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Thirty-first Session

11–13 December 2018

New Delhi, India



FAO Commission for
Controlling the Desert Locust
In South-West Asia

**Report of the
FAO Commission for Controlling the
Desert Locust in South-West Asia**

Thirty-first Session

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Food and Agriculture Organization of the United Nations
Rome, 2018

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Contents

Acknowledgements	2
List of recommendations.....	3
Recommendations to be implemented by member countries and FAO.....	4
Opening of the 31st session	7
Elections.....	8
Desert Locust early warning	8
Desert Locust Situation (January 2017 – December 2018) and forecast to spring 2019	8
Information and reporting	8
Report on Joint Surveys and Border Meetings in 2017 and 2018	9
Improving preventive control	11
Training.....	11
Contingency planning.....	12
Biological control	12
New technologies	13
Review of 30th session recommendations and progress made	14
Financial health of the Commission.....	15
Accounts for 2016–2018.....	15
Work plan for 2019–2020.....	16
Any Other Business	18
Date and place of the next session	18
Adoption of the report.....	18
Annex 1. List of participants	19
Annex 2. Agenda	21
Annex 3. Desert Locust situation (2017–2018) and forecast to spring 2019	22
Annex 4. Desert Locust reporting	25
Annex 5. Improvements to future I.R. Iran/Pakistan joint surveys	27
Annex 6. Status of the 30th session recommendations.....	28
Annex 7. SWAC Trust Fund accounts 2016–2018: FAO accounting codes	30
Annex 8. SWAC work plan 2017–2018 expenditures	34
Annex 9. SWAC Trust Fund member country contributions 2018–2018.....	35
Annex 10. Status of DLCC contributions for SWAC countries	36
Annex 11. SWAC Trust Fund work plan 2019–2020	37

Acknowledgements

The Executive Secretary and the delegates of the 31st session of SWAC wish to thank the Government of India for hosting the session in New Delhi. We are grateful to the staff of the Locust Warning Organization (LWO) and the Department of Agriculture, Cooperation & Farmers' Welfare, the Ministry of Agriculture and Farmers' Welfare and the FAO Representation for their efforts in organizing the session. In this respect, particular thanks are due to Dr. Suresh Kumar Malhotra (Agriculture Commissioner), Dr. B. Rajender (Joint Secretary), K.L. Gurjar (Deputy Director, LWO), J.P. Singh (LWO), Tomio Shichiri (FAO Representation in India), and Antonietta Drappa (AGPMM).



Participants of the 31st Session of SWAC

(left to right): K.L. Gurjar (India), J.P. Singh (India), Keith Cressman (FAO/SWAC), Mehdi Ghaemian (I.R. Iran), Muhammad Tariq Khan (Pakistan), Annie Monard (FAO), Mamoon Al-Alawi (FAO/CRC)

List of recommendations

The 31st session agreed on the following 23 recommendations:

1. The improvements to future joint surveys as suggested by the 2017–2018 Joint Survey teams should be implemented.
2. The Executive Secretary should send an invitation letter to both countries to undertake a single I.R. Iran/Pakistan Joint Survey.
3. The Executive Secretary should request Afghanistan and India to submit nominations for one locust officer to join the Joint Survey by 1 January.
4. The DLIOs in each country should join the final meeting and prepare a single report with the Joint Survey team.
5. The final Joint Survey report should be shared with CRC.
6. The Joint Border Meetings should continue under the auspices of FAO SWAC.
7. The Executive Secretary should participate in Joint Border Meeting in Pakistan and one in India.
8. Two Iranian locust officers should join a national survey in Oman during the spring on an annual basis in 2019 and 2020.
9. A locust officer from I.R. Iran should join a national survey during the summer in Pakistan (2019) and India (2020).
10. The Executive Secretary should conduct a regional Master Trainer workshop in Turkey.
11. Two Master Trainers from each country should participate in a Master Trainers workshop on the maintenance of ULV sprayers to be held in Oman.
12. The Executive Secretary should develop a checklist of contingency plan components.
13. All countries should finalise their contingency plans and submit them to their Government, if necessary, once they have been reviewed by the Executive Secretary.
14. Each country should send a copy of their final contingency plan to the Executive Secretary.
15. The Executive Secretary in collaboration with the Plant Protection Organization should organise and conduct a mock field exercise in 2020 to test the contingency plan in I.R. Iran and include one participant from each of the other member countries.
16. Each country should initiate the registration process of *Metarhizium acridum* for Desert Locust control in their country.
17. A series of short videos should be produced to give greater visibility to SWAC and the invisible efforts of the national locust programmes.
18. The Executive Secretary should report to SWAC about the outcome of the next drone field trial.
19. FAO should seek clarification from the Legal Office concerning signed membership documents of SWAC and DLCC to allow countries to assume their financial obligations to both entities.
20. All countries are requested to assume their financial obligations to SWAC in a timely and regular manner, and inform the Executive Secretary accordingly.
21. The period in which I.R. Iran should pay 50% of its arrears (as of 31 December 2014) should be extended by one year to 31 December 2019.
22. All countries are requested to assume their financial obligations to DLCC in a timely and regular manner, and inform FAO accordingly.
23. The host country of the 32nd session should provide its formal agreement to FAO by June 2020.

Recommendations to be implemented by member countries and FAO

The 23 recommendations from the 31st session are grouped in order to facilitate their implementation by Afghanistan (6), India (7), I.R. Iran (13), Pakistan (9) and FAO (10).

Afghanistan

Recommendation 11. Two Master Trainers from each country should participate in a Master Trainers workshop on the maintenance of ULV sprayers to be held in Oman.

Recommendation 13. All countries should finalise their contingency plans and submit them to their Government, if necessary, once they have been reviewed by the Executive Secretary.

Recommendation 14. Each country should send a copy of their final contingency plan to the Executive Secretary.

Recommendation 16. Each country should initiate the registration process of *Metarhizium acridum* for Desert Locust control in their country.

Recommendation 20. All countries are requested to assume their financial obligations to SWAC in a timely and regular manner, and inform the Executive Secretary accordingly.

Recommendation 22. All countries are requested to assume their financial obligations to DLCC in a timely and regular manner, and inform FAO accordingly.

India

Recommendation 6. The Joint Border Meetings should continue under the auspices of FAO SWAC.

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I.R. Iran

Recommendation 1. The improvements to future joint surveys as suggested by the 2017–2018 Joint Survey teams should be implemented.

Recommendation 4. The DLIOs in each country should join the final meeting and prepare a single report with the Joint Survey team.

Recommendation 8. Two Iranian locust officers should join a national survey in Oman during the spring on an annual basis in 2019 and 2020.

Recommendation 9. A locust officer from I.R. Iran should join a national survey during the summer in Pakistan (2019) and India (2020).

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Recommendation 15. The Executive Secretary in collaboration with the Plant Protection Organization should organise and conduct a mock field exercise in 2020 to test the contingency plan in I.R. Iran and include one participant from each of the other member countries.

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Recommendation 22. All countries are requested to assume their financial obligations to DLCC in a timely and regular manner, and inform FAO accordingly.

Recommendation 23. The host country of the 32nd session should provide its formal agreement to FAO by June 2020.

Pakistan

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FAO

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Recommendation 18. The Executive Secretary should report to SWAC about the outcome of the next drone field trial.

Recommendation 19. FAO should seek clarification from the Legal Office concerning signed membership documents of SWAC and DLCC to allow countries to assume their financial obligations to both entities.

31st session of the FAO Commission for Controlling the Desert Locust in South-West Asia (SWAC)

Opening of the 31st session

1. The opening of the 31st session commenced with a traditional Indian lightening of lamps ceremony.
2. B. Rajender, Joint Secretary, welcomed the delegates and thanked the Commission for giving India the opportunity to host the 31st session. He emphasised that global and regional cooperation are essential for effective Desert Locust management. After India faced the last Desert Locust upsurge in 1993, the Locust Warning Organization (LWO) was modernised with assistance from the Commission by adapting new technologies such as eLocust and remote sensing to ensure that there are no gaps in monitoring. Efforts have been made by India to respond to any Desert Locust threat by increasing survey coverage along the Pakistan border, appointing a new Desert Locust Information Officer, creating a new format for the fortnightly bulletin, establishing a separate budget in the 12th five-year plan of the Government and training Master Trainers. Nevertheless more efforts are required that should be discussed during this session.
3. Keith Cressman, FAO Senior Locust Forecasting Officer at FAO Headquarters in Rome and the Executive Secretary of SWAC, welcomed the delegates from the member countries and thanked the Government of India for agreeing to host this session. He expressed his gratitude to the substantive efforts that were made by the Government in organising the session. He also welcomed FAO colleagues from Headquarters, Annie Monard, Team Leader of the Locusts and Transboundary Plant Pests and Diseases Group, and Mamoon Al-Alawi, Executive Secretary of the FAO Commission for Controlling the Desert Locust in the Central Region (CRC). Although the current Desert Locust situation remains calm in all countries, this is not a time for complacency. Instead, efforts must be maintained in monitoring all breeding areas and to be well-prepared to face any Desert Locust threat. He noted that the session agenda consists of technical and administrative issues, and he encouraged participants to discuss each item openly and in a frank manner.
4. Tomio Shichiri, the FAO Representative in India, on behalf of the Director-General, welcomed the delegates of the Member Countries and thanked the Government of India for hosting the 31st session. He recalled that SWAC is the oldest of FAO's three Desert Locust regional commissions, having been established in 1964. The Locust Warning Organization in India is the world's oldest national Desert Locust programme. The oldest locust base in the world is located on the coast of today's Pakistan in Pasni, and it is still operating after more than 80 years. In fact, the basis of the national plant protection programmes in the four member countries are derived from Desert Locust and then later expanded to include other agricultural pests. The impact of SWAC on the strengthening of national locust programmes in the three frontline countries is one of the reasons why there has not been devastating plagues in the region since the late 1980s. Nevertheless, it is important to remain vigilant and prepared.
5. Suresh Kumar Malhotra, the Agriculture Commissioner, Government of India, welcomed the honourable delegates of the Commission's Member Countries, the FAO Representative and the SWAC Executive Secretary to the 31st session. He appreciated that India was selected to host this session. He reiterated the importance of agriculture and food security, and noted that India achieved its highest agriculture production this past year, some six-fold greater than in previous years. He recalled that India took the initiative to control Desert Locust in 1930, followed by the establishment of the LWO in 1939 and its continual monitoring system. He credited the efforts of the FAO Desert Locust Information Service (DLIS) in monitoring the global Desert Locust situation and providing timely forecasts and warnings. In addition, he emphasised the important role that

SWAC has played in strengthening member countries' capacities. Further efforts are required on training and the use of latest technologies.

