courses were implemented in 2018, as follows: Desert Locust Survey and Control operations training course in Djibouti, 15- 19 January 2017, Desert Locust Control operations training course, in Sudan, during 24 September - 1 October 2017, training course on Desert Locust survey and control and environmental health and safety standards, in Egypt during 22- 29 October 2017 and Training course for Information Officers in Eritrea, during 13-17 November 2017.

National activities 2018:

Five national training courses were conducted during 2018, as follows: Train of trainees (ToT) in Desert Locust Survey and Control Operations, 21-29 January 2018, in Jeddah, Saudi Arabia, Environment and Health Standard training course, in Muscat, Oman, 28 January - 1 February 2018, Desert Locust Sprayers maintenance workshop in Manamah, Bahrain, 23 – 26 April 2018, Survey and Control Operations training course and Desert Locust ULV Sprayers maintenance workshop in Aqaba, Jordan, during 11 - 15 November 2018.

Training course on Desert Locust Information Service (Rome):

Two Desert Locust information officers from Saudi Arabia were trained, each for 6 months during the period 8 November 2016 - 7 May 2017 and 3 May - 1 November 2017 and One information officer from Ethiopia, during the period 17 September 2018 - 16 August 2019 (Appendix 4a).

b) Publications:

During the 2017/2018, after the 30th Session of the Commission, 2 000 copies of the Arabic version and 1 250 copies of the English version of the book in commemoration of its 50th Anniversary, which were distributed to member countries, relevant organizations and commissions.

Six fact sheets were designed in both English & Arabic languages covering the following topics: The story of the Commission for Controlling the Desert Locust in the Central Region (CRC), activities such as trainings and workshops held by CRC from 2000 - 2018, capacity building, environment and health standards, Desert Locust information management, preventative control strategy & preparedness & future challenges.

Currently, the Commission is preparing four standard operating procedures (SOP) for Desert Locust sprayers booklets designed in both English & Arabic languages for the following:

- Ultra-Low Volume Handheld Sprayer ULVA+
- Ultra-Low Volume Backpack Sprayer Micronair AU 8000

- Ultra-Low Volume Vehicle Mounted Sprayer ULVAMAST - Manual Version (V4M)
- Ultra-Low Volume Vehicle Mounted Sprayer Micronair AU8115 - Manual Version.

Recommendation 1: Member countries approved printing the Arabic and English standard operating procedures (SOPs) for Desert Locust sprayers, in addition to their translation into French, in coordination with the Western Region Commission (CLCPRO).

c) Research:

Three research studies are currently carried out in Desert Locust field:

- The research titled “Effective use of historical surveys information and take advantage of modern technology to strengthen further the efforts to improve the Desert Locust detection” carried out by Mr Mahgoub Boshara Moussa at the University of Khartoum for a doctorate degree. The research project aims to improve Desert Locust monitoring protocols using Sudan existing survey information and remote sensing techniques.
- A field research started recently to test new insecticide for controlling Desert Locust and follow up its side effect on environmental safety, soil and plants carried out by Mr. Emad Kameel, in collaboration with the Locust and Grasshoppers Research Centre in Egypt. The study mainly aims on the use of new pesticides (Spinosad) as a biopesticide of chemical compounds found in the *Saccharopolyspora Spinosa*, bacterial species for controlling Desert Locust compared to conventional phosphorus pesticides, most commonly used in control operations.
- A research study carried out by Mr. Ismail Taj entitled Desert Locust (DL) titled: Is locust a pest or a crop?
- An economic study that began in mid-2016, with partial support from the Commission at the University of Khartoum and aimed to breed Desert locust for food use. The results of the comparative analysis were obtained, but the effects of fatty acids, amino acids and mineral salts were delayed due to equipment failure. On 06/12/2018 a sample was sent to be analyzed in Egypt and currently awaiting the results to complete the rest of the experiments (Appendix 4c).

Recommendation 2: Participation in the workshop organized by CLCPRO to coordinate the implementation of research projects, giving priority to Desert Locust research.

Recommendation 3: The Commission should correspond with the Locust Control Units of the member countries to continue their efforts to encourage research institutes and universities to submit research proposals in Desert Locust topics.

Recommendation 4: Activating the competition for the award presented by the Commission in the field of Desert Locust research according to the terms previously set.

Reports from the member countries

10. Delegates of Member countries presented their reports on the Desert Locust situation and the activities implemented during the previous period 2017-2018 and their requests for 2019-2020:

Egypt

11. The representative of Egypt presented a comprehensive report explaining the Desert Locust situation for the period of 2017-2018, stating that 26 000 hectares were surveyed in different locations in 2017 with dryness of vegetation in most winter breeding locations except areas around Lake Nasser where it was green. After rainfall in November 2017, the conditions improved and mature solitary locusts were seen in southern areas and Wadi Daaeb.

In 2018, 21 000 hectares were surveyed and green vegetation were found in Wadi Alaki due to heavy rainfall in September 2018. Conditions greatly improved in 2019, which led to limited breeding in Abu Ramad, and Shalateen, where hopper bands of all instars and two mature swarms were present and egg laying occurred. Ground control operations over an area of 3 700 hectares were carried out.

The delegate requested the following:

- The provision of a blood testing kit “Test Mate” and ACHE Assay Kit.
- 30 GPS.
- Spare parts for ULV sprayers.

Eritrea

12. The representative from Eritrea presented a comprehensive report on DL situation during 2017-2018, in which he informed that Eritrea experiences different Desert locust incidences almost every year with different magnitude of infestation. The government of Eritrea and CRC and other partners exercise great efforts to minimize the damage caused by the pest.

Desert Locust was present along the Red sea Coast in Foro and south of Masawa and karoura along the Sudanese boarder during November 2018, with no crop damage. Climatic conditions are currently favourable for locust breeding, thus, control operations are still being conducted in the winter breeding areas. In total, about 14 000 hectares have been treated.

The government of Eritrea is putting a lot of effort in handling the Desert Locust crisis through an emergency fund, additional vehicles and fuel. Two training courses were conducted for 30 staff and 20 scouts, in addition to 6 locust officers trained in locust breeding habitat through a workshop organized jointly with the commission in the central region.

A workplan is prepared to organize several activities during the period of 2019-2020, as per the following:

- 1- Following up on the implementation of the action plan.
- 2- Organize and conduct national training course on the implementation of the environmental and health standards, the use of green muscle, the use of drones in locust aerial survey, and training on survey and control operations.
- 3- Evaluate and follow up on the effect of Desert Locust control operations on the environment.
- 4- Organize and conduct a workshop on the maintenance of spray equipment.

The Eritrean representative requested support for the following items:

- Workshop on maintenance of spray equipment.
- The provision of 20 GPS.
- Protective overall sets 1 000.
- Electrical pesticide pumps 5.
- Vehicle mounted ULVA mast V4M/E 30.
- Motorized sprayers AU8000 (Solo type) 50 with ULVA attachments, Manual knap sack 500.

Ethiopia

13. The representative of Ethiopia gave a presentation during the period 2017-2018 and informed that Ethiopia is one of the frontline countries that contains three breeding habitats: spring breeding season - April to June in East of Ethiopia, summer breeding season – northeast of Ethiopia during August – September and winter breeding in southeast of Ethiopia October to January.

Several activities were implemented during 2017-2018 and can be summarized as per the below:

- 1- Training of 28 officers on biology, survey and control operations in coordination with DLCO-EA.
- 2- Training of 24 DL officers on maintenance of spray equipment in cooperation with FAO and USAID.
- 3- Conducted awareness workshops for 619 local residents on DL control operations supported by FAO and USAID.
- 4- Ethiopia conducted survey operations in an area of 6 000 hectares in 2017 and an area of 7 760 hectares in 2018, thus the DL situation is calm.
- 5- The current challenges facing Ethiopia are shortage of:
 - fuel.
 - spray equipment.
 - protective clothing.

The delegate of Ethiopia requested support in the provision of:

- protective clothing.
- camping equipment.
- 20 GPS.
- spray equipment spare parts.
- training courses.

Iraq

14. The representative of Iraq presented a report on the DL situation during 2017-2018 informing that Iraq is an invasion country and so has no DL concerns, but has local locust infestation. Nevertheless, plant protection authorities follow DL information through communication with the Commission and through participation in two contingency planning training course.

He added that Iraq has seven aircrafts for pest aerial control and has enough equipment for ground control. In addition, the department is planning to use drones for aerial survey of locust, the introduction of DGPS into spray aircrafts and the use of environment friendly pesticides.

The delegate requested a training course for plant protection staff on survey and control operations.

Recommendation 5: The Commission Secretariat is to organize and conduct a training course on survey and control operations in coordination with the Ministry of Agriculture.

Recommendation 6: Some of the plant protection staff who are working in the invasion countries to participate DL control operations in the field during campaigns in frontline countries.

Jordan

15. The delegate of Jordan presented a report during the period 2017-2018, informing that the Desert Locust situation remained clam during the stated period, reporting that a possibility of locust infestation in Aqaba and Maan in southern region of Jordan. The Ministry provided those areas with vehicles and spray equipment for locust operations.

In the framework of cooperation with the commission, one training course was conducted on DL survey and control operations with the participation of 21 trainees and a workshop on the maintenance of spray equipment for 10 participants during the period 11 - 15 November 2018.

The Ministry, in coordination with the Royal Airforce, is updating the aircraft with aerial spray equipment for locust aerial control and therefore, there is a need to procure a spray machine to be fixed on the aircraft (R44).

Recommendation 7: The Commission is to partly share in the procurement of the spray equipment for the Royal Air force aircraft R44 used in aerial control.

Kuwait

16. The Representative from Kuwait presented a report on the DL situation during 2017-2018 showing that there was no presence of locust. Nevertheless, Kuwait followed up the DL situation in the neighbouring countries, particularly when there was a good rainfall at the end of 2018. A workplan has been prepared for 2019-2020, in which to follow up on Desert Locust bulletins issued by the Commission, to procure and distribute the necessary pesticides to different agriculture directorates and the availability of 25 vehicles for control operations.

An emergency budget has been prepared to be used, when the need arises. The delegate of Kuwait requested the following:

- A training course on DL survey and control.
- Joining DL operations in frontline countries.
- A workshop on EHS.

Recommendation 8: The Commission Secretariat is to organize and conduct a training course on survey and control operations in coordination with the Public Authority of Agriculture Affairs & Fish Resources.

Lebanon

17. The representative of Lebanon presented a report on the Desert Locust situation during 2017-2018 indicating that Lebanon is an invasion country thus, not directly affected by locust. However, if DL swarms reach Lebanon, aerial control operations can be conducted using army aircrafts and ULV pesticides. The Ministry of Agriculture of Lebanon makes available enough quantities of ULV pesticides for wheat pest control, which can be used also for locust control, if needed.

In view of this, the delegate requested support in a training course on the survey and control operation and EHS.

Recommendation 9: The Commission Secretariat is to organize and conduct a training course on survey and control operations and on EHS Standards in coordination with the Ministry of Agriculture.

Oman

18. The representative of Oman presented a report on the Desert Locust situation during 2017-2018 indicating the calmness of the DL situation during 2017, where surveys were carried out at 226 locations with a total area around 3 343 ha, with no locusts reported. Climatic and environmental conditions were not favourable for local locust breeding, despite rainfall in the northern part of Oman, during 2017.

The surveys conducted in 2018 indicated limited breeding of Desert Locust due to good rainfall that accompanied the two cyclones in May and October, where solitary locust were reported in low densities, in addition to gregarious and solitarious hopper infestations in Makshan, Themreed and AlMazuna. Despite these infestations, DL remained calm during the year, surveys were conducted in 428 locations covering an area of 7 848 ha, with an infested area of 244 ha and no control measures were needed. At the beginning of 2019 and due to dry habitat, locust infestation migrated to the winter breeding areas along the Red Sea coast.

The representative of Oman informed of the availability of enough vehicles and qualified technical staff to join the operations in case of emergency in addition to 45 ULV sprayers and other required material. He also indicated that during 2017-2018 a number of activities were organized, most importantly Desert Locust survey and control operations training course for 15 trainees and EHS workshop for 14 trainees, in cooperation with the commission. Participants from Oman participated in all the workshops organized by the Commission during the stated period.

Finally, Oman hosted the 2nd trial on using drones in DL survey operations during 20-24 January 2019, in the eastern governorates.

A contingency plan has been prepared to handle locust upsurge in Oman including logistical and technical support. A national Desert Locust survey and control training course is to be conducted in October 2019, and an EHS workshop during 2020 with the support of the commission.

The representative of Oman requested the Commission's support in providing 20 GPS, 20 compasses and an EHS training course.

Recommendation 10: The Commission Secretariat is to organize and conduct a training course on EHS Standards in coordination with the Ministry of Agriculture and to provide the ministry with 20 GPS and 20 compasses.

Qatar

19. The representative of Qatar presented a report on the Desert Locust situation during 2017-2018, indicating that Desert Locust did not affect Qatar during the past two years, but with continuous presence of local locusts due to the increase of agriculture and pastures areas.

He indicated that the Ministry of Municipality and Environment applies an annual plan for survey and control of local pests at the pasture farms, and agriculture companies undertake the control operations under the supervision of the ministry.

The representative of Qatar requested the conduction of a national training course on DL survey and control, in addition to a workshop on the operation and maintenance of sprayers used in DL control operations.

Recommendation 11: the Commission Secretariat to organize and conduct a training course on survey and control operations and a spray equipment operations and maintenance workshop, in coordination with the Ministry of Municipality and Environment.

Saudi Arabia

20. The delegate of Saudi Arabia presented a detailed report on the Desert Locust situation during 2017-2018, indicating that no locust activities reported due to non-favourable conditions for breeding, in addition to no rainfall, particularly on the north coast of the Red Sea and interior spring breeding zones. Heavy rainfall caused by the cyclone in 2018 in the border area of Saudi Arabia, Oman and Yemen (Empty Quarter), led to the

improvement of conditions for locust breeding. On the western coast, rainfall improved the conditions in Jizan and Gonfoda, where some immature solitarious adults were reported. Medium to heavy rainfall were reported for the last 4 months in Mecca, leading to the improvement of vegetation coverage, where solitary locusts were reported in some locations and valleys at the north and south of Mecca. In general, the locust situation during 2018 was calm in both spring and winter seasons.

The delegate from Saudi Arabia requested the organization of an EHS workshop, and welcomed DL officers to join the locust survey and control operations conducted in the kingdom.

Recommendation 12: The Commission Secretariat is to organize and conduct a training on EHS Standards in coordination with the Ministry of Agriculture.

Sudan

21. The delegate of Sudan presented a comprehensive report for the DL situation during 2017- 2018, indicating that heavy rainfall during the winter season, that led to DL swarms formation until February 2019. Accordingly, aerial control campaign was carried out immediately in the winter breeding areas, covering 47 000 hectares, in addition to 15 000 by ground control. It is to be noted that Sudan has two contracted aircrafts, in addition to one DCO-EA aircraft available for the campaign along the Red Sea coast.

Sudan covers the cost of control operations of all locust types with more than 10 million USD, despite its economic conditions. Therefore, it is expected that the Commission, FAO, DLCO-EA, neighbouring countries and Saudi Arabia to support Sudan in containing the locust infestation.

The delegate from Sudan hopes that the Commission supports Sudan in a ToT training course on survey and control operations and spray equipment maintenance workshop. He also requested the provision of some GPS, e-Locust3 and the approval of the rehabilitation and maintenance of the Desert Locust temporary camps in the Red Sea with the allocated funds as per FAO procedures of releasing funds, in addition to wireless radio and internet.

Syria

22. The representative of the Syrian Arab Republic presented a report on the Desert Locust situation during 2017-2018, indicating that Syria is an invasion country and so no desert Locust reported during the last two years. He mentioned that Syria has a number of aircrafts used for agriculture aerial spray, available for locust control if needed, in addition to backpacks and vehicle mounted sprayers for ground control.

The delegate of Syria requested support in the organization of a maintenance of spray equipment workshop, survey and control training course and EHS workshop, indicating that they have enough reserves of ULV pesticides, to cover an area of 25 000 ha and EC to cover an area of 3 000 ha.

The Commission is requested to hand over the 10 AU8000 sprayer procured for Syria.

Recommendation 13: The Secretary of the Commission is recommended to visit Syria, if possible, to explore ways of rehabilitating the Desert Locust unit through donors. In addition to the organization of a workshop on the maintenance of spray equipment and a training course survey and control training course and EHS.

