

REPORT OF THE

Held in Rome
11-15 June 1984

**TWENTY-SEVENTH SESSION
OF THE FAO DESERT LOCUST
CONTROL COMMITTEE**



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Meeting Report
No. AGP/1984/M/3

REPORT OF
THE TWENTY-SEVENTH SESSION OF THE FAO DESERT LOCUST CONTROL
COMMITTEE

held in
Rome, Italy
11 - 15 June 1984

Plant Production and Protection Division
Food and Agriculture Organization of the United Nations
Rome, 1984

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INTRODUCTION

The Twenty-Sixth Session of the FAO Desert Locust Control Committee, which was held in Rome on 4-8 October 1982, accepted that the next session of the Committee should be convened in Rome in 1984 at a date and time to be decided by the Director-General, unless some emergency situation developed. The Director-General invited the following governments to be represented at the Twenty-Seventh Session:

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

He also invited the representatives of the Desert Locust Control Organization for Eastern Africa (DLCO-EA), l'Organisation commune de lutte anti-acridienne et de lutte antiaviaire (OCLALAV), the International African Migratory Locust Organization (OICMA) and the International Red Locust Control Organisation for Central and Southern Africa (IRLCO-CSA). In addition, he invited the representatives of the United Nations Development Programme (UNDP) and the World Meteorological Organization (WMO). The Secretary of the Interafrican Phytosanitary Council (IAPSC) of the Organization of African Unity (OAU) attended.

The Session was opened by Dr. O. Brauer, Director of the Plant Production and Protection Division, who, on behalf of the Director-General, welcomed the participants, particularly those attending for the first time, and briefly reviewed the more important developments in the Desert Locust situation since the previous session. He stated that while the overall situation had continued to be one of recession, there had been seasonal upsurges, by far the most important of which had occurred in the summer of 1983 in Pakistan and India, following unusually early rains. Although many swarms were produced, control measures in both countries, in which over 120 000 litres of liquid insecticide were applied, prevented the escape of any significant populations. The severe drought around the Red Sea and Gulf of Aden resulted in very restricted breeding and no control was necessary in these areas in winter-spring of 1983-84 for the first time since 1970. He observed that OCLALAV and OICMA continued to face critical financial situations and need revitalising. In accordance with the recommendations of the previous Session the Director-General had expanded membership of the FAO Panel of Experts on Emergency Action against the Desert Locust and other Crop Pests. The roles of the FAO Regional Plant Protection Officers were to be reviewed at a meeting immediately following the Session.

Dr. Brauer also drew attention to the value of satellite remote sensing for Desert Locust forecasting.

Officers of the Session

Chairman: Rachid Lakhdar (Morocco)
Vice-Chairman: Amukoa Peter Mauokha (Kenya)

Drafting Committee

The Drafting Committee was made up of the delegates of the following countries: Algeria, Iran, Morocco, Sudan, Uganda. Mr. R.M. Skaf acted as Technical Secretary.

Acknowledgments

The delegates expressed their appreciation and thanks to the Chairman for the way in which he conducted the deliberations of the Session which facilitated full and open discussion. They also thanked the FAO Secretariat for carrying out their duties efficiently.

The Committee learned with regret that Mr. G.B. Popov, FAO Desert Locust Officer, would be retiring in August 1984. It expressed its gratitude for his past services and further expressed the hope that his great experience would still be available to member countries and organizations.

PARTICIPANTS IN THE SESSION

The following delegations from Member Nations of the Food and Agriculture Organization of the United Nations, observers and members of the FAO staff participated in the Session and contributed to the discussions summarized in this report.

