REPORT

FAO Desert Locust Control Committee

Forty-first Session

10 – 13 December 2019
Addis Ababa, Ethiopia

Food and Agriculture Organization of the United Nations

Report of the

FAO Desert Locust Control Committee

41st Session

Addis Ababa, 10-13 December 2019

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ANNEXES

LIST OF ACRONYMS

AGPMM	Locusts and Transboundary Plant Pests Team (FAO)
CLCPRO	Commission for Controlling the Desert Locust in the Western Region/ *Commission de Lutte Contre le Criquet Pèlerin dans la Région Occidentale* (FAO)
CRC	Commission for Controlling the Desert Locust in the Central Region (FAO)
DLCC	Desert Locust Control Committee (FAO)
DLCO-EA	Desert Locust Control Organization for Eastern Africa
DLIS	Desert Locust Information Service (FAO)
EMPRES	Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases (FAO)
FAO	Food and Agriculture Organization of the United Nations
GIS	Geographic Information System
PRG	Pesticide Referee Group (FAO)
RAMSES	Reconnaissance and Management System of the Environment of *Schistocerca*
SWAC	Commission for Controlling the Desert Locust in South-West Asia (FAO) TC Technical Cooperation Department (FAO)
USAID	United States Agency for International Development
USD	United States Dollars

LIST OF RECOMMENDATIONS

1. A Working Group should be created, which will include representatives from member countries of each of the three regional commissions, other DLCC members non-members of the regional commissions, and representatives of the DLCC Secretariat, secretariats of the regional commissions and FAO Legal Office to review the DLCC mandate. The Working Group will put together a proposal to be shared with the DLCC member countries for feedback. The DLCC Secretariat will summarize the countries' feedback and forward the proposal for review by FAO Legal office with the aim to present the proposal of the revised mandate at the next DLCC session.

2. Desert Locust regional commissions should maintain and reinforce training on Desert Locust management.

3. Countries are **requested** to consider cross border surveys and maintain better cooperation in surveys and information sharing.

4. In view of the shortage of survey officers in many countries, DLCC **encourages** and supports the ongoing efforts for harnessing the innovative technologies, such as drones in survey and control operations.

5. An eLocust3 version for mobile phones, available in local languages, should be developed and deployed as soon as possible.

6. DLCC **recognizes** the importance of alternative control methods and **encourages** member countries to make use of these methods.

7. Affected countries should increase the frequency of high-quality surveys and take immediate steps to undertake control operations that are funded by national resources, and not wait for external sources that supplement national inputs.

8. DLCC calls for better cooperation and partnership among FAO, DLCO-EA, donors and other relevant organizations to effectively address the current outbreaks in the Horn of Africa.

9. Countries in the Central Region are **urged** to establish and maintain financially and administratively autonomous or semi-autonomous national locust control units.

10. CRC countries are **urged** to reinforce the Regional Emergency Trust Fund and make contributions to it.

11. Countries are **urged** to involve local communities and governmental authorities, where appropriate, to contribute to locust survey and share the gathered information.

12. Countries likely to receive locust infestations from areas where the situation is unknown should maintain high vigilance and readiness for early intervention and timely control.

13. The Desert Locust regional commissions and their member countries should maximize the use of biopesticides, whenever possible, and requested FAO to facilitate the process of biopesticide procurement.

14. Each Desert Locust regional commission and its member countries should continue to provide specific training for the operational use of biopesticides.

15. The Desert Locust regional commissions and their member countries are **encouraged** to include in their annual workplans the proportion of areas treated with biopesticides, which should be increased progressively.

16. Frontline countries are **encouraged** to facilitate the possibility of using drones for Desert Locust management, including national authorization.

17. DLCC **recognized** that the functioning of the Desert Locust regional commissions is a key contributor to national and regional food security and **urged** member countries to make every effort to make appropriate and regular payments to their commission.

18. DLCC **requested** FAO to organize an international donor meeting to address the current and impending Desert Locust threat to global food security. In preparation for this meeting, all informational means should be used to publicize the threat and increase donors' interest.

19. The DLCC **agreed** to carry forward to the next biennium the recommendation from the 40th session that further opportunities for study and research on the assessment of the spatial distribution of locust infestations be pursued, primarily through activities undertaken by CLCPRO, subject to financial and other capacities.

20. Desert Locust regional commissions and countries are **encouraged** to support and facilitate the process of pesticide triangulation for efficient management of pesticide stocks and rapid acquirement of pesticides by countries facing emergencies in order to prevent the accumulation of obsolete pesticide stocks.

21. FAO and the Desert Locust regional commissions are **encouraged** to facilitate the process of the re-evaluation of the pesticide stock formulation through accredited and certified laboratories.

22. Countries are **encouraged** to explore, where possible, opportunities for keeping stocks of pesticide active ingredients for rapid in-country formulation based on the need, instead of stocks of ready pesticide formulations, to avoid the expiry and accumulation of obsolete stocks.

23. FAO should clarify with those countries that have accumulated arrears in excess of USD 100 000 if they are having a problem in making payments. If so, then 50% of their arrears could be waived

under the condition that a commitment to pay and payment arrangements for the balance of the arrears are confirmed by the member country.

24. FAO should follow up on the payment of annual contributions by sending reminders to member countries where appropriate. In these communications, the importance of DLCC activities will be highlighted.

25. DLCC sessions should, if possible, be conducted outside of FAO HQ for the foreseeable future in order to maximize the efficient use of limited trust fund resources and to allow the host country to assist in supporting the session.

INTRODUCTION

1. At its 40th Session, held in Rome from 19 to 22 June 2012, the FAO Desert Locust Control Committee (DLCC) agreed that the forty-first Session should be held on a date to be determined by the Director-General of the Food and Agriculture Organization of the United Nations (FAO). The dates eventually chosen were 10 to 13 December 2019, the venue Addis-Ababa, Ethiopia, and the Director-General accordingly issued invitations to all Member Countries and relevant organizations likely to be interested in locust management.

2. Thirty-eight participants attended the Session, representing 21 member countries, two partner organizations and FAO staff. The List of Participants is presented in Annex I.