United Arab Emirates

23. The representative of the United Arab Emirates reported on the Desert Locust situation during 2017-2018 stating that the situation was calm during the stated period. In January 2019, a number of Desert Locust swarms were reported in the western part of the country, close to the boarder of Saudi Arabia, which were controlled. She also indicated that UAE participated in the Sub-regional training course held in Port Sudan during February 2018.

She indicated UAE plans as follows:

- Prepare a draft ministerial plan for locust control, send to the concerned authorities for endorsement.
- Issue a ministerial decree to compose a national team for DL control.
- Coordinate with the Commission for building capacities of the staff through training courses.
- The commission to send sets of DL guidelines in Arabic and English and various SOPs.

Yemen

24. The representative of Yemen provided a report on the Desert Locust breeding habitat indicating that there are two locust centers, one in Sana'a and the other in Aden, both follow up on the DL situation and survey and control operations in their localities.

He reported on the two cyclones that occurred in 2018 on the east of Yemen, which led to climatic and ecological favourable conditions for locust breeding in those areas. Survey teams faced obstacles during the survey operations due to the current security issues, including non-availability of operational funds and the loss of all vehicles used by the center.

He reported briefly on the support provided by the commission and FAO to the two centers in order to make operational funds available to cover the survey operations in the last two years with some survey equipment.

Finally, the representative of Yemen requested:

- Continued support by FAO and the commission to cover the cost of DL survey and control operations.
- Support in organizing national training courses and the participation of DL officers and technicians in regional workshops and training courses.
- Provide the locust centers with two testmate kits to follow on staff wellbeing during campaigns.

Recommendation 14: Due to the current situation in Yemen, the Commission is to explore ways of supporting the DL centers, due to the importance of continuous follow up of the DL situation, in view of the DL development in some member countries.

Report of the activities of the Secretariat of the Commission and follow up of the recommendations of the 30th Session

25. The Secretary of the Commission presented a comprehensive report on the activities and a follow up on the recommendations of the 30th Session of the Commission, including the achievements during the period from February 2017 to February 2019 (Appendix 5).

21 were implemented, 2 partially and 9 postponed or couldn't be implemented due to some obstacles. A summary of the outcome of some of these recommendations is here below:

1- The Secretary of the Commission could not participate in a meeting organized by the Secretary of the Agricultural Departments of Gulf Cooperation Council GCC to enlighten and clarify the important role played by the Commission in food security and to identify fields of cooperation as the committee has stopped convening in the last period.

2- The Secretary of the Commission could not visit Iraq to meet senior officials of the Ministry of Agriculture, as circumstances did not permit it.

3- The Commission could not organize a national training course on Desert Locust survey and control operations in Kuwait as it is postponed to 2020.

4- Lebanon requested the postponement of the national training course on Desert Locust survey and control operations.

5- Qatar postponed the training course on DL survey and control operations and a workshop on the operation and maintenance of sprayers used in DL control operations to be scheduled during the next period.

6- Frontline countries did not provide the Secretariat of the Commission with information on DL staff blood testing results, as control operations were not carried out during the last period.

7- Frontline countries requested the postponed of work plans on the implementation of the Environment and Health Standards to the next two years.

8- As the frontline countries did not submit the work plan on the implementation of the EHS, the Commission could not organize a regional workshop to assess the progress made in the implementation of the EHS in 2018.

9- Member countries expressed their dissatisfaction on FAO decision not to provide Budget Holder responsibilities to the Secretary of the Commission for the Trust Fund of the Commission subject to the rules and regulation of FAO as per its recommendation in the 30th Session.

Recommendation 15: Member countries suggested that a meeting should be arranged between the Commission and AGPM in the presence of Legal, Finance and Administrative departments of FAO HQ to discuss the request of the member countries.

New technologies: the use of drones in the survey of Desert Locust:

26. The Secretary of the Commission presented a report on the use of drones to monitor Desert Locusts in the context of the early warning system and the implementation of the preventive control strategy. The three Commissions are very keen on its use in order to survey remote areas, difficult to reach through normal routes.

In this regard, FAO issued a Request for Expression of Interest to participate in a field-testing in Mauritania, in March 2018, where the first field-testing of drones in a Desert Locust habitat in a Locust-affected country was carried out. The endurance, range, power, robustness, multispectral and visible sensors, data processing, itinerary planning, communication, operation (launching, flying and landing) were tested.

Results showed that HEMAV Foundation is the most suitable partner to develop appropriate, high quality, customized equipment for survey and control operations in locust affected countries based on the drones they have developed so far and their unwavering commitment, multidisciplinary expertise, and ability to customize and harness cutting-edge innovation in a sustainable manner. Further investigation, development and testing are required before this technology can be used operationally and reliably in locust-affected countries, taking into consideration that specific improvements are required concerning power, sensors, data processing, robustness and simplicity. On that basis, a second field trial was conducted in a traditional Desert Locust breeding habitat in Muscat from 20-24 January 2019. More information on the outcome of the 2nd field testing and future workplan 2019-2020 can be found in (Appendix 6).

After discussions, delegates endorsed the importance of briefing member countries of this new technology to be used in DL survey and monitor.

Recommendation 16: The Secretary of the Commission is to address member countries on the new technology of using drones in DL survey and control and to obtain the needed clearance from the concerned authorities if drones will be used locally.

Post graduate study (Master Degree Study on Desert Locust science):

27. The Secretary of the commission presented a paper on post-graduate study in different DL fields in the framework of the intense activity and continuous efforts undertaken by the Commission for Controlling the Desert Locust in the Central Region (CRC), in order to improve the performance and efficiency of locust operations. The Secretariat of the Commission managed to obtain the approval from the board of the Sudan University of Science and Technology for a Master Degree Study on Desert Locust science under the title of: Master of Science Programme in Desert Locust Management by Courses and Supplementary Research, noting that academic staff, university specialists and equipment are available to ensure the success of the study¹. It is worthy to note that the Sudan University of Science and Technology showed interest in cooperating with the Commission for the MSc study and presented a comprehensive proposal, unlike the University of Khartoum, despite that a period of ten months was given to receive the proposals.

The Program aims at qualifying specialists in all areas of Desert Locust management. Upon completing the study successfully, the researcher is expected to be able to plan appropriate solutions to Desert Locust problems, put forward the necessary recommendations, apply modern techniques, develop knowledge and acquire modern skills in Desert Locust management, undertake applied research, prepare and present seminars and scientific reports in all aspects of Desert Locust management. For more details on the programme, cost, etc. refer to (Appendix 7).

The study involves two academic years, including lectures and supplementary research, noting that the total cost for a minimum of 6 students is USD 150 000. Following extensive discussions, member countries approved the proposal of the postgraduate study and its conduction at the Sudan University of Science and Technology. The Commission Secretariat is to complete the registration process. The delegate of Sudan agreed on the study but stated his reservation to the study and his objection to its teaching in at the Sudan University of Science and Technology and preferred the University of Khartoum as it has previous experience in the Diploma study for the Commission. He also added that the Department of Plant Protection in Sudan will have no dealings with this study in case it is held at the Sudan University of Science and Technology.

Recommendation 17: The Commission Secretariat is to contact the admission office of the Sudan University of Science and Technology to accept the students and start the registration process as soon as possible.

¹ Webometrics Ranking of World Universities: Sudan University for Science and Technology is ranked second amongst fifty universities in Sudan <http://www.webometrics.info/en/aw/Sudan>

National and regional Contingency planning:

28. The Secretary of the Commission presented a paper on National and regional Contingency planning pointing out that there was a great deal of variation in the annual work plans in applying the basics of preventive control strategy in Desert Locust affected countries over the past years. In spite of this, most locust breeding countries showed significant progress in the implementation of the preventive control strategy in comparison to the past and locust outbreaks can now be monitored at an early stage, thus early intervention is possible. Thus, national contingency plans for locust breeding countries must include annual expenditure of Locust management, monitoring system of national control mechanisms, real budget allocation plan, ideal required budget, available funding sources and general emergency funds. National contingency plan must include: the calm phase (a recession), the emergency phase (outbreak), the emergency phase (upsurge), the emergency phase (plague).

The Regional contingency plan aims to provide technical and financial support for Desert Locust management in a member country, where most of its financial capacity and other resources used for Desert Locust survey and control operations are exhausted. Regional contingency plan must include: availability of a national contingency plan, with detailed scenarios, supported by stakeholders in the country and the Commission, progress of Desert locust threat, financial statement of national expenditure and ability to cover the costs of locust operations in dealing with Desert Locust infestation. He also presented the action mechanism of the regional contingency

plan at different stages, sources covering the regional contingency plan, in addition to Technical Cooperation Programme, by FAO Technical Cooperation Programmes of emergency (TCP) and donations and assistance from regional countries and the international community. For more details, please refer to (Appendix 8).

Recommendation 18: the regional contingency plan is endorsed and can be activated upon member countries payment of their contributions and the submission of their national contingency plans to the Secretariat of the Commission including human and financial resources.

29. Joint activities with the Desert Locust Commissions and Organizations:

a) Report of the Commission for Controlling the Desert Locust in the Western Region (CLCPRO)

The Executive Secretary of the Commission for Controlling the Desert Locust in the Western Region, CLCPRO, Mr. Mohamed Lemine Hamouny, gave a presentation on the commission's activities where he informed that during 2017-2018 the Commission continued its implementation of the early warning and early intervention strategy, in addition to supporting regular activities through survey, control and training. The Commission strongly encouraged member countries to pay their arrears to the TF, resulting in positive actions, and arrears now stand at only one annual contribution, with the exception of Libya due to the current situation.

The Commission also concentrated on capacity building in member countries with stronger interventions to enable them control DL infestations, where a Task Force was created to combat DL upsurges and in which Mauritania received 11 vehicles in its DL centre. Currently, 6 vehicles to the DL centre in Chad are being arranged, with the aim to achieve quick intervention in DL operations in the 4 frontline countries (Mauritania, Mali, Niger and Chad).

The Secretariat of the Commission, supported by its Chairman, encouraged its member countries to make a contribution to the Commission's Emergency Fund, in which they paid 1 million USD. While efforts by the secretariat will continue until a target of 6 million USD is reached, with the total available now is 2.4 million USD.

During the stated two years, the commission made a lot of effort in the research field, in which it approved a research in new technology for early intervention and biological control, supported by the French Development Agency. Simultaneously, a DL simulation on the use of drones was held in Mauritania during March 2018, in collaboration with the Commission in the Central Region. A research study was initiated on early warning during DL infestation, in collaboration with other organizations in the region.

During the said period, there were noticeably joint activities with the Central Region Commission in contingency planning, the use of biological pesticides and training.

b) Report of the Commission for Controlling the Desert Locust in South-West Asia (SWAC)

The Executive Secretary, Mr. Cressman, presented the activities of SWAC, including the annual Iran/Pakistan joint survey carried out every April since 1995 that covers 16 000 km in the spring breeding areas. Many activities are intraregional in which one country helps another such as Iranian locust officers training Afghani officers, the Iran/Pakistan joint survey, the Pakistan/India joint border meetings, and survey officer exchanges. SWAC also funds a substantial portion of RAMSES GIS development and updating.

SWAC has joint activities with CRC concerning master training in sprayer maintenance, participation in national surveys in Iran and Oman, and the annual DLIO workshops. SWAC does not maintain an allocation in its Trust Fund for emergencies because this is covered by national locust programmes of its member countries. Intra-regional cooperation activities such as joint surveys, joint border meetings, training and survey officer exchanges could be applicable for the Central Region.

c) Report of the Desert Locust Control Organization for Eastern Africa (DLCO-EA)

The Director of DLCO-EA, Mr. Stephen Njoka, gave a presentation in which he informed that it is a regional pest and vector management organization established in 1962 with its headquarters in Addis Ababa, Ethiopia. The nine member countries are Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Tanzania and Uganda. Its mandate pests are Desert Locust, African army worms, *Quelea Quelea* birds and Tsetse flies.

Besides controlling these pests the organization also trains national and regional communities and conducts research on its mandate pests. DLCO-EA collaborates with CRC/FAO/USAID and other development agencies in the fulfilment of its mandate. It has a number of aircrafts for aerial control of Desert Locust and supports member countries upon request. One aircraft was currently conducting aerial control operations in Sudan Red Sea coast.

d) US Agency for International Development (USAID)

An overview of USAID activities was presented by Mr. Yeneneh T. Belayneh, in its aim to end extreme global poverty and enable resilient, democratic societies to realize their potential. USAID's humanitarian wing (OFDA) has a mandate for saving lives, alleviating human sufferings, and reducing economic and social impact of disasters worldwide, in collaboration with its partners. It works closely with international, regional and national entities, civil society organizations (NGOs, PVOs, religious groups,) academia, research organizations, private sector, etc., in an effort to fulfill its mandates.

Through these efforts, regional and national capacities have been strengthened for locust surveillance, monitoring and control interventions, protecting the environment and contributing to safety of locust control staff and rural communities.

During the 2003-05 Desert Locust upsurge, USAID contributed close to USD 21 million to help control and manage the pest and during the 1986-89 Desert Locust plague that affected several dozen countries across various geographic regions, USAID supported with USD 60 million.

USAID also supports in obsolete pesticide disposal, establishment of a web-based pesticide stockpile/inventory monitoring and management, development and/or use of biological control tools, strengthening EMPRES programs in collaboration with the FAO and its regional Desert Locust commissions and DLCO-EA, and have played a significant role in alleviating emergency transboundary outbreak pest invasions and minimize damage caused.

USAID supports the implementation of the Human Health and Environmental Safety Standards through training courses.

Election of members and Chairman of the Executive Committee

30. The Executive Committee members have been unanimously elected to be: Egypt, Eritrea, Lebanon, Oman, Saudi Arabia, Syria and the United Arab Emirates. The representative of Oman was elected as the Chairman of the Executive Committee.

Accounts for 2017 and 2018

31. The Secretariat of the Commission reviewed a summary of expenditures for 2017 - 2018 which was endorsed by the session members, following discussions and clarifications. (Appendix 9).

Recommendation 19: Member countries endorsed the expenditure reports for 2017 and 2018.

Contributions and arrears of member countries to the Commission's Trust Fund

32. On the status of contributions of member countries and the outstanding arrears to the Trust Fund of the Commission, the Secretary of the Commission presented the current status of contributions of some member countries over the past years. It was noticeable to the session members the non-commitment of some member

countries to pay their annual contributions to the TF of the Commission for a number of years, which resulted in a total amount of arrears of USD 1 768 7171. After extensive discussions, the session members encouraged member countries to pay the annual contributions in a regular manner, follow up this matter with the responsible authorities and to inform the Secretariat of the Commission, (Appendix 10).

Session members agreed on discontinuing the support provided to member countries that do not pay their annual contribution.

The session made the following important recommendations:

Recommendation 20: Delegates of member countries that are in arrears should follow up with their governments on its payment to the Trust Fund of the Commission.

Recommendation 21: the delegate of United Arab Emirates is to follow the issue of raising the contribution with the concerned authorities, similar to other member countries.

Recommendation 22: member countries to pay their annual contributions to the Trust Fund of the Commission and a portion of their arrears by the 31 December 2019, in view of the difficult position of the TF of the Commission.

Work plan for 2019–2020

33. The Secretary of the Commission presented the work plan for the years 2019 – 2020, which was endorsed by the meeting after extensive discussion, (Appendix 11).

Recommendation 23: The work plan for 2019 – 2020 was endorsed by the member countries.

Recommendation 24: The Secretary of the Commission is authorized, in consultation with the Chairman, to cover the cost of implementing any activities that are not reflected in the Commission workplan.

34. Other business

- **Amendments to the Commission logo**

In view of the latest changes endorsed by FAO on commissions' logos, the CRC logo will be modified, with no change to the original idea behind it. Three draft examples for the modified logo was presented to the session, and one was chosen and endorsed by the members, (Appendix 12). The draft logo will be further fine-tuned to obtain the final version.

- **Commission advocacy:**

It has been noticed that the Commission is in need of more advocacy to make its role better known in the region.

Recommendation 25: The session members recommended that the Assistant Director General in FAO Near East and North Africa office, in Cairo, to kindly invite the Secretary of the Commission to participate in the Near East Regional Conference (NERC), as an opportunity to present the Commission's role in the region and the intensive activities carried out by its member countries in the Desert Locust control and its damage to agriculture crops and pastures, in particular, nations that may be threatened to poverty and hunger.

- **Upgrade of support staff in the Commission Secretariat:**

In view of the increase in the tasks of the Administrative Assistant and the driver of the Commission, the Member Countries recommended their upgrade in reward of their valued efforts, so as they receive an increase of USD 150- 200 per month and the Executive Secretary of the Commission to proceed in its implementation as per FAO rules and regulations.