6. Rajesh Malik, Director (Plant Protection) and acting Plant Protection Advisor, Department of Agriculture Cooperation and Farmers' Welfare, Ministry of Agriculture and Farmers' Welfare, Government of India gave a vote of thanks to the Government of India, FAO Headquarters, the Executive Secretary of SWAC, the FAO Representation in India, the delegates and the media for coverage of the session.
7. The delegate from Afghanistan could not attend the session because he did not receive his visa in time.

Elections

8. The Member Countries elected India as Chairman of the current session and I.R. Iran as Vice-Chairman. The elections were accepted with acclaim. A list of participants and observers is presented in Annex 1. The delegate of Afghanistan was unable to attend the session.
9. The Executive Secretary presented a draft agenda that was adopted (Annex 2).
10. The session entrusted the drafting of the report to the Executive Secretary of the Commission.

Desert Locust early warning

Desert Locust Situation (January 2017 – December 2018) and forecast to spring 2019

11. The Executive Secretary gave a presentation that reviewed the Desert Locust situation since the 30th session (Annex 3). The situation remained calm in both the spring and summer breeding areas and locust numbers are extremely low. Ground teams treated 14 000 ha in June and July 2017 in the Jaz Murian Basin of southeast Iran where locust breeding gave rise to increased numbers of locusts that began to concentrate as vegetation dried out. No locusts were seen in either year in the spring breeding areas of Baluchistan, Pakistan.
12. Very little summer breeding occurred along both sides of the Indo-Pakistan border during 2017–2018. Monsoon rains began about two weeks earlier than normal in 2017 and ended about one month later than normal. Consequently, rainfall was 39% higher than normal in West Rajasthan, India. In 2018, monsoon rains started two weeks early and ended one month late but rainfall was some 23% below normal due to a gap in the rains. As a result, limited breeding was detected in 2017 but not in 2018. This illustrates the importance of consistent rainfall throughout the summer breeding period.
13. The outlook until spring 2019 depends on locust numbers and predicted rainfall. The latest seasonal rainfall predictions suggest a possibility for slightly above-normal rainfall during April and June in the spring breeding areas of southeast Iran. But as so few locusts are present, only small-scale breeding is expected but it is unlikely to cause any significant increase in locust numbers.

Information and reporting

14. The Executive Secretary reviewed the quality and timeliness of reporting to the Desert Locust Information Service (DLIS) at FAO Headquarters during 2017–2018, specifically Rv4.1 data and national locust bulletins (Annex 4). In general, good reporting was achieved in both years by the three frontline countries in the region. India continued to undertake surveys in every month of the year. Pakistan is one of the few countries in the recession area with two breeding areas – along the Indo-Pakistan border in the summer and in Baluchistan during the spring. I.R. Iran has a relatively small spring breeding area. Consequently, a high volume of Rv4.1 data was provided by India (5 541 records) and Pakistan (4 174 records) whereas I.R. Iran provided less data (508 records).

15. There was a significant improvement in the fortnightly Desert Locust bulletins in India and Pakistan with a new style and format that contains high quality maps and, in the case of India, dual languages. There was also a notable improvement in the maps contained in the English/Farsi I.R. Iran bulletins. All countries incorporated the SWAC logo in their bulletins. These changes are a result of positive encouragement and support from the management, the migration from PC to Mac laptops, feedback from DLIS and training provided in the DLIO workshops.
16. Delegates discussed trends in Desert Locust reporting, noting that activities peaked during the spring in I.R. Iran and Pakistan and during the summer in Pakistan and India, which coincides with the seasonal breeding periods of Desert Locust in the region. This was confirmed by examining the usage of eLocust3.
17. Delegates agreed on the importance of maintaining strong links between the DLIOs and the Locust Head within the national locust centre in each country. The former should advise the latter concerning important rainfall, green vegetation and locust infestations in order to make effective decisions on survey and control operations.

Report on Joint Surveys and Border Meetings in 2017 and 2018

18. The I.R. Iran/Pakistan Joint Survey was re-established in 1995 under the auspices of SWAC. The nearly month-long survey covers important spring breeding areas in southeast Iran and adjacent areas of Baluchistan, Pakistan. The current survey organization is a result of many years of experience. The Joint Survey results are used for determining the timing and scale of follow-up surveys during the spring and to estimate the potential scale of expected breeding along the Indo-Pakistan border during the summer.
19. The delegate of I.R. Iran presented the results of the joint surveys that were carried out in 2017 and 2018. As it was not possible to obtain the necessary security clearances in both years for a joint I.R. Iran/Pakistan survey team to survey in southwest Pakistan, the joint survey had to be carried out as two separate national surveys simultaneously (known as Option B).
20. The joint survey covered 12 353 km in 2017 and 15 580 km in 2018. The Iranian team covered 6 100 km in 2017, making 129 stops in which they saw locusts in 14 places. In 2018, the team covered 6 928 km, making 137 stops and found locusts in three places. In Pakistan, the team covered 6 253 km in 2017 and 8 652 km in 2018, making 247 and 181 stops respectfully but without seeing any locusts.
21. In I.R. Iran, isolated mature solitarious adults were seen at densities up to 100 adults/ha in a few places along the coast and in the Jaz Murian Basin of the interior in both years.
22. In 2017, one locust officer from Afghanistan, Ahmad Shaker Habibi, joined the Iranian team along the coastal portion of the survey from Chabahar to Bandar Abbas. This was an opportunity to become familiar with the habitat of the Desert Locust, the methodology of the joint survey and to receive on-the-job training in surveying and reporting. Similarly, a locust officer from India was to attend but the participant could not be nominated in time. In 2018, India nominated an officer to join the joint survey because his passport was about to expire. Unfortunately, an officer from Afghanistan could not attend the survey.
23. The delegates reviewed and **agreed** with the suggestions made by the joint surveys in 2017 and 2018 to strengthen future joint surveys (Annex 5).
24. I.R. Iran and Pakistan were encouraged to re-engage in a single Joint Survey and pursue this issue with the relevant authorities according to the security situation. The Pakistani delegate indicated that security and infrastructure have improved in Baluchistan, Pakistan. The delegates, in turn, reaffirmed their commitment to the importance of the annual joint survey.
25. The delegates **agreed** that one locust survey officer from Afghanistan and one from India should continue to participate in the coastal portion of the Joint Survey carried out in I.R. Iran between Chabahar and Bandar Abbas. This is an opportunity for on-the-job training in survey methodology,

planning, use of eLocust3 and reporting. Both countries should participate each year and provide nominations by 1 January to allow sufficient time for travel arrangements. The Executive Secretary should initiate this activity. In order to accommodate these extra officers, the GOE for the I.R. Iran Joint Survey is slightly higher than Pakistan because an additional vehicle is required.

26. Given the important investment in the Joint Survey by the Commission, the final report should be of very high quality. However it was noted that most Joint Survey participants do not have sufficient skills to produce such a report. Therefore, the delegates **agreed** that, in addition to the Locust Head, the DLIO of each country should participate in the final meeting of the Joint Survey to prepare a single final report with team, including standard format maps. The DSA rate should be equivalent to that of a locust officer in the Joint Survey. Furthermore, the DLIOs should provide support to the team throughout the Joint Survey period. This arrangement should be reviewed in the next session.
27. The final report of the Joint Survey should be shared with the FAO Commission for Controlling the Desert Locust in the Central Region (CRC).

Recommendation 1. The improvements to future joint surveys as suggested by the 2017–2018 Joint Survey teams should be implemented.

Recommendation 2. The Executive Secretary should send an invitation letter to both countries to undertake a single I.R. Iran/Pakistan Joint Survey.

Recommendation 3. The Executive Secretary should request Afghanistan and India to submit nominations for one locust officer to join the Joint Survey by 1 January.

Recommendation 4. The DLIOs in each country should join the final meeting and prepare a single report with the Joint Survey team.

Recommendation 5. The final Joint Survey report should be shared with CRC.

28. The delegate of India presented an overview of the monthly Joint Border Meetings (JBMs) held on the Indo/Pakistan at Ground Zero during the summer from June to November. The two-hour meetings are held alternatively at Munabao, India and Khokhropar, Pakistan with border security forces and follow strict protocols and standard procedures. Information on Desert Locust survey and control operations, the current situation and expected developments as well as fortnightly bulletins and data are exchanged. The face-to-face meetings are critical in maintaining good relations and build confidence in knowing the Desert Locust situation in the adjacent country. The JBM report has improved dramatically, similar to the fortnightly Desert Locust bulletin in each country.
29. The delegates discussed the importance of publicising the Joint Survey and Joint Border Meetings, giving them higher visibility as unique activities of the Commission. This would help to sensitive security forces about Desert Locust and encourage countries to maintain these activities. It was **agreed** that the JBM should continue under the auspices of FAO SWAC, which will give further strength to the seriousness of this important joint activity. The Executive Secretary of SWAC should join one meeting each on the India and Pakistan sides in 2019–2020. The Plant Protection Advisors of both countries could join the Executive Secretary.

Recommendation 6. The Joint Border Meetings should continue under the auspices of FAO SWAC.

Recommendation 7. The Executive Secretary should participate in Joint Border Meeting in Pakistan and one in India.

30. In accordance with recommendation XXX at the 30th session, the delegates reviewed the usefulness and benefits of an Iranian locust officer joining a national survey in Oman of the spring breeding areas along the northern (Batinah) coast of Oman since this area is contiguous with that in southeast Iran and southwest Pakistan. If significant locust infestations develop in this area, they can potentially threaten the SWAC region by migrating to I.R. Iran in the spring and to the Indo-Pakistan area at the beginning of the summer. Therefore, it is desirable to be familiar with this breeding area as well as the Desert Locust situation. It was **agreed** that this activity should

continue on annual basis. Since this activity could not be undertaken in 2017–2018, two Iranian locust officers should participate in a national survey in Oman in 2019 and in 2020. The Executive Secretary should initiate this activity. Similarly, it is hoped that an Omani locust officer will participate in a national survey in I.R. Iran.

31. The delegates **agreed** on the desire for a Pakistani locust officer to join a national survey in the summer breeding areas of India and an Indian officer to join a Pakistan survey as a means to become familiar with locust habitats and to strengthen collaboration between the two countries. However, this activity will be considered during the 32nd session.
32. In addition, one Iranian locust officer should participate in a national survey in India and Pakistan during the summer. The Executive Secretary should initiate this activity well in advance to allow sufficient time for travel arrangements.

Recommendation 8. Two Iranian locust officers should join a national survey in Oman during the spring on an annual basis in 2019 and 2020.

Recommendation 9. A locust officer from I.R. Iran should join a national survey during the summer in Pakistan (2019) and India (2020).