3. During the official opening ceremony of the 41st session, the Chairperson of the 40th Session of the DLCC, the Delegate from Iran, Mr Chalaki stated that the timing of the 41st session is extremely important because currently, the Desert Locust situation has worsened, and in Iran, the level of its infestations in 2019 was the highest in 50 years. Over two million hectares were infested and over 750 000 ha were treated with 500 000 litres of pesticide. Since the last session of the DLCC, progress was made in technical and financial issues. The Chairperson wished all attendees a very successful meeting.

4. On behalf of the Director-General of FAO, Ms Fatouma Seid, the FAO Representative in Ethiopia, welcomed the participants to the 41st Session of the DLCC. She gave a brief overview of the history of the DLCC, one of the oldest FAO bodies, which was established in 1955 as a global forum that brings donors and all interested countries together to address important Desert Locust issues. Desert Locust is a very dangerous transboundary pest, which affects crops, pastures, and forested lands. The 41st session of the DLCC coincides with a very serious Desert Locust situation in Ethiopia, where the pest is favoured by climate change and increased precipitation. She emphasized that to effectively control the Desert Locust in Ethiopia and other countries of the region, national dedicated locust control units should be created. She concluded by reiterating FAO's commitment to early warning, early response and cross-border collaboration in order to sustainably manage the Desert Locust challenge and wished all participants a fruitful meeting.

5. His Excellency Mr Sani Redi, State Minister for Agriculture of Ethiopia, opened the session by welcoming all participants and said that it was an honour for his country to host the 41st session of the DLCC. In the past, there have been at least ten Desert Locust outbreaks in Ethiopia, most of which started in the eastern part of the country. Currently, the Desert Locust situation is very serious with over 100 000 ha infested by the pest. The mountainous topography makes it difficult to survey and control the Desert Locust whose breeding will continue into 2020. As such, the timing of the 41st DLCC session is very important. This forum provides a great opportunity for the countries to exchange experiences on Desert Locust management. H.E. concluded by thanking the FAO, donors and organizing committee, and wished all the participants a productive and successful meeting.

6. Mr Shoki Al-Dobai, DLCC Secretary, moderated the opening session and welcomed the participants on behalf of the DLCC Secretariat, and thanked the Government of Ethiopia and FAO Sub-regional office for the East Africa and the country office in Ethiopia for hosting the event and valuable support to the organization of the event.

OFFICERS OF THE SESSION

7. The following persons were elected:
   - Chairperson: Mr Meray Saeed Al Kahtani (Saudi Arabia)
   - Vice-Chairperson: Mr Muhammad Tariq Khan (Pakistan)
8. The following persons were selected for the Drafting Committee:
   - Mr Alexandre Latchininsky and Mr Keith Cressman (DLCC Secretariat)
   - Mr Chris Adriaansen (Australian Plague Locust Commission – APLC)
   - Mr Abdelghani Bouaichi (Morocco)
   - Mr Mamoon Al Alawi (CRC)
   - Mr Mohamed Lemine Hamouny (CLCPRO)
9. The Agenda, as amended and adopted, is presented in Annex II.

PRESENTATIONS, DISCUSSIONS AND RECOMMENDATIONS

SESSION 1: Desert Locust Control Committee

How do Commissions differ from the DLCC?

10. Mr Shoki Al-Dobai, Team Leader, Locusts and Transboundary Pests and Diseases (AGPMM), presented the DLCC overview and report of its activities.

11. The FAO Desert Locust Control Committee (DLCC) was established in 1955 by the FAO Director-General as a global coordinating body for Desert Locust early warning, prevention strategies and management approaches. The DLCC is the primary forum that brings together locust-affected countries, donors and other agencies to discuss Desert Locust management under the FAO umbrella. It provides technical advice to the FAO Director General, the three FAO regional Desert Locust commissions, other anti-locust organizations and member countries. The three regional commissions focus on developing the preventive control strategy by promoting the establishment of autonomous national Desert Locust control units and strengthening national capacities of their member countries in survey, control, reporting, training, research, planning and safety. The DLCC and the regional commissions complement each other in order to implement a complete global preventive control strategy that reduces the frequency, duration and intensity of DL plagues while ensuring food security and protecting livelihoods. DLCC has 64 members and three working languages, Arabic, English and French. The effective functioning of the DLCC depends on the resources from the Trust Fund established in 1966. Thus, DLCC relies solely on annual contributions from member countries to carry out its activities. Contributions are extremely modest compared to the benefits that members receive from the DLCC. Of the 64 DLCC members, 35 members are invited to contribute to the Trust Fund. The annual level of contributions is USD 207 780. DLCC activities must be of benefit to all member countries. In the past, these activities have consisted of the 11-month Desert Locust Information Officer training programme at FAO HQ (there were nine of them since 2012), support to the Desert Locust Information Service (DLIS) including provision of early warning and the monthly DL Bulletins, development of DL Guidelines and other technical publications, support to the RAMSES GIS and new technologies, support to the Pesticide Referee Group, management of Locust Watch website, and hosting of the biennial sessions. Since its establishment, DLCC has met 40 times, while its last session met in 2012.

12. Three points were raised for discussion:

    (a) Do the activities of the DLCC warrant regular and timely contributions by member countries?
    (b) How can such contributions and involvement by member countries be encouraged?
    (c) Should future DLCC sessions be organized outside of FAO HQ?

13. In the ensuing discussions, delegates from Pakistan and Jordan raised the point that there is no clarity as to the differences in functions between DLCC and the regional Desert Locust commissions. This makes it difficult to convince high-level decision makers in the countries that they need to financially contribute twice, to the commission and to the DLCC.

14. Delegates were reminded that FAO has issued an information sheet on this subject, which may help the countries to understand the difference and convince them to contribute to DLCC. It was further clarified that since the DLCC was established under Article VI of the FAO, contributions are in the nature of a political commitment while the commissions were established under Article XIV in which contributions involve a legal obligation. Delegates from Afghanistan, Algeria and Tunisia stated that for several years, their countries have not received requests from FAO to contribute to the DLCC while requests to contribute to the regional commissions are received on a regular basis.

