REPORT OF THE

SEVENTEENTH SESSION OF THE FAO DESERT LOCUST CONTROL COMMITTEE

Held in Rome, Italy
1-5 October 1973

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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Meeting Report
No. AGP/1973/M/9

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Plant Production and Protection Division
Food and Agriculture Organization of the United Nations
Rome, 1973

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INTRODUCTION

The Sixteenth Session of the FAO Desert Locust Control Committee, which was held in Rome from 23 to 27 October 1972, recommended (Report, para- 63) that its next session should be convened in October 1973 to be preceded by a three-day meeting of technical experts. Accordingly, the Director-General of FAO convened the session from 1 to 5 October 1973. He invited the following governments to be represented by delegates at the Seventeenth Session :

Afghanistan	Morocco
Algeria	Niger
Arab Republic of Egypt	Nigeria
Bahrain	Oman
Cameroon	Pakistan
Central African Republic	People's Democratic Republic of Yemen
Chad	Portugal
Dahomey	Qatar
Ethiopia	Saudi Arabia
France	Senegal
Ghana	Sierra Leone
Guinea	Somali Democratic Republic
India	Spain
Iran	Sudan
Iraq	Syrian Arab Republic
Israel	Tanzania
Ivory Coast	Togo
Jordan	Tunisia
Kenya	Turkey
Kuwait	Uganda
Lebanon	United Kingdom
Libyan Arab Republic	United States of America
Mali	Upper Volta
Mauritania	Yemen Arab Republic

The session was opened by Dr. O.E. Fischnich, Assistant Director-General, Agriculture Department, who welcomed all participants and briefly reviewed the important Desert Locust activities during the past one year. He appreciated the spirit of cooperation between the various regions which facilitated combatting the upsurge of the Desert Locust plague during the early part of 1973 in its very initial stage. He particularly thanked the Desert Locust Control Organization for Eastern Africa (DLCO-EA) and the Government of Sudan for the assistance in this campaign. He, however, stated that there should be no cause for relaxation if the recession was to be maintained. He assured the Committee that FAO would do everything possible to promote this important programme.

Officers of the Session

The Committee unanimously elected the following officers :

Chairman : Mr. Mohamed El Said Hassanein (Arab Republic of Egypt)

Vice-Chairman : Mr. Abdallahi Ould Mohamed Sidia (Cameroon)

Drafting Committee : Delegates of Iran, Jordan, Somali Democratic Republic, Cameroon and Algeria and the FAO Secretariat.

Messrs. Gurdas Singh, A. Khasawneh, N. Mahjoub and Miss C. Hemsted served as Technical Secretaries.

Aoknowledgements

The Committee expressed its warmest appreciation of the most effective and courteous manner in which the Chairman had conducted the deliberations of the Session. The delegates also thanked the FAO Secretariat for the efficient way in which it had performed its various duties.

Obituary

The Committee paid tributes to late Prof. R. Pasquier whose death had deprived the science of Entomology of a very eminent scientist, well known for his work on various species of locusts. Prof. Pasquier had served as FAO Consultant on several missions and training courses. He had been responsible for having developed survey techniques which were still being used by all the countries of western Africa where his loss would be particularly felt.

The Committee also learnt with deep regret about the death of Mr. O.B. Lean who had been responsible for the initiation and development of all aspects of FAO Desert Locust programmes including the UNDP Desert Locust Inter-Regional Project. He could be considered the last of the pioneers in the work of Desert Locust control and research.

PARTICIPATION IN THE SESSION

The following delegates from Member Nations of the Food and Agriculture Organization of the United Nations and Specialized Agencies, observers and members of the FAO staff participated in the session and contributed to the discussions summarized in this report : -

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AGENDA

1. Opening of the Session
2. Election of the Chairman and Vice-Chairman
3. Adoption of the Agenda
4. Election of the Drafting Committee
5. The Desert Locust Situation during 1972/73 and Forecast
6. Anti-Locust Measures undertaken by Various Countries and Regional Organizations (November 1972 to September 1973)
7. Emergency Action Undertaken in the Red Sea Coastal Plains and the Gulf of Aden Areas
8. Consideration of the Report of the Technical Consultation
9. Progress Report on the Proposed Project for Training
10. Trust Fund 9161 - Contributions and Expenditure
11. Status of Various Desert Locust Regional Organizations:
    a) South-West Asia
    b) Near East
    c) Eastern Africa
    d) North-West Africa
    e) West Africa
12. Other Business
13. Date and Place of Next Session
14. Adoption of Report

SUMMARY OF DISCUSSIONS

Desert Locust Situation from October 1972 to September 1973

1. The Committee had before it a summary of the Desert Locust situation prepared by the Desert Locust Information Section (DLIS). This was brought up-to-date by the additional information supplied by the delegates and observers.

General Features

2. During the period under review a potentially dangerous situation developed in the countries surrounding the Red Sea and the Gulf of Aden. There had been exceptionally heavy and widespread rains, particularly following the tropical cyclone of late October/November 1972, and excellent breeding conditions existed in many areas. This resulted in rapid population build-up. By the end of December many hopper bands and extensive groups of hoppers, fledglings and mature adults were observed in the above countries, and the situation could well be compared with the one in 1967/68. Only timely and well coordinated ground and aerial control operations in the areas concerned prevented the onset of another Desert Locust plague.

South-West Asia

3. No locusts were reported from Afghanistan from September 1972 until April 1973. In Pakistan control operations against groups of hoppers and fledglings were concluded in the first week of September. Breeding on a small scale continued in western Rajasthan in India during September and October. In Iran three IV to V instar solitary hoppers were found in Jiroft area on 17 October.

4. Small numbers of adults persisted in Iran, Pakistan an India during the winter months and breeding was on a very restricted scale in southern Iran. There was a considerable increase in locust numbers in southern Iran in late March and early April, and some of these locusts moved into southern Afghanistan during a period of south-westerly winds in mid-April. However, conditions were generally unfavourable for breeding in Iran and Afghanistan, and hoppers were confined to a few irrigated areas only.

5. Between May and July 1973 scattered adults were reported from many localities in the summer breeding areas of Pakistan and India. Rain sufficient for breeding fell at a number of places from mid-May onwards but copulating locusts were not observed until the latter half of July. There was a further rise in the adult population during August in the normal summer breeding areas and in Las Bela district of Pakistan, and a number of copulating pairs were observed in Sind desert. A few scattered solitary hoppers of I to III instars were reported from Bikaner district during the second week of August and one adult was also collected at Kolayatji in Bikaner district on 22 August.

Near East

6. In the south-east of the Arab Republic of Egypt a few locusts were found near the Elba mountains in November and December; no breeding was reported. With the exception of some groups of adult locusts observed in May over an area of $\frac{1}{2}$ sq.km., which were controlled, the country was reported free from any major locust activity.