Improving preventive control

Training

33. The Executive Secretary presented a brief review of training activities that were carried out in the region under the Commission Trust Fund, specifically support provided to national training efforts as well as the organization of national Training of Trainers (ToT) workshops to identify new Master Trainers.
34. India organized two national training courses on Desert Locust survey in 2017 that trained 54 staff. In 2018, 21 of these participants were trained on Desert Locust control.
35. I.R. Iran conducted one national training course in 2017 for 16 staff. No national workshops were organized in Pakistan because the previous Master Trainers had retired.
36. The ToT workshops have now been completed in India (2014), I.R. Iran (2016) and Pakistan (2018). As a result, 4–7 potential Master Trainers were identified in each country but they need additional training on teaching before they will be able to conduct effective and meaningful training courses in their countries for national locust staff. Furthermore, some of these potential Master Trainers are no longer available in India and I.R. Iran.
37. The session **agreed** that a regional training course should be conducted by the Executive Secretary for potential Master Trainers in India (6), I.R. Iran (4) and Pakistan (4). The course should be held in Turkey after the summer in 2019.
38. The session discussed various ideas to ensure sustainable and meaningful training within member countries by developing regional Master Trainers who could conduct master trainer workshops in the coming years. The delegates **reaffirmed** the importance of regular training of locust staff and at least several national courses should be conducted every year to train new staff and provide refresher training to existing staff. Master Trainers should move around the field for providing training rather than limiting it to the national locust centre. SWAC makes a small contribution to the national training programme in each year. This should be considered as encouragement rather than a substitute for national funds. Therefore, all countries were encouraged to establish an annual training plan and to include training in the national budget.
39. Two DLIOs from frontline countries participated in the annual CRC/SWAC interregional workshop in 2017 and 2018. One regional DLIO workshop was conducted in Tehran in January 2018. The 2018 workshops focussed on the use of MacBookPro laptops as all SWAC DLIOs have now fully migrated from PCs to this platform, similar to CRC and CLCPRO.

40. The delegates **agreed** to a proposal put forward by the CRC Executive Secretary to provide training to Master Trainers on the maintenance of ULV spray equipment (ULVA+, Ulvamast and AU8115). CRC has established two Master Trainers for this reason and have conducted several workshops. Each workshop lasts one day per sprayer and each Master Trainer can train about 10–12 participants. CRC will provide the 1–2 Master Trainers at no cost as part of the strengthening of interregional collaboration between CRC and SWAC. An expert from Micron sprayers could be invited at no cost.

Recommendation 10. The Executive Secretary should conduct a regional Master Trainer workshop in Turkey.

Recommendation 11. Two Master Trainers from each country should participate in a Master Trainers workshop on the maintenance of ULV sprayers to be held in Oman.

Contingency planning

41. The Executive Secretary presented an update to contingency planning in the region that was initiated in 2013. The four member countries have near-final versions of their contingency plans for outbreaks and upsurges (India, I.R. Iran, Pakistan) and invasions (Afghanistan).
42. In order to finalise the contingency plans, the Executive Secretary should revise a contingency plan checklist to help countries ensure that their plans are complete. Once this has been done, some countries indicated that they will submit the plans, or a summarised version, to their national authorities. In addition, each country should send a copy to SWAC for safe-keeping.
43. The session **reaffirmed** the need for the checklist of components to include in a contingency plan and to undertake a mock exercise in the field for testing the contingency plan of I.R. Iran in 2020.
44. The CRC Executive Secretary reminded delegates of two useful tools that can help contingency planning: DeLCoPA and eLert¹. In addition, the Commission for Controlling the Desert Locust in the Western Region (CCLPRO) uses the SVDN and PSMS systems².

Recommendation 12. The Executive Secretary should develop a checklist of contingency plan components.

Recommendation 13. All countries should finalise their contingency plans and submit them to their Government, if necessary, once they have been reviewed by the Executive Secretary.

Recommendation 14. Each country should send a copy of their final contingency plan to the Executive Secretary.

Recommendation 15. The Executive Secretary in collaboration with the Plant Protection Organization should organise and conduct a mock field exercise in 2020 to test the contingency plan in I.R. Iran and include one participant from each of the other member countries.

Biological control

45. The Executive Secretary informed delegates of the importance to minimising the negative environmental and human health effects of chemical control operations. Whenever possible, biopesticides should be considered for use, especially near sensitive areas such as water bodies, national parks and inhabitations. However, very little progress has been made on this issue in the past few years.
46. The delegate from I.R. Iran indicated that the next Moroccan Locust control campaign in I.R. Iran in 2019 should do its best to utilize biopesticides.

¹ <https://sites.google.com/site/elertsite/>

² <http://www.fao.org/clcpro/activites/svdm/fr/>

47. Currently, *Metarhizium acridum* is available from two suppliers, BASF and Green Elephant, as Green Muscle (strain IMI330189) and Novacrid (strain EVCH077) respectively. The cost is approximately USD 300/kg and the effective application rate is 50g/ha. For registration purposes, 2 kg should be sufficient.
48. It was noted that specific training is required for the application of *Metarhizium acridum* because it is more complex than the application of conventional pesticides. For this, two Australian experts may be available if necessary. In addition, AGPMM has produced two videos on biopesticides concerning advocacy and step-by-step usage³.
49. The delegates indicated interest in using less-harmful pesticides, e.g. biopesticides such as *Metarhizium acridum* and perhaps IGRs for Desert Locust control but highlighted the difficulties of the registration of new products in their country. Nevertheless, it was agreed that steps must be initiated to start the registration process. Accordingly, each member country should request from their national authorities what information is required for registration.

Recommendation 16. Each country should initiate the registration process of *Metarhizium acridum* for Desert Locust control in their country.

50. The delegates discussed in detail the need for improving the visibility of the Commission and national locust programmes, and to introduce and publicise their activities and the importance of this work. It was agreed that a series of short 3–5 minute videos on specific topics should be produced that can be adapted for use in each country according to their language requirements. These videos should be multipurpose for the general population. Such topics should include the history of the Commission, the Joint Survey, the Joint Border Meetings, new technologies, Master trainers and the evolution of preventive control as well as other topics and national context scenarios. Storyboards should be developed in collaboration with member countries and overseen by FAO HQ. Other types of publicity should also be considered such as simple, clear informative poster, e.g. what to do and who to contact if you see locusts. This will help to capture the invisible efforts of the national locust programmes in each member country of the Commission.

Recommendation 17. A series of short videos should be produced to give greater visibility to SWAC and the invisible efforts of the national locust programmes.

New technologies

51. The Executive Secretary presented information on the RAMSES geographic information system used by DLIOs for data management and analysis. The present version (Rv4.1) will be revised and upgraded to Rv5 in order to address current limitations faced by OpenJump software for data analysis and output. The new version will be based on NASA WorldWind technology that allows 3D mapping and better analysis.
52. The member countries and the CRC Executive Secretary supported the use and improvement of RAMSES GIS for data analysis because this is the primary tool used by DLIOs in all frontline countries in the three regions.
53. The Executive Secretary gave a brief conceptual overview on the potential use of drones in Desert Locust survey and control to help teams cover the large and remote areas in the desert that must be searched for green vegetation and checked for locust infestations. The concept involves a four-step process. First, satellite imagery is used to identify regions within a country where recent rain may have fallen or annual vegetation has become green. Second, as these areas are likely to be relatively large, a survey team is equipped with a portable fixed-wing drone that can be launched from the survey location to check areas up to 50–100 km away for green vegetation. Upon its return to the survey team, the drone transfers this information to the eLocust3 tablet as a map in

³ Advocacy video: <https://www.youtube.com/watch?v=3jfuB6pwWcs&feature=youtu.be>, Tutorial video: <https://www.youtube.com/watch?v=-J5gwDnO9mE&feature=youtu.be>

which the team can use to navigate directly to the areas of green vegetation identified by the drone. Third, once the team has arrived to a green area, it launches a small rotary drone that hovers above the area in order to delimit the extent of green vegetation (including dunes and other obstacles that may prevent the ground team from checking) and identify any locust concentrations. Fourth, if locust concentrations are present, then a rotary drone spot treats each infestation in a safer and more effective manner than what is currently undertaken by field officers.

54. In March 2018, an initial field trial was successfully completed in Mauritania by the developers (HEMAV Foundation, Barcelona, Spain) in collaboration with CLCPRO, DLIS and Mauritanian authorities. Approximately two years of additional research and development are likely to be required to address technical challenges such as endurance, solar batteries and charges, onboard data processing, multispectral sensors and optics, simple operation of the drones, optimal flying parameters, robustness, maintenance and repair.
55. The delegates were supportive of this new technology and **agreed** to cooperate in further field trials subject to clearance and approval of the concerned national authorities in their country. The Executive Secretary will attend the next field trial to be held in Oman, tentatively in January 2019. Additional observers from SWAC could be considered at subsequent trials.

Recommendation 18. The Executive Secretary should report to SWAC about the outcome of the next drone field trial.

Review of 30th session recommendations and progress made

56. The delegates reviewed progress made on the 30 recommendations made at the 30th session (Annex 6). It was noted that 47% (14/30) of the recommendations were implemented, 27% (8/30) partially implemented and 27% (8/30) not implemented. FAO and the Executive Secretary fully implemented 57% of its recommendations, Pakistan 69%, India 60%, I.R. Iran 50% and Afghanistan 33%.
57. It was decided that the following recommendations, with amendments, should be carried over during the next biennium:
 - a. Translation and printing of Desert Locust Master Trainer Manual (DLMTM) and Standard Operating Procedures (SOPs) in Pakistan to be completed in 2019. This recommendation dates back to the 26th session (2008). It was noted that both products were already translated in India as reported at the 29th session;
 - b. A contingency plan mock exercise to be conducted in southeast I.R. Iran in 2020, and attended by one observer each from Afghanistan, India and Pakistan. The Executive Secretary should initiate this activity;
 - c. Iranian locust officers to join a national survey in Oman during the spring breeding period in 2019 and 2020. As this activity could not be undertaken in 2017–2018, two officers per year will participate. The Executive Secretary should initiate this activity;
 - d. One Iranian locust officer to join a national survey in Pakistan (2019) and in India (2020) during the summer period. The Executive Secretary should initiate this activity;
 - e. Two Iranian Master Trainers should conduct a training course on Desert Locust and Moroccan Locust in Afghanistan. The Executive Secretary should initiate this activity;
 - f. Ten survey kits (GPS, hand lens, sweep net, etc.) should be procured for Afghanistan as a means of strengthening national capacity;
 - g. Two kg of *Metarhizium acridum* should be procured for each country as part of the registration process.