15. The importance of sustaining the DLCC activities and possibly making DLCC contributions a legal obligation, similar to the Desert Locust regional commissions, was discussed at length.

16. Delegates from several countries agreed that the mandate of the DLCC has not changed since its establishment over 60 years ago, and it should be revised. This process should be initiated by the countries.

Recommendation 1: A Working Group should be created, which will include representatives from member countries of each of the three regional commissions, other DLCC members non-members of the regional commissions, and representatives of the DLCC Secretariat, secretariats of the regional commissions and FAO Legal Office to review the DLCC mandate. The Working Group will put together a proposal to be shared with the DLCC member countries for feedback. The DLCC Secretariat will summarize the countries' feedback and forward the proposal for review by FAO Legal office with the aim to present the proposal of the revised mandate at the next DLCC session.

SESSION 2. Desert Locust Developments

17. Mr Keith Cressman, Senior Locust Forecasting Officer (AGPMM), presented an overview of Desert Locust developments from 2012 to 2019 (see Annex III), including a video provided by Eritrea showing their nationally-funded control operations, and noted that:

    (a) Outbreaks often occurred at the end of summer breeding in Sudan and to a lesser extent in Mauritania
    (b) Outbreaks also occurred during the winter breeding season along both sides of the Red Sea
    (c) Cyclones are becoming more frequent and are important initiators of outbreaks, primarily affecting southern Arabia and the Horn of Africa
    (d) Failure to survey after rains, especially unusual out-of-season rains, can miss the onset of an outbreak

(e) Failure to control outbreaks can lead to lengthy and costly control campaigns
(f) Some outbreaks are not controlled due to irregular surveys, late or non-detection, insecurity, remote and inaccessible areas, insufficient resources, inadequate information and late reporting, and poor contingency planning
(g) The current available tools (eLocust3) are insufficient to handle the increased volume of survey and control data

18. Since 2012, some 3 million ha have been treated:

2012	207 000 ha
2013	543 000 ha
2014	375 000 ha
2015	110 000 ha
2016	59 000 ha
2017	27 000 ha
2018	11 000 ha
2019	1 688 000 ha

19. Several factors contributed to an unprecedented escalation of the Desert Locust situation and a rise in treated areas from 2018 to 2019, including two cyclones that led to three generations of unprecedented breeding in the southeast Empty Quarter that was not detected or controlled, very heavy flooding in southwest Iran allowing two generation of breeding, and an abnormally long summer monsoon that gave rise to three generations of breeding along both sides of the Indo-Pakistan border.

20. A number of points were raised concerning irregular surveys, survey results that may not reflect the true situation, not enough eLocust3 units, trained staff that are transferred, poor Internet connections, sometimes a tendency to blame other countries for locust invasions, intensive control operations that do not bring an end to the current situation, too much reliance on FAO and donors for emergency support, and the impacts of climate change.

21. During the discussion, it was pointed out that human and material capacities are often insufficient during locust emergencies to conduct a comprehensive Desert Locust survey in the country. Therefore, Desert Locust occurrence is reported by citizens. In order to make this process timely and reliable, FAO should consider developing a smart phone / SMS app.

22. The question of giving more attention to treating solitarious Desert Locust populations was raised but this is not economical and may produce negative impact on the environment because large areas must be sprayed to kill relatively low numbers of locusts. Instead, regular and more intensive surveys are key because this will allow the possibility to detect changes in locust numbers and behaviour. The best timing for preventive treatments is when solitarious individuals start to concentrate and form groups.

23. It was noted that the scientific knowledge on the impact of climate change on Desert Locust is still evolving and needs more study. Nevertheless, some impacts of climate change, such as the role of cyclones in causing Desert Locust outbreaks, are clearer.

24. The growing concern regarding environmental impacts of Desert Locust control with chemical pesticides applied by ground and air was expressed and less environmentally damaging, and more

efficacious options such as biopesticides should be promoted. New survey technologies, such as drones, should be actively explored.

25. Neighbouring countries tend to blame each other when swarms arrive. This should be avoided and more attention should be given to control activities within each country. The need for joint cross-border survey and control efforts between neighbouring countries was emphasized, and this could help to alleviate border tensions.

26. More training is needed on a variety of locust issues that could be implemented according to the Training-of Trainers (Master Trainers) model.

27. The Senior Locust Forecasting Officer presented an outlook of the DL situation until spring 2020. He emphasized that the current Desert Locust situation is extremely serious in the Central and Eastern regions, as demonstrated by several videos showing substantial swarms in Ethiopia, Pakistan and Saudi Arabia, This situation will continue during the spring.

    Eastern Region. A significant migration of summer-bred swarms is expected to occur during December from the Indo-Pakistan border to the spring breeding areas in southwest Pakistan and southeast Iran. This will cause the situation to calm down along both sides of the Indo-Pakistan border by the end of the year. Swarms that appear in the spring breeding areas are likely to disperse upon arrival, but some groups and swarms are expected to move further west along the southern coast of Iran to areas of recent heavy rains in the southwest province of Bushehr. If temperatures remain unusually warm, adults could finish maturing and lay eggs upon arrival in areas of recent rains; otherwise, low temperatures will slow down adult maturation and egg-laying will occur once temperatures warm up in about February, allowing for at least one generation of breeding during the spring, depending on rainfall.

    Central Region. Summer-bred swarms may arrive in Oman from the Indo-Pakistan area during December. In the Horn of Africa, swarms are likely to spread within Ethiopia and Somalia and invade Djibouti and perhaps southern Somalia and Kenya during December. A tropical cyclone in December is expected to bring heavy rains to the Horn of Africa that will further exacerbate the situation. This will be followed by another generation of breeding in eastern Ethiopia (Ogaden) and in northern Somalia, causing locust numbers to increase further with the formation of additional hopper bands and swarms. If breeding continues during the spring, this would cause a substantial and dramatic increase in hopper bands and swarms. Along both sides of the Red Sea and Gulf of Aden, one generation of winter breeding will occur in southeast Egypt and Sudan while two generations are expected in Eritrea, Yemen, northwest Somalia and perhaps Saudi Arabia between now and March. Consequently, locust numbers could increase substantially, giving rise to hopper bands and swarms until about March. Thereafter, migration to spring breeding areas in the interior of Saudi Arabia, Yemen and Somalia will occur as vegetation dries out in winter breeding areas along the coast. The scale of this migration depends on rainfall and breeding during the winter and the effectiveness of survey and control operations.

