Report of the Eighth Session of the

DESERT LOCUST CONTROL COMMITTEE

TECHNICAL GROUP

WORKSHOP ON CONTINGENCY PLANNING FOR DESERT LOCUST CONTROL

Nouakchott, Mauritania

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Plant Production and Protection Division
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
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1. The Mauritanian Minister for Rural Development and the Environment, H.E. Mr Ahmedou Ould Ahmedou, officially opened the workshop. He welcomed the workshop participants to Mauritania and noted the extremely serious Desert Locust situation that faced Mauritania specifically and the region generally. It was important that the workshop overcome current difficulties by developing recommendations for both the short, medium and longer term planning which could minimize the threat of Desert Locust plagues.

2. The Acting FAO Representative in Mauritania, Mr. Sory I. Ouane, on behalf of FAO and the workshop participants, thanked the Minister and expressed FAO's appreciation to the Government of Mauritania for hosting the workshop.

INTRODUCTION

3. Mr. Clive Elliott, Senior Officer of the Locusts and Other Migratory Pests Group, at FAO Headquarters, welcomed all workshop participants. He noted that three Desert Locust Control Committee Technical Group (DLCC-TG) Members were in attendance; Professor El Bashir (Sudan), Prof. van Huis (Netherlands) and Mr McCulloch (Australia). Mr. Elliott explained that, due to various reasons of health, family bereavement and unforeseen circumstances, the three other members of the DLCC-TG (Dr Magor, Dr Chara and Dr Lecoq) had been unable to attend. The participants endorsed the suggestion that appropriate messages be sent to these three members.

4. It was also noted that the workshop comprised participants from countries of all three Desert Locust regions (Western, Central and South-West Asia). In addition, he acknowledged the substantial efforts of Dr Symmons (FAO consultant) in preparing the technical aspects of the workshop and the assistance provided by the staff of the Mauritanian Locust Control Centre in making local arrangements.

BACKGROUND

5. Mr. Elliott outlined the background to the workshop. The September 2003 meeting of the Desert Locust Control Committee (DLCC) held in Rome had discussed various topics related to Desert Locust control that might be examined by the DLCC-TG. The DLCC agreed that contingency planning for locust control was a high priority. As a follow up to the meeting FAO developed a programme for a DLCC-TG workshop to address the issue of contingency planning.

6. The workshop was seen as timely in view of the current Desert Locust situation which was rapidly moving towards a plague. The current difficulties being experienced, in particular limited and/or slow donor responses and critical delays in the provision of pesticide, provided good examples of the need for on-going contingency planning.

7. The workshop built on the Borg al Arab workshop (February 2002), undertaken through the FAO EMPRES Central Region programme, which provided the inputs for the development of national contingency plans.

8. The aim of the current workshop was to further assist countries in the formulation of contingency plans. In addition, it was intended to evaluate different control tactics, and examine the way in which the resources required for Desert Locust control could be provided in the short time frame dictated by an emergency situation. It was also anticipated that the preparations and organizational structures that would need to be in place to utilize such resources effectively would be investigated.

9. The constraints in providing reliable advance warning of upsurges and plagues were highlighted by FAO. Warnings on outbreaks were likely to be less than a month. Upsurges could only be forecast up to 3 months in advance with a relatively low reliability, whilst the forecast period for the development of a plague was around 6 months but reliability was higher. Advance warning of outbreaks was more problematic and was probably only 1 month with low reliability. The short timelines for advance warning of the onset of locust upsurges and plagues reinforced the importance of having realistic contingency plans in place to enable countries to be in a position to respond adequately.

10. Dr. Symmons (FAO Consultant) explained that contingency plans were designed to deal with unusual or irregular events that could not be predicted with confidence far in advance. He outlined the basic dynamics of the Desert Locust from the initial Outbreak through the Upsurge stage to a Plague. All these create situations for which there should be contingency plans. The assumptions that needed to be made to run the workshop exercises were outlined of which the division into Outbreak, Upsurge and Plague was of prime importance, in order to have a structured rational approach and discussion. He then described the approach to be used in the exercises. Each stage –Outbreak, Upsurge, Plague – would be considered separately. The examination of each stage would be divided into 3 sections to try to determine the following:

    a. What resources would be needed?

    b. What action may be required within countries to be able to use those resources if they were available?

    c. How can the required resources be supplied in time of need within the likely warning period?