7. In Oman, two swarms were seen in September, possibly representing the progeny of the locusts reported in June. Another swarm was reported south of Masirah in November, that a further displacement was under way. There were no reports from December to February. In late March and early April there were a number of reports from Oman, the United Arab Emirates, the Persian Gulf, southern Iran and the Arabian Sea. These included three reports of swarms and groups of flying locusts although none was definitely confirmed as being of Desert Locusts. However, one specimen found in Das Island one day after the reported

departure of a swarm was identified as a Desert Locust. These sightings suggest that a substantial northward movement out of eastern Arabia was in progress. Some of the locust might have overwintered in Oman but they might have originated in south-western Arabia. A dense population found in an irrigated area at Haradh in eastern Saudi Arabia in mid-May might have been produced by flying adults dropping down into this isolated refuge along their migration route. Some locusts remained in eastern Arabia because scattered adults were reported from several localities in the United Arab Emirates in May and June.

8. In the south-west of the Arabian Peninsula conditions were suitable for breeding in several areas during the second half of 1972, and particularly in Saudi Arabia. Control was carried out in August against groups of hoppers and fledglings on the coast in the Qunfidah area, and inland near Najran and Sulayyil. Only scattered locusts were recorded in September and October. In early November, a mature swarm was reported to be laying near Qunfidah; survey teams found mature groups over 20 square kilometers at a maximum density of 4,000 per hectare. At the same time in the Qunfidah area other populations were found laying and groups of hoppers and fledglings were seen. Control operations were carried out in this area during November and December when numerous , mainly small, hopper bands were present and further south near Jizan where groups of copulating locusts were reported to extend for 50 sq.km. at a maximum density of about 3,000 per hectare. Control was completed against the resultant hopper bands in the Jizan area in early January. During January numerous, mainly small mature swarms appeared in the Qunfidah Tihamah and during February and March many hoppers, hopper bands, fledglings and mature adults were present from just south of Qunfidah for about 150 kilometers northward. An intensive ground campaign was mounted against these swarms and the hopper populations. Control operations were further intensified by employing two spraying aircraft and by the end of April only scattered adults remained. Apart from the population at Haradh only scattered locusts had been reported from Saudi Arabia since May.

9. In the People's Democratic Republic of Yemen a swarm was reported from the Hadramaut in August, when there was also a widespread population of scattered adults. Hopper bands were found and controlled at Am Rija and Wadi Masip between August and October. In December another swarm was reported from Husn-Al-Abr in the Hadramaut, and in early January there was a marked increase in adult numbers on the western coastal plains. As conditions were still favourable for breeding following the passage of a cyclone in late October, these adults matured and laid. Three main areas of breeding totalling some 1,600 sq.km. were controlled from the ground and air in the Abyan Delta, Jawalla-Fiyush and Am Rija - Khawr Umayrah areas between January and March. Adult members remained low until July 1973 when there was a further invasion of the western coastal plains, probably from the interior. In August small scale breeding was in progress and control was undertaken.

10. In the Yemen Arab Republic scattered adults were reported from several coastal and interior areas between July and October. In November and December ground control operations were mounted against hopper bands south of Maidi on the Tihamah. Scattered adults were reported from several localities on the Tihamah until April, when a few locusts were also reported from the Sana'a area.

11. The locust situation in Sudan is given under Eastern Africa. Other countries in the Near East were reported free of any locust activity.

Eastern Africa

12. In eastern Africa no breeding was reported from the summer breeding areas of Sudan and northern Ethiopia during 1972. Locust numbers increased following good but patchy rainfall on the Red Sea coastal plains of Sudan in October and November, and in the mountains of northern Ethiopia in November, giving runoff on to the northern Red Sea coast of Ethiopia ( ). Adults occurred during November in the Tokar Delta of Sudan and during December in Wadi Teclai on the northern Red Sea coast in Ethiopia. In mid-December a medium-sized laying swarm and several groups of laying adults were present in the Tokar Delta.

Ground and aerial control operations were mounted against hopper bands and adult concentrations in Tokar between December and February. At a number of other localities in Sudan, south of Port Sudan, control was carried out in January and February. In Ethiopia hoppers were controlled between Wadi Teclai and Karora in January. Subsequently the number of adults declined in these coastal areas.

13. In Sudan, above average rains fell in parts of Khartoum, Blue Nile and Kassala Provinces in May and July 1973. In late May and early June groups and scattered adults of mixed maturity were found in Khartoum, Kassala and Kordofan Provinces. Control was carried out against the groups. In late July it was stated that there had been no reports of laying by remaining locust populations.

14. In the coastal and sub-coastal plains of the Somali Democratic Republic mainly scattered adults were reported after the conclusion of control operations in July 1972. Rainfall was exceptionally heavy in late October and November when three cyclones affected the Somali coast. The cyclone of late October/November may have carried locusts into the area from south-west Arabia, for by November some hopper bands were present among widespread scattered populations. A control campaign was carried out between December and February against both hopper and adult infestations between Berbera and Bosaso areas, and against a small infestation near Meleden in February. Only scattered adults have since been reported, all on the coastal and sub-coastal plains.

Western Africa

15. In north-western Africa locusts were controlled in three areas in Libya between September and November 1972, and a few adults survived in eastern Tripolitania until June. Isolated adults were found at a number of places in western southern and eastern Algeria until December; but since then only two adults had been found, one in January and another in March. The small amount of rainfall in September 1973 in the central Sahara resulted in favourable ecological conditions but the country remained free from any locust activity.

16. In western Africa extreme drought conditions prevailed over much of the area until mid-1973, and locust populations have fallen to the lowest levels for ten years. Breeding occurred on a small scale in Mauritania, Mali and Niger between July and November 1972. A few isolated adults were reported during the winter months. During July and August isolated and scattered locusts were found at several sites in north-west Mauritania and good rains were reported. In September 1973 the hoppers and isolated adults of varying maturity with a maximum population of 25 specimens per hectare were observed in the Aleg area of Mauritania.

Forecast

17. In south-west Asia small-scale scattered breeding will continue in the normal summer breeding areas and Lasbela district of Pakistan until October or early November. Most of the resultant adults will remain in these areas but some will migrate westwards towards south-east Iran and the Sultanate of Oman where breeding may commence as early as November.

18. In the Near East the most important locust populations will be confined to the coastal areas along the Gulf of Aden and the Red Sea as far north as Jeddah. Breeding, which had already started in the People's Democratic Republic of Yemen, will continue in many localities in October and November. If winter rainfall is protracted hopper bands may be produced in a number of areas.

19. In eastern Africa the most important populations will be confined to the coastal areas along the Gulf of Aden and the Red Sea as far as Port Sudan, which are areas of winter rainfall. Breeding may occur in many localities but the first generation is unlikely to be on a scale sufficient to produce hopper bands. However, if winter rainfall is protracted hopper bands may occur in the second generation.

20. In north-west Africa small numbers of adults may persist in restricted localities in Libya and breeding may occur on a small scale. Adults at very low densities may move into the extreme south of Algeria during October and November.