    Western Region. The situation is expected to remain calm until at least next summer. Small-scale breeding is likely to occur in a few places in Mauritania and northwest Africa.

28. The following two points were raised for discussion:
    (a) What immediate actions should be taken by countries and FAO to address the current situation in the next 4–8 weeks?
    (b) What advanced preparations should be made to address expected locust developments during spring 2020?

29. During the discussion, participants addressed the two above points. Delegate from Ethiopia presented the country plan for the coming 4–8 weeks, which included shifting more field staff towards infested areas, mobilizing more ground control units and trying to hire more aircraft, which is a big challenge. He described difficult working conditions in remote and low-populated areas.
30. The delegate from Eritrea expressed concern that country capacities are insufficient to deal with the situation. The country only has capacity for ground control while aerial control is needed to cover larger areas.
31. FAO indicated that the current situation was well predicted and thus anticipated. A high-level meeting was conducted in July by CRC; as a result, thanks to the contribution from Saudi Arabia, USD 1.5 million was mobilized. But it is important not to rely on external support, which may be slow, but try to mobilize all existing resources within the countries. A good example of this is the extensive control operations undertaken in 2019 by India, Iran and Pakistan that treated more than 1 million ha and were entirely funded by their own governments. CRC has developed contingency plans, both at country and commission levels, which are being implemented currently. At this time, there is a need to have a clear idea about the requirements of the member countries so FAO could request donor support.
32. It was re-emphasized that a solution must be found for eLocust3 during emergencies when there may be well over 100 survey and control teams operating in a single country.

Recommendation 2: Desert Locust regional commissions should maintain and reinforce training on Desert Locust management.

Recommendation 3: Countries are **requested** to consider cross border surveys and maintain better cooperation in surveys and information sharing.

Recommendation 4: In view of the shortage of survey officers in many countries, DLCC **encourages** and supports the ongoing efforts for harnessing the innovative technologies, such as drones in survey and control operations.

Recommendation 5: An eLocust3 version for mobile phones, available in local languages, should be developed and deployed as soon as possible.

Recommendation 6: DLCC **recognizes** the importance of alternative control methods and **encourages** member countries to make use of these methods.

Recommendation 7: Affected countries should increase the frequency of high-quality surveys and take immediate steps to undertake control operations that are funded by national resources, and not wait for external sources that supplement national inputs.

Recommendation 8: DLCC calls for better cooperation and partnership among FAO, DLCO-EA, donors and other relevant organizations to effectively address the current outbreaks in the Horn of Africa.

SESSION 3: Desert Locust Regional Commissions

33. The Executive Secretary of the Commission for Controlling the Desert Locust in the Central Region (CRC) presented an overview of its history and achievements since 2012, noting that CRC was established in 1967 as an Article XIV body within FAO. The Commission's role is to strengthen the cooperation and coordination between member countries in implementing the preventive control strategy by detecting early signs of gregarizing locust populations and rapidly intervening to eliminate infestations before they cause crop damage. The Commission consists of 16 member countries (Bahrain, Djibouti, Egypt, Eritrea, Ethiopia, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, Syria, United Arab Emirates and Yemen). Since 2012, CRC has actively supported the adoption and use of advanced tools such as eLocust3 and RAMSESv4 for monitoring, early warning, and timely control. In 2014, the 29th CRC session agreed to double the annual contribution rate and establish a Regional Emergency Fund for Desert Locust emergencies (REF). A regional contingency plan was developed to strengthen technical and financial support for Desert Locust management in member countries. CRC agreed to establish a postgraduate MSc Desert Locust degree in collaboration with the Sudan University of Science and Technology. The Commission recently received a grant of USD 1 500 000 from Saudi Arabia to support currently affected member countries.

34. The following issues and challenges were noted and discussed:

    (a) Arrears accumulate because of irregular annual contributions by some member countries.
    (b) CRC relies on financial assistance from FAO and donors when its countries face locust emergencies.
    (c) Insecurity problems are a major obstacle for survey and control in some countries such as Yemen, which affect the entire region. Bilateral activities between neighbouring countries, such as joint surveys, are practically hindered by the difficult political situation.
    (d) Biopesticides are not yet operationally used in control campaigns.
    (e) Mitigation steps need to be taken to address extreme weather events that will impact Desert Locust such as cyclones, floods and droughts associated with climate change.
    (f) Although not a member of CRC, Somalia is a very important source of Desert Locust infestations for the region. Somalia locust staff can be trained by CRC experts.

35. The Executive Secretary of the FAO Commission for Controlling the Desert Locust in South-West Asia (SWAC), presented a brief overview of its history and achievement. SWAC is the oldest of the three regional commissions, established in 1964, and has only four member countries (Afghanistan, India, I.R. Iran and Pakistan). Consequently, the Executive Secretary duties are carried out by the FAO Senior Locust Forecasting Officer in AGPMM at FAO Headquarters. All activities of SWAC contribute to the strengthening of the national capacities of its member countries in Desert Locust survey, control operations, reporting, training, preparedness, contingency planning, emergency response, biopesticides, and health and safety. I.R. Iran and Pakistan conduct a month-long joint survey every year in the spring breeding areas on both sides of their common border and the results are used to plan for the Indo-Pakistan summer campaign. The Locust Directors and Information Officers (DLIOs) from India and Pakistan attend a Joint Border Meeting every month from June to November to exchange information about ongoing survey and control operations in the summer breeding area. In 2016, the member countries agreed to increase the annual contributions to the Trust Fund by 50%, equivalent to USD 107 175. During a very serious Desert Locust outbreak in 2019, the SWAC countries treated over 1.3 million hectares without external assistance.