Financial health of the Commission

58. In 2017, annual contributions were received from India (USD 81 000) and I.R. Iran (USD 100 000). In 2018, Pakistan paid USD 25 050. It was noted that contributions were not received from Afghanistan after 2016.
59. Afghanistan indicated through written correspondence that, although sufficient funds exist, the payments could not be made to both the SWAC and DLCC trust funds in the absence of a signed membership document. The Executive Secretary noted that such documentation does not exist from the past because SWAC was established in 1964 and DLCC in 1955. In this case, clarification should be sought from the FAO Legal Office.
60. By the end of 2018, the level of arrears had declined by USD 53 618 or 10% compared to the end of the previous biennium. This suggests that the financial health of the Commission is becoming stronger.
61. It was explained that, for the second consecutive biennium, a large portion (30%) of the expenditures for activities undertaken in 2017–2018 was covered by FAO Regular Programme (CTA) allocation for SWAC; thus, reducing the financial burden on the Commission's trust fund.
62. Delegates mentioned that the financial year in their country does not correspond to that in FAO.
63. Countries were reminded to indicate the exact purpose of the payment, e.g. SWAC TF, to use the correct bank account and to inform the Executive Secretary when a payment has been made.
64. The delegate from I.R. Iran explained the Government's sincere hope to address half of the arrears as agreed at the 29th session, and considered this as a top priority. In order to achieve this goal, the responsibility of meeting the financial obligations of SWAC may shift from the Government as a first priority to the Plant Protection Organization so that it can use its own funds, which may offer more reliability in meeting these obligations.
65. In the spirit of regional solidarity, the session **agreed** to a request by the Iranian delegate to extend the period by one year (to 31 December 2019) in which I.R. Iran should pay 50 percent (USD 172 500) of its arrears (USD 345 000, as of 31 December 2014) so that the remaining 50 percent can be waived. So far, USD 50 000 has been received.
66. Pakistan explained that a payment of USD 66 800 was submitted by the Ministry of National Food Security and Research to the State Bank of Pakistan on 20 May 2016 for Trust Fund 9123. The payment covers the annual contributions for 2012, 2013, 2014 and 2016. This was being clarified and the Ministry will provide the relevant reference to FAO.

Recommendation 19. FAO should seek clarification from the Legal Office concerning signed membership documents of SWAC and DLCC to allow countries to assume their financial obligations to both entities.

Recommendation 20. All countries are requested to assume their financial obligations to SWAC in a timely and regular manner, and inform the Executive Secretary accordingly.

Recommendation 21. The period in which I.R. Iran should pay 50% of its arrears (as of 31 December 2014) should be extended by one year to 31 December 2019.

Accounts for 2016–2018

67. The Executive Secretary presented the final accounts for 2016–2017 and preliminary accounting for 2018 as of 1 December according to FAO accounting codes (Annex 7) and the work plan approved in the 30th session (Annex 8). The total expenditure for 2017–2018 was USD 135 743 compared to a budget of USD 270 500 plus support costs that was approved at the 30th session. Of

the total expenditures, USD 93 915 was charged against the SWAC Trust Fund and USD 41 828 was paid by FAO's Regular Programme (CTA) support to SWAC.

68. It was noted that few requests were received from countries to support national training programmes. Pakistan did not request funds for the translation of the DLMTM into local language and the printing of the DLMTM and SOPs. The Iranian contingency plan mock exercise was postponed. Iranian survey officers did not participate in national surveys in Oman, Pakistan and India. Similarly, a Pakistani locust officer did not participate in a national survey in India. The training of Afghani locust officers by the Iranian Master Trainers also did not take place. No progress was made of biopesticides and survey kits were not procured for Afghanistan. Only one SWAC DLIO regional workshop was organized rather than two. The national ToT workshop in Pakistan was slightly underspent while the procurement of MacBookPro laptops was overspent as it was decided to provide one to every DLIO in the frontline countries.
69. Annex 9 shows that more annual contributions were received from member countries in 2016 (USD 95 925) compared to 2017 (USD 181 000) and, so far, in 2018 (USD 20 050). Contributions received in 2017–2018 were USD 206 050.
70. Considering the contributions that were received in 2017–2018 and the expenditures for the same period, the account was underspent by USD 71 616. This was primarily due to the transfer of expenditures to the FAO Regular Programme allotment and not implementing some of the activities.
71. As of 5 December 2018, the balance of the Trust Fund was USD 240 000.
72. The Executive Secretary presented the current status of member country contributions to the FAO Desert Locust Control Committee (DLCC), which is the global body that advises the Director-General on all Desert Locust matters (Annex 10). The DLCC trust funds covers expenditures in which all countries benefit such as the monthly FAO Desert Locust Bulletin, the Pesticide Referee Group that evaluates pesticides for locust control, the 11-month training course in DLIS for national locust information officers, and support to DLIS. Countries were reminded of their financial obligations to the DLCC.

Recommendation 22. All countries are requested to assume their financial obligations to DLCC in a timely and regular manner, and inform FAO accordingly.

Work plan for 2019–2020

73. Member Countries identified their priorities for expenditures in 2019–2020 and, after substantial discussion, a list of standard, carry-over (from the 2017–2018 work plan) and new items was **agreed** on for a total expenditure of about **USD 357 000** plus support costs (Annex 11):

(a) Standard expenditures

IRN/PAK Joint Survey. This includes a return to the original DSA level, the cost of air travel to allow the locust head and team leader to participate in the final meeting in Karachi (2019) and Tehran (2020) under Option B (simultaneous separate surveys), the inclusion of one locust officer each from India and Afghanistan in the coastal portion of the Iranian joint survey between Chabahar and Bandar Abbas, and the inclusion of the DLIO of each country at the final joint meeting. In case of Option A, the final meeting is always in Zahedan, I.R. Iran.

Session travel and GOE. The Trust Fund will support the participation of the person responsible for the national locust programme in each member country at the 32nd session of SWAC.

eLocust3 transmission. The Trust Fund will cover the costs associated with activation and monthly data transmission and subscriptions for eLocust3 in the three frontline countries.

National training. The Trust Fund will supplement national training workshops upon request by the member country that includes workshop date, participant, trainers, subjects and detailed budget. A report should be prepared by the country for each workshop.

CRC/SWAC interregional Locust Information Officer workshop. The Trust Fund will support the participation of two designated national locust information officers from the three frontline countries that use RAMSES GIS on a regular basis at an annual interregional CRC/SWAC workshop.

SWAC regional Locust Information Officer workshop. The Trust Fund will support the participation of two designated national locust information officers from the three frontline countries that use RAMSES GIS on a regular basis at an annual regional SWAC workshop to be held at PPO in Tehran, I.R. Iran.

DLCC. The Trust Fund will support the participation of one person in each member country who is responsible for the national locust programme at the 41st session of the DLCC to be held in 2019.

New technology support. Technical support for updating RAMSES GIS functionality and other technologies.

(b) Carry-over expenditures from the 2017–2018 work plan

Desert Locust Master Trainer Manual (DLMTM) and Standard Operating Procedures (SOP). This covers the cost of printing the DLMTM and SOP in Pakistan. Both documents should be distributed without further delay in 2019.

Contingency plan mock exercise. A 5-day mock field exercise will be organized in 2020 in Chabahar, I.R. Iran by the Executive Secretary and the Plant Protection Organization to test its contingency plan. The Trust Fund will cover the participation of the contingency planning focal person from Afghanistan, India and Pakistan, and the costs of the exercise.

Iran survey exchange in Oman. The Trust Fund will cover the cost of two Iranian locust officers to join an Omani national survey to be carried out on the northern (Batinah) coast of Oman during the spring breeding period on an annual basis. This activity will be reviewed at the 32nd session.

I.R. Iran survey exchange in Pakistan and India. The Trust Fund will cover the cost of one Iranian locust officer to join a Pakistani national survey in the summer of 2019 and an Indian national survey in 2020, both of which will be carried out in the summer breeding areas of the respective country. The Executive Secretary should initiate this activity.

Afghanistan training. It was agreed that two Iranian Master Trainers will provide training on survey and control to locust officers in Afghanistan. The training will be held in Afghanistan so that more Afghani officers can be trained.

Afghanistan survey kits. Ten survey kits should be procured for Afghanistan that include a compass, anemometer, dissecting kit, hand lens, tally counter and a basic GPS.

Biopesticide. A small quantity (2 kg) of *Metarhizium acridum* should be procured for each country to initiate the registration process. The Executive Secretary should organise once the request has been received from countries.

(c) New expenditures

Regional Master Trainer ToT workshop. As follow up to the 2014–2018 workshops that identified potential national Master Trainers, the Executive Secretary will conduct a regional workshop for the Master Trainers in India (6), I.R. Iran (4) and Pakistan (4) and provide training on teaching methodologies in order to enable participants to conduct effective and meaningful workshops to train national staff in locust survey and control. The workshop will be held in Istanbul, Turkey.

SWAC publicity. Ad discussed during the session, several short 3–5 minute videos will be produced that cover specific topics as a means to promote SWAC and increase its visibility. The videos will be supplemented by other media such as posters and perhaps brochures. This activity will be led by the Executive Secretary in collaboration with member countries.

ULV sprayer spare parts. The delegate from India requested that spare parts be procured in order to maintain the current stock of ULV sprayers in the Locust Warning Organization. A list will be provided to the Executive Secretary.

Master Trainer workshop on ULV sprayer maintenance. A workshop will be organized in Oman by the CRC, including 1–2 CRC Master Trainers, for two Master Trainers in each SWAC country to learn how to maintain ULV sprayers (ULVA+, Ulvamast, AU8115) for Desert Locust control. The Trust Fund will cover the participation of the persons from the region.

DLMT kits. In order to support national Master Trainers in conducting training workshops, the equipment in the two FAO Desert Locust Master Trainer kits that are present in each country will be topped up. Additional kits will be procured so that the Master Trainers in India (6), I.R. Iran (4) and Pakistan (4) each have a kit.

Equipment. Twelve GPS will be procured for Pakistan as well as walkie-talkies for India (4), I.R. Iran (4) and Pakistan (8). If there are sufficient funds in the Trust Fund, up to eight Codan NGT SRx mobile HF radios will be procured for India.

74. The 2019–2020 work plan utilizes the current estimated balance and is based on the conservative presumption that at least half of the annual contributions will be received from member countries in 2019–2020.

Any Other Business

75. There was no other business raised by the delegates.

Date and place of the next session

76. The Executive Secretary explained that, according to tradition, session venues were rotated amongst the member countries. The delegate from I.R. Iran said that his country would be pleased to host the 32nd session, subject to approval being obtained from his Government. It was **agreed** to hold the session in December 2020. An alternative venue could be outside of the region.
77. To avoid unnecessary last-minute delays and panic, the host country should be reminded of its obligation in June 2019, followed with informal agreement by January 2020 and formal agreement by June 2020.

Recommendation 23. The host country of the 32nd session should provide its formal agreement to FAO by June 2020.