21. In western Africa adults will occur at very low densities in Chad, Niger and Mali and small numbers of hoppers will be present in restricted sites until November. In western and north-western Mauritania favourable ecological conditions on a fairly large area will remain until the beginning of 1974 and will enable breeding in special areas suitable for gregarization.

Anti-Locust Measures Undertaken by Various Countries and Regional Organizations (September 1972 to September 1973)

22. There had been considerable locust activity in the south-western Arabian Peninsula, the Gulf of Aden areas and along the western coast of the Red Sea. Extensive control operations were undertaken by the various countries and regional organizations concerned which are given in detail in paras. 24-36.

23. In all, 131,468 kgs. of bait, 101,750 kgs. of BHC dust, 86,315 litres of different insecticides were used in all the areas both by ground and air. Details are given in Appendix 1.

Emergency Action Undertaken in the Red Sea Coastal Plains and the Gulf of Aden Areas

24. A potentially dangerous situation developed in the areas surrounding the southern Red Sea and the Gulf of Aden. There had been exceptionally heavy and widespread rains, particularly following the tropical cyclone of late October/November 1972 and excellent breeding conditions existed in many areas. This resulted in rapid population build-up. By the end of December there were many hopper bands and extensive groups of hoppers, fledglings and mature adults.

25. In Sudan a laying swarm and a large number of adults and hoppers were found in the Tokar area in December. There was a smaller population in Wadi Teclai in the north of the Ethiopian coastal plains. Control was carried out in both areas.

26. Exceptionally heavy rains received by the end of October/November resulted in a steady increase in locust numbers in the northern coastal and sub-coastal plains of the Somali Democratic Republic; a number of hopper bands were formed and extensive control was carried out. Subsequently, breeding was observed in the French territory of the Afars and Issas against which ground and aerial control operations were carried out.

27. Successful breeding control occurred on the coastal plains of the People's Democratic Republic of Yemen, the Tihamah of the Yemen Arab Republic and the southern Tihamah of Saudi Arabia. Control operations were carried out in all the above areas and by the end of 1972 there were few locusts in the Tihamah of the Yemen Arab Republic and in the People's Democratic Republic of Yemen. The main populations were in Saudi Arabia where a

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The delegate of the Democratic Republic of Somalia drew attention to the name "Afar and Issa Territory" indicated in document AGP:LCC/73/9 and elsewhere mentioned in the report and wanted to record his protest that this name was not accepted by his Government , and in his opinion its name should be Somali coast under French Domination. The French Delegate pointed out that the official name is "French Territory of the Afars and the Issas" and this was also confirmed by the FAO Secretariats.

laying swarm was reported in November and where subsequently there were many hopper bands and extensive groups of hoppers, fledglings and mature adults. Due to subsequent widespread and well distributed rainfall in this area, breeding conditions continued to be favourable and in spite of the control operations locust populations multiplied rapidly, and by the middle of January there was a large number of small swarms, numerous hopper bands in Qunfidah area and widespread locust populations to its north almost up to Jeddah. This was a rather serious situation which the ground teams were hard pressed to bring under control.

28. The Senior Officer, Locust Control and Emergency Operations Group, visited Saudi Arabia in January to make on the spot assessment of the locust situation and to make arrangements to cope with it. Following a meeting with the Minister of Agriculture and with other high-level officials in the Ministry, it was agreed that the existing locust situation was beyond the control of the existing national ground teams and the swarms were likely to spread towards north and north and north-east unless controlled immediately by aerial spraying. It was also agreed to provide additional funds for adequate ground support for aerial operations. Arrangements were also made with the Ministries concerned to obtain their clearance for the entry and operation of the aircraft in the areas of infestation. Having achieved the above, the Senior Officer left for Addis Ababa where he obtained the agreement of the DLCO-EA to spare one of their twin-engine spraying aircraft with crew and then went to Khartoum to obtain another aircraft and two Locust Officers to assist in operations in Saudi Arabia.

29. Accordingly, a spraying aircraft (Piper Super-cub) of the Government of Sudan arrived in Jeddah on 13 February and was followed two days later by the DLCO-EA aircraft (twin-engine Islander) and accompanied by the aircraft Engineer. At the same time, two Locust Officers from Sudan arrived in Jeddah. Mr. G. Popov, of the Centre for Overseas Pest Research, London, also arrived during the first week of February and helped in planning and supervision of the aerial operations.

30. After completing the preliminary formalities, the aircraft started operations on 17 February . At all times aerial operations were closely coordinated with ground surveys and control, and thus formed an integral part of the general campaign effort. Spraying was the main function of both aircraft and with their help large areas were rapidly and efficiently oleared of locust infestations. The environmental conditions differed considerably and so did the type of distribution of locust populations. The kind of insecticides and the method of application were so chosen as to suit best each individual situation. In addition, the aircraft played an important role in surveying and liaison between field bases and Jeddah, thus releasing some of the pressure on the ground transport needed for control.

31. The DLCO-EA aircraft, after clearing the main infestations, returned to its base on 15 March. In addition to flying for survey and liaison work it spent 26 hours in actual spraying. The second aircraft of the Sudan Government was retained to assist in survey and control of the remaining locust populations. It left for Khartoum on 22 April and flew 51 hours for spraying.

32. In the meanwhile widespread locust populations and hopper bands over a vast area were reported from the People's Democratic Republic of Yemen. Most of them were cleared by extensive control operations. By March, scattered locust populations were still present over a wide area which were not possible to control by conventional ground methods. Another aircraft was obtained from DLCO-EA to assist in surveying and spraying greener areas where locust populations were concentrated for possible further breeding. This aircraft reached Aden on 19 March and worked in the People's Democratic Republic of Yemen for ten days. This helped in reducing the populations substantially and by the end of April only a very few locusts were reported.

33. The details of the control operations undertaken in all the areas are given in Appendix 1.

34. The FAO Regional Locust Officer, Jeddah, kept all the Member Governments of the Commission and other regional locust organizations/commissions continuously informed about the locust situation and action taken to keep it under control. In view of the seriousness of the situation, which could well be compared with the one in 1967/68, the Director-General of FAO issued a special warning on 2 March followed by another one on 24 May.

35. The Committee noted that since November 1972 a considerably large locust infestation continued to exist in a number of areas surrounding the southern Red Sea and the Gulf of Aden. Control operations undertaken by the various national and regional organizations, duly supported by FAO, had adverted the danger of initiation of a new plague which could otherwise develop. The Director-General of FAO, in his latest communication had, however, emphasized the need for continued efforts by all countries concerned to keep their respective areas under constant watch and to keep resources in readiness for control operations in the coming months.

36. The Committee highly appreciated the prompt action taken by FAO and by the various national and regional organizations and the timely assistance provided by the Desert Locust Control Organization for Eastern Africa (DLCO-EA) and the Government of Sudan which enabled to control the plague in its very initial stage. Nevertheless, the Committee supported the Director-General's recommendations (para. 35) and agreed that there was no cause for complacency on account of the present comparatively improved situation and it was necessary for all countries to maintain sustained vigilance.