11. The estimation of resources needed was simply an arithmetic calculation within a spreadsheet programme. Values of various relevant parameters are entered by participants and the consequences then appear automatically as an Output.

12. Some of the inputs are reliable, such as aircraft speed and pesticide volume application rates, but many of the inputs are no more than an informed guess. For

example, the vast majority of control is of hoppers but one cannot guess plausibly the number and size of the aggregations (patches and/or bands) within a population. The best method to estimate the hopper population is to start with the size of the swarm progeny and work backwards. With plague swarms, there is one field estimate and it is possible from reports to produce further very crude values. This suggests that plague swarm infestations total one or two but probably not more than three thousand km². This estimate together with other published data on swarm density, hopper mortality and density, allows an estimate of the number of "average" mid instar bands in a plague in a seasonal breeding area that would have produced the number and mean size of swarms that have been entered as the input.

13. The practical exercises specifically developed for the workshop were supplemented by presentations from a number of participants from locust-affected countries (Sudan, Iran, Morocco, and Mauritania) and FAO staff from the Western and Central Regions, on their experiences in contingency planning.

CONTINGENCY PLANNING: PLAGUE

14. The Excel spreadsheet developed for this workshop was generally regarded as a useful initial tool for Desert Locust scenario planning and to provide inputs for formulating associated contingency plans. It enabled estimation, within limits which appeared reasonable, of the major resources (pesticides, vehicles and aircraft) required to control Desert Locust plague populations although there appeared to be significant variation amongst participants on what level of locust population would constitute a plague. There also appeared to be significant variance between participants on other input parameters to be used in the exercise; for example, the time to search and, if necessary, mark out a target "block" of 1km². Given that many of the parameters required for the exercise impact to some degree on estimating requirements for planning purposes, individual countries and FAO should consider collecting this type of field data to enable more accurate planning estimates to be made.

15. The results of the exercises indicated that the resources to control a Desert Locust plague population in the nymphal stages are substantial even when the vast majority of the population occurs in bands. Whilst the level of resources greatly reduces if control were only to be carried out against swarms, this was not seen as a feasible exclusive strategy. Also whilst ground control of settled swarms was common, many, if not most, participants seriously doubted the practicality of spraying flying swarms particularly in respect of pilot safety issues. However, the technique was used, and documented as such, in the Central Region in the 1950s and was also used in 1987 and 1988 in Sudan. Given that it is highly unlikely that complete control of significant locust populations would be achieved only by control of the nymphal stages (even allowing for more effective band control through the use of barrier spraying techniques) and the efficiency of swarm control in terms of pesticide use, it would appear sensible to review what is known and, if necessary, further explore the feasibility and constraints in controlling flying swarms under field conditions.

16. Similarly, the resources needed to detect and define suitable nymphal targets by ground search are large. Detection of such targets by air could prove to be more resource efficient but most participants did not consider this to be feasible or feasible only under very particular conditions, for example where large dense bands were present in sparse vegetation and only at certain times of the day.

17. The re-introduction of barrier spraying of hopper bands has the potential to allow for significantly more efficient and cost effective control. However, at present it does not appear that large-scale trials using fipronil and IGRs have been conducted to establish the effectiveness of these products against Desert Locust or to determine the most effective barrier application method. Given the potential of barrier spraying, such data should be regarded as a priority. When available, trial results should also be considered by the FAO Pesticide Referee Group.

18. The discussions on the contingency planning for plague control exercise developed into a broader discussion on the current locust upsurge and a range of issues and concerns regarding the actual planning of campaigns and mobilization of resources being experienced by affected countries. These issues and concerns are discussed later in other sections of this report.

CONTINGENCY PLANNING: OUTBREAKS

19. The exercises in this section of the workshop generated considerable debate. In general, the results obtained by the three workshop groups raised some doubts as to whether the control measures would have a significant impact on reducing an outbreak population.

20. In the discussions there was considerable confusion between the use of the French and English terminology for outbreak (“Resurgence”), and upsurge (“Recrudescence”). It also appeared that the terminology reflected different concepts of what an outbreak comprises in terms of the density and size (for example, patches or hopper bands) of the population and possibly even the degree of gregariousness of the population.

21. The results led some participants to question whether outbreak control was effective. A discussion developed on whether the input parameters, from which the results were derived, were valid or not.