Adoption of the report

78. The Report, with the agreed amendments, was adopted unanimously with acclaim.

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Annex 2. Agenda

Opening of 31st session

1. Welcome
2. Election of the Chairperson and Vice-Chairperson of the Commission
3. Adoption of the agenda
4. Election of the Drafting Committee

Technical issues

5. Desert Locust early warning
 - a. Situation (January 2017 – December 2018) and forecast to spring 2019
 - b. Information and reporting
 - c. Report on Joint Surveys and Border Meetings in 2017 and 2018
6. Improving preventive control
 - a. Training
 - b. Contingency planning
 - c. Biopesticides
 - d. New technologies

Administrative issues

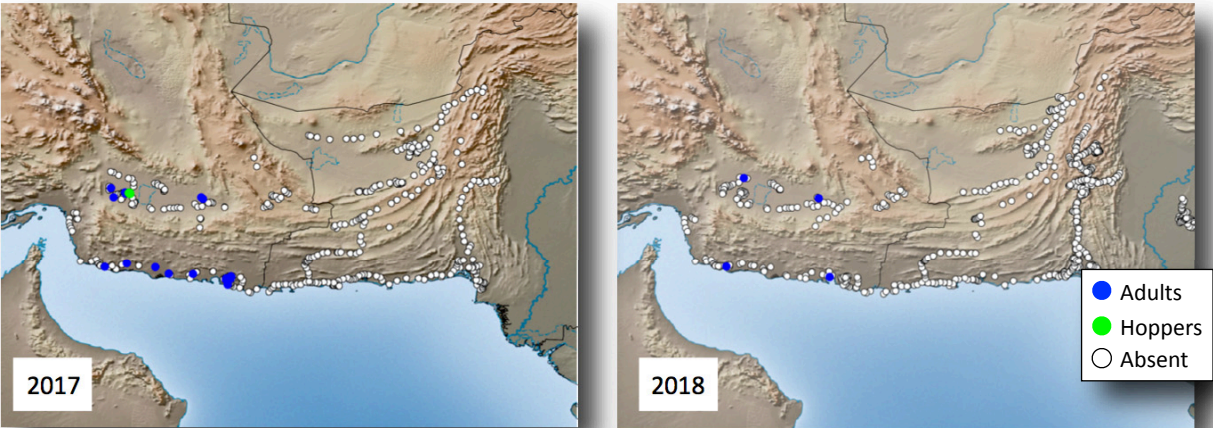
7. Review 30th session recommendations and progress made
8. Financial health of the Commission
9. Accounts for 2016–2018
10. Work plan for 2019–2020
11. Any other business
12. Date and place of the next session

Closing

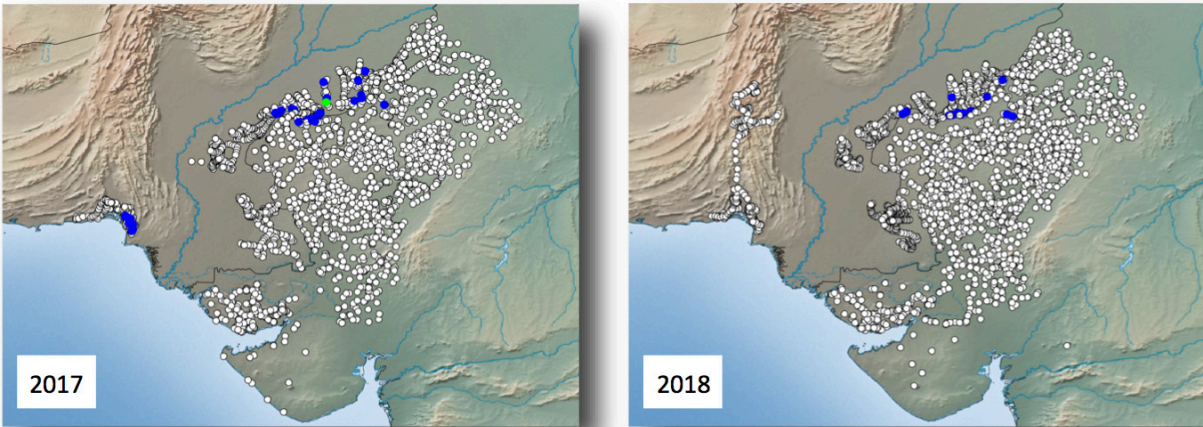
13. Adoption of the report

Annex 3. Desert Locust situation (2017–2018) and forecast to spring 2019

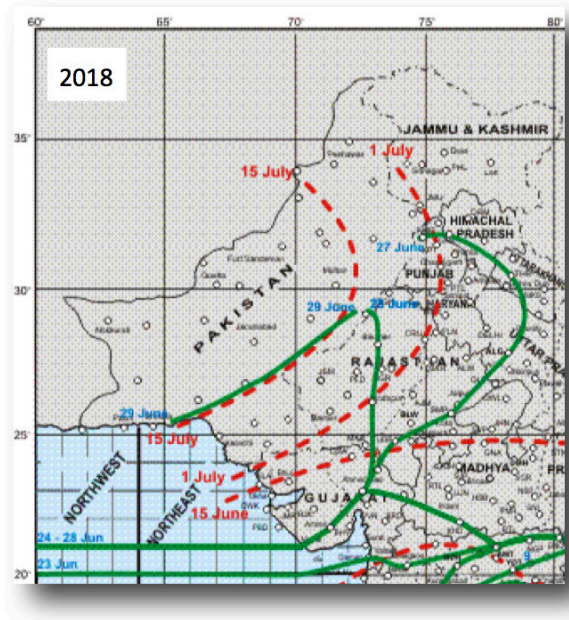
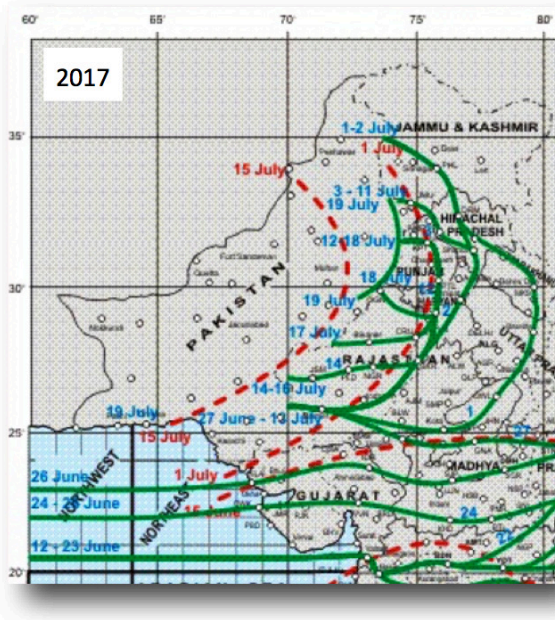
Desert Locust situation in SWAC countries



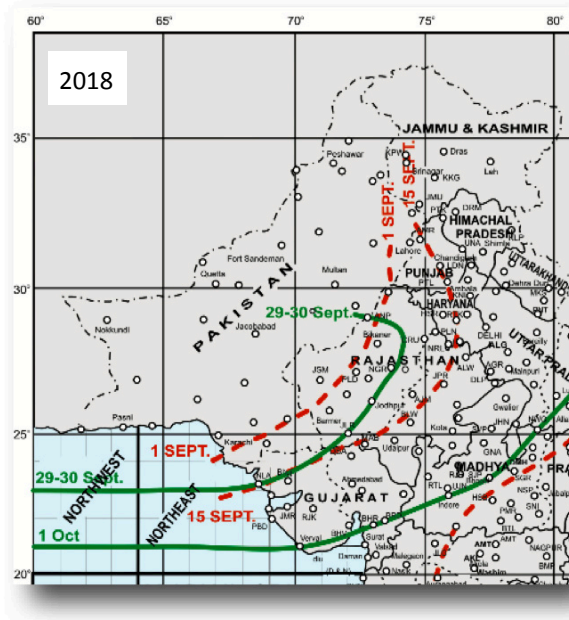
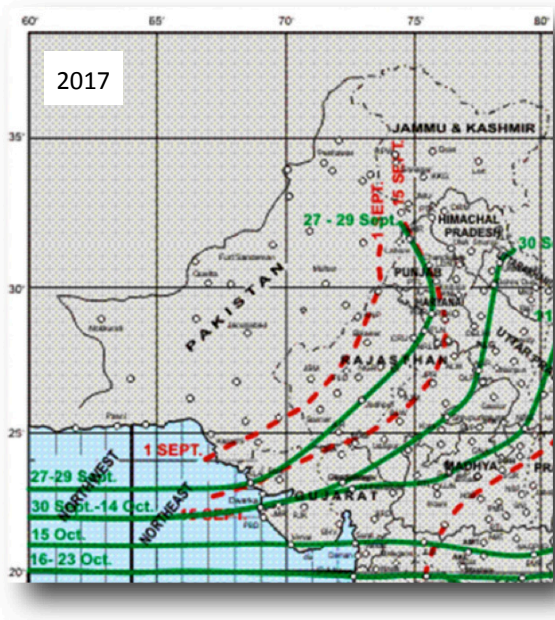
Spring. The situation remained calm in the region. In 2017, low number of isolated solitarious adults were present along the southeast coast of I.R. Iran between Jask and Chabahar. Small-scale breeding occurred in the Jaz Murian Basin in the interior. By June, solitarious hoppers and adults began to concentrate and increase in density as vegetation dried out. Ground teams treated 14,000 ha during June and July. No locusts were seen in the adjacent spring breeding areas of Baluchistan in southwest Pakistan. In 2018, spring breeding was not detected in I.R. Iran and only isolated solitarious adults were seen along the southeastern coast and in a few places of Jaz Murian. Locusts continued to be absent in Baluchistan, Pakistan.



Summer. The situation remained calm in the region. The summer monsoon rains arrived two weeks earlier than normal in Rajasthan, India and adjacent areas of Pakistan in the Cholistan, Nara and Tharparkar deserts in 2017 and 2018. In 2017, the rains withdrew one month later than normal and in 2018, they withdrew about two weeks late. Rainfall in West Rajasthan was 39% higher than normal in 2017 because of the early start of the monsoon and consistent rainfall thereafter. However, lower than normal (23%) rainfall occurred in 2018 because there was a gap in the rains after the early start. In both years, isolated solitarious adults were seen in the Bikaner district of Rajasthan and adjacent areas of Cholistan in Pakistan close to the common border. Very limited breeding was only detected in 2017 as a result of the good, consistent rains. In both years, locusts were first seen in Pakistan (2017: first fortnight of July; 2018: second fortnight of June) compared to India (2017: second fortnight of July; 2018: first fortnight of August). By the end of September, no further locusts were seen in India in both years but continued to be reported from Pakistan until mid October 2017.