Recommendation 26: the Commission's Administrative Assistant, Ms. Lidia AbdelShahid, is to be upgraded to grade 7 and the Driver, Mr. Mohsen Ibrahim Mohamed to grade 3, according to the organization's general staff salary scale.

Date and place of the next Executive Committee and the Session of the Commission

35. The Chairman of the Session requested nominations from member countries to host the 32nd Session of the Commission, where the delegate of Saudi Arabia and Lebanon proposed to host it. The session members agreed on holding the 32nd session in February 2021. The Secretariat of the Commission shall coordinate with both member countries to decide on the venue.

Adoption of the report of the 31st Session of the Commission

36. The report of the 31st Session and the 35th Executive Committee Meeting of the Commission, held in Amman, Hashemite kingdom of Jordan, 17 – 21 February 2019, with the agreed amendments, was unanimously endorsed and approved by the participants.

Closure of the Session

37. Finally and after the endorsement of the 31st Session report by the member countries, the Chairman of the Commission thanked all the participants for their fruitful discussions and hard work which resulted in several recommendations covering many activities that concern the member countries in Desert Locust Management.

He commended member countries for their support to the Commission and also expressed appreciation to the Commission's Secretariat for their excellent organization and preparation of the session, supported by the Ministry of Agriculture team. The Chairman also thanked the drafting committee and the translation team, wishing everyone a safe journey back home.

Acknowledgements

The participants expressed their gratitude and thanks to the Hashemite kingdom of Jordan, represented by its Ministry of Agriculture for their warm welcome, generous hospitality, excellent arrangements which resulted in the success of this session.

The participants appreciated the holding of the 31st Session under the auspices of H.E. Eng. Ibrahim Shahahda, Minister of Agriculture and Minister of Environment.

They also thanked the Chairman of the Commission for his good management during the intense discussions in the session on various subjects resulting in positive recommendations to support the Commission's goal, thus benefiting its member countries in different Desert Locust activities.

Appreciations and thanks are extended to the Secretary of the Commission and its Secretariat for their enormous valuable efforts and to all that have contributed to its success, especially the drafting committee and the interpretation team.

Appendix 1: List of participant

Member Countries

Egypt	Mostafa Ahmed Seoudi Director General of Gen. Dept. for Locust Affairs and Agro-aviation Minister for Pest Control and Plant Protection Ministry of Agriculture and Land Reclamation Tel: (00202) 37488974 Mobile: (002) 0100 204 0814 Fax : (00202) 37493184 Email : locust_egypt@yahoo.com
Eritrea	Heruy Asghedom Weldemariam Director General Agriculture Extension Department Ministry of Agriculture Tel.: (00291)-1- 181480 Fax: (00291)-1- 181274 Mobile: (00291) 7498510 E-mail: asgedomheruy@gmail.com
Ethiopia	Weldehawariat Assefa Fesseha Director General of Plant Health and Regulatory Directorate Ministry of Agriculture and Natural Resources Tel.: (00251) 11 6462417 Fax: (00251) 11 6462311 Mobile: (00251) 914746348 E-mail: hapruassefa2@gmail.com
Iraq	Hikmat Qasim Fadhil Al-Quraishi Head of Desert Locust Section Desert Locust officer Plant Protection Department Ministry of Agriculture Mobile: (00964) 7802138530 E-mail: hikmatfadhil@yahoo.com
Jordan	Setan Al-Serhan Acting Director of Plant Protection and Phytosanitary Department Ministry of Agriculture, Jordan Mobile: (00962) 799063239 Fax: (00962) 5686310 Email: S-alsershan@yahoo.com
Kuwait	Fatma Ahmad AlKandari Head of Plant Protection Research Department Public Authority of Agriculture and Fish resources Tel.: (00965) 22250310 Mobile: (00965) 94422047 Fax: (00965) 22250311 E-mail: Dr.F.a.h.alkandari@gmail.com
Lebanon	Sylvana Sami Gerges Head of Plant Protection Services Ministry of Agriculture Tel.: (00961) 1 849439 Mobile: (00961) 3810377 E-mail: sylvana_gerges@hotmail.com sgerges@agriculture.gov.lb

<p>Oman</p>	<p>Saleh bin Mohamed bin Saleh AlAbri Director of Agriculture Development Ministry of Agriculture and Fisheries Tel.: (00968) 24952500 Mobile: (00968) 99377655 Fax: (00968) 24692069 Email: smsalabri@hotmail.com</p> <p>Mr. Khalid Said al Harrasi Desert Locust officer Desert Locust Centre Ministry of Agriculture & Fisheries Tel : 00968 24540648 Fax : 00968 24 540720 Mobile : 00968 99327671 Email : khalidalharrasi@gmail.com</p>
<p>Qatar</p>	<p>Adel Zein Hussein Al Kaldi Alyafei Assistant Director of Agriculture Affairs Ministry of Municipality and Environment Tel.: (00974) 44263968 Fax: (00974) 44261222 Mobile: (00974) 55812132 Email: AALkaldi@mme.gov.qa Adel_alkaldi@hotmail.com</p> <p>Mohamed Ahmed Abdallah Al-kinji Head of Plant Protection and Agriculture Quarantine Ministry of Municipality and Environment Mobile: (00974) 5580758 Email: makhenji@mme.gov.qa</p>
<p>Kingdom of Saudi Arabia</p>	<p>Mohamed bin Hussein Al Shamrani Director General Locust Control and other Migratory Pest Centre Ministry of Environment, Water and Agriculture Jeddah, kingdom of Saudi Arabia, P.O. Box 4174 Jeddah 21491 Tel.: (00966)12 6210096 Fax: (00966)2 6204085 Mobile: (00966) 556762377 E-mail: mhs6071@gmail.com</p>
<p>Sudan</p>	<p>Khidir Gibril Moussa Director of Plant Protection Directorate Ministry of Agriculture Mobile: (00249) 12138939 E-mail: kidirgme@gmail.com khidirgme@outlook.com</p>
<p>Syria</p>	<p>Fiher Almouhref Director General of Plant Protection Department Ministry of Agriculture and Agrarian Reform Damascus- Syria Tel.: (00963) 112220187 Mobile: (00963) 968920900 Fax: (00963) 112247913 E-mail: fhrr955@hotmail.com almouhref.fhr@gmail.com</p>

United Arab Emirates**Amal Youssef Al Ali**

Agriculture Engineer
Ministry of Climate Change and Environment
Dubai, P.O. Box 1858 Dubai, UAE
Tel.: (00971) 42148450
Mobile: (00971) 557599427
Email: ayalali@moccae.gov.ae

Hisham AbdelRahman Alyahya

Head of Pest Control
Dubai Municipality, Dubai, UAE
Tel.: (00971) 42215555
Mobile: (00971) 554041444
Email: hayahya@dm.gov.ae

Abdullah Hassan Al Ali

Head of Agriculture Services Unit
Dubai Municipality, Dubai, UAE
Tel.: (00971) 42215555
Mobile: (00971) 554040666
Email: abdullaha@dm.gov.ae

Hana Ameen AlZarooni

Head of Agriculture Services Unit
Dubai Municipality, Dubai, UAE
Tel.: (00971) 43027788
Mobile: (00971) 506558009
Email: hanaaz@dm.gov.ae

Ahmed Khaled Othman

Agriculture Development Director
Abu Dhabi Food Control Authority, Abdu Dhabi, UAE
Tel.: (00971) 28181501
Mobile: (00971) 504461061
Fax: (00971) 25886500
Email: ahmed.othman@adfca.gov.abudhabi

Saif Mubarak AlNuaimi

Agriculture environment specialist
Abu Dhabi Food Control Authority, Abdu Dhabi, UAE
Tel.: (00971) 28181111
Mobile: (00971) 506198792

Yemen**Adel Ibrahim Al-Shaibani**

Director
Desert Locust Monitoring and Control Centre
Ministry of Agriculture, Sana'a
Republic of Yemen
Tel.: (00967) 1 234500
Fax: (00967) 1 250980
Mobile: (00967) 777 892931
Email: Adel.shaibani@gmail.com

**Desert Locust Control
Organization in East Africa
(DLCO-EA)****Stephen Njoka**

Director
P.O. Box 4255
Addis Ababa, Ethiopia
Tel.: (00251)-11-6461477
Mobile: (00251) 911525779
E-mail: swnjoka@yahoo.com

USAID**Yeneneh T. Belayneh**

Senior Technical Advisor
US Agency for International Development, DCHA/OFDA
RRB. Rm 8-7-100
Pennsylvania Avenue, NW, Washington.,
D.C. 20523, USA.
Tel.: (001)-202-712-1859
Mobile: (001) 703-362-5721
E-mail: ybelayneh@usaid.gov

**Food and Agriculture
Organization of the United
Nations****Annie Monard**

Senior officer, Team Leader
Locusts and transboundary plant pests and diseases
AGPMM, FAO,
Viale delle Terme di Caracalla
00153 Rome, Italy
Tel.: (0039) 06 570 53311
E-mail: annie.monard@fao.org

Keith Cressman

Senior Locust Forecasting Officer
AGPM/DLIS
FAO, Rome, Italy
Tel.: (0039) 06 570 52420
Mobile: (0039) 349 4356980
Fax: (0039) 06 570 55271
E-mail: keith.cressman@fao.org
ECL0@fao.org(locust reports)

**FAO Commission for
Controlling the Desert Locust
in the Western Region
(CLCPRO)****Mohamed Lemine Hamouny**

Executive Secretary of the Commission for Controlling the Desert Locust in
the Western Region
04, Rue Asselah Hocine, BP 270
RP Algeria
Tel.: (00213) 21733354
Mobile: (00213) 661700887
Fax: (00213) 21730545
E-mail: MohamedLemine.Hamouny@fao.org

**FAO Commission for
Controlling the Desert Locust
in the Central Region (CRC)****Mamoon Alsarai Al Alawi**

Executive Secretary of the Commission for Controlling the Desert Locust in the
Central Region
P.O. Box 2223, Cairo
Tel.: (00202)-33316018
Fax: (00202)-3761 6804
Mobile: (002) 0100 669 7824
E-mail: mamoon.alsaraialawi@fao.org

Lidia Naguib AbdelShahid

Senior Executive Assistant
Tel.: (0020)-2-33316000 ext 2516
Fax: (0020)-2-3761 6804
E-mail: lidia.abdelshahid@fao.org

Munir Butrous

Consultant - Sudan
c/o Falcon shipping co.
P.O. Box 12 Khartoum, Sudan.
Tel.: (00249) 9 22334444
E-mail: Munir.butrous@gmail.com

Sara Sadek

Consultant - Graphic designer
E-mail: sara.sadek@fao.org

Appendix 2: Report of the Chairman of the Commission

Excellencies, distinguished Directors General, Department Directors and delegates of the Desert Locust Commission in the Central Region

Executive Secretary of the Desert Locust Commission in the Central Region

Ms. Annie Monard Desert Locust Officer and Migratory Pests in Rome

Executive Secretary of the Desert Locust Commission in the Western Region

Executive Secretary of the Desert Locust Commission in the South West Asia Region

Director of the Desert Locust Control Organization for Eastern Africa (DLCO-EA)

Dear Colleagues,

Please allow me first, on behalf of myself, the distinguished delegates of the Member States, Ladies and Gentlemen, to thank the Ministry of Agriculture of the Hashemite Kingdom of Jordan for its hospitality to host the thirty-first session of the Commission and for the warm welcome and hospitality. Our thanks are extended also to all concerned organizers for their efforts to ensure that the events of the meeting proceed smoothly and successfully.

I would also like to extend my sincere thanks to the Member States for their participation in this meeting to discuss issues of concern relating to Desert Locust in the region.

On this occasion, I am pleased to present you with a brief report on the activities of the Commission's Secretariat accomplished during February 2017 to January 2019.

Although the overall situation in the central region was relatively calm in 2017 and most of 2018 due to the lack of significant Desert Locust activity, however, in the winter season in 2018, there was a noticeable improvement in the environmental conditions in the region due to rainfall in the breeding areas. In addition to the two cyclones Mekunu during the period 23-27 May and Luban during the period 13-15 October, which brought heavy rainfall at the South of Oman, the eastern part of Yemen and the Empty Quarter in Saudi Arabia making the Desert Locust situation in the region worrisome due to the frequent reports of small locust groups, some of which have developed to the current outbreaks. In addition to the continuing uncertainty of the Desert Locust situation in Yemen in general, and the inability to intervene in these areas.

The Desert Locust situation has developed into outbreaks in Eritrea, Saudi Arabia and Sudan. These outbreaks were controlled and still are. The total area treated so far is 54 818 hectares from November 2018 until the date of this report (4 February 2019) in Eritrea, Saudi Arabia and Sudan.

The current DL situation is a proof of the continuing threat posed by Desert Locust to the region's countries, the importance of responding appropriately to activate national contingency plans, and the joint collaboration and coordination between all parties at the national and regional levels to raise the level of preparedness for any possible developments in the locust situation. This situation highlights the great efforts of the affected countries in dealing with locust outbreaks, avoiding further development and thus protecting other neighbouring countries.

In this regard, the efforts made by the member countries of the Commission to strengthen the Desert Locust control operations in the central region in the past two years should be commended. In addition to the role played by the Secretariat of the Commission during this period of good management and coordination with member countries and continuous monitoring of the locust situation, as well as organizing/conducting workshops and training courses in various field of Desert Locust survey and control and health and safety of concerned staff.

It is also worth noting the excellent cooperation and constructive coordination among the member countries in terms of supporting the control operations among them, exchanging information and reports and finding solutions to some obstacles, especially with regard to the use of RAMSES and eLocoust3.

The close cooperation between the Secretariat of the Commission and the other Locust Commissions, in the Western Region, South West Asia and the Desert Locust Control Organization for Eastern Africa (DLCO-EA) in terms of exchange of information, training and other activities should also be appreciated.

The following is a summary of the most important activities carried out by the Chairman and Secretariat of the Commission in the past two years:

Firstly: Visits:

- The Chairman of the Commission, accompanied by the Executive Secretary, visited FAO headquarters to present the report of the 30th Session of the Commission to the Assistant Director-General, AG and AGP Director and discuss a number of recommendations concerning the Commission's workplan, from 22 to 23 November 2017.
- The Chairman of the Executive Committee and the Executive Secretary visited the United Arab Emirates, 27-28 February, 2018, to meet with His Excellency Dr. Thani Bin Ahmed Al Zwaidi, Minister of Climate Change and Environment, and officials at the Ministry to discuss the issue of raising UAE contribution to the Commission, as per the recommendation of the 30th session. The delegation took the opportunity and presented the Commission's 50th anniversary trophy to H.E. the Minister.
- The Chairman of the Executive Committee, on behalf of the Chairman of the Commission, and the Executive Secretary, visited Saudi Arabia to meet with H.E. Eng. Abdulrahman bin Abdul Mohsen Al-Fadhli, Minister of Environment, Water and Agriculture of Saudi Arabia, 22-23 July 2018, to extend the member countries' appreciations to the Government of Saudi Arabia, for its continuous support to the Commission in its efforts in Desert Locust management in the region. The delegation presented H.E. the Minister with the the Commission's 50th anniversary trophy.
- The Secretary of the Commission, in accordance with the recommendations of the 30th session, visited a number of member countries to meet officials of the relevant ministries and Locust Control Units, to discuss matters relating to Desert Locust control and enhance cooperation with member countries. In this regard, the Secretary of the Commission visited in 2017:

The Republic of the Sudan from 25 to 28 January 2017, to follow up on several issues related to the Commission with senior officials of the Ministry of Agriculture and Forestry and key stakeholders, including discussing arrears of Sudan's annual contributions to the Commission.

- In 2018, he visited:
 - The Republic of the Sudan from 4 to 11 February 2018 to organize the Sub regional training course on Desert Locust survey and control in Port Sudan.
 - The Hashemite Kingdom of Jordan from 7 to 15 November 2018 to organize two training courses on Desert Locust survey and control and maintenance and operation of spray equipment in Aqaba. In addition to meeting with the concerned staff at the Ministry of Agriculture in preparation for the 31st Session.