Delegates from Member Nations of FAO

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Guinea

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Jt. Secretary to Government of India
Ministry of Agriculture and
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Iran (Islamic Republic of)

Sayed Taufiqh Ghazie Tehran
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Reza Arjmandi Tehran
Director General of Plant
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Iraq

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Shawkat Q. Bashmaf Amman
Chief of Plant Protection
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Direction de la protection des végétaux,
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Ingénieur, Lutte antiaviaire
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Harold T. Reynolds Riverside
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Department of Entomology

Shannon Wayne Wilson New Delhi
Area Director, Plant Protection &
Quarantine, Department of Agriculture

16. Trust Fund 9161 - contributions and expenditure
17. Status of locust regional commissions/organizations
 - (a) South-West Asia Commission
 - (b) Near East Commission
 - (c) North-West Africa
 - (d) DLCO-EA
 - (e) OCLALAV
 - (f) OICMA
 - (g) IRLCO-CSAand follow-up of recommendations made at their annual meetings.
18. African Migratory Locust situation
19. Red Locust situation
20. Any other business
21. Date and place of next session
22. Adoption of report

SUMMARY OF DISCUSSIONS

The Desert Locust situation, October 1982 - May 1984 and forecast to October 1984

1. Several swarms were reported from eastern Yemen Arab Republic and the western borders of the Rub al Khali in south-west Saudi Arabia in October-November 1982. Control operations were undertaken against late instar hopper bands and fledglings in the People's Democratic Republic of Yemen in October and against hoppers and adults in south-west Saudi Arabia in November. Groups of adults were found in the United Arab Emirates in late October and were controlled.
2. Winter-spring breeding in 1982-83 in central areas around the Red Sea and Gulf of Aden was relatively restricted but control operations were undertaken in Sudan, Ethiopia, Saudi Arabia, Yemen Arab Republic and the People's Democratic Republic of Yemen between January and July. There were widespread spring rains in the United Arab Emirates and breeding led to the formation of a swarm in May 1983.
3. Following above average rain in parts of the Rajasthan desert in May 1983 and widespread heavy rains in July, there was a major regional upsurge in Pakistan and India as a result of three consecutive generations of breeding. Although control operations commenced in early July there were over 120 reports of swarms between August and November and over 120 000 litres of liquid insecticide were applied in Pakistan and India. These control operations were eventually very effective and only one small swarm was reported to have escaped. This was reported from the United Arab Emirates in late November. Some adults reached Yemen PDR and northern Somalia, but winter rains around the Red Sea and Gulf of Aden in 1983-84 virtually failed and, for the first time since 1970, no control was necessary in the Tokar delta or other areas in the southern section of the Red Sea coast of Sudan.
4. In Libya infestations of mixed populations of Desert Locusts, African Migratory Locusts and various species of grasshoppers developed in Kufra and were controlled. Small-scale control was carried out in southern Algeria in June 1983 but the overall situation in North-West and West Africa was calm.
5. Forecast up to October 1984

The overall Desert Locust situation is quiet. Winter-spring rains failed over most of the traditional breeding areas in the Central Region and no control was necessary for the first time since 1970. Restricted breeding occurred in the Tokar delta of Sudan in November-December 1983 and in the South-Eastern Desert of Egypt in January-February 1984.

Adults from this breeding will move into the interior of Sudan, where generally low density breeding will occur between July and September. Numbers of adults will rise on the Red Sea coast of Sudan and northern Ethiopia in October and breeding may

commence. Localized breeding is likely to occur in coastal areas and in interior areas of southern Arabia which receive rainfall or run-off and is likely to be at low density initially, but some group formation may occur if there are good summer rains. There are widespread adults in Baluchistan of Pakistan and localized spring breeding has started. Adults will migrate to the summer breeding areas of Rajasthan and the adjacent deserts of Pakistan. Success of summer breeding will depend on the amount and distribution of summer rainfall and the effectiveness of survey and control measures but some swarm formation and the possibility of migration to the Central Region in October cannot be ruled out.