22. A critical input factor in the exercise is the proportion of hopper “patches” not detected during the ground search of a “block”. As there was no known field data for this input parameter, a field search simulation to assess this parameter was undertaken by participants. Three field “blocks”, each comprising an area of 0.5 km², had been demarcated in advance and within each block coloured pebbles had been placed to simulate the distribution and density of Desert Locust hopper patches which could be expected in an outbreak situation. In total the three blocks contained 55 hopper patches. Participants were organized into 3 groups and were tasked to survey each block for the patches and to undertake simulated control of any patch

found using a micro-ulva sprayer. On average the workshop groups only detected fifty percent (50%) of the patches in each block. This value was then used in the exercise spreadsheet. Given the importance of this question, field research to derive realistic values for this parameter would seem to be a high priority.

23. In general terms, the resources required to undertake outbreak control could be classified as significant rather than substantial. The exercise indicated, for example, that in an outbreak area of 5,000 km² infested at 60%, if all patches could in theory be found and treated, the pesticide required would be low (around 1,700 litres). However, the number of teams required, as determined by the spreadsheet, would likely have to be larger than most national capacities.

24. Most locust-affected countries indicated that they had sufficient national resources to undertake control of outbreak populations without the need to request external assistance. However, the discussions also indicated that a few locust-affected countries could only undertake control at the outbreak level if their resources were supplemented by external assistance. This implies that before any such control measures could be undertaken a request for external assistance has been made and the assistance made available. There is significant risk that this could result in no, or only limited, control being undertaken.

25. There was a general consensus that outbreak control would normally only involve ground control of locusts with most of the control effort being directed at the hopper stages. Control would most likely comprise spot treatment of patches and/or block treatment where the density of such patches within the block was high. Some participants also indicated that in the future barrier treatment of outbreaks could be possible.

CONTINGENCY PLANNING: UPSURGES

26. The upsurge control exercise indicated that the resources required for control would be substantial and generally beyond the normal means of most locust-affected countries and therefore external assistance would be required to deal with the situation.

27. In the early stages of an upsurge it was considered likely that there would be heavy reliance on ground control of bands and it was unlikely that aircraft would be deployed. In the later stages of an upsurge, aerial treatment would be required.

28. It was considered that barrier treatment of bands by both ground and air would likely be effective in an upsurge particularly in the later stages.

29. Since additional external and national resources would be required to undertake upsurge control this would need to be reflected in any contingency plan. In addition to the amounts of the additional resources required, the contingency plan would also need to consider the mechanisms for requesting additional assistance. For example, the establishment or re-activitation of steering committees and inter-governmental committees would be an action contained in the contingency plan.

CONTINGENCY PLANNING: GENERAL

30. The various elements which might comprise a contingency plan, came up during the workshop discussions but there was no specific time allocated to discuss this aspect in detail nor was it intended to be part of the workshop. However, there would appear to be a need to follow up on this with locust-affected countries. The experiences in contingency planning in the Central Region would indicate that training in contingency planning is required for the locust-affected countries.

31. The discussions suggested that a contingency plan should include all the resources required to control the particular locust infestation. The existing national resources and possible additional national resources, for example national emergency funds which could be made available, should be detailed together with any shortfalls for which external assistance will be requested/required.

32. As discussed earlier, the contingency plan should also detail the various actions, which are required to mobilize the national and external assistance required. In addition, some participants indicated that the plan should also contain information on the control systems and techniques which will be used since it is often essential to include this information in funding proposals submitted to donors.

33. A number of other topics were discussed during the workshop in relation to contingency planning. These included:

    a. Organizational structures for recessions and plagues

    b. Access to national disaster contingency funds

    c. Access to other national resources in emergencies

34. At the national level, there was considerable variation in the organizational structures for locust control. National locust control units vary in terms of overall size, the level of dedicated survey and control resources and the degree of operational and financial autonomy. Specialized locust control structures were generally seen as having a number of advantages including reasonable certainty in relation to annual government funding and dedicated survey and control resources. However, difficulties in maintaining such specialized structures could occur if they were large, particularly when there was a long recession period with no major control activity. On the other hand, if the Locust Unit was small then it would need to be quickly reinforced, preferably with trained personnel, during periods of higher locust activity such as upsurges and plagues.

35. There was recognition that FAO structures would also need strengthening during periods of high locust activity to meet the substantial additional workload such as responding to requests for assistance, drafting assistance proposals, managing external project funds, analyzing field data etc. generated in such situations. In the last plague (1986-89), this had been achieved through the creation of the Emergency Centre for Locust Operations (ECLO). The general view of the meeting

was that the ECLO arrangements had been effective. Similar views were expressed in respect of the need to consider strengthening the FAO Regional Locust Commissions during major upsurge or plague periods.