Secondly: Cooperation with regional bodies:

In view of the Commission's Secretariat to continuously support and strengthen mutual cooperation in Desert Locusts control activities with other Desert Locust Commissions and organizations, the Secretary participated in the following events organized by:

1. The Commission for Controlling the Desert Locust in the Western Region (CLCPRO):
 - Pesticide stock management system, held in Agadir, Morocco, from 27-31 March 2017.
 - The Extraordinary Meeting held in Bamako, Republic of Mali, from 3 to 6 July 2017.
 - The Regional Workshop for Locust Information Officers in the Western Region, where a number of Locust Information Officers from the Central Region also participated.
 - Field trial on the use of remote-controlled aircraft (drones) in the field of survey and control of Desert Locust, in Nouakchott, Mauritania, from 4-9 March 2018.
 - The 9th Session of the Commission and the 13th Meeting of the Executive Committee, held in N'Djamena, Republic of Chad, from 18-22 June 2018.
2. The Commission for Controlling the Desert Locust in South West Asia (SWAC).
 - The 31st SWAC Session, held in New Delhi, India, from 11 to 13 December 2018.
3. The Desert Locust Control Organization for Eastern Africa (DLCO-EA):
 - The 62nd Regular of the Council of Ministers of DLCO-EA, Khartoum, Republic of Sudan, from 24-26 September 2017.
 - In collaboration with DLCO-EA, the Commission carried out the 5th Regional training course on Desert Locust aerial control during 17-21 July 2017, Moshi, Tanzania.

Third: Regional training courses and workshops:

As the Commission encourages and supports national capacity building, effective exchange of information on Desert Locust and training on the latest techniques used in Desert Locust management, the Secretariat organized and held 3 regional training courses / workshops:

- The regional training course on Desert Locust control campaigns held in Port Sudan - Sudan from 4 to 11 February 2018 for the invasion countries.
- The Desert Locust Regional Contingency Planning Workshop, Hurghada, Egypt, from 30 September to 1 October 2018, with the participation of one officer from the Desert Locust Commission in the Western Region.
- The workshop on the use of *Metarhizium acridum* in Desert Locust control operations, Hurghada, Egypt, from 4 to 7 October 2018, in which one officer from the Desert Locust Commission in the Western Region.

1. Interregional workshops:

- In collaboration with the Desert Locust Commission in the Western Region and Southwest Asia, the Commission organized two workshops for Desert Locust Information Officers (DLIO) during 7-11 May 2017 and the second held during 15-19 July 2018, Cairo, Egypt.

2. National training courses:

The Commission provided the necessary technical and financial support for the following training courses:

- A training course for Desert Locust information officers in Eritrea.
- A national course on Desert Locust control operations and the best use of pesticides in Egypt.
- Two national courses on environmental health and safety standards in Egypt and Oman.
- One ToT national training course on Desert Locust control operations in Saudi Arabia.
- Three courses on Desert Locust survey and control in Djibouti, Egypt and Jordan.
- Two national training courses on the operation and maintenance of Desert Locust sprayers in Bahrain and Jordan.

3. Training in the Desert Locust Information Services at FAO HQ in Rome:

Desert Locust Information Officers from the Control Center of Locusts and Migratory Pests of Saudi Arabia joined the training program offered by the Desert Locust Information Services in Rome for six months each of:

- Mr. Marzouk Al-Barakati from November 8, 2017 to May 7, 2017.
- Said Turkistani from May 3 to November 1, 2017.
- Mr. Gashawtena Agegnehu, Desert Locust Information Officer from Ethiopia, joined the training program at the Desert Locust Information Services in Rome for 11 months starting 17 September 2018.

Fourth: Research:

The Commission approved one research study entitled: "the effect of some chemical pesticides used in Desert Locust control on the environment (Soil and Plant), in collaboration with the Locust and Hopper Research Department at the Plant Protection Research Institute of the Agricultural Research Center of Egypt.

Fifth: The Financial status of the Commission and member countries contributions:

Although the financial status of the Commission is stable and most member countries are paying their annual contributions, some are not committed to paying theirs, and so the arrears have reached a total of USD 1 700 000 which is a matter of concern and must be discussed during this meeting to find a solution to this matter.

Sixth: Miscellaneous:

- The Secretariat of the Commission has updated the Desert Locust Contingency Planning Assistant (DeLCoPA) as per the recommendations of the Regional Workshop, which is now available in Arabic, English and French, as well as its use without Internet.
- The Secretariat continues to translate and issue the Desert Locust monthly bulletin into Arabic and distributes it to the concerned parties.
- The Secretariat of the Commission continues to provide all data, information, bulletins and news related to Desert Locust, in addition to a number of social network sites in a distinctive manner through its website in Arabic and English, where its Domain has changed to: <http://desertlocust-crc.org/>

Dear colleagues

As you can see through the simple review of the Commission's activities during the past two years, the achievements are a result of a real partnership and close cooperation between the governments of member countries and member countries on one hand and the Commission on the other. I have hopes that this progress will continue for several years to come in the effort of minimizing Desert Locust threat in the region.

Finally, I would like to point out that these activities required lots of efforts, perseverance and hard work. All these activities will be reviewed in details through the reports that will be presented by the Secretariat of the Commission during the meeting.

In conclusion, I would like to thank the Secretariat of the Commission, headed by the Executive Secretary, administrative and technical staff of the Commission for the outstanding and great work it has undertaken in the last period which have been of great help to me in facilitating my work as the Chairman of the Commission in the last two years. Our thanks are extended to Ms. Monard and her colleagues at the Desert Locust and Migratory pests group in Rome, the Desert Locust Control Commissions, organizations and all the member countries for their cooperation in facilitating the activities of the Commission and overcoming all obstacles.

Wishing the Commission continued success and progress.

Chairman of the Commission

17 February 2019

Appendix 3: Desert Locust situation

Desert Locust situation (February 2017 – February 2019)

The Desert Locust situation remained calm in the Central Region from February 2017 until an outbreak developed in December 2018. Three important cyclones occurred in 2018.

During **February 2017**, intensive aerial and ground control operations (4,243 ha) reduced infestations along the Red Sea coast of Saudi Arabia and locusts declined on the coast of Sudan as vegetation dried out. Low numbers of solitary adults persisted in the winter breeding areas along parts of the coast of southeast Egypt, Sudan and Yemen in March. No locusts were reported thereafter.

During the **summer of 2017**, scattered solitary adults were seen in the Nile Valley of northern Sudan in June. One generation of breeding occurred in the interior of Sudan but locust numbers remained low. During October, hopper groups were treated (2 ha) in one area on the Red Sea coast of Eritrea, probably as a result of two generations of breeding from unusually good rains that fell on the coast in May and June.

During the **winter of 2017/18**, low numbers of solitary adults appeared in November and remained in winter breeding areas along the Red Sea coast of Sudan until March 2018. Very little breeding occurred due to poor winter rains, which contributed significantly to the continuation of a calm situation in the Region.

During the **spring of 2018**, only isolated adults were seen at times in a few places on the southern coast of Yemen. In May, two unusually powerful tropical cyclones formed in the southern Arabian Sea during the second half of the month. Cyclone Sagar (16 – 21 May) was the strongest cyclone to ever make landfall in northwest Somalia after traversing the entire Gulf of Aden, bringing heavy rains and floods to Socotra, the coast of southern Yemen, Djibouti and northern Somalia as well as adjacent areas of eastern Ethiopia. Cyclone Mekunu (22–31 May) was the most intense cyclone on record to make landfall on the Arabian Peninsula, bringing three years of rain to Salalah, Oman and heavy showers fell in interior and adjacent areas of eastern Yemen and the Empty Quarter of Saudi Arabia.

During the **summer of 2018**, low numbers of solitary adults were seen in the Nile Valley of Sudan and in summer breeding areas of the interior in July. Good rains that fell further north than usual in these areas during July and August probably allowed small-scale breeding to occur over a vast area, yet ground teams did not detect any signs of this breeding during the summer. In October, low numbers of solitary adults began moving from the interior of Sudan towards the Red Sea coast. Small-scale breeding was detected along the western side of the Red Sea Hills. In Eritrea, scattered adults were present along parts of the central and northern coastal plains. In Oman, scattered late instar solitary hoppers were seen on the edge of the Empty Quarter near the Yemen border where a previous generation of breeding is thought to have taken place shortly after Cyclone Mekunu. Heavy rains fell in these same areas from Cyclone Luban (12–16 October). During November, adults and a few small groups moved from the summer breeding area in eastern Sudan to the Red Sea coastal plains and northeastern subcoastal areas and laid eggs where good rains had fallen in August and October. Isolated adults also appeared in southeast Egypt. In Eritrea, small-scale breeding was already underway on the coast and locust numbers were increasing. In Saudi Arabia, low numbers of adults were present in a few places on the north and central coast.

In **December**, an outbreak developed on the Red Sea coastal plains near the Sudan/Eritrea border as a result of favourable ecological conditions and extensive breeding that had commenced in mid-October but was not fully detected until widespread hatching occurred, groups of hoppers and adults began forming, and adult groups moved back and forth across the border. By the end of the month, several mature swarms formed, laid eggs and second-generation hatching had started. Ground control operations were mounted in Eritrea and Sudan, treating nearly 8 500 ha. Small-scale breeding occurred on the southeast coastal plains of Egypt and near Mecca in Saudi Arabia. Breeding increased in the Empty Quarter near the border of Saudi Arabia, Oman and Yemen where lakes had formed in between the dunes from the October rains of Cyclone Luban, and hopper groups were seen in Oman.

In **January**, a few swarms moved north along the Sudanese coast to southeast Egypt, some moved across the Red Sea to the northern coast of Saudi Arabia while others remained in situ and bred. Second-generation breeding increased on the coast of Sudan and Eritrea where hopper and adult groups, bands and swarms formed. As a result of 2–3 generations of mostly undetected breeding, immature swarms formed and moved from the southeastern Empty Quarter to farms along the western and northern edge in the interior of Saudi Arabia, to the coast of UAE and across the Persian Gulf to southern Iran. Breeding by adult groups continued on the edge of the Empty Quarter in eastern Yemen. Aerial control operations were launched in Sudan and Saudi Arabia in addition to ground control in both countries, Eritrea and Egypt, treating 55 000 ha.

During the first half of February, adult groups and a few swarms continued to lay on the Red Sea coast in Sudan and control operations were in progress against an increasing number of hopper bands and adult groups, and a few swarms. In Eritrea, vegetation started to dry out on the coast where ground operations continued against hopper and adult groups. In Saudi Arabia, there was an increase of breeding by adult groups and a few swarms on the central and northern coastal plains and breeding commenced in the interior of Saudi Arabia where adult groups were seen laying between Salim and Gassim. These locusts are most likely remnants from breeding in the Empty Quarter. Control operations in Eritrea, Sudan and Saudi Arabia treated more than 22 000 ha on 1–10 February.

Control operations

	EGY	ERI	SAU	SUD	TOTAL
Feb 2017	0	0	4,243	85	4,328
Dec 2018	0	7,235	0	1,247	8,482
Jan 2019	1,660	7,795	12,215	34,028	55,698
Feb 2019 (1–10)		4,215	3,690	14,580	22,485
TOTAL (ha)	1,660	19,245	20,148	49,940	90,993

Forecast to summer 2019

During February, second-generation hatching and the formation of hopper groups and bands will continue on the Red Sea coast of Sudan and, to a lesser extent, Eritrea. Immature adult groups and swarms will form but they are unlikely to remain on the coast and mature unless additional rains fall in February and March. Instead, as conditions dry out, they are likely to move north along the coast prior to moving inland towards the Nile Valley in northern Sudan and across the Red Sea to Saudi Arabia. As a result, the situation should improve on the coast from March onwards due to control operations, drying vegetation and emigration.

On the other hand, there is a risk that the situation could deteriorate further in Saudi Arabia with additional hatching and the formation of hopper groups and bands on the Red Sea coast during February and in the spring breeding areas of the interior from February onwards. This could be supplemented by swarms arriving from the western side of the Red Sea. As vegetation dries out on the coast, any adult groups or swarms that form will move into the spring breeding areas of the interior where breeding is likely until about May or June, depending on the timing and extent of rainfall.

Spring breeding may also occur in the interior of Yemen by adults produced from earlier breeding in the Empty Quarter. The scale, timing and extent of the breeding depends on rainfall.

From late May onwards, any swarms that form in the interior of Saudi Arabia which are not successfully detected or controlled are likely to mainly move west across the Red Sea to the summer breeding areas in the interior of Sudan while some could move east towards the Indo-Pakistan summer breeding area. Early arrivals in Sudan are likely to appear in the Nile Valley while some could perhaps continue moving towards West Africa.

National reporting

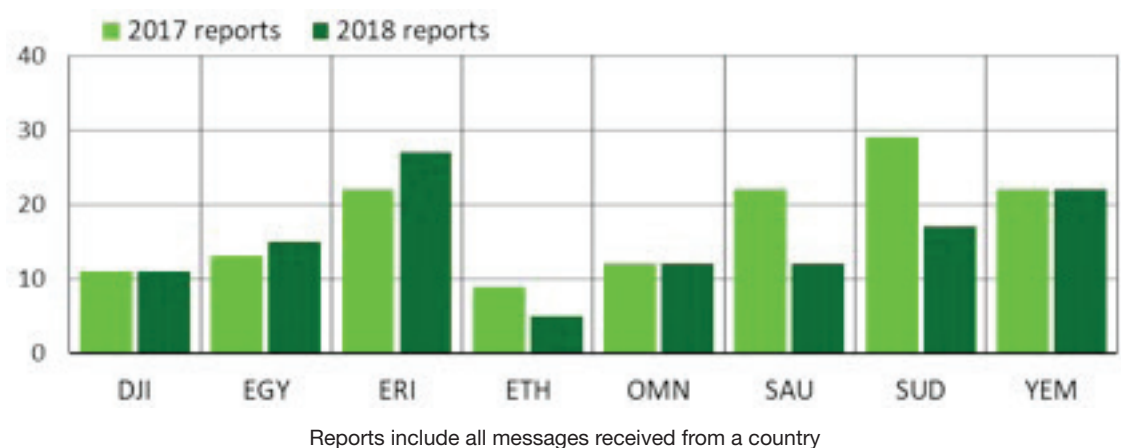
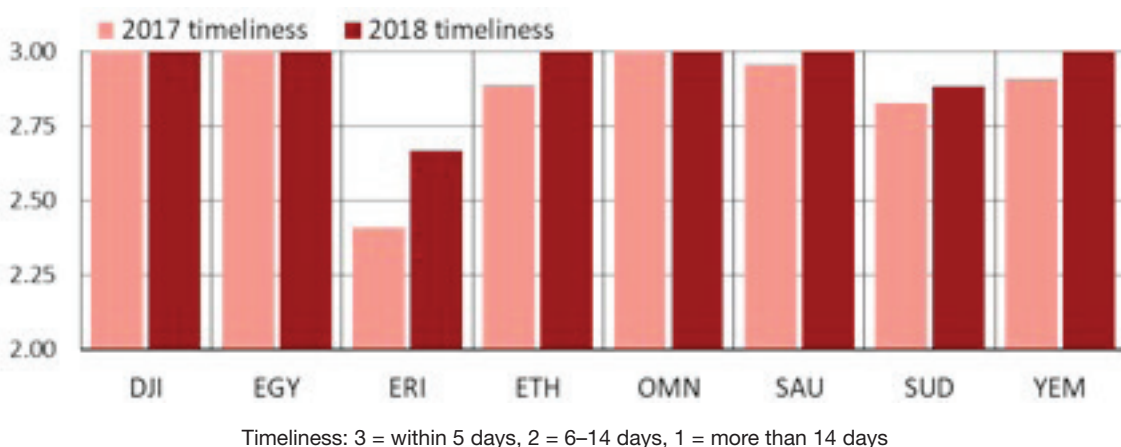
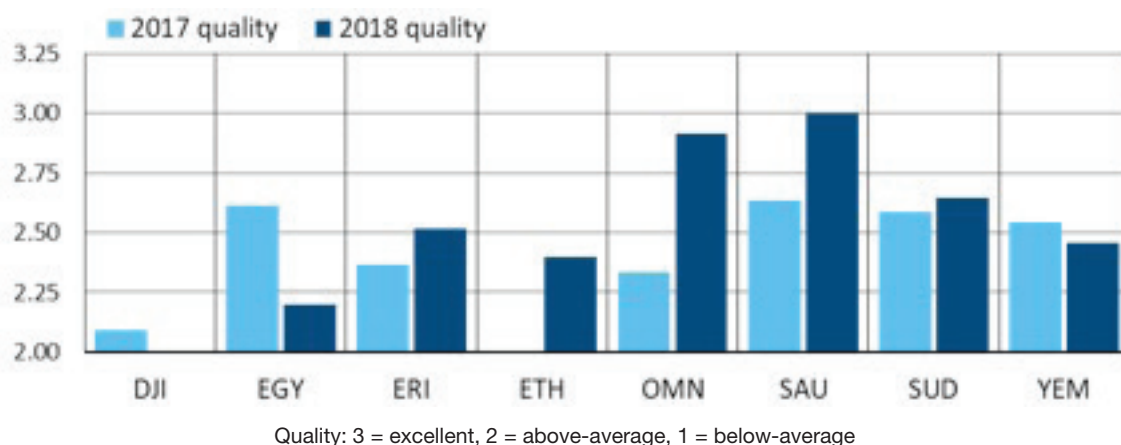
In general, the quality, timeliness and frequency of Desert Locust reporting to the FAO Desert Locust Information Service (DLIS) and the CRC improved in 2018 and remains satisfactory in nearly all countries. Saudi Arabia, followed by Sudan, made consistently good use of eLocust3 and RAMSES (Rv4.1). Nearly 12 500 survey and control locations were received in 2017–2018.