6. In South-West Asia there are widespread adults in Baluchistan of Pakistan and these have started to breed locally. The resulting adults will move to the summer breeding areas in Cholistan, Nara, Khipro and Tharparkar deserts of Pakistan and Rajasthan in India at low densities in May and June. The success of summer breeding will depend on the amount and distribution of summer rainfall and on the effectiveness of survey and control operations. Swarm formation may occur from August onwards, and the seasonal westerly migration will probably commence in October.

7. In the Near East localized breeding is likely to occur in coastal areas of Yemen PDR and in interior areas of Yemen PDR, Yemen AR and south-west Saudi Arabia which receive rainfall or run-off but is likely to be at low density initially. Some group formation may occur if there are good summer rains. Adults from the east may reach eastern Arabia and perhaps southern Arabia in October and could include one or two small swarms.

8. In Eastern Africa there will be generally low density breeding in the interior of the Sudan between July and September. In October adults will start to concentrate along the Red Sea coasts of Sudan and northern Ethiopia in areas of green vegetation which receive run-off and breeding is likely to commence. Small numbers of adults are likely to be present in the northern coastal plains of Somalia and there could be an influx of adults in late October from the east.

9. In Western Africa the success of summer breeding will depend on the amount and distribution of monsoon rainfall and the effectiveness of survey (and control) operations. Although the number of adults in the region is probably very low, if early summer rains are favourable, adults could become sufficiently concentrated to form some groups and for hopper groups to develop subsequently.

10. In North-West Africa there will probably be localized breeding in Libyan cases, which may require control, but elsewhere the situation will remain calm, at least until October, when there may be an incursion of adults from the south, though this is likely to be on a small scale.

Reporting and Forecasting activities

11. The Committee carefully reviewed the activities undertaken since the last Session. While welcoming the strengthening of meteorological and satellite remote sensing inputs to the centralized reporting and forecasting activities at Headquarters, they stressed the recognized need for strengthening reporting and forecasting at national and regional levels, since it was at these levels that survey and control operations had to be planned and implemented. The Committee strongly recommended that a system of forecasting at national and regional levels and coordination internationally be established. It also noted with satisfaction the steps being taken to organize Reporting and Forecasting activities, both in the field and at Headquarters, such as training courses. The Committee welcomed the participation of meteorologists at the DLCC and recommended that member countries envisage this possibility in the designation of their delegations. The Secretariat would seek the possibility of financing the participation of meteorologists.

Anti-locust measures undertaken by various countries and regional organizations

12. Annex 1 shows the control measures undertaken against the Desert Locust between October 1982 and May 1984. It was drawn up on the basis of information contained in the monthly Desert Locust bulletins on the locust situation and completed by information provided by delegates and observers.

13. To summarize, control operations were undertaken in ten countries and covered some 470 000 ha, of which 380 000 ha were in Pakistan, necessitating the application of 118 000 l of concentrated liquid insecticide and 26 000 kg of dust. Local upsurges are now considered typical of recession periods and emphasize the need for suitable buffer stocks of pesticides and equipment in strategic zones. Should these facilities have been absent from the Indo-Pakistan area, a new plague would have originated. In this respect, the Committee expressed its appreciation for the efforts made by India and Pakistan and all other national and regional organizations which have contributed to check infestations in time.

14. Special attention was given to statements of various delegations on control measures undertaken against grasshopper infestations. Iran alone has treated 200 000 ha in 1983 using at least 100 000 litres of various pesticides. Similar campaigns were run in West Africa.

15. In operating locust control campaigns, coordination between teams of neighbouring countries was considered essential. This also includes the necessity of joint surveys and exchange visits between countries and regional organizations. In this respect, the Committee welcomed the new arrangements of communication recently decided between the Commission for Controlling the Desert Locust in the Near East and DLCO-EA, the forthcoming meeting in September 1984 of locust experts from North-West African countries, the continuing locust meetings between India and Pakistan and the forthcoming joint survey in October 1984 between OCLALAV and North-West African countries.