Research Programme to Study Evacuation and Persistence of Non-Swarming Desert Locust Populations

37. At the 16th Session of the FAO Desert Locust Control Committee it was suggested that a research programme be prepared to study migration and persistence of non-swarming adult Desert Locust populations (Report, paras. 35 and 36). It was suggested that an attempt be made to estimate the critical levels of the factors likely to be associated with evacuation by the study at an isolated site of a hopper and adult population. It was almost certain that studies would need to be repeated in different regions. Accordingly, in consultation with the Centre for Overseas Pest Research, London, the relevant programme was prepared and submitted to the Committee.

38. The Committee, having considered the proposal in detail (Appendix II), agreed that this was a worthwhile project to undertake and its implementation would further facilitate fuller understanding of the dynamics of Desert Locust populations. The study should be designed to evaluate the rate at which non-swarming Desert Locust populations evacuate their breeding sites and to study the factors which affect such evacuations. For such a field study the Committee recommended that careful consideration should be given to the selection of a suitable study site, area and season if worthwhile results were likely to be obtained. In view of the present locust situation, the Central Region was perhaps the best area for such a study during the winter/spring of 1973/74, for a period of six to eight weeks.

39. While considering the method of study, the Committee agreed that basically it would be necessary to estimate the following:

(i) the total number of hoppers (late instar) and adults present at the site selected, on successive occasions;

(ii) the number of adults which had left or died since the previous occasion and

(iii) the number of adults which had arrived or fledged since the previous occasion.

40. The actual techniques and methods of study to be employed to monitor the evacuation of the locust populations should be left to the research team who would be in the best position to decide according to the factors prevailing in the study site. In deciding the methods of study to be employed for assessing locust populations at the selected site, advantage should be taken of the similar studies made elsewhere on this subject. It was emphasized that continuous monitoring of vegetation at the site of observation would be essential to estimate relative abundance of the more important plants. Subject to the availability ot time and resources, gut contents and faeces of the locusts might be examined for determining plants eaten by locusts.

41. The Committee noted that in the western region (Mauritania, Mali, Chad) the most suitable timing for such studies would be from September to October rather than from August to November as mentioned in para. 7 of Appendix II.

42. The Committee considered the composition of the technical staff required for the project and suggested that in addition to two Entomologists (including Team Leader), the team should include a Biometeorologist and an Ecobotanist, both having relevant locust experience.

43. The Committee, while considering the equipment to be purchased, requested FAO to consult with the national and regional organizations concerned to take full advantage of the locally available personnel, equipment and other facilities, and only purchase such items as might not be available locally for use of the research team. The Committee did not agree to the purchase of new vehicles costing $ 23,500 as indicated in the budget and suggested that they should be provided by the government and regional organizations where operations were to be conducted. It was understood that staff, with the exception of labourers, required for the project would be provided by governments, institutes and regional organizations who would continue to pay their salaries, and the Trust Fund liability would only be their travel cost and per diem. Subject to the above, the Committee agreed to the proposed budget to be met from Trust Fund 9161.

Desert Locust Reporting

44. The Committee noted with concern that there was a significant decline in the receipt of reports by the Centre for Overseas Pest Research (COPR), London, from July 1973 onwards. Referring to the earlier recommendations made at the 16th Session (Report, para. 30), the Committee pointed out that apart from the need for maintaining the continuity of the locust situation records at COPR for research purposes, the Centre was to prepare a six-monthly locust situation summary for use of FAO and also any special locust situation reports as may be required. It was, therefore, requested that all national and regional organizations concerned should send regularly copies of their locust situation report, including nil reports, to COPR as done in the past.

Training Project

45. At the Sixteenth Session of the FAO Desert Locust Control Committee held in 1972 (Report, para. 41), it was pointed out that UNDP was prepared to examine a request for assistance towards such a training scheme in the form of experts and equipment, if the cost of trainee was met by the Governments from the resources available with them including their country IPFs. It was, therefore, suggested that FAO should explore with governments the possibility of their making any contribution towards this Training Project such as bearing the travel, subsistence and related expenses of trainees attending the proposed courses. Accordingly, a circular was sent to all governments concerned. Most of them had replied, of whom only three stated that they were prepared to pay the cost of their trainees. The project was also submitted to SIDA for possible financing of the cost of trainees, but they did not indicate their interest.

46. The above position was made known to UNDP. An alternative proposal for a three-year project was then advanced by FAO involving the use of the Trust Funds to cover the cost of trainees. Accordingly, the whole project was revised on this basis and submitted to UNDP for consideration in the form of a draft Project Document. In order to finalize at the earliest possible date the detailed plans for project implementations, including the completion of the Project Document, the UNDP indicated during the meeting that it proposed to allocate a preparatory budget for the hire of the Project Manager and advance ordering of equipment. Providing that the appointment of the Project Manager could be rapidly effected, it would then be possible to complete project preparations and begin project operations in the first half of 1974.

47. The Committee having received a full report from the FAO Secretariat and the UNDP Representative on the progress made on the proposed training project, noting that all the three Commissions (Northern Africa, Near East and South west Asia) had already authorized expenditures towards the cost of trainees to be met from their respective Trust Funds and having recognized the importance of training, with a wider scope to cover other crop pests besides the Desert Locust, authorized FAO to pay the necessary cost of trainees from Member Countries of DLCO-EA and OCLALAV, and from such countries as were within the invasion area of the Desert Locust but were no members of any locust organization/Commission, from the savings and the regular annual budget of Trust Fund 9161.

48. The Committee was informed that for this purpose (para.47) a new Trust Fund would be established with amounts available from all the four Trust Funds, approximately as below:

	1974	1975	1976	TOTAL
International Desert Locust Trust Fund	125 000	125 000	125 000	375 000
Near East " " "	125 000	125 000	125 000	375 000
South-West Asia " " "	50 000	50 000	50 000	150 000
North-West Africa " " "	50 000	50 000	50 000	150 000
	350 000	350 000	350 000	1 050 000

International Desert Locust Trust Fund 9161

49. The Committee received the financial report for 1971 and 1972 (Appendices III and IV) on the above Trust Fund as stipulated in para. 69 of the report of the Ninth Session of the Committee and noted with satisfaction that the Trust Fund had contributed to the financing of the various activities at the international level and, in particular, had proved vital in the overall coordination of the Desert Locust programme.

50. The Committee, recognizing the usefulness of the Trust Fund and the need for its continuance, approved an annual budget of US $ 80,916 (Appendix V). The Committee noted with concern that a number of governments were in arrears in their annual contributions and requested FAO to approach such governments to expedite payment to facilitate full implementation of the agreed programme.

51. The Committee, having noted that UNDP was gradually limiting the budget available under the Inter-Regional Desert Locust Project which previously provided for travel, cost related to DLCC sessions, printing as well as local operating costs and equipment for countries not members of the regional Commissions, agreed to finance such items beyond 1975 from the Trust Fund budget. In view of the continuous increasing demand on the Trust Fund and the rising cost in all fields, it was suggested that the Committee should consider in due course increasing their contributions to the Trust Fund.