36. The Executive Secretary of the FAO Commission for Controlling the Desert Locust in the Western Region (CLCPRO) presented its brief history and achievements. It was established in 2002 and contains ten member countries (Algeria, Burkina Faso, Chad Libya, Mali, Morocco, Mauritania, Niger, Senegal and Tunisia). The Commission aims to promote national, regional and international action to ensure preventive control and to deal with Desert Locust invasions in the western portion of its distribution area, which covers West and Northwest Africa. CLCPRO, through the successful implementation of two phases of the EMPRES programme, has developed and established a Monitoring System of National Locust Control Mechanisms (SVDN), a monitoring and evaluation system, a list of environmental requirements, and a Locust Risk Management Plan (PGRA). CLCPRO implements training and research activities. Concerning financial components, CLCPRO regularly organized ministerial meetings that resulted in the tripling of the annual member contributions and the establishment of the Regional Funding for Locust Risk Management (FRGRA), which was set up in 2018. The Intervention Force of the Western Region (FIRO) was established to rapidly respond to outbreaks in the region. Good progress has been achieved so far in promoting biological control such as registration in most countries and the elaboration of the work plan (2020–2023) for their operational use.

37. Regarding the challenges, the following were addressed in the discussion:

    (a) Insecurity that hampers the deployment of field survey teams.
    (b) Aging national locust staff and difficulties to replace them.
    (c) Reduction in the number of pesticides available for locust control.
    (d) Lack of motivation for the operational use of biopesticides.
    (e) Obstacles for operational use of drones.

38. During the discussion, it was agreed that training is key, which should be carried out by the substantial amount of expertise that is available at national level within and outside the region.

39. After a thorough discussion, the DLCC came up with the following recommendations:

Recommendation 9: Countries in the Central Region are **urged** to establish and maintain financially and administratively autonomous or semi-autonomous national locust control units.

Recommendation 10: CRC countries are **urged** to reinforce the Regional Emergency Trust Fund and make contributions to it.

Recommendation 11: Countries are **urged** to involve local communities and governmental authorities, where appropriate, to contribute to locust survey and share the gathered information.

Recommendation 12: Countries likely to receive locust infestations from areas where the situation is unknown should maintain high vigilance and readiness for early intervention and timely control.

SESSION 4: Technical aspects of Desert Locust management

40. The Executive Secretaries of CLCPRO and CRC presented the main results of the Desert Locust component of the Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases (EMPRES) that was first initiated in the Central Region (1997–2006). EMRPES was then extended to the Western Region in 2006 so that concerned countries could implement sustainable preventive control at the national, regional and international levels in a coherent and coordinated manner.

41. It was recognized that the establishment of autonomous national locust control units and the creation of the Emergency Trust Fund were the two key factors contributing to the success of EMPRES in the Western Region. In the Central Region, only two of the seven CRC/EMPRES countries have autonomous locust units. Although the Emergency Trust Fund was created in 2014, it has not received contributions from CRC member countries except for Saudi Arabia that recently granted USD 400 000.

42. Some member countries raised their concern from the accumulated obsolete pesticide stocks from the old Desert Locust control campaigns, and stressed the need for FAO and relevant donors to assist in the safe management and disposal of these accumulated stocks.

43. The Agricultural Officer / Locust Management presented the current situation with the use of biopesticides in Desert Locust control. Because of a growing concern regarding the overuse of chemical pesticides that can produce adverse impacts on human health and the environment, alternative options were sought to control Desert Locust. One of them is an entomopathogenic fungus *Metarhizium acridium*, which has been commercialized for locust control. It has numerous benefits including high specificity against locusts, low environmental side-effects, compatibility with ULV spraying equipment and suitability for preventive control strategy. At the same time, it is slow-acting, requires particular conditions for storage and transportation and more difficult to apply than conventional pesticides.

44. During the discussion, the pros and cons of *Metarhizium* were considered, and participants agreed that it is an efficient and environmentally-friendly alternative to conventional pesticides, which should be promoted. Advocacy at all levels is needed to ensure its adoption. National registrations should be encouraged and training on the use of this biopesticide should be provided.

Recommendation 13: The Desert Locust regional commissions and their member countries should maximize the use of biopesticides, whenever possible, and requested FAO to facilitate the process of biopesticide procurement.

Recommendation 14: Each Desert Locust regional commission and its member countries should continue to provide specific training for the operational use of biopesticides.

Recommendation 15: The Desert Locust regional commissions and their member countries are **encouraged** to include in their annual workplans the proportion of areas treated with biopesticides, which should be increased progressively.

45. The role of innovations in improving Desert Locust survey, control and early warning was presented and discussed. The introduction of eLocust2 in 2006 and subsequently eLocust 3 in 2014 revolutionized locust data collection and management. Combined with innovative remotely sensed products and using the RAMSES GIS that allows Desert Locust Information Officers (DLIOs) to analyze eLocust3 data and satellite imagery, more Desert Locust outbreaks are now detected and controlled successfully. While locust-affected countries and FAO have benefited from these innovations, it is important not to stop innovating. With this in mind, DLIS and the three regional locust commissions have been actively pursuing the use of fixed-wing drones for long-distance surveys up to 100 km to detect green vegetation, rotary drones to determine the extent of green vegetation and identify potential targets in specific locations, and control drones to treat infestations safely and more effectively. Potential obstacles in the introduction of drones for locust survey and control in affected-countries may include

complex national regulations and insufficient training. It was emphasized that innovations, such as drones, represent just "another tool in the box" and they will not replace aerial locust control.

Recommendation 16: Frontline countries are **encouraged** to facilitate the possibility of using drones for Desert Locust management, including national authorization.