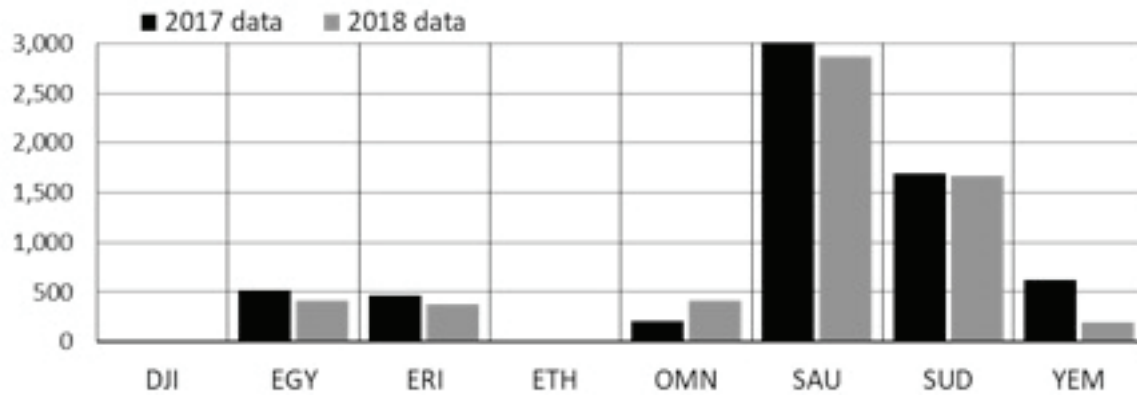
At times, good monitoring and reporting are hampered by not always using eLocust3, irregular and weak internet connectivity (Sudan), no internet services except at the FAO Office (Eritrea), and persistent insecurity and a lack of regular funds (Yemen).

The annual Desert Locust Information Officer (DLIO) workshops continue to remain critical in maintaining a high and professional capacity for using early warning tools and products (eLocust3, Rv4.1), remote sensing), managing and analysing data, preparing accurate national locust bulletins, and reporting regularly to DLIS. They are an opportunity to provide updated and refresher training and to exchange experiences and new ideas. Future workshops should concentrate on improved analysis and forecasting of locust situations. DLIOs also maintain contact with each other through monthly Zoom calls organized by DLIS and with the Slack collaboration hub.

Several steps can be taken to improve Desert Locust reporting and the exchange of information between countries and DLIS:

- Rv4.1 data should match the bulletin contents
- Include rainfall and greenness maps in bulletins when appropriate
- Bulletin maps should contain a caption that explains what the map is showing
- Control totals in Rv4.1, reports and bulletins should match
- Reliable internet connectivity is required in every DLIO office
- Rv4.1 data should be sent every 3–4 days during outbreaks
- eLocust3 should be used by every survey and control team





Rv4.1 data records (locations) from eLocust3 and manual data entry

Appendix 4a: National capacity building

Regional activities 2018

Activity	Country and Trainees numbers	Aims	Date and host country
Regional training course on the organization and preparation of Desert Locust campaigns	Bahrain, Iraq, Jordan, Kuwait, Lebanon, Qatar, Sudan, Syria and UAE. 21 participants	Preparing national capacities in the field of Desert Locust control campaigns	4 - 11 February 2018 Port Sudan, Sudan
Desert Locust Information Officers workshop	Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Sudan and Yemen. From SWAC (India, Iran and Pakistan) 17 Locust Information officers	National capacity building for Desert Locust breeding countries in forecasting and early warning (eLocust & RAMSES programme)	15 - 19 July, 2018 Cairo, Egypt
Desert Locust Contingency Planning workshop	Djibouti, Egypt, Eritrea, Iraq, Jordan, Lebanon, Oman, Saudi Arabia, Sudan, Syria and Yemen. Absence of: (Ethiopia / Bahrain / Kuwait / Qatar / UAE) 19 DL managers	National locust managers learn how to develop meaningful and realistic contingency plans that can effectively deal with locust emergencies	30 September - 4 October, 2018 Hurghada, Egypt
Regional workshop on the Use of Bio-pesticides in Desert Locust Control Operations; <i>Metarhizium acridum</i> (Green Muscle®)	Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Sudan and Yemen 12 DL officers	Encouraging countries to use Bio-pesticides in Desert Locust control operations. Establish specialized national control teams that can use Bio-pesticides correctly and effectively.	7 - 11 October 2018 Hurghada, Egypt

National activities 2018

Activity	Country and Trainees numbers	Aims	Date and host country
Train of trainees (ToT) in Desert Locust Survey and Control Operations	Jeddah, Saudi Arabia 15 participants	Strengthen the control capacity of member countries and build up self-reliant and sustainable national training structures	21 - 29 January 2018
Environment and Health Standard training course	Muscat, Oman 17 trainees	Train of trainers on the application of environmental health and safety standards in Desert Locust operations	28 January - 1 February 2018
Desert Locust Sprayers maintenance workshop	Manamah, Bahrain 16 participants	Strengthen the technicians' capacity on the operation and maintenance of ULV sprayers used in locust control operations	23 - 26 April 2018
Survey and Control Operations training course	Aqaba, Jordan, 21 DL officers	Build national capacity in Desert Locust Control operations	11 -15 November 2018
Desert Locust ULV Sprayers maintenance workshop	Aqaba, Jordan 10 participants	Strengthen the technicians' capacity on the operation and maintenance of ULV sprayers used in locust control operations	11 -15 November 2018

Regional activities 2017

Activity	Country and Trainees numbers	Aims	Date and host country
Pesticides Stock Management System (PSMS) workshop in cooperation with the Commission for Controlling the Desert Locust in the Western Region (CLCPRO)	Morocco, Libya, Mali, Chad, Senegal, Burkina Faso, Niger, Mauritania, Egypt, Oman, Eritrea and Ethiopia 17 participants	Allow member countries manage their pesticides stocks more effectively. Record inventories of obsolete, usable pesticides and other materials contaminated with pesticides.	27 - 31 March 2017 Agadir, Morocco.
Desert Locust Information officers workshop	Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Sudan and Yemen. From SWAC (India, Iran and Pakistan) 17 Locust Information officers	Strengthen national and regional early warning systems. Train on the latest operational software, mobile devices (eLocust3) and analysis of related maps (RAMSES programme)	7 - 11 May, 2017 Cairo, Egypt.
Regional Aerial training course, in cooperation with the Desert Locust Control Organization for Eastern Africa (DLCO-EA)	Egypt, Eritrea, Ethiopia, Iraq, Jordan, Oman, Saudi Arabia, Sudan and Yemen. 12 participants	Strengthen national capacities of affected countries. Train on aerial survey and control techniques and the use of differential positioning system (DGPS)	17 - 21 July 2017 Moshi, Tanzania.

National activities 2017

Activity	Country and Trainees numbers	Aims	Date and host country
Desert Locust Survey and Control operations training course	Djibouti For 12 trainees	Building national capacity on Desert Locust survey and control operations	15 - 19 January 2017
Desert Locust Control operations training course	Egypt 60 workers and drivers, 20 trainees in three groups for three days in three locations: Ismailia, Qena and Aswan.	Building national capacity on Desert Locust control operations	24 September - 1 October 2017
Training course on Desert Locust survey and control and environmental health and safety standards	Ismailia, Egypt 16 trainees	Building national capacity on Desert Locust survey & control operations and environmental and health standards	22 - 29 October 2017
Training course for Information Officers in Eritrea	Asmara, Eritrea 5 trainees	Building national capacity on managing and analyzing Desert Locust and environmental data (RAMSES & eLocust3)	13 - 17 November 2017

National activities 2017

Activity	Country and Trainees numbers	Aims	Date and host country
Training course on Desert Locust Information Service (Rome)	2 trainees from Saudi Arabia 6 months each	Strengthen the capacities of nationally designated locust information officers that work in the National Locust Units (NLUs) in affected countries.	1) 8 November 2016 - 7 May 2017 2) 2 May - 1 November 2017
	One information officer from Ethiopia		17 September 2018 - 16 August 2019

Appendix 4c: Research 2017/2018

1. Mr Mahgoub Boshara Moussa started his PhD studies at the University of Khartoum in 2017 with a partial fellowship from the Commission approved during the 30th Session of the Commission in February 2017, Sultanate of Oman. The title of the research project is: Effective use of historical surveys information and take advantage of modern technology to strengthen further the efforts to improve the Desert Locust detection.

The research project aims to improve Desert Locust monitoring protocols using Sudan existing survey information and remote sensing techniques.

The following tasks were completed during two seasons (2017-2018) winter and summer breeding:

- Analysis of archived survey information using ArcGIS for displaying the monthly maps of the behaviour of different stages of Desert Locust (isolated, scatter, group, swarm and hoppers bands) during breeding and recession periods. The monthly maps strengthened the monitoring techniques during recession and breeding seasons, thus increasing the chances of locating the Desert Locust.
 - Fieldwork: the comparative study was carried out among different techniques of sampling (selection of survey sites) with regards to their efficacy in detecting the infested area and population density. Also, various methods of foot surveys (length, the path of walking, number of survey officers) in different habitats with different types of DL populations (scattered, groups, bands, swarms) at different times of the year to determine the total number of DL at a survey site for each method were compared.
2. A new field research started recently to test new insecticide for controlling Desert Locust and follow up the side effect on environmental safety, soil and plants. Mr Emad Kameel is carrying out this research in collaboration with the Locust and Grasshoppers Research Centre in Egypt. The study aims to use new pesticides (Spinosad) as a biochemist of chemical compounds found in the Saccharopolyspora Spinosa, bacterial species for controlling Desert Locust compared to conventional phosphorus pesticides, most commonly used in control operations.
 3. **Research study by Mr. Ismail Taj entitled Desert Locust (DL): Is locust a pest or a crop?**
An economic study aimed to breed Desert locust for food use. This study began in mid-2016 with partial support from the Commission.

Locust was bred in special cages “breeding flocks”. After two generations, the colony was infected by Beauveria fungus which delayed the study until the middle of 2017, with the aim to collect a new generation. But due to the DL calm situation in Sudan in 2017-2018 there was delay in collecting the new generation of locust for breeding.

In July 2018, the locust colony was large enough to take samples for food experiment to analyze the composition of the experimental diets, to determine their content of nutrients, amino acids using HPLC, fatty acids using GCMS and mineral salts using Atomic Absorption Spectroscopy.

The results of the comparative analysis were obtained, but the effects of fatty acids, amino acids and mineral salts were delayed due to equipment failure. On 06/12/2018 a sample was sent to be analyzed in Egypt and currently awaiting the results to complete the rest of the experiments.





Appendix 5: Follow up of the recommendations of 30th Session

No.	Recommendation item	liability	Comments
1	The delegate of Djibouti is to follow up with his government on the payment of its contribution to the Commission.	Djibouti	Implemented
2	Collaboration between the Commissions and Organizations: CRC, CLCPRO, SWAC and DLCO-EA in Desert Locust Management is to continue.	Commission	Implemented
3	Participation in the Pesticides Storage Management System PSMS, held in Morocco, with member countries nominating the appropriate staff to participate.	Commission	Implemented
4	The Secretary of the Commission is to re-address the concerned authorities (Agricultural Departments) at the Secretariat General of the Gulf Cooperation Council (GCC) to participate in a meeting organized by the Secretary of the Agricultural Departments of GCC to enlighten and clarify the important role played by the Commission in food security and to identify fields of cooperation.	Commission	Partial (postponement)
5	Delegates of Member countries are to follow up with the Desert Locust Information Officers to send their contact details and available resources in their monthly bulletin.	Front line member countries; Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Sudan, Yemen	Implemented
6	DLIS is requested to send periodical reports to Member Countries on their Desert Locust reporting quality.	DLIS	Implemented
7	Bahrain: the Commission is to support the organization of a national training course on Desert Locust survey and control operations and on the repair and maintenance of spray equipment in Bahrain.	Bahrain	Implemented
8	Iraq: the Secretary of the Commission is to visit Iraq to meet senior officials of the Ministry of Agriculture and other key stakeholders in support of collaboration between the Ministry and the commission and for organizing a national training course on Desert Locust survey and control operations, if possible.	Iraq/CRC	Partial (Circumstances did not permit the implementation of the recommendation)
9	Jordan: the Commission is to support the organization of a national workshop on the operation and maintenance of DL spray equipment.	Jordan/CRC	Implemented
10	Kuwait: the Commission is to support the organization of a national training course on Desert Locust Survey and control operations.	Kuwait/ CRC	Not implemented
11	Lebanon: the Commission is to support the organization of a national training course on Desert Locust Survey and control operations.	Lebanon	Partial (Requested postponement)
12	Oman: the Commission is to support the organization of a national training course on Environment and Health Standards (EHS).	Oman/CRC	Implemented
13	Qatar: the Commission is to support the organization of a training course on DL survey and control operations and a workshop on the operation and maintenance of sprayers used in DL control operations.	Qatar	Partial (Requested postponement)

14	Saudi Arabia: the commission is to support the organization of a national train of trainers (ToT) training course in DL survey and control.	Saudi Arabia	Implemented
15	Sudan: the commission is to: a. Support the organization of a national train of trainers (ToT) training course. b. Support the rehabilitation and maintenance the Desert Locust camps in the Red Sea for the sum of USD 15,000 (Fifteen thousand USD). c. Support the PhD research study of Mr. Mahgoub Musa Bishara titled: “Effective use of historic surveys information and taking advantage of modern technology to strengthen further the efforts to improve Desert Locust detection.”	Sudan/ CRC	Partial PhD study Implemented
16	Syria: the Commission is to support with the following: a. The provision of 10 AU8000 backpack sprayers for the Desert Locust Unit, b. The organization of a national training course on DL survey and control operations, situation permitting, c. The Secretary of the Commission is to visit Syria, situation permitting, to assist in drafting a proposal for the rehabilitation of the Desert Locust unit through donors.	Syria/ CRC	Partial Procured AU8000 but not yet delivered
17	The meeting approved the request presented by the Faculty of Agriculture at the Sudan University of Science and Technology to provide them with the sum of USD 5 000 00 (Five thousand USD) to procure equipment used in the Desert Locust course.	CRC	Implemented (Procured all items and delivered)
18	The Commission is to organize a simulation of DL contingency planning in Egypt in 2018, for frontline countries.	CRC	Implemented
19	The Commission is to provide frontline member countries with additional blood testing kit “Test Mate” and ACHE Assay Kit.	CRC	Implemented
20	Frontline countries should regularly provide the Secretariat of the Commission with information on DL staff blood testing results.	Front line member countries	Not implemented (No DL outbreak)
21	Frontline countries are to provide a work plan on the implementation of the Environment and Health Standards as per national priorities and implementation facilities (technically and financially) according to the recommendations of the third regional workshop held in Egypt in September 2016.	Front line member countries	Not implemented
22	The Commission is to organize a regional workshop on the use of <i>Metarhizium acridum</i> (Green Muscle®) in Desert Locust control operations, date and venue to be identified.	CRC	Implemented
23	The Commission is to encourage member countries to register the <i>Metarhizium acridum</i> (Green Muscle®) as a bio-pesticide for Desert Locust control, taking note of results already attained from previous experiments in the field of Desert Locust in FAO	CRC	Partial
24	The Commission is to organize a regional workshop to assess the progress made in the implementation of the Environment and Health standards (EHS) in 2018.	CRC	The recommendation has not been implemented because countries did not submit a plan of action as recommended in R21

25	The Commission is to organize a regional training course on Aerial spraying for Desert Locust control in cooperation with the Desert Locust Control Organization for Eastern Africa.	CRC	Implemented
26	The member countries endorsed the amendments to the establishment agreement of the Commission.	CRC	Implemented
27	The member countries endorsed the expenditure reports for 2015 and 2016.		No action required
28	The Session delegates agreed that delegates of member countries who are in arrears should follow up with their governments on its payment to the Trust Fund of the Commission.	Member countries	Partial
29	The Chairman, the Chairman of the Executive Committee and the Secretary of the Commission are to visit UAE and Saudi Arabia to explain the reasons and provide clarification on the procedures followed by FAO regarding the doubling of the member countries' contributions to the Trust Fund of the Commission.	CRC	Implemented
30	The work plan for 2017-2018 was endorsed by the member countries.		No action required
31	The Secretary of the Commission is authorized, in consultation with the Chairman, to cover the cost of implementing any activities that are not reflected in the Commission's 2017-2018 workplan.	CRC	Implemented
32	The member countries unanimously endorsed the provision of the Budget Holder responsibilities to the Secretary of the Commission for the Trust Fund of the Commission subject to the rules and regulation of FAO.	CRC and FAO	Implemented but a final decision has not been taken by FAO HQ yet

Key:

	Not implemented
	Partial Implemented
	Implemented
	Does not require action

Appendix 6: New technologies (use of drones in Desert Locust survey)

Executive summary:

Introduction

FAO and Desert Locusts Commissions support the use of drones (unmanned aerial vehicles, UAVs) to monitor Desert Locusts in the context of the early warning system and the implementation of the preventive control strategy. The use of drones can be a potential means to improve the efficiency, effectiveness and safety of Desert Locust survey and control operations.