Assistance provided to countries and regional organizations (FAO and donors)

The assistance provided by FAO/UNDP and various donors since 1982 is summarized below:

16. UNDP

- The activities of YEM/81/009 and PDY/81/008 are continuing during 1984 through a sub-regional project, RAB/83/022, financing the post of one locust officer based in Aden up to the end of 1984.
- The UNDP is continuing to provide assistance to OCLALAV through the project RAF/81/020 from 1982 to 1986, with a total budget of US\$ 797 855.
- The UNDP is providing assistance to OICMA through the project RAF/81/021 from 1983 to 1986, with a total budget of US\$ 485 000. Assistance during 1982 was given to the organization through the project RAF/80/036, with a total budget of US\$ 280 000.
- Under the project INT/79/902 "Action Programme for Improved Plant Protection", the UNDP is continuing to finance the post of the Regional Plant Protection and Locust Officer in Eastern and Southern Africa, up to the end of June 1984.

17. Japan

Japan continued to implement the Trust Fund agreement with FAO for the provision of fenitrothion to regional locust control organizations. The project is ending in February 1985.

18. Belgium

Belgium signed a Trust Fund agreement with FAO (GCP/INT/389/BEL) Strengthening Pest Surveillance and Forecasting with special reference to the Desert Locust, for a total amount of about US\$ 600 000 over a three-year period (June 1982 to June 1985). The project is financing the post of a synoptic meteorologist and supporting staff and operational costs. In addition, US\$ 150 000 were allocated in 1984 for strengthening national and regional meteorological and radio services in the field.

19. France

France continued to assist OCLALAV by providing the services of one technical assistant, two pilots and two aircraft mechanics. The Committee requested that the assistance be continued.

20. TCP of FAO

Concerning locust activities, FAO provided assistance during 1982, 1983, and 1984 to the following countries under its technical cooperation programme:

<u>Yemen PDR</u>	TCP/PDY/2207, budget US\$ 125 000, terminated at the end of 1983, entitled Desert Locust Survey and Control.
<u>Benin</u>	TCP/BEN/2310, budget US\$ 177 440, terminating in June 1984, entitled Lutte contre les sauteriaux.
<u>Chad</u>	TCP/CHD/2307, budget US\$ 103 000, terminating in June 1984, entitled Lutte contre les sauteriaux et les oiseaux granivores.
<u>Regional Africa</u>	TCP/RAF/2310, budget US\$ 34 000, terminated September 1983, entitled Feasibility Study on the Requirements for Helicopters in Migratory Pest Survey and Control in Ethiopia, Eastern and Southern Africa. TCP/RAF/4402 (T), budget US\$ 50 000, terminating in July 1984, entitled Training Course in Methods of Red Locust Survey and Control.

21. OSRO of FAO

In 1984 an amount of US\$ 85 000 has been allocated to OCLALAV for the purchase of aircraft spare parts.

22. UNEO

In May 1984 UNEO approved emergency assistance to Cameroon (CMR/84/002) amounting to US\$ 435 000 for establishing an aerial unit for the control of migrant pests.

23. The Trust Funds belonging to the Commission for North-West Africa (TF 9169), the Near East (TF 9409) and South-West Asia (TF 9123) and the International Trust Fund (TF 9161) were used to finance the following activities:

- study tours, training courses;
- pesticides and control and survey equipment;
- fellowships;
- consultancy services in special fields.

24. The Committee appreciated the assistance provided by various donors. It requested FAO to urgently approach UNDP to consider extending their assistance to both Yemens and to the regional locust control organizations, in particular OCLALAV. It also thanked Belgium for its current assistance and requested that this be continued in order to guarantee the strengthening of indispensable national meteorological services and the setting up of synoptic units in the regional commissions and organizations. It

also thanked Japan for its substantial amount and expressed the wish that this be continued and, if possible, strengthened beyond February 1985.