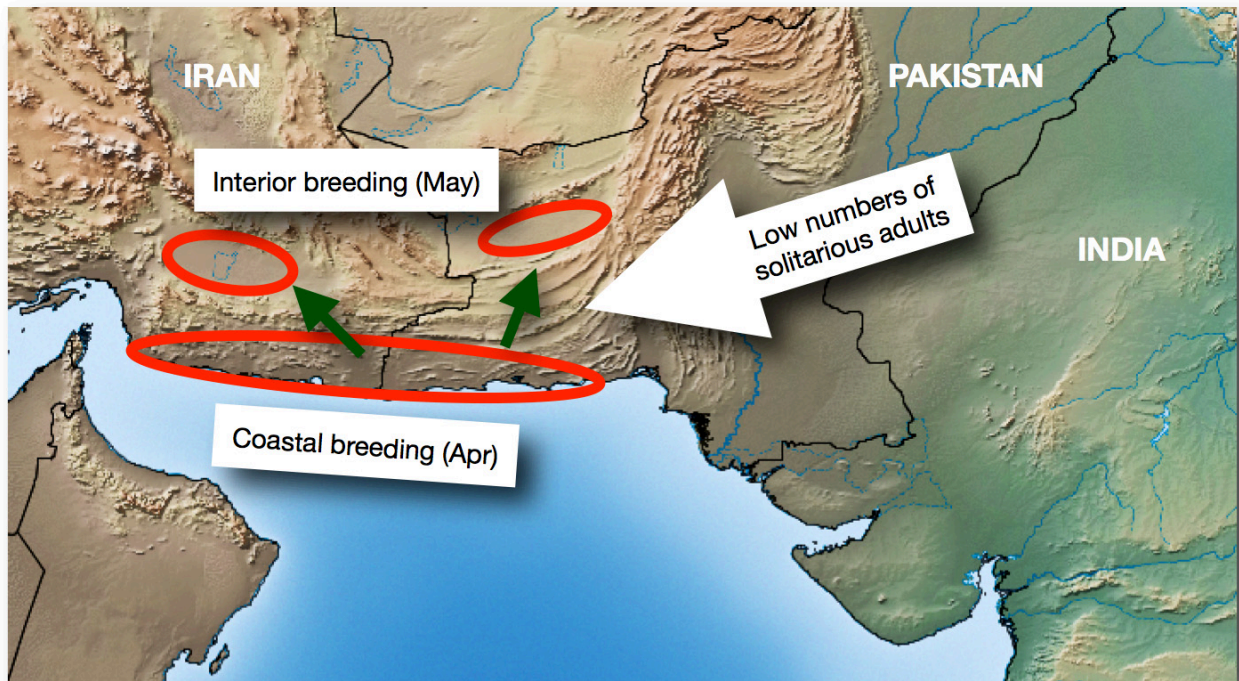


The southwest monsoon arrived two weeks earlier than normal in the Indo-Pakistan summer breeding areas in 2017 and 2018.

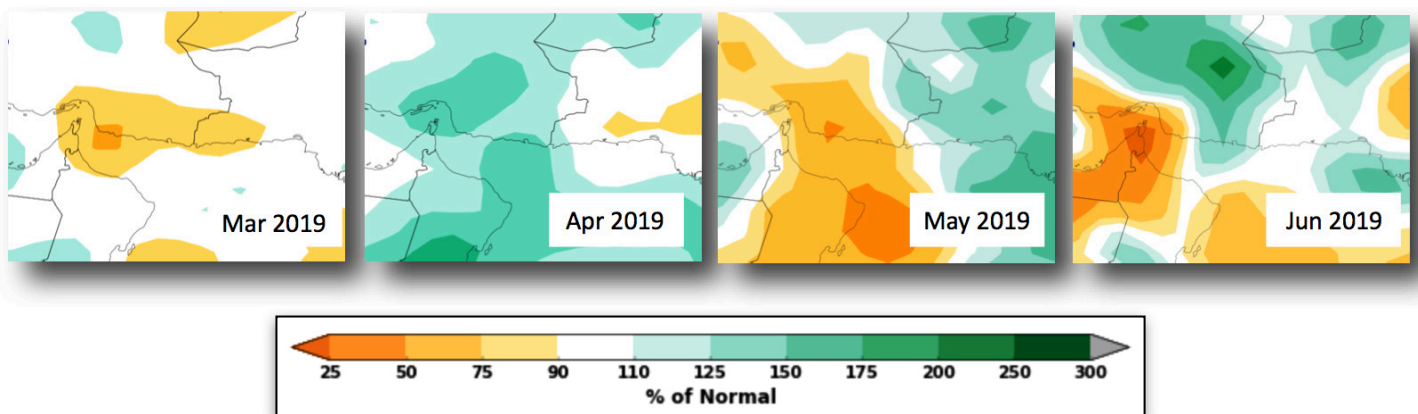


The withdrawal of the southwest monsoon occurred one month later than normal in 2017 and two weeks later than normal in 2018.

Forecast in SWAC until spring 2019



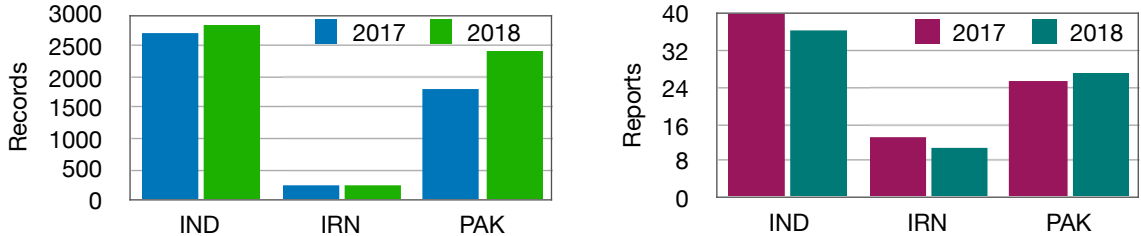
The forecast for the spring period is a function of the scale of breeding that occurred along the Indo-Pakistan border during the summer of 2018 and the outlook for rainfall in 2019 from March to June. As very little breeding occurred during this past summer, locust numbers continued to remain extremely low and insignificant. Consequently, only low numbers of solitary adults are likely to move by the end of the year from the Indo-Pakistan border area to the spring breeding areas in southwest Pakistan and southeast I.R. Iran where they will await the start of the spring rains and the accompanying warm temperatures. The seasonal predictions suggest that spring rains may start about one month late (April 2019). Above-average rains may fall in southeast I.R. Iran in April and June, and in southwest Pakistan in May. Given this scenario, low numbers of adults may appear in coastal areas of both countries in March and start to breed on a small scale in April as well as move further inland where local breeding may occur in May, primarily in Baluchistan, Pakistan. Locust numbers will remain low and no significant developments are expected.



Annex 4. Desert Locust reporting

The quality, timeliness and frequency of reporting from frontline countries (India, I.R. Iran and Pakistan) remained very high in 2017–2018. Only relatively minor improvements are required in the RAMSES (Rv4.1) data and the national locust bulletins.

RAMSES data

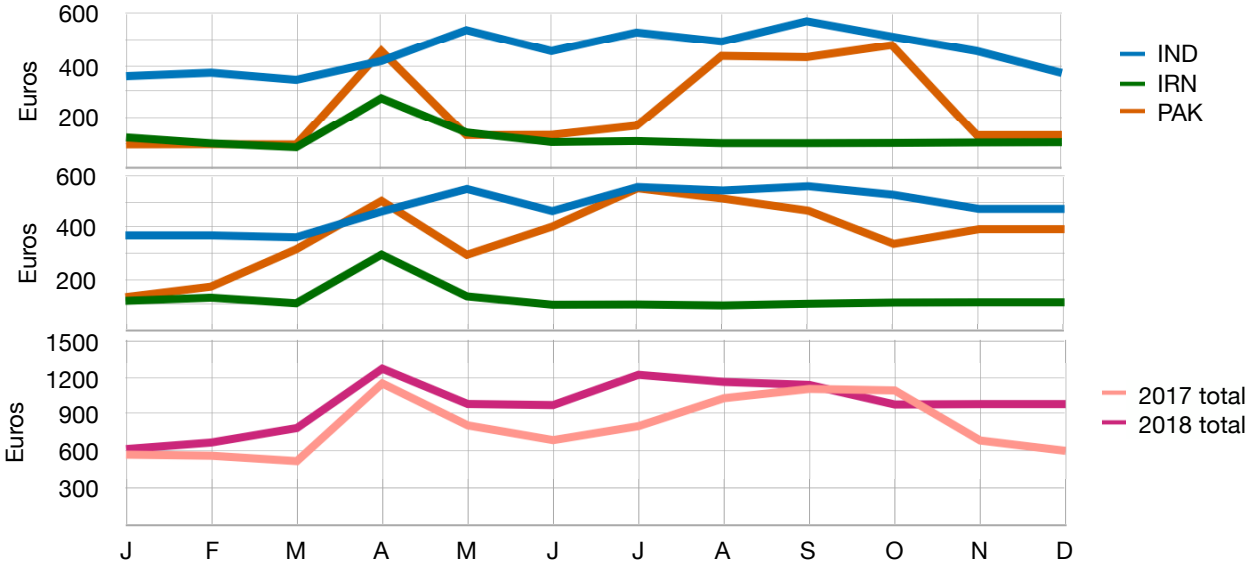


India continued to produce the largest volume (5 541 records) of Rv4.1 data for any county in the Desert Locust recession area. This is because surveys are undertaken in every month of the year due to a large workforce and the need to keep staff active and on alert. Pakistan also produced an extremely number of records (4 175) because it is one of the few countries in the Desert Locust recession area that has two seasonal breeding areas, spring time in the southwest and summer time along the Indo-Pakistan border. I.R. Iran has only a spring breeding period in a relatively limited area; hence, much less Rv4.1 data is produced.

For the most part, each country reported at least every month in 2017–2018. India had the greatest number of locust reports because it prepares fortnightly bulletins throughout the year while Pakistan prepares such bulletins only during the summer period with monthly bulletins during the remainder of the year. I.R. Iran prepares monthly bulletins only.

eLocust3 usage

The usage of eLocust3 was a direct function of the number of surveys carried out throughout the year. Consequently, usage was highest during the summer period in Pakistan and India, followed by the spring period in Pakistan and I.R. Iran.

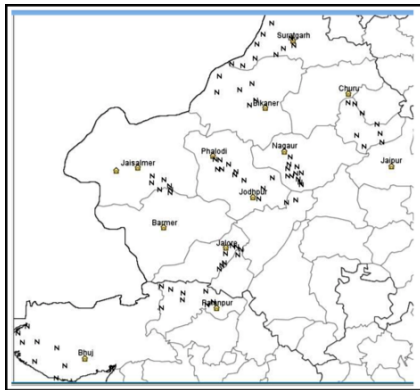


Reporting shortcomings

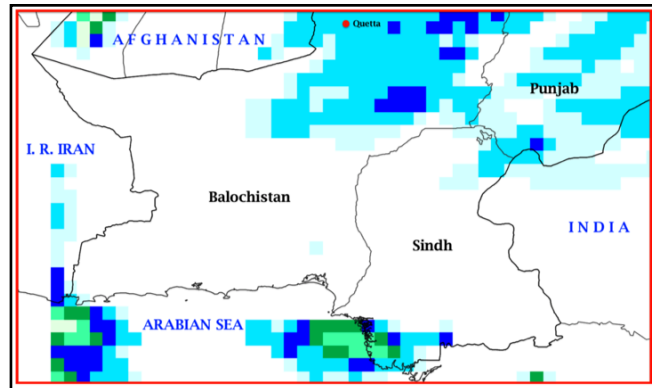
Despite the excellent quality of reporting, there is always room for small improvements. In this case, the primary shortcoming was a lack of explanations for maps or an absence of map captions.