Definition

An unmanned aerial vehicle or drone is an aircraft without a human pilot aboard. Often carry equipment to perform its functions as sensors, cameras, surveillance and others to perform assigned tasks.

Actions taken so far

First: FAO issued a Request for Expression of Interest to participate in field testing (Mauritania, March 2018) to which only two replies were received, HEMAV Foundation and another company (which later withdrew).

Second: HEMAV started work with FAO team in the project to integrate UAV technology in various stages for survey and monitor Desert Locust. The project led by a joint team of the HEMAV Foundation as well as the Desert Locust Commission in the Western Region (CLCPRO), the Desert Locust Commission in the Central Region (CRC) and DLIS.

First field-testing

In March 2018, from 4-9 the first field-testing of drones in a Desert Locust habitat in a Locust- affected country was carried out in Mauritania. Which is an important step in turning a concept into reality.

Main activities

1. The field tests occurred in a traditional Desert Locust breeding habitat (Bennichab, Inchiri) 200 km northeast of Nouakchott.
2. The endurance, range, power, robustness, multispectral and visible sensors, data processing, itinerary planning, communication, operation (launching, flying and landing) were tested;
3. The drone tests were accompanied by simultaneous low-altitude aerial photography by a Mauritanian Air Force Cessna aircraft.

Outcomes

1. The significant potential for fixed-wing and rotary drones to improve the efficacy, efficiency and safety of Desert Locust survey and control operations was reaffirmed,
2. HEMAV Foundation is the most suitable partner to develop appropriate, high quality, customized equipment for survey and control operations in locust affected countries based on the drones they have developed so far and their unwavering commitment, multidisciplinary expertise, and ability to customize and harness cutting-edge innovation in a sustainable manner;
3. Further investigation, development and testing are required before this technology can be used operationally and reliably in locust-affected countries, taking into consideration that specific improvements are required concerning power, sensors, data processing, robustness and simplicity.
4. Organise a second field test in the central region when there is green vegetation to test the new modifications, development of drones to suit its ability to work in desert conditions.

Second field-testing

The field tests occurred in a traditional Desert Locust breeding habitat (Wahiba Sands near Badiyah) 200 km southeast of Muscat from 20-24 January 2019.

Main activities

Nine fixed-wing flights were undertaken to verify all components:

1. Map vegetation types to tune software,
 2. try different survey patterns in dune and flat areas at different heights,
 3. test endurance and autonomy of batteries,
 4. the continuous communication between the operator and the drone,
 5. inspect areas of difficult access and the quality of communications beyond line-of-sight,
 6. evaluate the accuracy and precision of landing, and test long range survey in an area of difficult access;
- Seven rotary drone flights were undertaken to check inaccessible areas (sand dunes) for vegetation in a 2 km radius.

Outcomes

1. New developments in hardware, software and procedures since the March 2018 trial were validated, including robustness (a new folding propeller design, a bungie launching system, protection of aeronautical parts from sand), ease of use and communications (new flight planner software, improved automated safety protocols, telemetry adjustments) and data processing (NDVI algorithm, on-board computer);
2. The fixed-wing drone range increased from 32 km (Mauritania) to 42 km (Oman);
3. Longest flight increased from 75 km (Mauritania) to 86 km (Oman);
4. Area coverage increased from 1,600 ha (Mauritania) to 3,500 ha (Oman);
5. The use of a quad-rotary drone was more efficient and easier than the hex- rotary drone previously tested during the first field trial in Mauritania;
6. Greater knowledge and experience were obtained in using drones during real field operations, and several short- and long-range operational scenarios in different vegetation conditions were developed;
7. The need for further development and testing was confirmed, with special emphasis on ease of use, data processing and eLocust3/drone software.

Future workplan 2019-2020

1. Develop planning software for eLocust3, on-board data processing and online training and simulation course using current resources in 2019;
2. Organize a third field test in a Desert Locust habitat containing annual green vegetation in September 2019;
3. Include training of designated Master Trainers in pilot countries in a third field test;
4. Undertake two parallel lines of development to produce a first version of a rotary (end of 2019) and fixed-wing (2020) drone;
5. FAO and Desert Locust Commissions to prepare a multimedia information package for advocacy and educating locust- affected countries by mid-2019.

Discussion

Provide the Commission technical and financial support to the project to continue current development efforts by HEMAV Foundation while awaiting donor funds.

Appendix 7: Master of Science Programme in Desert Locust

Introduction

In the framework of the intense activity and hard work undertaken by the Commission for Controlling the Desert Locust in the Central Region (CRC), in order to improve the performance and efficiency of locust operations; and in light of the efforts of the Secretariat of the Commission and its advisers: Dr Munir Butrous (former Secretary of the Commission) and Engineer Rabie Khalil and through the numerous encounters with specialists at the Sudan University of Science and Technology, the University Council approved the creation of a Master Degree Study on Desert Locust science under the title of: **Master of Science Programme in Desert Locust Management by Courses and Supplementary Search.**

This is also based on scientific and practical experience available at the Sudan University of Science and Technology that already took the responsibility of teaching the Desert Locust science to students in the final year at the College of Agricultural Studies, several years ago. In addition to the availability of academic staff, university specialists and equipment ready for convening and ensuring the success of the study. Given the availability of the latter, the University was chosen to organise the **Master of Science Programme in Desert Locust Management** and award the degree titled: **Master of Science in Desert Locust Management.** The University Council has agreed graciously to cooperate with the Commission in organising this program.

The Program Justifications:

Desert Locust swarms threatened large areas extending from West Africa to South-East Asia, resulting in severe loss of crops and pastures in some 60 countries in this region. As the central region location is one of the main breeding and spread areas of Desert Locust, especially those adjacent to the Red Sea plains and the Horn of Africa, have suffered long-term damage from Desert Locust.

Despite all periodic damages to crops, no postgraduate programs in Desert Locust Control and Management Systems were implemented in any of the universities in the region. Therefore, there is an urgent need in the countries of the region, as well as for organizations working in the field of Desert Locust control to have trained specialists and technicians in the control systems and Desert Locust management.

Sudan was considered to be the appropriate place to establish such a study. As Sudan hosts one of the most important areas for Desert Locust breeding in the recession area that stretches from West Africa to India. It is one of two frontline countries that contains two seasonal breeding areas – the winter breeding area along the Red Sea coastal plains from the Egyptian border in the north to the Eritrean border in the south (Red Sea State), and the vast summer breeding area in the interior extending from Chad border in the west to the Eritrean border in the east (North Darfur, North Kordofan, White Nile, Khartoum, Northern, River Nile and Kassala states). A large portion of the summer breeding areas is insecure (Darfur and western Kordofan). The potential area for Desert Locust breeding in Sudan is huge, estimated at 845 000 km.

The Program Objectives:

1. Qualifying specialists in all areas of Desert Locust management.
2. Developing students' capacities and skills to provide advice and guidance in every aspect of Desert Locust biology, management and its environment.
3. Students to acquire modern methods and technologies developed in the control of Desert Locust.
4. Developing the concept of Desert Locust control management programmes and their implementation and a commitment to ethical, behavioural and practical values.
5. Application of the health and environmental standards in Desert Locust control operations.
6. Benefiting from modern techniques in geographic information systems and remote sensing in locust information management.

The Program Outputs:

Upon completion of this program successfully, the student will be able to:

1. Study the problems and dangers of the Desert Locust.
2. Plan appropriate solutions to Desert Locust problems and put forward the necessary recommendations.
3. Apply modern techniques, using modern hardware and software to predict and monitor Desert Locust movement.
4. Develop knowledge and acquire modern skills in Desert Locust management.

5. Work within the Desert Locust control management system in his/her country.
6. Undertake applied research and experiments to estimate the level of infestation in the field of Desert Locust control.
7. Prepare and present seminars and scientific reports in all aspects of Desert Locust management.
8. Work according to the ethics of scientific research.

Duration of study and teaching language:

1. Teaching duration: 36 hours for each subject divided into 15 hours for the first semester and 15 hours for the second semester, in addition to 6 hours supplementary research.
2. The language of instruction is English.

Presentation and Evaluation of Courses:

1. Lectures
2. Practical lectures
3. Seminars
4. Scientific reports
5. Examinations
6. Scientific visits
7. Final examinations

Admission requirements:

1. The applicants must satisfy the general admission requirements of the postgraduate college at Sudan University for Science and Technology for the master program with courses and supplementary search.
2. The applicants must hold a Bachelor's Degree (honors) in Agricultural Science (Plant Protection) from Sudan University of Science and Technology or its equivalence from other universities.
3. Or have a Bachelor's Degree in Agricultural Science or Science (Plant Protection specialty, Diseases, Pesticides, Botany or General study) and have three years of experience in the area of Desert Locust or have a postgraduate diploma in Desert Locust.
4. The applicants must obtain an English Language Test IELTS certified and documented at an average of at least 5.5.

Costs of Study and Number of Students:

Following the discussions with the Dean College of Agricultural Studies and Dean of Postgraduate College on all the points and questions raised by the Commission, the decision was made as per the following:

1. Annual tuition fees for students in the program:

Annual tuition fees of overseas students at the University of Sudan are USD 4,000 (four thousand US Dollars) +USD 500 registration fees. The Commission partially supports four Sudanese students at the cost of USD2 000 each (for the biennium), covering the cost of their research and registration. Details are shown on the below two tables:

Cost	Monthly	Total first year	Total second year	Grand total
Course and registration Fees	-	4,500	-	4,500
Monthly stipend	1,000	9,000	9,000	18,000
Tickets		500	500	1,000
Other allowances		250	250	500
Unforeseen costs		500	500	1000
Grand total				25 000

Thus the total cost of 6 scholarships for two academic years (graduation and award of Master Degree) is as follows:

Annual cost of one student	12 500 USD
Annual cost of six students	75 000 USD
Biannual cost of six students	150 000 USD

2. Minimum number of students in the program:

The minimum admission is 10 students (including 6 overseas students); and the University administration can complete the number to 15 students according to the graduate admissions system.

3. Equipment required for the study program:

Some equipment exists at the University at the Plant Protection Department in the College, and due to the study specialty and the need for additional specialized equipment, it was suggested that the Commission supports the University with the following equipment:

- Establish an integrated typical laboratory equipped with the necessary equipment for the study of Desert Locust to undertake locust breeding in addition to survey and control operations.
- New and modern references and publications in the locust field (Annex 1. References and Equipment Required).

Conclusion:

The Secretariat of the Commission requests the member countries to study the proposal carefully, bearing in mind that the benefit of this study does not only reflect back to member countries in the Central Region but beyond, as per the experience gained from studying the Post Graduate Diploma in Desert Locust Management at the University of Khartoum for a number of years. Your endorsement to this proposal benefits, first and foremost, all staff members working in the field of Desert Locust Management in our countries in the Central Region.

Annex 1.

a. Equipment to be supported by the Commission

Survey, Control and Monitoring equipment		
Type of Equipment	QTY	Remarks
GPS	10	
Compass	10	
Hygrometer	10	
Tachometer	10	
Hand tally Counter	10	
Stop watch	10	
Dissecting sets	10	
Hand Lenses (Large size)	10	
Anemometer	10	
Vernier Caliper	5	
Binocular	5	
eLocust3	2	
Technical Equipment		
Data Show and Screen	2	
Digital Camera	2	
Lap top	2	
Laser printer (Black and White)	2	
Teaching Materials and Scientific Publications		
Desert Locust Guidelines Sets English	5	(Volumes 1 – 7)
Desert Locust Guidelines Sets Arabic	5	(Volumes 1 – 7)
CRC 50 Years Book of Service English	10	
CRC 50 Years Book of Service Arabic	10	
Desert Locust Glossary	10	
SOPs	20	From each
Video Tapes & CDs on Desert Locust	2	From each
Control Equipment		
Hand Held ULVA Plus sprayers	10	With various nozzles
Motorized Back Pack for ULV Pesticides	2	
Vehicle-mounted Sprayer UL-VAMAST	2	With Rotary Cages
Vehicle-mounted Sprayer Micron	2	With air Blower
Oil Sensitive Paper	10	Packs
Water Sensitive Paper	10	Packs
Personal Protection Equipment (Protective Clothing)	10	Sets non-disposable
First-Aid Kits	5	

b. Equipment to be purchased from the local market:

Type of Equipment	QTY	Remarks
Facilities for Rearing Room	1	Include: cages, planting of DL food, etc
Measuring cylinders	5	From each of 1L, 500ml, 200ml & 100ml
Tape Measure 100 meter	2	
Sweeping Net	10	
Sample Boxes	10	

Appendix 8: National and regional contingency plans

First: Executive Introduction

Desert Locust is considered to be one of the most dangerous agricultural pests that threatened the welfare and stability of mankind throughout history, and remains a cause of concern to more than 60 countries around the world, as well as the severe damage caused by this pest to agricultural production and subsequent economic and social problems.

This pest, characterized with a feature that is not related to a particular climate season or host plant, is often clustered in remote areas with difficult access, then migrates in the form of transboundary swarms among countries, during which it eats up tons of crops and vegetation a day. Eventually, we find that control operations against these swarms do not put an end to its threat but only stops for a while. After a period, short or long depending on climatic and environmental conditions, the pest reappears again, losing a battle but not the war.

The strategy adopted by the countries concerned and affected by Desert Locust is preventive control. This strategy is the only sustainable and recognized by the Food and Agriculture Organization of the United Nations (FAO) and the international community, in general, and was put in application since the 1960s. The strategy aimed at systematic observation of locust breeding areas, locating the areas that it may spread to and immediately intervene by treating limited spots which would-if no treated-lead to the formation of hopper bands and swarms.

The principles of preventive control strategy are based on «data collection» on Desert Locust and its environment, in addition to other information about the national locust control unit and its available resources. These many and complex information require a specific method of «planning» in order to get the maximum benefit from it, which paves the way to «early warning» of any possible developments in the locust situation that can then lead to «early intervention» of locust control using “advanced control techniques”.

FAO and its regional Desert Locust Commissions are working to consolidate the principles of Desert Locust control strategy through various activities for all locust affected countries through the establishment of locust information offices in the national locust control units equipped with state-of-the-art equipment and programs that help to collect, record and analyze information. Providing field teams with innovative technical means of information transfer, and continuously focusing on «National human capacity building» through various training programs and specialized workshops, as well as allowing distinct national staff to obtain specialized graduate studies in Desert Locust management. FAO also issues a monthly Desert Locust bulletin, weather updates and warning alerts on any possible developments in the locust situation to achieve the early warning principle.

Locust affected countries implement early detection procedures by undertaking locust surveys, monitoring and recording environmental and climatic conditions, recording the information and sending them immediately through newly developed techniques specifically for this purpose. In addition to issuing a national monthly bulletin and distributing it to all stakeholders within and outside the country. Control teams undertake the early response to control the detected infections by using ULV pesticides covering vast area with limited amounts of pesticides regulated through drift spraying method and reinforced by specialized control machines as well as the possibility of using Environment-friendly bio-pesticides.

As a result of this mutual interest, several positive indicators emerged, the most obvious of which was the low incidence of epidemics, outbreaks and outbreaks. In the pre-1960 period, it was difficult to determine the number of epidemics and outbreaks due to the severe overlap between them and the small periods of outbreaks and the spread of periods of decline. A good example of this is the 8-year-old locust plague of 1926 and the 1940 pandemic that lasted nearly 20 consecutive years.