Status of Various Desert Locust Regional Organizations

Commission for Controlling the Desert Locust in North-West Africa

52. The Second Session of the above Commission was held in Tripoli, Libyan Arab Republic, from 2 to 5 May 1973 and was preceded by a session of its Executive Committee.

53. The Commission reviewed the locust situation within the region and noted with satisfaction that with the exception of the Libyan Arab Republic, where breeding had taken place between September and November 1972 and had been controlled, all other countries were virtually free from any significant locust populations.

54. The Commission received a detailed statement from FAO on the locust situation in the Arabian Peninsula and in Eastern Africa and noted with appreciation that the timely action taken by the national and regional organizations concerned and supported by FAO had averted, for the present, the chances of initiation of a new plague. This, however, should not allow any relaxation and the locust situation had to be watched very carefully in the summer of 1973 and resources had to be kept in readiness for any anti-locust operations which might be necessary.

55. The Commission approved the programme of work and budget for 1974 and accepted the accounts for 1971 and 1972.

56. The Commission received a report from the FAO Secretariat on the progress made in implementation of the recommendations made at the 16th Session of the FAO Desert Locust Control Committee (Report, paras. 38-44) concerning the training programme on crop pests with special reference to desert Locust control and research. It noted that the majority of governments were not willing to pay any additional amounts to cover the cost of trainees, more than the contributions which they were already paying into the various Trust Funds. The Commission, having recognized the importance of training, authorized FAO to pay the cost of trainees belonging to the member countries of the Commission annually from the unobligated balance of the Trust Fund 9169 of the Commission.

57. The Commission noted with satisfaction the progress made in the training programme. Under the high-level fellowship, Mr. Said Zitoune concluded his fellowship at the University of Paris suocessfully in February 1973. Mr. Azzy of Libya had obtained his M.Sc. and had been admitted for Ph.D. studies, which were progressing well. Mr. Hafroui had started his studies in France in 1972 and his first report had shown good progress. A candidate from Tunisia would begin his studies in autumn 1973. Thus, as agreed at the First Session of the Commission, three fellows, the maximum to be covered by the budget, would be pursuing their studies in 1973/74.

58. A course in locust survey and control organized for trainees from the member countries had been planned to take place in Algeria from 17 March to 15 April 1973. Due to the sudden death of Prof. Pasquier, the course was postponed to 26 March 1973. In all there were 14 participants, i.e. one from Algeria, four from Libya, three from Morocco and three from Tunisia, plus three participants from OCLALAV. The programme was carried out by Mr. G. Popov who was appointed as a short-term consultant to provide training in collaboration with the FAO Regional Locust Secretariat and the national anti-locust service of Algeria for provision of material and technical assistance which contributed to the success of the course. The Commission suggested that in future such courses should be of a longer duration than one month.

59. The Commission noted that the present arrangements for issuing the monthly locust situation summary would continue until the end of June 1973. Thereafter, this responsibility would have to be taken over by the various regional bodies under the general coordination of FAO. With the view to improve the knowledge of the officers engaged in this work, a training course was held for six weeks at the Centre for Overseas Pest Research, London, followed by a short technical visit to Paris in which the Regional Locust Officer, Algiers, participated.

The Commission emphasized the need for member countries to send their monthly locust situation reports by the quickest mean to the FAO Regional Locust Officer, Algiers, so that he could prepare and issue a summary at the beginning of every month.

Commission for Controlling the Desert Locust in the Near East

60. There were serious developments in the locust situation in the Near East during early 1973. An emergency operation was organized under the aegis of the Commission and by the end of April 1973 main infestations were brought under control (paras. 24-36).

61. The Fourth Session of the Commission was held in Cairo, Arab Republic of Egypt, from 15 to 18 September 1973 and was preceded by the session of its Executive Committee.

62. The Commission noted with satisfaction that the timely action taken by the various national organizations assisted by FAO had averted the chances of initiation of a new plague, thus saving the countries in the Near East and elsewhere from the devastation of the Desert Locust.

63. The Commission made several recommendations on field research programmes and emphasized the need for exchange visits between various research workers of the field research stations in the region.

64. It approved the accounts for 1971 and 1972 and the programme of work and budget for 1974 with emphasis on undertaking special surveys in the Tihama of Saudi Arabia and in Oman by deputing locust officers from various member countries of the region on a more or less regular basis.

65. The Commission selected one candidate for high-level training beginning in autumn 1974.

Commission for Controlling the Desert Locust in the Eastern Region of its Distribution Area in South-West Asia

66. The Commission continued its usual activities and undertook joint Indo-Afghan and Iran-Pakistan special surveys during April-June and April-May 1973, respectively. Detailed results of these surveys are under publication and will be circulated in due course. The next session of the Commission was scheduled to be held in December 1973 and its main recommendations would be reported to the Eighteenth Session of the Committee.

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

67. The Organization continued to operate with its usual efficiency and successfully controlled the serious infestations during 1972/73 in the Democratic Republic of Somalia, in Djibouti and in northern Ethiopia. At the same time, it provided its spraying aircraft for operations in Saudi Arabia and the People's Democratic Republic of Yemen. This alone could make possible the timely control of dangerous locust populations in the above countries. FAO continued to maintain good relations with DLCO-EA in matters of common interest. The FAO/SIDA Project at headquarters of DLCO-EA was progressing well and was likely to be extended on a phasing-out basis until 1978.

Organisation Commune de Lutte Antiacridienne et de Lutte Antiaviaire (OCLALAV)

68. FAO maintained its interest in OCLALAV and supported a FAO/UNDP small-scale regional project to assist the Organization (OCLALAV) in matters of field research. This project had been extended until July 1973 and included in the future programme until 1976. FAO was represented, as usual, at the 1973 annual session of the Administrative Council of OCLALAV.

Regional Coordination

69. The Committee emphasized the importance of the various regional organizations and the need for maintaining their efficiency. It was through the coordinated work between national organizations that the Desert Locust had been kept under control and no significant crop damage had been allowed to occur in any of the countries concerned during the past decade.

70. While appreciating the overall coordinating role of FAO, particularly through the Regional Locust Officers, the Committee noted that the UNDP had agreed to continue the three regional locust officer posts for 1974 and 1975 and reiterated its earlier recommendation made at the Sixteenth Session (Report, paras. 61-62) that the continuation of the regional posts was vital for the success of the programme and their financing should be assured under the UNDP in future, particularly as there were exceeding demands on the Trust Funds.

DATE AND PLACE OF NEXT SESSION

71. The Committee recommended that the Director-General of FAO should convene the next session of the Committee possibly in October 1974, to be preceded by a three-day meeting of technical experts at a date and place to be decided by him.