	IND	IRN	PAK	TOTAL
No explanation for map / no caption	18	3	6	27
No maps from Rv4.1 or IRI	1	1	3	5
No summary	2	1		3
Different data and summary	1	1		2
TOTAL SHORTCOMINGS	22	6	9	37

During the annual DLIO workshops, participants are reminded that each map should have a caption that contains the title of the map and a brief explanation of what the map is showing. The two examples below were shown during the session in which maps were prepared for the locust bulletin but did not contain a caption or explanation. An example of a suggested caption is indicated below each map. DLIOs are encouraged to follow these examples in future bulletins.



Locust situation. No locusts were seen during surveys carried out in Rajasthan on 1–15 August 2018.



Rainfall. Light rains fell on the coast of Sindh and in a few places along the Indo-Pakistan border in the Cholistan Desert of Punjab during the last decade of June, 2017.

Annex 5. Improvements to future I.R. Iran/Pakistan joint surveys

The session agreed on the following improvements to future joint surveys as suggested by the Joint Survey team in 2017 and 2018.

1. Continue to use walkie-talkies amongst the vehicles in the Joint Survey team
2. Young, energetic and well-trained officers should be nominated
3. One locust officer from Afghanistan and India should join the coastal portion of the Joint Survey carried out between Chabahar and Bandar Abbas, I.R. Iran
4. One driver should be from Baluchistan who knows the roads and people
5. One driver should be a mechanic
6. The drivers should be responsible for taking photos
7. Each team should carry an extra (backup) eLocust3 kit
8. The DLIOs should be trained on how to prepare eL3D maps to be used by the Joint Survey team
9. The teams should be nominated well in advance and training provided to them before the start of the Joint Survey

Annex 6. Status of the 30th session recommendations

No.	Recommendation item	AFG	IND	IRN	PAK	FAO	Comments
1	Implement the improvements to future joint surveys as suggested by JS teams			+	+		
2	The original DSA rates should be reinstated for future joint surveys					+	
3	The Executive Secretary should request DPP Pakistan to confirm the security situation in Baluchistan at least two months prior to the start of the joint survey				+	+	
4	An Iranian locust officer should continue to join a national survey in Oman during the spring on an annual basis			-			Could not attend 2018
5	A locust officer from Afghanistan and India should join the coastal portion of the joint survey in Iran on an annual basis	+/-	-				AFG (2017)
6	A locust officer from Pakistan should join a national survey in India during the summer on an annual basis				-		
7	A locust officer from I.R. Iran should join a national survey during the summer in Pakistan (2017) and India (2018)			-			
8	The Locust Information Officer of the host country should use Rv4.1 to prepare a map showing rainfall and the locust situation in both countries to be included in the Joint Border Meeting report		+		+		
9	All efforts should be made to ensure that India has two locust information officers located in the LWO field headquarters in Jodhpur		+/-				New DLIO appointed
10	All efforts should be made to appoint an assistant to the current locust information officer in Pakistan				+		
11	Two national locust information officers from each frontline country should participate in the annual CRC/SWAC Desert Locust Information Officer workshop		+	+	+	+	
12	The Executive Secretary should conduct a regional workshop on an annual basis for SWAC locust information officers, including one officer from Afghanistan and Locust Heads when possible					+	
13	A plug-in should be developed for RAMSES GIS that summarizes data and helps to prepare the national locust bulletins					+/-	In progress
14	FAO DLIS should organize monthly video calls to national locust information officers in order to provide technical support for locust information and reporting					+	
15	All countries are encouraged to include the SWAC logo in national locust bulletins		+	+	+		
16	Countries using eLocust3 should consider developing a systematic method of managing the storage of eL3 units and checking the date/time and battery status		+	+	+		
17	Countries should translate the references in eLocust3 to local languages and load them onto the tablets		-	+	+/-		

No.	Recommendation item	AFG	IND	IRN	PAK	FAO	Comments
18	The Executive Secretary should develop a checklist of contingency plan components					+/-	List to be revised
19	All countries should finalize their contingency plans and submit them to their Government once they have been reviewed by the Executive Secretary	+	+	+/-	+/-	+	
20	The Executive Secretary in collaboration with PPO should organize and conduct a mock exercise in the field to test the contingency plan in I.R. Iran and include one participant from each of the other member countries			-		-	Postponed to 2020
21	A plug-in should be developed for RAMSES GIS to manage resources for locust survey and control					-	
22	The Trust Fund should procure 2 kg of <i>Metarhizium</i> per country for demonstration purposes and to check its efficacy in the respective countries					-	clarify registration
23	The Executive Secretary should liaise with <i>Metarhizium</i> manufacturer(s) to encourage the registration of <i>Metarhizium</i> in member countries					-	
24	The Executive Secretary should conduct a national Master Trainer workshop in Pakistan and include the best Master Trainer from India and Iran as assistants					+	Only Iranian MTs
25	I.R. Iran should provide training to at least four locust officers from Afghanistan	-		-			
26	FAO should correct the annual contribution rate for Afghanistan					+	
27	Pakistan should clarify its payment for 2012–2014 and 2016				+		
28	All countries are requested to assume their financial obligations to SWAC in a timely and regular manner, and inform the Executive Secretary accordingly	+/-	+/-	+/-	+/-		Some payments made
29	All countries are requested to assume their financial obligations to DLCC in a timely and regular manner, and inform FAO accordingly	-	+	-	+		PAK paid partially
30	The host country of the 31 st session should provide its formal agreement to FAO by June 2018	+					Venue changed to IND
	Total completed	2	6	5	9	8	
	Total partially completed	2	2	3	3	2	
	Total outstanding	2	2	4	1	4	
	Total recommendations	6	10	12	13	14	

- (not implemented) + (implemented) +/- (partial)

Annex 7. SWAC Trust Fund accounts 2016–2018: FAO accounting codes

Statement of Accounts 2016 (MTF/RAS/001/MUL)

Account	Description (MTF/RAS/001/MUL)	Cost US\$
5014	Contracts	
	Back charge from GF funds	-826.47
	Novacom PO 318532 (accruals and carry forward)	-2,791.46
	Novacom PO 324045 (contract Oct 16 – Sep 17)	14,159.89
	subtotal	10,541.96
5021	Travel	
	TA 127585 Chalakizabardast Mahmoud	1,548.71
	Iranian joint survey team – Babalifashki Ali	4,669.00
	Plant Protection Organisation (PPO), Iran	2,390.67
	subtotal	8,608.38
5023	Training	
	Plant Protection Organisation (PPO), Iran: ToT workshop (Jan 16)	830.10
	Plant Protection Organisation (PPO), Iran: DLIO workshop (5–9 Nov 16)	112.89
	subtotal	942.99
5024	Expendable Equipment	
	Novacom Services PO 323288 15 cables	2,177.98
	Spazio PC SRL PO 323305 Western digital USB 3.0 cable	9.52
	Elham Muqtader Tranding & Logistic Services Company: Laptop Dell + Epson printer/scanner	400.00
	Plant Protection Organisation (PPO), Iran: ToT workshop (Jan 16)	1,693.40
	Plant Protection Organisation (PPO), Iran: DLIO workshop (5–9 Nov 16)	225.78
	subtotal	4,506.68
5025	Non Expendable Equipment	
	Elham Muqtader Tranding & Logistic Services Company: Epson printer/scanner	1,830.00
	Elham Muqtader Tranding & Logistic Services Company: Laptop Dell + Epson printer/scanner	-400.00
	subtotal	1,430.00
5028	General Operating Expenses	
	Iran IRR Petty Cash Cashier (DHL TEC docs to Rome – Ghaemian, Chalaki, Babali)	47.25
	Plant Protection Organisation (PPO), Iran: Joint Survey (Mar 16)	6,000.00
	Plant Protection Organisation (PPO), Iran: ToT workshop (Jan 16)	600.99
	Plant Protection Organisation (PPO), Iran: DLIO workshop (5–9 Nov 16)	1,072.48
	subtotal	7,720.72
5040	General Overhead Expenses	
	Pouch and courier services	81.76
	subtotal	81.76
5029	Support Costs	
	5% on accounts 5024 and 5025; 13% on all other accounts	4,137.91
	subtotal	4,137.91
	Total expenditures in 2016 as at 31 December 2016	37,970.40

Figures in USD

Statement of Accounts 2017 (MTF/RAS/001/MUL)

Account	Description (MTF/RAS/001/MUL)	Cost US\$
5013	Consultants	
	Pantenius PSA.EDI.LOC Jan 17	374.63
	subtotal	374.63
5014	Contracts	
	Novacom PO 324045 (accruals and carry forward)	-4,108.35
	Novacom PO 329858 (contract Oct 17 – Sep 18)	12,903.23
	subtotal	8,794.88
5021	Travel	
	Ahmad Shakir Habibi (Afghanistan): 2017 Joint Survey, Iran (Apr 17)	400.00
	Department of Plant Protection (DPP), Pakistan: 2017 Joint Survey (Mar 17) FBA 2017/01	5,197.45
	Ghulam Qadir Lund, workshop bills Pakistan, (Mar 17) FBA 2017/01	591.46
	subtotal	6,188.91
5023	Training	
	Ministry of Agriculture, India: LWO national training worksop (Jun 17) FBA 2017/01	494.82
	Ministry of Agriculture, India: LWO national training workshop (Sep 17) FBA 2017/02	624.80
	subtotal	1,119.62
5024	Expendable Equipment	
	Ministry of Agriculture, India: LWO national training worksop (Jun 17) FBA 2017/01	262.87
	Ghulam Qadir Lund, DPP, Pakistan: workshop bills (Mar 17) FBA 2017/01	350.00
	Ministry of Agriculture, India: LWO national training workshop (Sep 17) FBA 2017/02	968.45
	subtotal	1,581.32
5028	General Operating Expenses	
	Department of Plant Protection (DPP), Pakistan: 2017 Joint Survey (Mar 17) FBA 2017/01	5,999.37
	Plant Protection Organisation (PPO), Iran: 2017 Joint Survey (Mar 17)	9,408.89
	Ghulam Qadir Lund, DPP, Pakistan: workshop bills (Mar 17) FBA 2017/01	556.50
	subtotal	15,964.76
5040	General Overhead Expenses	
	Pouch Afghanistan/FAO HQ	60.00
	subtotal	60.00
5029	Support Costs	
	5% on accounts 5024 and 5025; 13% on all other accounts	4,894.89
	subtotal	4,894.89
	Total expenditures in 2017 as at 31 December 2017	38,979.01