36. From the various workshop presentations and the plague scenario exercise, it was noted that many locust-affected countries potentially had access to national government emergency funds. Access to such funds was seen as an important element for strengthening national responses in emergency locust situations and to demonstrate the priority attached to the locust problem by national governments.

37. The meeting noted that there was no contingency fund for emergency Desert Locust control at FAO headquarters although the Central Region Commission did have a small reserve of around US$100,000. There was some discussion on the feasibility of such a fund being established by FAO perhaps through the Desert Locust Control Committee (DLCC) with donor funds. Another longer-term option could include increasing the current level of DLCC contributions, which could form the basis of a contingency fund.

38. The concept of a donor-funded DLCC contingency fund had been raised in the past with apparent little success as donors had generally indicated that emergency funds were only provided for actual, not potential, emergencies. The establishment of such a fund with contributions from the locust-affected countries participating in the DLCC Trust Fund could be given consideration.

39. A number of locust-affected countries also had access to other national resources, including military resources, in locust emergencies. Assistance provided by military aircraft, both for logistical support and spraying operations, should therefore be included in contingency plans where these are available. Similarly, additional resources such as vehicles and personnel from other government agencies in locust-affected countries should also be included in contingency plans.

IMMEDIATE ISSUES AND CONCERNS

40. The results of the plague campaign contingency planning exercise focused attention on the availability of resources. This was seen as a critical issue at present, due to the current serious Desert Locust situation, but also in the longer term.

41. Several important issues were identified and discussed including the apparent limited availability of external donor resources, the level of resources currently available within locust-affected countries, access to reserve funds, donor requirements for requesting assistance, information required for assistance requests, and the procurement and delivery of resources in emergency situations.

42. Several participants noted that, in comparison to the 1986-9 Desert Locust plague, the willingness of donors to provide assistance to locust emergency operations may be less for a number of reasons including: increased environmental concerns; stricter controls on funding activities with potentially negative environmental impacts; and changing priorities and focus.

43. The DLCC-TG members considered that donors were, in addition, concerned about the economic importance of Desert Locust.

RESOURCE MOBILIZATION

44. A number of participants expressed concern over the apparent limited response by donors in providing assistance to countries for the current locust emergency which could escalate into a plague depending on the success of control measures and the probability of favourable summer breeding conditions occurring.

45. The provision of pesticide by donors was seen as a major issue. The pesticide bank mechanism implemented by two donors in the 1986-89 plague had proved highly effective. Under this arrangement there was a high level of certainty on the rapid availability of pesticides. In addition, the mechanism reduced the risk that significant volumes of pesticides would be delivered after the locust threat had subsided, thereby decreasing the potential risk of a pesticide disposal issue arising in the future.

46. In view of the current locust situation, the difficulties experienced to date in pesticide delivery and the potential quantities of pesticide which would likely be required in the next few months to undertake large scale control, the establishment of a pesticide bank was seen as a key issue which needed to be raised with donors urgently.

47. However, as an interim measure it was suggested that further use could be made of "triangulation" transactions, involving the donation or loan of pesticides from a locust-affected country with substantial stocks to another country in urgent need.

PROCUREMENT OF RESOURCES

48. Concern was expressed by a number of participants over critical delays experienced in the delivery of essential materials through FAO. Whilst it was recognized that some delays might be due to the slow release of funds by a donor to FAO, it was believed that delays were also attributable to FAO procurement procedures.

49. The potential difficulties and delays resulting from FAO tender processes for the supply of pesticides were seen as a significant issue. Three specific concerns were highlighted namely:

    a. Whether a tender process was necessary when extremely tight delivery deadlines needed to be met; and

    b. The potential for operational difficulties as a result of the provision of pesticides which were not the product preferred by the recipient country; and

    c. a country could be supplied with a range of different products or formulations which could complicate control operations.

CONCLUSIONS AND RECOMMENDATIONS

Contingency planning

50. In view of the importance of contingency planning, follow up action to include an annual workshop and more comprehensive in-country backstopping should be accorded a high priority by FAO.

51. Contingency planning also needs to include consideration of donor requirements for formulating proposals for assistance to reduce the risk of delays occurring due to donors requesting additional information.

52. The FAO Locust and Other Migratory Pests Group should develop its own contingency plans for responding to Desert Locust upsurges and plagues.