APPENDIX I

DATA ON CONTROL OPERATION
FROM AUGUST 1972 TO AUGUST 1973

LOCALITY	MONTH AND YEAR	TYPE OF INFESTATION (SWARMS, SCATTERED ADULTS, HOPPERS)	INSECTICIDE USED					METHOD OF APPLICATION (AIR OR GROUND)
			B.H.C. BAIT (IN KG)	B.H.C. DUST (IN KG)	LIQUID IN LITRES			
					MALATHION ULV	B.H.C. 15%	DIELDRIN 20%	
People's Democratic Republic of Yemen								
1. W.Masip 1335N4653E	August 72	Fledgling, Hoppers	1000	1500		200	-	Ground
2. Trayah 1306N4521E	Sept.	- -do-	-	1200	-	-	-	-do-
3. Ramlah	-do-	- -do-	-	450	-	-	-	-do-
4. Suad 1345N4602E	-do-	- -do-	-	200	-	-	-	-do-
5. Wadhia 1345N4602	-do-	- -do-	-	350	-	-	-	-do-
6. Ahwar 1325N4645E	Sept. & Oct. 72	- -do-	-	100	-	-	-	-do-
7. Amrija 1303N4435E	Oct. 72	- -do-	500	700	-	200	-	-do-
8. Khaber 1325N4614E	-do-	- -do-	-	100	-	-	-	-do-
9. W.Amsahbia 1315N4515E	January 73	Fledgling, Hoppers	2000	4000	-	700	200	-do-
10.Abyan 1308N4518E	Feb. & March 73	-do- -do-	4600	9100	-	4600	100	-do-
11.Jawla and Fiyoush	-do-	-do- -do-		200	-	2600	-	-do-

LOCALITY	MONTH AND YEAR	TYPE OF INFESTATION (SWARMS, SCATTERED ADULTS, HOPPERS)	INSECTICIDE USED					METHOD OF APPLICATION (AIR OR GROUND)
			B.H.C. BAIT IN KG)	B.H.C. DUST (IN KG)	LIQUID IN LITRES			
					MALATHION ULV	B.H.C. 15%	DIELDRIN 20%	
People's Democratic Republic of Yemen (cont'd)								
12.Amrija & Khoromera 1303N4435E	Feb. & March 73	- Hoppers	-	-	-	2200	-	Ground
13.Abyan delta Jawla, Fiyoah	March	Fledglings,Hoppers	-	-	-	1080	3660	Air
Yemen Arab Republic								
El+Gar area 1605;4255	Dec. 72	Hopper Bands 1st to 5th	-	3000	-	-	45	Ground
-do-	Jan. 73	Fledglings and 5th instar hoppers in groups	-	850	-	-	25	-do-
Saudi Arabia								
Lith, Quinfida Jizan and Riyadh	Dec. 72 to May 73	Swarms, adults	31 000	80000		11275	40425	Air and Ground
Sudan								
Dabbat Salim Mafris,Burur	Dec.72	Adults,hoppers	1,918	-	2,005	-	-	Air and ground
Um Barki, Karlat,Afafiet Adai,Dambil, Dabbat Salim	Jan.73	-	5,250	-	10,365	700	-	-
Tilit,Khore Ashot, Gowb and Balatat	Feb.73	-	900	-	5,040	-	-	Ground
Khore Gowb and Ashot	Mar.73	Adults	-	-	152	-	-	-
Wadi-El-Adore	June 73	-	-	-	-	2,400	-	Air and ground

LOCALITY	MONTH AND YEAR	TYPE OF INFESTATION (SWARMS SCATTERED ADULTS, HOPPERS)	INSECTICIDE USED						METHOD APPLICATION (AIR OR GROUND)
			B.H.C. BAIT (In kg)	B.H.C. DUST (In kg)	LIQUID IN LITRES				
					MALATHION ULV	B.H.C. 15%	DIELDRIN 20%	OTHER	
Somalia	Dec. 72 Feb. 73	Hoppers and adults					275	665 Ensodil 95%	Ground
Ethiopia									
Wadi Teclai	Dec. 72 Feb. 73	"	50 (5%)	-	80 (95%)	289 (20%)		1 122 Sumithion 95%	Ground
French Territory of the Afars and Issas									
Obock and Gadaria	Feb/Mar 1973	"					5 000 (10%) 1 200 (20%)		Air and ground
Libya									
Khar Al-Giffa	Sept.72	"	25 000						
Haraj Al-Aswad	Sept.72	Adults	30 750						
Khar Al-Giffa	Oct. 72	Hoppers and adults	5 000						
Wadi Drega	Nov. 72	"	23 000						
Wadi Tanazancuft	Oct. 72	Adults (mixed with local locusts)	500						

TOTALS: 131 468 kg of BHC bait
101 750 kg of BHC dust
86 315 l of liquid insecticides

APPENDIX II

Research Programme to Study Persistence and Evacuation of Non-Swarming Desert Locust Populations

Introduction

1. At the 16th Session of the FAO Desert Locust Control Committee it was suggested that a research programme be prepared to study migration and persistence of non-swarming adult Desert Locust populations (Report, para. 35 and 36). It was suggested that an attempt be made to estimate the critical levels of the factors likely to be associated with evacuation by the study of a hopper population and the resultant adult population at an isolated site. It is almost certain that studies will need to be repeated in different regions under different conditions of weather and vegetation and with different locust populations. Accordingly, in consultation with the Centre for Overseas Pest Research, London, the relevant programme was prepared and is now submitted to the DLCC for consideration.

Background

2. It is widely accepted that the first hopper bands and swarms of a Desert Locust plague can arise as a result of gregarisation following the increase in numbers over several generations of locust behaving initially non-gregariously. Rain sufficient for successful breeding is uncommon for most years in most parts of the recession area of the Desert Locust so that a sequence of widespread, suitably timed and heavy rainfalls is necessary for large scale hopper bands and swarm formation. Successive generations of successful breeding may occur either within a single area or in a series of complementary areas, with adults migrating from one complementary breeding area to another. There is circumstantial evidence (FAO 1972) that both these mechanisms operate at different times of the year and in different areas although even where there is repeated breeding in a single area movement between individual breeding sites occurs. Since it has been established that non-gregarious locusts migrate at night (Rao 1942, Roffey 1963, Waloff 1963), direct observations of the distance of any movement between complementary areas is impossible and such movement can probably be studied only indirectly by analysing the distribution of occurrence reports.

3. Both for local and long range movements adults leave their breeding sites, but it has become clear that there is considerable variability in the rate at which non-swarming adults leave their breeding sites and thus in the direction of migration and also in the total number which ultimately depart. Hence knowledge of the factors associated with the evacuation of a site is a major element in studies of such migrations. Some of the factors associated with the onset of the night flight of non-swarming Desert Locusts are known, particularly the temperature and wind-speed thresholds, but recent work, notably on the Australian Plague Locust, suggests that other factors are involved.

Objective

4. To study the rate at which non-swarming Desert Locusts evacuate their breeding sites and the factors which affect such evacuations.

Selection of study site

5. The selection of the study site or sites is critical. The ideal would be an isolated site, i.e. one providing conditions favourable for breeding, surrounded by a clearly unfavourable, much larger, area. In this situation any change in numbers, not caused by birth or death, can be confidently attributed to immigration into, or emigration out of, the site and not to very short range movement. The study site must be small enough, probably not more than one square kilometre, to enable adequate daily sampling for estimation of numbers to be undertaken.