Figures in USD

Statement of Accounts 2018 as at 1 December 2018 (MTF/RAS/001/MUL)

Account	Description (MTF/RAS/001/MUL)	Cost US\$
5014	Contracts	
	Novacom PO 329858 (accruals and carry forward)	-2,468.69
	subtotal	-2,468.69
5021	Travel	
	Department of Plant Protection (DPP), Pakistan: 2018 Joint Survey (Mar 18) FBA 2018/01	6,066.69
	Plant Protection Organisation (PPO), Iran: 2018 Joint Survey (Feb 18)	5,610.00
	subtotal	11,676.69
5023	Training	
	Abdul Razaq Moafaq (Afghanistan): visa and registration costs for 2018 Joint Survey (Apr 18)	140.00
	Ministry of Agriculture, India: LWO national training worksop (Apr 18) FBA 2018/02	479.45
	Plant Protection Organization (PPO), Iran: DLIO workshop (15–17 Jan 18)	481.64
	subtotal	1,101.09
5024	Expendable Equipment	
	Ministry of Agriculture, India: LWO national training worksop (May 18) FBA 2018/02	1,132.61
	Plant Protection Organization (PPO), Iran: DLIO workshop (15–17 Jan 18)	481.64
	subtotal	1,614.25
5028	General Operating Expenses	
	Department of Plant Protection (DPP), Pakistan: 2018 Joint Survey (Mar 18) FBA 2018/01	6,024.51
	Plant Protection Organisation (PPO), Iran: 2018 Joint Survey (Feb 18)	9,000.00
	Plant Protection Organization (PPO), Iran: DLIO workshop (15–17 Jan 18) FBA 2018/01	3,973.51
	subtotal	18,998.02
5040	General Overhead Expenses	
	Pouch and courier services	13.96
	subtotal	13.96
5029	Support Costs	
	5% on accounts 5024 and 5025; 13% on all other accounts	3,743.19
	subtotal	3,743.19
	Total expenditures in 2018 as at 15 November 2018	34,678.51

Figures in USD

Statement of Accounts 2018 as at 1 December 2018 (GCP/GLO/897/MUL)

The new designation of the SWAC Trust Fund is GCP/GLO/897/MUL and replaces the previous MTF/RAS/001/MUL.

Account	Description (GCP/GLO/897/MUL)	Cost US\$
5014	Contracts	
	Novacom PO 329858 (accruals and carry forward)	-2,468.69
	subtotal	-2,468.69
5021	Travel	
	Cressman TA 238089: Tot workshop, Pakistan (Nov 18)	1,055.80
	Babali Fashki TA 240638: Tot workshop, Pakistan (Nov 18)	1,195.87
	Chalaki Zabardast TA 240663: Tot workshop, Pakistan (Nov 18)	1,195.87
	Department of Plant Protection (DPP), Pakistan: ToT workshop (Oct 18) FBA 2018/02	1,090.98
	subtotal	4,538.52
5023	Training	
	Department of Plant Protection (DPP), Pakistan: ToT workshop (Oct 18) FBA 2018/02	1,333.41
	subtotal	1,333.41
5024	Expendable Equipment	
	Cressman: bostik blu-tack (ToT workshop, Oct 18)	30.75
	Due Esse stampa: 200 parchment sheets (ToT workshop, Oct 18) PO 335492	225.66
	Department of Plant Protection (DPP), Pakistan: ToT workshop (Oct 18) FBA 2018/02	2,020.32
	subtotal	2,276.73
5028	General Operating Expenses	
	Novacom Services, PO 335500, Oct 18 – Sep 19	16,184.97
	Aramex International Courier, Iran (Oct 18)	23.92
	Department of Plant Protection (DPP), Pakistan: ToT workshop (Oct 18) FBA 2018/02	808.13
	subtotal	17,017.02
5029	Support Costs	
	13% on all accounts	716.20
	subtotal	716.20
	Total expenditures in 2018 as at 15 November 2018	23,413.19

Figures in USD

Annex 8. SWAC work plan 2017–2018 expenditures

EXPENDITURES	Budget	Expended			Comments
		TF	CTA	Total	
Standard expenditures					
IRN/PAK Joint survey (2017, 2018)	72,000	49,345	0	49,345	
31st session travel/op costs (2018)	9,000	0	0	0	In progress
eLocust3 transmission (2017, 2018)	20,000	22,511	2,697	25,208	Oct-Dec 2017 (CTA)
National training IND, IRN, PAK (2017, 2018)	16,000	3,963	0	3,963	few requests were received
RAMSES/eLocust3 workshop, CRC/SWAC (2017, 2018)	30,000	0	20,132	20,132	
subtotal	147,000	75,819	22,829	98,648	
Unimplemented (carry-over) expenditures					
DLMTM translation + printing (Pakistan)	2,500	0	0	0	no requests received
SOP printing (Pakistan)	1,000	0	0	0	no requests received
National ToT (Pakistan)	10,000	8,700	0	8,700	
subtotal	13,500	8,700	0	8,700	
New expenditures					
SWAC DLIO workshop (2018)	35,000	4,937	6,942	11,879	FBA (TF) and TAs (CTA)
IRN contingency planning mock exercise	30,000	0	0	0	postponed
IRN survey exchange in OMN (2017, 2018)	3,000	0	0	0	not implemented
IRN survey exchange in PAK (2017) and IND (2018)	5,000	0	0	0	not implemented
PAK survey exchange in IND (2017, 2018)	5,000	0	0	0	not implemented
AFG training in IRN	15,000	0	0	0	not implemented
RAMSESV4.1 plugins	6,000	0	0	0	in progress
MacBook Pro laptops for DLIOs (5)	5,000	0	12,057	12,057	
Survey kits (10)	3,500	0	0	0	not implemented
Metarhizium (2 kg/country)	2,500	0	0	0	not implemented
subtotal	110,000	4,937	18,999	23,936	
<i>Support costs (13%)</i>					
TOTAL	270,500	89,456	41,828	131,284	

Figures in USD

Annex 9. SWAC Trust Fund member country contributions 2018–2018

TF912300 – MTF/RAS/001/MUL (GCP/GLO/897/MUL)

Member Governments	Outstanding 12/31/15	Contribution due for 2016	Received by 31/12/2016	Outstanding 12/31/16
Afghanistan	0	4,125.00	4,125.00	0
India	0	40,500.00	0	40,500.00
I.R. Iran	320,002.43	37,500.00	25,000.00	332,502.00
Pakistan	136,119.54	25,050.00	66,800.00	94,369.54
2016 total	456,121.97	107,175.00	95,925.00	467,371.54

Member Governments	Outstanding 12/31/16	Contribution due for 2017	Received by 31/12/2017	Outstanding 12/31/17
Afghanistan	0	4,125.00	0	4,125.00
India	40,500.00	40,500.00	81,000.00	0
I.R. Iran	332,502.00	37,500.00	100,000.00	270,002.43
Pakistan	94,369.54	25,050.00	0	119,419.54
2017 total	467,371.54	107,175.00	181,000.00	393,546.97

Member Governments	Outstanding 12/31/17	Contribution due for 2018	Received by 19/11/2018	Outstanding 12/9/18
Afghanistan	4,125.00	4,125.00	0	8,250.00
India	0	40,500.00	0	40,500.00
I.R. Iran	270,002.43	37,500.00	0	307,502.43
Pakistan	119,419.54	25,050.00	25,050.00	124,419.54
2018 total	393,546.97	107,175.00	25,050.00	480,671.97

Figures are in USD

Annex 10. Status of DLCC contributions for SWAC countries

SWAC	Annual contribution	Balance owed
Afghanistan	3,480.00	22,320.00
India	20,000.00	0.00
I.R. Iran	20,000.00	601,495.24
Pakistan	6,520.00	6,520.00
TOTAL	50,000.00	630,335.24
All DLCC countries	207,780.00	2,179,904.87
% SWAC	24	29

Figures are in USD

Annex 11. SWAC Trust Fund work plan 2019–2020

Figures are in USD

EXPENDITURES	\$AFG	\$IND	\$IRN	\$PAK	\$Total
Standard expenditures					
IRN/PAK Joint survey (2019, 2020)	5,000	5,000	34,000	28,000	72,000
32nd session travel/op costs (2020)	1,500	2,500	2,500	2,500	9,000
eLocust3 transmission (2019, 2020)	0	10,000	5,000	10,000	25,000
National training (2019, 2020)	4,000	4,000	4,000	4,000	16,000
CRC/SWAC DLIO workshop (2019, 2020)	0	10,000	10,000	10,000	30,000
SWAC DLIO workshop (2019, 2020)	0	5,000	5,000	5,000	15,000
41st DLCC	2,500	2,500	2,500	2,500	10,000
New technology support		5,000	5,000	5,000	15,000
<i>subtotal</i>	13,000	44,000	68,000	67,000	192,000
Unimplemented (carry-over) expenditures					
DLMTM translation + printing	0	0	0	2,500	2,500
SOP printing	0	0	0	1,000	1,000
IRN contingency planning mock exercise (2020)	2,500	2,500	22,500	2,500	30,000
IRN survey exchange in OMN (2019, 2020)	0	0	6,000	0	6,000
IRN survey exchange in PAK (2019) and IND (2020)	0	0	3,000	0	3,000
AFG training by IRN in AFG	5,000	0	5,000	0	10,000
Survey kits (10)	3,500	0	0	0	3,500
Metarhizium (2 kg/country)	625	625	625	625	2,500
<i>subtotal</i>	11,625	3,125	37,125	6,625	58,500
New expenditures					
ToT MT workshop, Turkey (2019)	0	15,000	10,000	10,000	35,000
Drone field trial observers					2,500
SWAC publicity	10,000	10,000	10,000	10,000	40,000
ULV sprayer spare parts	0	5,000	0	0	5,000
MT workshop on ULV sprayer maintenance (Oman)	3,000	3,000	3,000	3,000	12,000
Walkie-talkies	0	1,000	1,000	2,000	4,000
Codan NGT SRx HF radios (up to 8) *	0		0	0	0
DLMTM kits	2,000	2,000	2,000	2,000	8,000
GPS (12)	0	0	0	2,500	2,500
<i>subtotal</i>	15,000	36,000	26,000	29,500	106,500
<i>Support costs (13%)</i>					
TOTAL	39,625	83,125	131,125	103,125	357,000

* if funds permit, cost to be determined