As a result of this mutual interest several positive signals emerged, the most obvious one was the low rates of recurrence of plagues, upsurges and outbreaks. Prior to 1960, it was difficult to determine how many plagues and upsurges because of the considerable overlap among them with a few periods of outbreaks. A good example of this was the locust plague in 1926 which lasted for 8 years and the 1940 plague lasted nearly 20 years. Two locust plagues occurred after 1960, separated by 16 years and continued for up to three years, in addition to five upsurges and eight outbreaks with a clear and long period of recession (see Annex 1). That meant that agricultural production in more than 60 countries had been protected from this dangerous pest as a result of applying preventive control strategy against Desert Locust, meaning that the strategy clearly contributes to maintaining food security and reduces hunger among countries threatened by locust.

Second: The Locust Crisis Management

In spite of all this, countries must be vigilant as preventive control does not guarantee that crisis will not occur. It is therefore essential that each country is prepared to deal with a national locust crisis that can develop into a regional or international threat. In addition to being prepared to deal with the arrival of migratory locust swarms from neighbouring countries.

Therefore, all member countries as well as the central region commission, given the above considerations, the experience of past crises, should prepare a plan to manage locust threat. Indeed, locust management is not just a technical or financial issue but also organizational and institutional. The intention is that every country should clearly define the roles and responsibilities of all national authorities involved in controlling Desert Locust. At the same time, regional and international institutions, particularly the Commission and FAO should also clearly define their roles.

Before we define the roles and responsibility of each organization or institution we must indicate the reasons often attributed to the failure of managing locust crisis and dealing with it in an appropriate way through which the control of the locust groups and the prevention of swarm formation at later stages and then the migration to other countries and regions is ensured. These reasons may be summarized as follows:

At the National Level:

1. The lack of a clear action plan or contingency plan managing locust survey and control operations;
2. The limited budget of the usual locust management operations, which require the provision of pesticides, spray equipment maintenance and the replenishment of depleted supplies periodically, especially due to high international prices, in addition to the slow disbursement procedures;
3. The limited budget of locust control operations during crisis, which requires the country to mobilize all available national resources to contain the locust crisis;
4. Insufficiency and efficiency of resources (human and equipment) available to counter any possible developments in the locust situation (such as efficient vehicles, sufficient fuel, pesticides availability, communication means and others);
5. Overlapping/conflicting decisions by policy makers who are not familiar with dealing with crisis;
6. Panic, which may lead to directing resources into the wrong path (resource depletion);
7. Working in an unsafe areas, ecological reserved areas and areas with social reservations (local population refuse control operations);
8. Inability of ensuring that all regions have been surveyed and all infestations were monitored;
9. Acknowledgement of the seriousness of the infestation and issuing a warning in time.

At the Regional Level:

1. Locust breeding countries are not properly prepared to cope with limited development in Desert Locust situation that leads several countries into a real crisis;
2. The lack of a national contingency plan for crisis management;
3. Delayed acknowledgement of the locust crisis by officials, and transfer of unclear information to the relevant authorities;
4. Insufficient regional resources for rapid and direct intervention to support the country/countries at risk;
5. Lack of a regional contingency plan that can be referred to when necessary.

At the international level:

1. Unclear vision by the concerned authorities (the Regional Commissions, the Food and Agriculture Organization and the international donor community) on the actions and measures taken by the country to contain the locust spread, sufficient financial resources provided by the government to the locust unit before, during and after Locust outbreak;
2. Unclear or non-definite information on the risk levels that require support;
3. Delay in donor support;
4. Support is not received at the needed time;
5. International support is not invested in the correct way.

As the nature of Desert Locust crisis necessitates information sharing, responsibilities and funding. In handling the crises correctly there must be three main elements: a responsible authority with sufficient authority and quick access to financial resources to manage the crisis in a more rational and logical way in the short term and thus giving an opportunity for regional intervention in time to support areas affected by Desert Locust.

Accordingly, the Food and Agriculture Organization provided the financial governance system in locust management which was approved by the three Desert Locust Commissions (Central, Eastern and Western). Each Commission proceeded to apply this system with some modifications to suit the locust-affected countries in each region. The funding system approved in the Central Region consists of seven tools (see Annex 2, the financing system of the

locust outbreak) aligned with the four stages of locust infestation (recession, outbreak, upsurge and plague), among them the regional emergency fund. The main feature of the system is the presence of various sources of funding at the national, regional and international levels that complement each other to ensure continued funding for control operations.

Thirdly: the National Contingency Plans

The primary responsibility for financing locust operations during recession and limited outbreaks rests with the national governments. This responsibility applies to all concerned countries, as they should adopt the Desert Locust control plan and implement a preventive control strategy. Therefore, the expected/actual annual budget should include all essential sources of funding to the annual control plans for Desert Locust Control Unit.

Through the national budget, the Desert Locust Unit can finance Desert Locust survey and control operations with the availability of technical capacity and the necessary means to ensure survey and rapid intervention during periods of recessions and limited outbreaks. The budget must be sufficient to cover if Desert Locust situation develops into successive periods of outbreaks, upsurge and plague and boom. This is through getting the required support of additional sources of funding at the national, regional and international levels.

However, there was a great deal of variation in the annual work plans to apply the basics of preventive control strategy in Desert Locust affected countries over the past 60 years, which is expected, because the countries do not deal with the locust problem with equal attention. As a proof to this, in locust frontline countries (breeding countries), governments of some countries have formed independent national locust units allocated with suitable administrative and financial resources, while some others deal with locust within the migratory pest system or through plant protection sections without defined resources or separate staff. This reduces the efficiency of the implementation and sustainability of preventive control strategy.

In spite of this, most locust breeding countries showed significant progress in the implementation of the preventive control strategy and locust outbreaks can now be monitored at an early stage, thus early intervention is possible to deal with limited infestation of Desert Locust before its widespread. But the non-sufficient financial resources allocated to the national locust control unit, in some countries, always presents fear of a development of national and regional locust crisis.

So in order to prepare a regional contingency plan, national contingency plans for locust breeding countries must be complete, as they are the primary reference on which the regional contingency plan is based on.

The National contingency plan should generally include the following:

1. Annual expenditure of Locust management (survey, control, administrative and financial operations support).
2. Monitoring system of national control mechanisms (human resources and equipment, their locations, status and regular maintenance, etc.).
3. A detailed contingency plans with different scenarios, with costs and responsibilities of each.
4. Real budget allocation plan (based on the available resources) and the ideal required budget (based on planned resources).
5. Budgets should contain all available funding sources including construction, maintenance and replacement.
6. General emergency funds should include funds for locust crisis, in case needed.
7. National contingency plan must include four major stages:
 - The calm phase (a recession), which corresponds to periods of locust calm situation where regular annual work plan is implemented;
 - The emergency phase (outbreak), which includes locust outbreaks in the country that does not require external support and can be handled through the use of available national resources and national emergency funds;
 - The emergency phase (upsurge), indicating the inability of the national locust control unit to carry out the necessary control and therefore regional and international support should be requested.
 - The emergency phase (plague), includes the spread of locust into two regions and the mobilization of international emergency funds (regional plan).

Fourth: Regional Contingency Plan

The Regional contingency plan aims to provide technical and financial support for Desert Locust management in one of the Commission's member country, where most of the financial capacity and other resources used for Desert Locust survey and control operations are exhausted. It also aims to reduce the serious implications on human health and the environment caused by locust infestation to crops in agricultural areas.

The regional contingency plan is designed to focus on larger challenges than member countries can handle with the expected consequences on human and environment, nationally or regionally. Accordingly, the national contingency plan deals with a locust outbreak in the concerned country and complements the regional contingency plan to complete the remaining activities. The national contingency plan can be therefore, considered as part of the regional plan for Desert Locust outbreaks and supportive to the regional plan.

Regional unity is the key, not only to effective support of Desert Locust control operations, but also to ensure a more justifiable financial cost sharing, and in recognition of the fact that frontline countries implement locust control operations for their countries and for the region.

The main components of a regional contingency plan

First: eligibility for regional contingency plan

1. Availability of a national contingency plan, with detailed scenarios and supported by stakeholders in the country and the Commission.
2. Desert locust threat as described in the scenario of the contingency plan and confirmed by the regional commission.
3. A financial statement on the national expenditure.
4. Inability to cover the costs of locust operations in dealing with Desert Locust infestation.
5. Member country should be paying its annual contributions, with no arrears, but if there is, it should not exceed arrears of two annual contributions.

Second: mechanism of action of regional contingency plan

The launch of a regional contingency plan divides into four stages:

The first phase (limited outbreak)

1. Outbreak of locust infestation in the member country.
2. Initiation of and continuation of control operations.
3. Control operations is continued given suitable environmental conditions and the spread of locusts in many locations.
4. Second generation of outbreaks.
5. The locust infested area is more than the affected country sources can handle.
6. Activation of the national contingency plan and support requested from national emergency funds.

The second phase (upsurge - widespread outbreak)

1. Continuous widespread of locust outbreaks in the country and the exhaustion of most of the available resources to carry out locust operations.
2. Support received from the national contingency funds, if any;
3. Infestation is expected to continue and expecting a new generation (third generation).
4. Impossible to cover the required cost of control operation from local resources.
5. Apply for funding support from the Commission or the international community.

The third phase (assessing and verifying the information and reports):

1. Dispatch of technical experts (2 to 3) from member countries in addition to the Executive Secretary of the Commission to assess the situation on the ground, actions taken to control the locust swarms and identify the additional required resources.
2. Preparation of visit report with recommendations to facilitate the activation of stage 4 of the regional contingency plan.
3. Endorsement by the Commission and activation of the regional contingency plan.

The fourth stage (regional contingency plan activation)

1. Immediate announcement and activation of the regional contingency plan.
2. Disbursement of funds and required procurements.
3. Assist in obtaining addition funding from the FAO, if necessary, to secure the continuity of the survey and control operations and prevent further outbreak in the region in case insufficient resources are available from the Commission.

Generally, the Commission regional contingency plan plays an important role as a tool for rapid interventions in widespread outbreaks or upsurges. Thus, the plan acts as a transitional period between the time when the national resources (regular or emergency) are no longer sufficient, and necessary time for additional international resources (if required) are available.

Regional contingency plan resources

First: the regional emergency fund

It is one of the main instruments for regional contingency plan. The main justification for creating an emergency fund at the regional level is accelerating the mobilization of funds to quickly adjust the response capacity in the field. Therefore, the emergency fund should be used to fill the gap when the regular budget for national locust control unit is insufficient to respond to the situation on the ground.

The regional emergency fund also aims to provide additional resources for national locust units facing widespread outbreaks or upsurge to finance an increase in the number of survey and control teams, as well as equipment and pesticides.

It is to be mentioned that the Commission has approved the establishment of a regional emergency fund at the twenty-ninth Session of the Commission, U.A.E. November 2014. It has also approved US\$150,000 be allocated in the Commission Trust Fund and additional US\$100,000 each year by financial means available to the Commission with the commitment of member countries to settle their annual contributions to the Trust Fund of the Commission.

Thus, the regional emergency fund should now contains at the least US\$500 000.00, required to implement a regional contingency plan.

Second: Technical Cooperation Programme (by FAO Technical Cooperation Programmes of emergency (TCP)

During emergency crises and outbreaks of locust in the member countries, FAO adopts an emergency technical cooperation programme (TCP) after confirmation of the emergency situation in the country, through a known mechanism. TCP aims to assist countries in providing additional resources for national locust units facing severe outbreaks or upsurge to finance more survey and control teams, as well as equipment and pesticides. It is a flexible tool for rapid response in many functional areas within the technical and strategic framework of the organization.

Third: donations and assistance from regional countries and the international community

Donor community provides financial support for locust control operations in severe upsurge stage, but it may take relatively longer time.

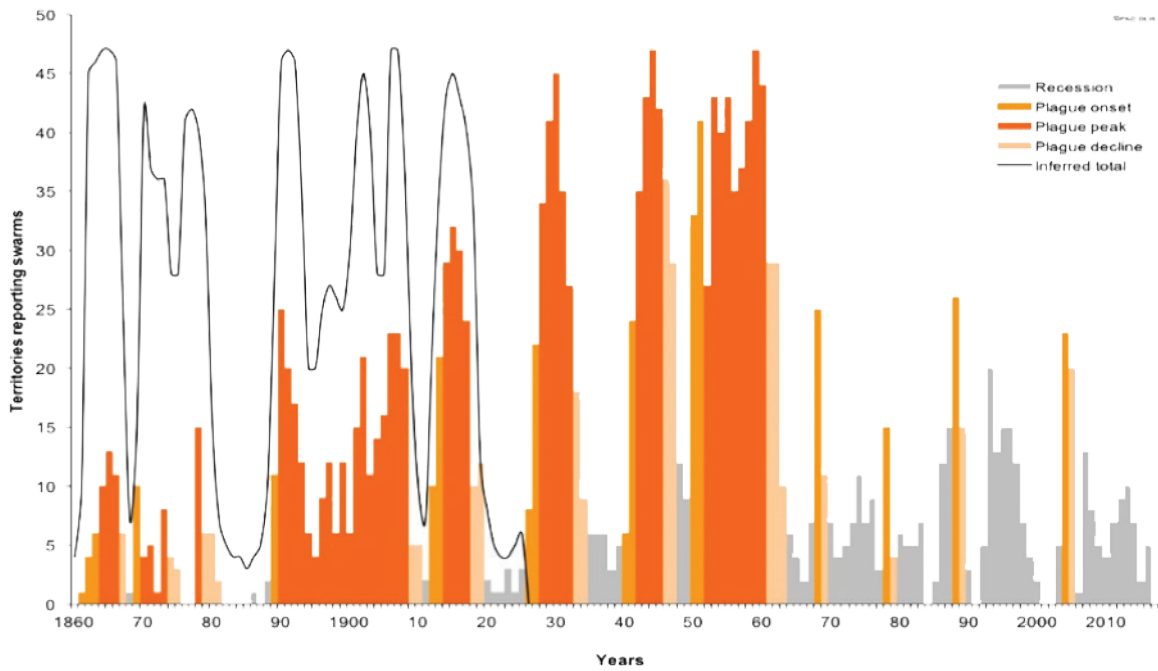
Fourth: United Nations emergency funds

CERF	the Central Emergency Response Fund (United Nations)
SFERA	Special Fund for emergency and rehabilitation activities (Food and Agriculture Organization)

These are two international community funds providing financial support in accordance with the procedures of the international organization and can be accessed through FAO.

Annex No 1

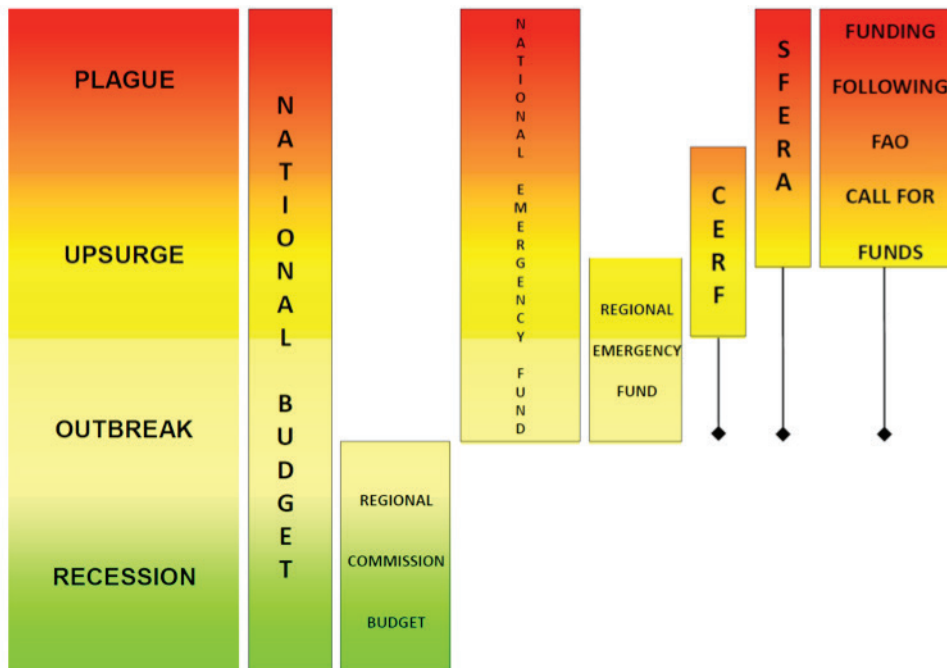
Frequent upsurges, plagues and repeated recessions in the Central Region, 1860 to 2015 (source: FAO/DLIS)




Annex No 2

The financing system of Desert Locust outbreaks

Financing system tailored to various levels of Desert Locust infestations



The symbol  indicates the state of alert phase of the financial instrument that follows in case of a predicted worsening of the situation

Annex No 3

A proposal on how to request support from the Commission:

Introduction

- To include the current locust situation; extent of the Desert Locust breeding areas in the country; a brief history of upsurge or plagues recurrences.
- Economic loss to crops and pastures as well as environment and human injuries as a result to locust control operations in addition to the social difficulties.
- The overall goal of submitting an application for support

Clarifying the basic objectives of support in order to assist the country in controlling Desert Locust and therefore maintain the level of damage to agricultural crops to a minimum and support food security.