46. The Executive Secretaries of CLCPRO and CRC examined current preparedness to the Desert Locust emergencies. FAO, its Commissions and affected countries implement a preventive control strategy to manage Desert Locust, consisting of permanently monitoring the primary breeding areas and intervening at the first signs of gregarization. However, this does not guarantee the successful control of every outbreak or prevention of upsurges and plagues. To address this challenge, locust-affected countries have developed contingency plans supported by financial instruments that can be mobilized at the beginning of and invoked during emergencies.
47. Resource mobilization from donors was deemed crucial in addressing Desert Locust emergencies but this is usually only after national funding sources have been exhausted. It was recognized that donor attention to locust disasters, which jeopardize global food security, should be raised at a highest international level through a targeted and aggressive media campaign. At the same time, a serious effort is needed to raise awareness at a national level with all stakeholders including local donors and Governmental authorities.
48. At the end of the discussion, participants concluded that the preventive control strategy, implemented by FAO through its regional commissions, was effective in controlling the Desert Locust outbreaks. This strategy is based on high-quality and timely survey data combined with other sources of information (remote sensing, models etc.) analysed at DLIS, which issues reliable forecasts concerning further locust developments.

Recommendation 17: DLCC **recognized** that the functioning of the Desert Locust regional commissions is a key contributor to national and regional food security and **urged** member countries to make every effort to make appropriate and regular payments to their commission.

Recommendation 18: DLCC **requested** FAO to organize an international donor meeting to address the current and impending Desert Locust threat to global food security. In preparation for this meeting, all informational means should be used to publicize the threat and increase donors' interest.

SESSION 5: Reactivating the DLCC

49. The Team Leader, Locusts and Transboundary Pests and Diseases, reported on the status of the implementation of the 25 recommendations made at the 40th Session of the DLCC. Most of the recommendations were to be implemented by FAO, but some depended on actions to be taken by locust-affected countries or the Desert Locust regional commissions. Most of the recommendations were addressed, while a few could not be addressed due to policy and resources constrains. Some recommendations required a long-term approach or more elaborations and directions from the DLCC at its 41st Session.

Recommendation 19: The DLCC **agreed** to carry forward to the next biennium the recommendation from the 40th session that further opportunities for study and research on the assessment of the spatial

distribution of locust infestations be pursued, primarily through activities undertaken by CLCPRO, subject to financial and other capacities.

50. Based on extensive discussions, several new recommendations were developed:

Recommendation 20: Desert Locust regional commissions and countries are **encouraged** to support and facilitate the process of pesticide triangulation for efficient management of pesticide stocks and rapid acquirement of pesticides by countries facing emergencies in order to prevent the accumulation of obsolete pesticide stocks.

Recommendation 21: FAO and the Desert Locust regional commissions are **encouraged** to facilitate the process of the re-evaluation of the pesticide stock formulation through accredited and certified laboratories.

Recommendation 22: Countries are **encouraged** to explore, where possible, opportunities for keeping stocks of pesticide active ingredients for rapid in-country formulation based on the need, instead of stocks of ready pesticide formulations, to avoid the expiry and accumulation of obsolete stocks.

51. The Senior Locust Forecasting Officer presented an overview of the 2012–2019 contributions (see Annex IV) and expenditures of the International Trust Fund 9161 (GCP/GLO/899/MUL). These contributions, unlike the regional locust commissions, are a political commitment rather than a legal obligation. The total assessed contributions by all member countries is USD 207 780 per year. A total of USD 1 164 608 in contributions was received from 2012 to mid-November 2019. Ten member countries (Eritrea, India, Iraq, Jordan, Lebanon, Morocco, Pakistan, Saudi Arabia, Tunisia and UAE) contributed regularly to the Trust Fund. Six member countries (Burkina Faso, Djibouti, Iran, Niger, Somalia and Sudan) did not contribute to the Trust Fund between 2012 and 2019.

52. Activities funded by DLCC must be global in nature and contribute to improved Desert Locust management for the benefit all member countries. Accordingly, the DLCC funds three core activities:

    (a) Support to the Desert Locust Information Service (DLIS) at FAO Headquarters to monitor the global Desert Locust situation and provide forecasts, alerts and early warning, as well as maintaining the Locust Watch website
    (b) The 11-month training of one Desert Locust Information Officer every year in DLIS
    (c) GIS and new technologies (such as RAMSES and SWARMS GIS, eLocust3 and drones) that is co-funded with the Desert Locust regional commissions

53. The DLCC also funds the DLCC session and the Pesticide Referee Group. The only source of funding for DLCC activities is from the Trust Fund.

54. As of mid-November 2019, the accumulated arrears of the Trust Fund were nearly USD 2.25 million, a 34 percent increase from the last DLCC session, compared to a 21 percent increase between the 39th and 40th session. This is a disturbing trend that, if it continues, will have a negative impact on DLCC activities. Ten countries (Chad, Iran, Iraq, Kuwait, Mauritania, Niger, Somalia, Sudan, Tunisia and Yemen) have substantial arrears of greater than USD 100 000. Four countries (Bahrain, Eritrea, Libya and UAE) have no arrears.

55. Expenditures from 2012 to mid-November 2019 amounted to USD 955 898 equivalent to about USD 159 316 per year, which is nearly the same as the previous period (2008—2011). As of 15 November 2019, the Trust Fund cash balance is USD 160 920.

56. Several delegates appreciated the clear explanation that was provided about DLCC activities and indicated that this will helpful when convincing national authorities of the need to contribute to the DLCC Trust Fund regularly and on time.

57. It was noted that research activities are sufficiently addressed by CLCPRO and CRC such that DLCC funding is not required.

Recommendation 23: FAO should clarify with those countries that have accumulated arrears in excess of USD 100 000 if they are having a problem in making payments. If so, then 50% of their arrears could be waived under the condition that a commitment to pay and payment arrangements for the balance of the arrears are confirmed by the member country.

Recommendation 24: FAO should follow up on the payment of annual contributions by sending reminders to member countries where appropriate. In these communications, the importance of DLCC activities will be highlighted.

58. After lengthy discussion, the DLCC **endorsed** the 2020–2021 work plan and associated budget of USD 400 000 for the biennium for the following activities to be funded at the following estimated levels (see also Annex V):

DLIS Support / Locust Watch	USD 200 000
11-month DLIO training at FAO HQ	USD 90 000
GIS and new technologies	USD 60 000
DLCC mandate revision Working Group / PRG	USD 20 000
42nd DLCC session in 2021	USD 30 000

59. If additional contributions are received, they could be used to supplement the budget for GIS and new technologies that benefit member countries, and to support greater use of biopesticides.