53. To assist the countries in drawing up contingency plans, it is recommended that FAO hire a consultant to develop a check list/questionnaire for dealing with most issues relevant for contingency planning.

54. FAO has a database of all materials provided to the locust-affected countries. The regional commissions should establish and maintain a database of control resources available in each member country. This would facilitate a quick response to requests from donors for this information.

55. Each country should not only provide details of national resources available but also information on how these will be utilized including control systems and techniques.

Mobilization of resources

56. In view of the limited donor response to the current emergency, FAO should urgently consider directly approaching donors for the provision of additional assistance.

57. As part of this approach, the importance and feasibility of establishing a pesticide bank similar to that which operated successfully in the 1987-89 plague should be raised with donors.

58. In the interim, FAO should explore further pesticide loan/replacement arrangements between locust-affected countries to minimize the risk of shortages in the immediate future.

59. Locust-affected countries liaise closely with FAO to ensure requests for assistance to donors made bilaterally or multilaterally through FAO are coordinated and consistent.

60. Locust-affected countries should be strongly encouraged to ensure they have the national resources to undertake early outbreak control.

61. Donors have frequently asked about the damage caused by the Desert Locust and commissioned a study on the economics of Desert Locust management (Joffe, 1998). Therefore, locust-affected countries should document significant damage caused to crops and pastures, and the consequences for the livelihoods of rural people.

62. FAO and locust-affected countries should have a coherent approach to specific donors:

    a. FAO HQ with the Permanent Representative of the donor country in Rome;

    b. the locust-affected countries with the donor's Embassy;

    c. the Ambassador of the locust-affected country in the donor country should be informed.

Procurement of resources

63. FAO urgently reviews its current procurement procedures to ensure that critical timelines for the delivery of materials, in particular pesticide, are met.

64. FAO urgently review its tender process for emergency pesticide procurement to take account of established recipient country operational requirements and preferences

Structures for emergency response

65. As a matter of urgency, FAO consider re-activating ECLO (Emergency Centre for Locust Operations), which was created for the 1987-89 Desert Locust plague, including the provision of resources for the implementation of these arrangements.
66. FAO gives immediate consideration to strengthening the Locust and Other Migratory Pests Group by filling the current vacant post on a temporary basis.

Research

67. During recessions, the testing of new products or techniques or operational research on Desert Locust is hindered by the non-availability of suitable locust populations. During upsurges and plagues, the focus on control often means there is no time to carry out research in these important areas. This situation needs to be addressed and efforts made to ensure that the research opportunities afforded by the presence of significant locust populations are utilized.

68. A high priority needs to be given to field research on:

    a. Estimating the overall extent of hopper infestations at the outbreak, upsurge and plague stages

b. Pesticide trials to determine the efficacy of large scale barrier treatments using fipronil and IGRs;
c. Applied research on the feasibility, conditions and techniques for aerial spraying of flying swarms
d. Applied research on the detection of hopper bands by aerial survey during late upsurge/plague situations.
e. Determining the proportion of hopper bands treated and the proportion not treated in target areas.

Evaluation of control

69. There should be a reasonable level of routine sampling undertaken during control operations to provide data to estimate:

    a. the percentage infestation of hopper bands in sprayed blocks; and

    b. percentage mortality in sprayed areas including sprayed blocks.

CLOSURE

70. On behalf of FAO, Mr. Clive Elliott thanked the Government of Mauritania for having made such satisfactory local arrangements for hosting the workshop. He also thanked the Head of the Locust Control Mr.M.A.Ould Babah and the EMPRES National Professional Officer Mr. M. L.Ould Ahmedou for the attention they had given to the details of the arrangements. He expressed his appreciation to all the workshop participants for their hard work during the workshop. He hoped that the workshop would be seen as a step forward in improved contingency planning. If that was to be the case, the recommendations made by the workshop would need to be followed carefully and energetically by FAO, through its Commissions and EMPRES, and by individual national locust units.

71. The Technical Adviser to the Minister of Rural Development and the Environment, Mr. Camara Fodié, said that it had been an honour for the Mauritanian Government to host such an important workshop as that of the DLCC Technical Group, in which so many nationalities had been represented. He thanked the Technical Group members, other participants and FAO for their contributions and said that he hoped that the result would be better planning for locust emergencies in the future in the affected countries. He wished participants a safe journey home and declared the workshop closed.

Annex 1

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