6. If a site has to be selected within a large area favourable for breeding, changes in numbers could occur by short range movements across the inevitably somewhat arbitrary site boundaries. In such a case it would be necessary but difficult to distinguish between migration and purely local movement.

7. Any site selected must contain locusts at a density high enough to provide material for study but not so dense that gregarisation is likely to occur; i.e. preferably in the range 100-500 per hectare. It may be argued that 100% solitarious behaviour will occur only at seven lower densities but it is difficult in the extreme to study very sparse populations.

Areas and seasons suitable for evacuation studies

Western Region *

Mauritania, Mali, Chad	August - November
Algerian Sahara	April - May

Central Region

Sudan	August - October
Coastal plains of Sudan, Ethiopia, Somali Democratic Republic, S.W. Arabian peninsula	December - March

Eastern Region

Iran, Pakistan	March - May
Pakistan, India	August - October

Because of the logistic problems of supplying the number of personnel required, the site selected cannot be extremely remote.

Methods of study

8. The basic problem of monitoring the evacuation of adults from a site requires that estimates be made of :

(i) the total number of adults present at the site selected on successive occasions

(ii) the number of adults which have left or died since the previous occasion and

(iii) the number of adults which have arrived or fledged since the previous occasion.

9. Such estimates will be obtained by daily marking and recapturing and an independent estimate of the first by daily line transects. To separate immigration from fledging the rate of fledging production will be estimated by daily sampling of late instar hoppers and inspections of part of the site for fledglings. Similarly to separate emigration from death daily estimates will be made of mortality by searches for corpses and systematic watches for the activities of predators. The marking and recapturing method can provide satisfactory results if there are sufficient marked individuals in the population to allow considerable numbers to be recaptured and marked individuals have the same probability of being recaptured as unmarked ones.

10. It will be necessary for the site to be selected before fledging commences not only to ensure that the density of adults produced is of the right order but also to enable fledglings to be marked as they are produced. Since most non-gregarious populations are non-synchronous it is anticipated that it will be possible to mark a considerable proportion of the earliest fledglings.

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* There are unlikely to be enough Desert Locusts in the Western Region for the studies proposed until at least August 1974.

11. Capturing and marking will be done before catching becomes too difficult i.e. between about 0600 and 0900 hours. Individuals will be marked sequentially by affixing a coloured number tab to one of the elytra. Different coloured tabs will be used for individuals caught in different parts of the study site. They will be released where caught and marked. Sub-division of the site is likely to provide additional information on local movement and on differential movement (local and long range) in different parts of the selected site.

12. The line transects will be conducted between 1000 and 1500 hours when locusts flush most readily. The equivalent strip or effective swath width will be estimated for different ecotypes and weather conditions.

13. Additional information on movement will be obtained by running four ultra-violet light traps some 2 kilometres to the north, south, east and west of the site. The time at which each locust appears at light will be noted. The light traps will have to be operated until at least 0200 hours. The locusts caught at light, and also samples collected by day in the study site will be examined and compared in respect of at least the following aspects, age, reproductive state, gut fullness prior to take-off, coloration and morphometrics (see below).

14. The vegetation in the selected site will be monitored approximately weekly using the point contact method to provide an estimate of the ground cover or relative abundance of the more important plants. The sizes of the more important species will be measured and an indication of the physiological state of the plants will be obtained by regular recording of their stages of development. Samples of different species will be taken at intervals and dried to determine moisture content.

Parameters to be measured

15. The factors which govern evacuation by night flight fell into two categories :

(i) factors of the external environment

(ii) the physiological 'state' of the individual locusts.

16. The factors of the external environment which are likely to influence take-off are mainly meteorological and botanical and the following elements will be measured or recorded :

Air temperature, relative humidity, wind speed and direction, light intensity, radiation (incoming and outgoing), cloud amount and rainfall.

17. Species composition of the vegetation, size and frequency of the most abundant species and/or the species most preferred by locusts, physiological state of different plant species (moisture content, stage of development - flowering etc.).

18. The physiological state of the insect is dependent on many factors and only some of the more relevant can be measured :

Age (by daily collections and measurement of growth rings), reproductive state (by daily examination of oocyte development), size of fat body, gut fullness prior to take-off, coloration (median line and lateral discs of pronotum, hind tibia, abdomen and hing wings), morphometrics (elytron, femur and caput).

Duration

19. It is likely that the duration of the field studies will be some 6-8 weeks but it could be less if the site is evacuated rapidly.

Personnel and Equipment

20. Details are given in **Annex I.**

Budget

21. Details are given in **Annex II.**

ANNEX I

PERSONNEL AND EQUIPMENT

The folbwing staff will be required :

Senior Staff

1 Project Leader.

1 Locust Ecologist/Entomologist with good knowledge of local locust habitats, local vegetation and local language.

1 Locust Ecologist/Entomologist to specialise on meteorological recording.

1 Locust Ecologist/Entomologist to specialise on botanical recording.

1 Liaison Officer.

Junior Staff

1 Supervisor.

14 Labourers (8 locust catches by day).
(4 locust catches by night).
(2 general camp duties).

1 Driver mechanic.

2 Drivers.

Transport

1 1-1½ ton load carrier for hauling water, petrol, firewood, etc.

2 Long wheel base station wagons, 4 x 4.

2 Short wheel base 4 x 4 vehicles.

POL and Maintenance

SCIENTIFIC EQUIPMENT

Item	Supplier/Manufacturer	Cat No.	Approx. Cost
Stevenson screen & stand (kit form)	C.F. Cassella, London	W 3750/1 W 3752	$US 30.00 18.60
Thermohygrograph	SIAP	T 9150	88.80
Anemograph	W. Lambrecht 34 Gottingen Woelfle Type 2 mechanical wind recorder	1482	850.00
Photometer			
Rain gauge Measuring jar	SIAP	W 5250 W 5318	20.00 5.00

N.B. It is understood that in addition to the above vehicles, transport will be available for carrying the whole equipment to the site of operation.