Recommendation 25: DLCC sessions should, if possible, be conducted outside of FAO HQ for the foreseeable future in order to maximize the efficient use of limited trust fund resources and to allow the host country to assist in supporting the session.

60. The Agricultural Officer / Locust Management presented the achievements and challenges of the FAO interregional and multi-funded programme to improve national and regional locust management in Caucasus and Central Asia (CCA) that has been implemented since 2011 in Afghanistan, Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Russian Federation, Tajikistan, Turkmenistan and Uzbekistan. Resource partners include the United States Agency for International Development (USAID), Japan International Cooperation Agency (JICA) and Turkey.

61. A video on the FAO Emergency Response to locust crisis in Madagascar (2013–2016) was shared with the participants in which USAID provided substantial support.

62. The DLCC acknowledged and thanked Saudi Arabia and USAID for the support they provided recently to address the current Desert Locust situation.

CLOSING SESSION

63. This report with agreed amendments was adopted the participants.

64. The next session of DLCC was proposed to be held in June 2021 at a venue to be decided by the Secretariat.

65. The Chairperson thanked all participants for their contributions to the discussion, as well as the staff of the Secretariat who had contributed to organize the Session, the drafting committee and the Government of Ethiopia for hosting this session. He declared the session closed.

Annex I: List of Participants

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Annex II. Endorsed Agenda

Opening

1) Opening of the session
2) Election of Chairman, Vice-Chairman and Drafting Committee, and adoption of the agenda

Session 1: Desert Locust Control Committee

How do commissions differ from the DLCC?

3) Desert Locust Control Committee (DLCC) overview and report on activities

Session 2: Desert Locust developments

What has been learned from past outbreaks and what is the impact of the climate change?

4) Review of Desert Locust outbreaks, June 2012 to December 2019
5) Desert Locust outlook until spring 2020
   Comments and additions from locust-affected countries

Session 3: Desert Locust Regional Commissions

What did the Regional Commissions achieved?

6) Commission for Controlling the Desert Locust in the Central Region (CRC)
7) Commission for Controlling the Desert Locust in South-West Asia (SWAC)
8) Commission for Controlling the Desert Locust in the Western Region (CLCPRO)
   Discussion and conclusions

Session 4: Technical aspects of Desert Locust management

How to ensure global collaboration?

9) 25th anniversary of EMPRES: Western Region evaluation (Phase II, 2014–2017), successes in the Central and Western Regions – what did we learn?
   Discussion and conclusions
10) Greening Desert Locust – how can biopesticides help?
    Discussion and conclusions
11) Improving preventive control – what is the role of innovation?
    Discussion and conclusions
12) The next Desert Locust emergency – are we ready?
    Discussion and conclusions

Session 5: Reactivating the DLCC

How to ensure global collaboration?

13) Implementation of the 40th Session recommendations

14) International Trust Fund 9161: Contributions/Expenditures 2012–2019
15) Workplan 2020–2021
16) Any other business
    Caucasus and Central Asia (CCA) locust programme
    FAO Emergency Response to locust crisis in Madagascar (2013–2016)

Preparation of draft report (Drafting Committee)

Cultural visit for participants

Closing session

17) Adoption of draft report
18) Next session

Annex III. Overview of the Desert Locust situation from June 2012 to December 2019 and forecast until Spring 2020

Overview from June 2012 to December 2019

Since June 2012, approximately 21 outbreaks developed in the recession area as a result of precipitation anomalies associated with unusual rainfall events and cyclones[1]. Unrelated outbreaks occurred simultaneously in several countries during 2013 and 2016. A total of 2.9 million ha has been treated since 2012 of which more than half was in 2019. Control operations successfully contained most of these outbreaks and prevented their spread to adjacent countries or regions. However, several outbreaks were difficult to control because of (a) poor early warning due to the limits of remote sensing imagery in accurately detecting rainfall and green vegetation, (b) inaccessible and insecure areas, (c) insufficient survey and control resources, (d) late detection and response, and (e) unusually favourable weather and environmental conditions. The current Desert Locust situation has deteriorated recently despite intensive control operations and swarms continue to form and migrate to other countries in the Central and Eastern regions.

It may appear that outbreaks are occurring more frequently, which could be a result of climate change but it may also be due to improvements in detecting outbreaks that have been achieved through the use of tools and technologies such as eLocust3, GIS and remote sensing and by better planning and field operations. Nevertheless, it is clear that there are an increasing number of issues that continue to make Desert Locust monitoring, early warning and preventive control challenging. These should be thoroughly examined and discussed during the session to avoid becoming complacent.

[1] 2012: Algeria/Libya that spread to Mali/Niger; Sudan (207 103 ha treated); 2013: Eritrea, Mauritania, N Somalia, Sudan, Yemen (493 672 ha treated); 2014/2015: Eritrea, Mauritania, Sudan, Saudi Arabia (478 851 ha treated); 2016: Yemen, Saudi Arabia, Mauritania, Sudan, Eritrea (58 389 ha treated); 2017: Saudi Arabia, Somalia (27 000 ha treated); 2018: Sudan/Eritrea (10 577 ha treated); 2019: Saudi Arabia / Yemen that spread to SW Asia and Horn of Africa (1 657 320 ha treated)

Table 1. Treated areas against Desert Locust from 2012 to 2019 (ha)