Special objectives for support

- Support and strengthen the locust control center.
- Maintenance and repair of some equipment.
- Procurement of new equipment to replace the damaged ones.
- Ensuring continuous intensive control operations in various infested areas.
- Prevention of locust infestations to other countries or regions.

Expected results

- Containment of the locust situation.
- Protection of agricultural crops and pastures.
- Preserving social security.
- Preventing the spread of locust infestations to other countries or regions.

Efforts undertaken by the country

- Financial resources spent on survey and control operations.
- Equipment, vehicles, pesticides and machines; survey and control teams that have been used in locust management operations.
- Total support received from the national emergency fund.

Expected Locust infestation in the coming period and justification for support request

- Aggravated level of infestation and locust breeding spread to large areas reaching upsurge level.
- Most of the financial resources exhausted, equipment consumed and urgent external support required to prevent migration of locust to other countries or regions.
- Financial resources to cover the next phase of control operations and identifying expenditure items.
- Details of equipment required for locust control campaign.

Appendix 9: Accounts for 2017 and 2018

Summary of Expenditures of CRC TRUST FUND GCP/GLO/896/MUL for the year 2017 in US\$

Account	Description	Expenses
5012	Salaries General Service	
	Lidia Naguib Abdel-Shahid	36 116
	Mohsen Ibrahim Mohamed Hassan	24 764
	FAOAdministrative charges	5 587
	subtotal	66 467
5013	Consultants	
	Ghaemian, Mr Mehdi	7 357
	Moustafa, Mr Osama Rabie Mahmoud	2 217
	Pantenius, Mr Christian Ulrich	377
	Khalifah, Mr Essam Ibrahim	4 489
	Sadek, Ms Sara Ahmed	4 639
	El Kady, Mr Mohamed Sleem	7 285
	subtotal	26 364
5014	Contracts	
	Novacom (Jan - Dec 2017)	33 279
	Moody Production (documentary film)	10 388
	Rules of Thumb Inc (DeLCoPA maintenance)	2 500
	subtotal	46 167
5020	Locally contracted labour	3 784
	subtotal	3 784
5023 /5021	Training/workshop (travel and operation cost)	
	50th Commission anniversary and 30th CRC Session, Muscat, Oman, 24-19 February 2017	16 649
	Hotel Muscat Holiday	3 150
	Digital colour center	4 879
	Grand Hyatt Muscat	12 000
	AL Tarjuman Global for Legal Translation	17 386
	General operating expenses	54 064
	Desert Locust Survey and Control operations training course, Djibouti, 19 -15 January 2017	15 220
	National Training Course on Survey and Control Operations for DL Officers, Yemen, March, 2017	6 000
	Desert Locust Information Officers training, Egypt, 11-7 May 2017.	23 564
	Regional Aerial training course, in cooperation with the Desert Locust Control Organization for Eastern Africa (DLCO-EA), Tanzania, 21-17 July 2017.	36 681
	2 National Desert Locust Control operations training course and environmental health and safety standards, Egypt. 24 September - 1 October 2017 and 29 -22 October 2017	9 120
	Training course for Information Officers, Eritrea. 13-17 November 2017 (Moustafa, Osama Rabie)	2 018
	PhD, Mousa Mohamed Boshara, Mahgoub	10 691
	Training course on DL survey and control for 6 Yemeni staff, Hurghada, Egypt.	6 650
	subtotal	164 008

5021	Travel	
	Technical meeting on the use of satellite imagery 11-13 DEC 2017, Niamey, Niger (Osama Rabie)	2 500
	50th Commission anniversary and 30th CRC Session, Muscat, Oman, 19-24 February 2017 - participants	28 288
	Pantenius Ulrich – remaining payment	151
	Chairman travel to FAO HQ to submit 30th Session report	2 024
	Ramy Abdel Halim Al Arabi to Jordan	1 697
	subtotal	34 660
5024	Expendable Equipment	
	Driver uniform	265
	Teamwork for Design & Printing	2 506
	Starline for Marketing and Advertising	6 000
	Micron sprayers (10 Microns AU 8000 Backpack)	15 685
	Office stationary	600
	50 batteries Panasonic Tough Pad for eLocust3 tablet	2 456
	Car maintenance	340
	subtotal	27 852
5028	General Operating Expenses	
	Office telephones	504 3
	subtotal	504 3
5040	General Overhead Expenses	
	FAO Pouch and courier services	224
	subtotal	224
5050	Internal Common Services and Support	136
	subtotal	136
5029	Support Costs (13% on all accounts)	
	AO HQ - Rome	17 658
	FAO Regional office in Cairo	22 844
	FAO office in Yemen	700
	FAO office in Djibouti	995
	subtotal	42 197
	Total expenditures in 2017	415 363

Summary of Expenditures of CRC TRUST FUND GCP/GLO/896/MUL for the year 2018 in US\$

Account	Description	Expenses
5012	Salaries General Service	
	Abdel-Shahid, Lidia Naguib	44 638
	Hassan, Mohsen Ibrahim Mohamed	29 881
	FAO Administrative charges (Field ICRU - IT and Security)	6 006
	subtotal	80 525
5013	Consultants	
	Moustafa, Mr Osama Rabie Mahmoud	3 256
	El-Gmayah, Mr Ashraf	2 090
	Khalifah, Mr Essam Ibrahim	7 440
	Sadek, Ms Sara Ahmed	4 545
	Afrass, Mr Hossain	2 765
	subtotal	
5014	Contracts	
	Novacom (Jan - Oct 2018)	23 601
	Rules of Thumb Inc (2018 DeLCoPA maintenance)	2 500
	subtotal	26 101
5020	Locally contracted labour	4 107
	subtotal	4 107
5021/ 5023	Training/workshop (travel and operational cost)	
	National ToT training course, Jeddah, Saudi Arabia, 21-29 January 2018	13 242
	National training course on Environmental and Health Standards (EHS) in Desert Locust Operations, Muscat, Oman, 28 January – 01 February 2018	7 335
	Sub- Regional training course on the organization and reparation of Desert Locust campaigns Port Sudan, Sudan, 4 to 11 February 2018	80 625
	Desert Locust Sprayers maintenance workshop, Manamah, Bahrain, 23 - 26 April 2018	2 342
	Desert Locust Information Officers training, Cairo, Egypt 15 - 19 July, 2018	23 697
	Desert Locust Contingency Planning workshop Hurghada, Egypt 30 September - 4 October, 2018	63 212
	Regional workshop on the Use of Bio-pesticides in Desert Locust Control Operations; <i>Metarhizium acridum</i> (Green Muscle®) Hurghada, Egypt, 7-11 October 2018	10 101
	Survey and Control Operations training course, Aqaba, Jordan, 11-15 November 2018	13 259
	Desert Locust ULV Sprayers maintenance workshop Aqaba, Jordan, 11-15 November 2018	7 565
	CLCPRO Desert Locust information officers training course, Algeria, 1-4 July 2018 (Osama Rabie, Said Turkustani and Hussein Abaker)	9 024
	subtotal	230 402
5021	Travel	
	Khalifah, Mr Essam Ibrahim, Ismailia, April 2018	150
	Exchange visits to the Control center of Locusts and Migratory Pests of Saudi Arabia	2 149
	The Chairman and the Chairman of the Executive Committee visited UAE to meet officials at the Ministry of Climate Change and Environment 28-27 Feb 2018	2 609

	Technical meeting on the use of satellite imagery 13-11 DEC 2017, Niger (settlement -Osama Rabie)	176
	DL control operation simulation, Niger 29-25 March 2018 (Essam Khalifah)	2 148
	Badreddine (CLCPRO participant)	1 275
	subtotal	8 507
5024	Expendable Equipment	
	Procurement of 10 cables for eLocust3	3 040
	Procurement of 50 batteries Panasonic -eLocust3 tablet	98
	Office stationary (remainder)	722
	Teamwork Company for printing	235
	Procurement of Stopwatch, Tachometers & digital windmeters–University of Science and Technology- Sudan	13 337
	Driver uniform	
	Apple adapter	120
	Garmin GPS Map 64 - University of Science and Technology - Sudan	1 708 8 204
	Tachometers	
	Printing extra Commission’s Celebration of 50 years book	936
	Procurement of Data Show – University of Science and Technology - Sudan	3 731 4 149
	Metal folding magnifier	
	Backpacks for workshops	449
	Workshop stationary for a year	7 771
	Adobe license	1 025
	Procurement of 6 Mac Book Pro 13" i5	408
		11 130
	subtotal	57 063
5025	Non-Expendable Equipment	
	Procurement of 1 Mac Book Pro 13" i9 5 (Djibouti)	1 590
	subtotal	1 590
5028	General Operating Expenses	
	Office telephones	693
	DHL- dispatch of CRC book	16 350
	Mac books shipment (Planson International)	2 518
	GPS shipment (Danimex)	240
	Metal Folding Magnifier shipment (Ebasco)	76
	CRC Website server renewal	1 500
	subtotal	21 377
5040	General Overhead Expenses	
	FAO Pouch and courier services	647
	subtotal	647
5050	Internal Common Services and Support	204
	subtotal	204
5029	Support Costs (%13 on all accounts)	
	FAO HQ - Rome	9 622
	FAO Regional office in Cairo	37 205
	FAO office Algeria	47
	subtotal	46 874
	Total expenditures in 2018	497 493

Appendix 10: Contributions and arrears of member countries

TRUST FUND GCP/GLO/896/MUL
(Previously TRUST FUND No. 9409.00 - MTF/INT/007/MUL)
Status of Contributions as at 31 December 2017 (Expressed in US\$)

Member Governments	Outstanding 31/12/2016	Contribution due for 2017	Received up to 31/12/2017	Outstanding 31/12/2017
BAHRAIN	69 999 34	17 500 00		87 499 34
DJIBOUTI	18 700 00	2 200 00		20 900 00
EGYPT	65 080	65 080 00	65 080 00	65 080 00
ERITREA	0 00	8 000 00	8 000 00	0 00
ETHIOPIA	40 000 00	16 000 00		56 000 00
IRAQ	57 500 00	57 500 00	57 500 00	57 500 00
JORDAN	78 042 12	28 715 00	28 715 00	78 042 12
KUWAIT	100 000 00	50 000 00		150 000 00
LEBANON	22 340 00	22 245 00	22 340 00	22 245 00
OMAN	10 000 00	20 000 00		30 000 00
QATAR	25 000 00	25 000 00		50 000 00
SAUDI ARABIA, Kingdom of	88 070 00	88 070 00	88 070 00	88 070 00
SUDAN	365 576 82	37 335 00		402 911 82
SYRIAN ARAB RE- PUBLIC	150 039 63	33 375 00		183 414 63
UNITED ARAB EMIRATES	52 550 00	52 500 00	26 250 00	78 800 00
YEMEN	48 914 76	10 000 00		58 914 76
Totals	1 191 812 67	533 520 00	295 955 00	1 429 377 67

* Fiscal Year begins in July

TRUST FUND GCP/GLO/896/MUL
(Previously TRUST FUND No. 9409.00 - MTF/INT/007/MUL)
Status of Contributions as at 31 December 2018 (Expressed in US\$)

Member Governments	Outstanding 31/12/2017	Contribution due for 2018	Received up to 31/12/2018	Outstanding 31/12/2018
BAHRAIN	87 499 34	17 500 00	78 750 00	26 249 34
DJIBOUTI	20 900 00	2 200 00		23 100 00
EGYPT	65 080 00	65 080 00		130 160 00
ERITREA	0 00	8 000 00	8 000 00	0 00
ETHIOPIA	56 000 00	16 000 00		72 000 00
IRAQ	57 500 00	57 500 00		115 000 00
JORDAN	78 042 12	28 715 00	57 430 00	49 327 12
KUWAIT	150 000 00	50 000 00		200 000 00
LEBANON	22 245 00	22 245 00		44 490 00
OMAN	30 000 00	20 000 00	50 000 00	0 00
QATAR	50 000 00	25 000 00		75 000 00
SAUDI ARABIA, Kingdom of	88 070 00	88 070 00		176 140 00
SUDAN	402 911 82	37 335 00		440 246 82
SYRIAN ARAB REPUBLIC	183 414 63	33 375 00		216 789 63
UNITED ARAB EMIRATES	78 800 00	52 500 00		131 300 00
YEMEN	58 914 76	10 000 00		68 914 76
Total	1 429 377 67	533 520 00	194 180 00	1 768 717 67

* Fiscal Year begins in July

TRUST FUND GCP/GLO/896/MUL
(Previously TRUST FUND No. 9409.00 - MTF/INT/007/MUL)
Status of Contributions as at 4 February 2019 (Expressed in US\$)

Member Governments	Outstanding 31/12/2018	Contribution due for 2019	Received up to 31/12/2019	Outstanding 31/12/2019
BAHRAIN	26 249 34	17 500 00		43 749 34
DJIBOUTI	23 100 00	2 200 00		25 300 00
EGYPT	130 160 00	65 080 00	65 080 00 (for 2017)	130 160 00
ERITREA	0 00	8 000 00		8 000 00
ETHIOPIA	72 000 00	16 000 00		88 000 00
IRAQ	115 000 00	57 500 00		172 500 00
JORDAN	49 327 12	28 715 00		78 042 12
KUWAIT	200 000 00	50 000 00		250 000 00
LEBANON	44 490 00	22 245 00		66 735 00
OMAN	0 00	20 000 00		20 000 00
QATAR	75 000 00	25 000 00		100 000 00
SAUDI ARABIA, Kingdom of	176 140 00	88 070 00	264 210 00	0 00
SUDAN	440 246 42	37 335 00		477 581 42
SYRIAN ARAB RE- PUBLIC	216 789 63	33 375 00		250 164 63
UNITED ARAB EMIRATES	131 300 00	52 500 00		183 800 00
YEMEN	68 914 76	10 000 00		78 914 76
Totals	1 768 717 27	533 520 00	264 210 00	2 038 027 27

* Fiscal Year begins in July

Appendix 11: Work plan and proposed budget for the years 2019 and 2020

Work plan and proposed budget for the years 2019 and 2020			
Account	Description	2019	2020
5012	Salaries-General Service Staff		
	Commission Secretariat	83 000	84 000
	Total	83 000	84 000
5013	Consultants	20 000	20 000
	Total	20 000	20 000
	Contracts		
	Research (1 or 2 research projects)	20 000	20 000
	Translation	2 500	2 500
	Annual fees for eLocust 3 transmission	30 000	30 000
	DeLCoPA maintenance	2 500	2 500
	Cost of updating the CRC website	5 000	5 000
	Total	60 000	60 000
	5020	Locally Contracted Labour - Over Time	5 000
Total		5 000	5 000
5021	Travel		
	Chairman travel to Rome to present the 31st CRC Session report	3 000	
	Chairman travel various	5 000	5 000
	36th Executive Committee Meeting	15 000	
	32nd CRC Session and 36th Executive Committee meeting		50 000
	Total	23 000	55 000
5023	Training		
	Master Degree in DL	75 000	75 000
	Training courses on DL operations and EHS	50 000	50 000
	Training courses on DL operations and EHS	50 000	50 000
	Sub- regional		40 000
	Regional Aerial Training Course		30 000
	Total	125 000	195 000
5024	Expendable Procurement		
	Spare parts /books/publications	10 000	10 000
	Procurement of GPS	20 000	20 000

	Publications	10 000	10 000
	Total	40 000	40 000
5025	Non Expendable Procurement		
	various	5 000	5 000
	Total	5 000	5 000
5028	General Operating Expenses		
	Meeting, reception, equipment, Communi- cation, Stationary, etc.	20 000	20 000
	Total	20 000	20 000
5029	Support cost (13%)	35 000	40 000
	Total	35 000	40 000
	TOTAL	416 000	484 000

Appendix 12: Other business

Amendments to the Commission logo



Initial logo proposal



The FAO Commission
for Controlling the Desert Locust
in the Central Region



(+2) 02 333 16018



desertlocust-crc.org



Al Dokki, Cairo, Egypt