Item	Supplier/Manufacturer	Cat.No.	Approx. Cost US$
Drying oven 220–240v, 50 H_z	Gallenkamp Technico House Christopher Street London EC2P 2ER or Electrolux	OV-440	80.00
Field balance to weigh 0.1 gm - 5000 g	Gallenkamp	BC-174	90.00
2 Plant presses	British Museum (Miss Hillcoat)		20.00
24 Cardboard specimen boxes 8" x 6" x 5"	N.D. Jago		50.00
12 Rolls coloured adhesive tapes	Local		10.00
12 Rolls cotton wool	Local		5.00
6 Store boxes	Watkins & Doncaster 110 Park View Road Welling, Kent	E 745 (deep)	42.00
1000 Pins entomological	Watkins & Doncaster	E 685 Size 3	4.00
Glass tubes, corked 6 gross	Watkins & Doncaster	E 762	21.00
Ethanol industrial 10 litres	Local		35.00
Vernier calipers	Mager & Wedemeyek No. NUV 15053 Cb		20.00
Munsell book of color			5.00
24 Insect collecting nets 24 Net handles 48 Spare bags	Watkins & Doncaster	E 677 E 6761 E 6775	120.00 12.00 45.00
4 240v 300w portable generators 50 H_z	Honda	E 300	1.000.00
1 1.5 KW 240v generators 50 H_z	Honda	E 1500	425.00
1 60 litres 240v portable refrigerator 50 H_z	Electrolux, RA-24		250.00
300m 10 amp triple core cable	Electrolux		20.00
1 Junotion box J.B. 12 3 pin plugs to match			20,00
Steel band measuring chain 50m x ½ inch	Lawes Rabjohns Ltd Drawing Office Centre Victoria Street London SW1	E 56/069	31.00

Item	Supplier/Manufacturer	Cat.No.	Approx.Cost US$
Graph paper 20m x 60cm (millemeter,green)			
80 Ranging poles, 2m painted red and white	Lawes Rabjohns	E 55/505	175.00
120 Ranging poles, 2.5 m painted black and white		E 55/506	225.00
12 Killing bottles			
	CAMP EQUIPMENT		
Tents			
4 Lightweight 'Safari' tents	Black & Edgington Ruxley Corner Sidcup, Kent DA14 5AQ		660.00
4 Shelter portable lightweight tents	Black & Edgington		1.680.00
4 Labour tents No. 2	Black & Edgington		500.00
4 Fly sheets	Black & Edgington		316.00
12 Folding camp fire chairs	Black & Edgington		192.00
4 Large tables	Black & Edgington Large surveyors tables		100.00
4 Small tables	Black & Edgington Small surveyors tables		100.00
4 Folding beds	Black & Edgington : Camp beds, Mosquito nets rectangular, Frames		180.00
4 Mattresses	Black Gaytime small		52.50
4 Pillows 8 Blankets	Black Kampamat pillow		13.00
4 Holdalls bedding			
6 Plastic bowls			
1 Mess kit comprehensive (for 6)	Blacks		68.00
2 Cooking stoves petrol	Blacks Optimus No. 111b		61.00
6 Metal jerrycans water petrol	Blacks		48.00 39.00
First Aid Kit	Blacks A99		21.00
Snake bite kit	Blacks		2.50
2 Picks	(locally)		
2 Folding spades	Blacks		2.50
Toilet tent	Blacks, standard		30.00
Toilet	Blacks Elsan Mini Toilet		15.50
2 Water filters	Blacks AK 3		40.00

ANNEX II

Research Programme

Proposed Budget under TF. 9161

Code			$
03	Temporary Assistance Supervisor, Labourers, Drivers, Mechanic		5 000
24	Travel and perdiem of Consultants for 2 months Project Leader Locust Ecologist/Entomologist " " / " /Met. " " / " /Bot.		8 700
43	POL and Maintenance of Vehicles		1 000
55	Supplies (scientific, camping)		1 000
64	Vehicles		23 500 (*)
	1 - 1ton Land Rover truck,	$ 5 500	
	2 - LWb " " station wagon 4x4	$ 10 000	
	2 - SWb " " 4x4	$ 8 000	
67	Equipment (scientific, camping)		8 000
			47 200
92	Project servicing charge 14%		6 610
			53 810

(*) It is possible that vehicles required for this programme would be obtained from the national or regional organizations concerned and the expenditure under code 64 may not be incurred.

APPENDIX III

TRUST FUND 9.161.00 - INTERNATIONAL DESERT LOCUST CONTROL

Statement of Account as at 31 December 1971
(expressed in US Dollar equivalent)

Receipts			
Balance as at 1 January 1971			214 300.43
Receipts		70 868.93	
Interest credited		7 387.37	
Transfer of balance from TF.90 Desert Locust Long-term Policy		311.16	78 567.46
			292 867.89
Deduct:			
Cash Expenditure 1971			
Personal Services		2 032.89	
Official Duty Travel		7 594.09	
Contractual Services		55 937.09	
General Operating Expenses		-	
Supplies and Material		835.09	
Furniture and Equipment		-	
Acquisition and Improvement of Premises		-	
Fellowships, Grants and Contributions		1 209.03	
		67 608.19	
Project Servicing Costs 14%		9 465.15	
			77 073.34
Balance as at 31 December 1971			215 794.55

APPENDIX IV

TRUST FUND 9.161.00 - INTERNATIONAL DESERT LOCUST CONTROL

Statement of Account as at 31 December 1972 (Final)
(expressed in US Dollar equivalent)

Receipts		
Balance as at 1 January 1972		215 794.55
Sums received		75 359.32
Interest credited		7 481.37
		298 635.74
Deduct :		
Cash Expenditure 1972		
Personal Services	928.17	
Official Duty Travel	7 157.87	
Contractual Services	20 768.37	
General Operating Expenses	1 989.48	
Supplies and Materials	1 654.69	
Furniture and Equipment	5 867.70	
Acquisition and Improvement of Premises	-	
Fellowships, Grants and Contributions	4 305.07	
	42 671.35	
Project Servicing Costs 14%	5 973.98	
		48 645.33
Balance as at 31 December 1972		249 990.41

APPENDIX V

INTERNATIONAL DESERT LOCUST TRUST FUND 161

ANNUAL BUDGET 1 JULY 1971 ONWARDS

Code		US $
10	Personal Services	
	Research projects, lecturers, advisory visits, technical editors, etc.	10 000
20	Travel on Official Business	
	Research projects, advisory visits	15 000
30	Contractual Services	
	Research projects, publications and miscellaneous	30 000
50	Expendable Supplies	
	Research material	4 100
60	Equipment	
	Research and demonstration equipment	5 000
80	Fellowships and Training	5 000
90	Projects Service Costs (approximate) 14%	9 674
		78 774
	Unallocated Balance	2 142
		80 916

APPENDIX VI

LIST OF WORKING PAPERS

AGP:LCC/73/1	-	The Desert Locust Situation and Forecast (August 1972 to July 1973 Inclusive)
AGP:LCC/73/2	-	Anti-Locust Measures Undertaken by Various Countries and Regional Organizations (from August 1972 to September 1973)
AGP:LCC/73/3	-	Research Programme to Study Evacuation of a Site Containing Non-Swarming Desert Locusts
AGP:LCC/73/4	-	Report of the Technical Consultation
AGP:LCC/73/5	-	Status of Various Desert Locust Regional Organizations
AGP:LCC/73/6	-	Progress Report on the Proposed Project on Training
AGP:LCC/73/7	-	Annual Report of the Work of the Desert Locust Information Service (1972-1973)
AGP:LCC/73/8	-	International Desert Locust Trust Fund 9161
AGP:LCC/73/9	-	Emergency Action Undertaken in the Red Sea Coastal Plains and the Gulf of Aden Areas