Treated areas (ha)	2012	2013	2014	2015	2016	2017	2018	2019	TOTAL
Algeria	43,542	17,780	123		1,417	419	1,631	817	**65,729**
Chad	2,630								**2,630**
Egypt	9,760	36,621	82					21,122	**67,585**
Eritrea		59,470	33,198	15,471	8,668	108	7,235	35,447	**159,597**
Ethiopia			6,622		31			19,532	**26,185**
India								308,627	**308,627**
Iran			34,656			14,000		720,480	**769,136**
Israel		28,500							**28,500**
Jordania		16						2,900	**2,916**
Kuwait								15,653	**15,653**
Libanon	21,400	1,880							**23,280**
Mauritania	26,053	54,850	300	4,168	20,392	412		188	**106,363**
Morocco	2,582	11,633		17	15,648	589			**30,469**
Niger	64,737		541		25		394	29	**65,726**
Oman			5,150					153	**5,303**
Pakistan					410			159,295	**159,705**
Saudi Arabia	1,820	111,725	142,181	11,423	6,420	11,185		237,597	**522,351**
Somalia			76		53	85	70		**284**
Sudan	34,579	171,182	145,352	79,492	5,325	185	1,247	135,480	**572,842**
United Arab Emirates			2,500						**2,500**
Yemen		49,268	3,832		614			10,757	**64,471**
TOTAL	**207,103**	**542,925**	**374,613**	**110,571**	**59,003**	**26,983**	**10,577**	**1,668,077**	**2,999,852**

Forecast until Spring 2020

The current Desert Locust situation is extremely serious in the Central and Eastern regions and will probably continue during the spring.

Western Region. The situation is expected to remain calm in the Region until at least next summer. Small-scale breeding is likely to occur in a few places in Mauritania and northwest Africa.

Central Region. Summer-bred swarms may arrive in Oman from the Indo-Pakistan area during December. In the Horn of Africa, swarms are likely to spread within Ethiopia and Somalia and invade Djibouti and perhaps southern Somalia and Kenya during December. A tropical cyclone in December is expected to bring heavy rains to the Horn of Africa that will further exacerbate the situation. This will be followed by another generation of breeding in eastern Ethiopia (Ogaden) and in northern Somalia, causing locust numbers to increase further with the formation of additional hopper bands and swarms. If breeding continues during the spring, this would cause a substantial and dramatic increase in hopper bands and swarms. Along both sides of the Red Sea and Gulf of Aden, one generation of winter breeding will occur in southeast Egypt and Sudan while two generations are expected in Eritrea, Yemen, northwest Somalia

and perhaps Saudi Arabia between now and March. Consequently, locust numbers could increase substantially, giving rise to hopper bands and swarms until about March. Thereafter, migration to spring breeding areas in the interior of Saudi Arabia, Yemen and Somalia will occur as vegetation dries out in winter breeding areas along the coast. The scale of this migration depends on rainfall and breeding during the winter and the effectiveness of survey and control operations.

Eastern Region. A significant migration of summer-bred swarms is expected to occur during December from the Indo-Pakistan border to the spring breeding areas in southwest Pakistan and southeast Iran. This will cause the situation to calm down along both sides of the Indo-Pakistan border by the end of the year. Swarms that appear in the spring breeding areas are likely to disperse upon arrival, but some groups and swarms are expected to move further west along the southern coast of Iran to areas of recent heavy rains in the southwest province of Bushehr. Although low temperatures will slow down adult maturation, some adults could lay eggs in areas of recent rains; otherwise, most of the egg-laying will occur once temperatures warm up in about February, allowing for at least one generation of breeding during the spring, depending on rainfall.

Annex IV. International Trust Fund 9161 (DLCC): contribution and arrears (as of November 2019)

	Annual contribution	Received 2012-19	Last payment	Outstanding 15/11/2019
Afghanistan	3,480.00	9,050.00	2014	25,800.00
Algeria	7,700.00	7,700.00	2013	61,634.00
Bahrain	920.00	8,280.00	2019	0.00
Burkina Faso	3,000.00	0.00		33,000.00
Cameroon	2,780.00	6,367.31	2014	25,864.75
Chad	3,520.00	23,991.60	2014	118,848.40
Djibouti	1,120.00	0.00		43,540.00
Egypt	5,740.00	28,700.00	2017	17,220.00
Eritrea	3,000.00	33,000.00	2019	0.00
Ethiopia	4,320.00	38,954.00	2017	17,254.00
Gambia	2,420.00	68,409.50	2015	9,680.00
Ghana	3,280.00	3,280.00	2014	26,240.00
India	20,000.00	180,269.16	2018	20,000.00
Iran, I.R.	20,000.00	0.00		621,495.24
Iraq	7,440.00	66,960.00	2019	171,186.00
Jordan	3,420.00	27,360.00	2018	3,420.00
Kenya	3,580.00	3,580.00	2018	3,580.00
Kuwait	20,000.00	100,000.00	2019	120,000.00
Lebanon	3,060.00	15,502.15	2017	47,632.70
Libya	10,640.00	117,060.00	2019	0.00
Mali	3,600.00	28,096.54	2018	6,949.11
Mauritania	2,900.00	4,337.35	2014	101,698.74
Morocco	5,360.00	37,560.00	2017	10,720.00
Niger	3,760.00	0.00		137,160.00
Pakistan	6,520.00	52,160.00	2019	13,040.00
Qatar	1,760.00	10,560.00	2017	6,157.84
Saudi Arabia	20,000.00	100,000.00	2017	60,000.00
Senegal	3,520.00	42,489.60	2013	31,233.56
Somalia	3,500.00	0.00		128,744.77
Sudan	3,980.00	0.00		115,708.20
Syria	4,520.00	28,825.92	2019	5,520.00
Tunisia	4,460.00	21,840.00	2017	124,896.44
Uganda	3,380.00	9,137.40	2012	27,327.73
UAE	4,600.00	78,243.80	2019	0.00
Yemen	6,500.00	6,446.87	2019	112,912.36
Total	**207,780.00**	**1,164,608.07**		**2,248,463.84**

Annex V. International Trust Fund 9161 (DLCC): Workplan and budget 2020-2021

TRUST FUND No 9161.00 - MTF/INT/008/MUL

ENDORSED WORKPLAN AND BUDGET 2020- 2021 (USD)

N°	Item	USD
1	Support to DLIS and Locust Watch	200 000
2	Training for national locust information officers in DLIS (one /year)	90 000
3	Support to GIS and new technologies	60 000
4	Working Group on DLCC mandate/PRG	20 000
6	42nd DLCC Session	30 000
	GRAND TOTAL	**400 000**