25. Problems and constraints of OCLALAV were once again reviewed. The Committee hoped that the finance would be continued and was pleased to learn that the organization is foreseeing restructuring measures and requested FAO to explore all possible financial sources in order to assist OCLALAV in this vital operation. In this respect it warmly appreciated assistance provided by France and hoped for its continuation.

Review of existing control potential at national and regional levels

26. In order to assess the available means for locust control in affected or threatened areas and to evaluate future needs, FAO tries to keep an up-to-date record of control potential in various countries and organizations. Such a record is given in Annex 2.

Control Strategy in the Central Region

27. The need for a long-term strategy of Desert Locust control has long been recognized by FAO. Two Expert Panels, one on the Long-Term Policy of Desert Locust Control and the other on the Strategy of Desert Locust Plague Control, were convened in 1956 and 1959, respectively. The recommendations of these two panels were mainly based on the premise that most populations would continue to be at high density. In the event the plague collapsed between 1960 and 1963. Already by 1960 a different strategy aimed at plague prevention had evolved. This was formally agreed at the 13th Session of the FAO DLCC in 1969. The renewed upsurge of 1977-79 focused attention on the need to review the resources available for anti-locust activities so that similar upsurges did not recur.

28. In order to assess the minimum control potential to be maintained to ensure the prevention of a Desert Locust plague, FAO commissioned two studies in 1983. The first, by Mr. J.L.H. Roy, had the following terms of reference:

- to review previous upsurges and their development and the role of the Central Region of the Desert Locust distribution area in its upsurges;
- to examine in detail the development of upsurges in the Central Region, together with the control resources available;
- to prepare a list of studies to be undertaken;
- to prepare a questionnaire to be sent to the affected countries, in preparation for field units;
- to present suggestions for a general approach to the problem.

29. This desk study was undertaken from 5 to 20 April 1983 and a report, "Elements of the preventive control strategy against the Desert Locust in the Central Region", was prepared.

30. The second, by Mr. C. Ashall, had the following terms of reference:

- to collect information on the nature, scale and frequency of occurrence of Desert Locust populations in Eastern Africa and South-West Arabia large enough to initiate a plague, if uncontrolled;
- to assess the resources required at national and regional levels to prevent seasonal upsurges developing into plagues;
- to prepare a report on the findings of the mission to include recommendations on follow-up action.

This study involved travel to Saudi Arabia, Yemen Arab Republic, the People's Democratic Republic of Yemen, Somalia, Kenya, Ethiopia and Sudan and was conducted in November-December 1983.

31. The Committee welcomed the new approach and requested the Secretariat to submit both studies to a restricted technical consultation in which representation from the Central Region will participate. When finalized, the reports and consultation recommendations will be circulated in English, French and Arabic to all DLCC member countries for discussion at the next Session.

Review of remote sensing applications to Desert Locust survey and control

32. The Committee reviewed the activities undertaken in 1983 (Annex 3). It was demonstrated that Meteosat and NOAA/AVHRR data for large area precipitation and vegetation change monitoring can be acquired, processed and analysed for the entire Desert Locust recession area within the time constraints of the operation of the centralized reporting and forecasting service at FAO Headquarters.

33. The Committee was informed about the evolution of Phase II of the project which was prepared by FAO in conformity with October 1982 Session recommendations, and submitted to the Dutch Government in December 1982, based on the following basic conceptions:

- use of NOAA/AVHRR imagery, which has been found to be most effective operationally (to include field reception stations and processing of data);
- Meteosat digital imagery can be used to determine soil moisture status over large areas (to be developed in the Netherlands);
- Landsat imagery has been used to provide the basis for mapping locust habitats which was initiated in North-West Africa, and the Committee underlined the need for such work in order to optimize both field survey and control activities at national and regional levels.

34. The Dutch Government appointed their own task force/study team to evaluate the FAO proposal and to put forward at the end of 1983 the costs associated with the FAO proposal. The proposal included the establishment of two NOAA/Meteosat receiving stations in Africa. The total investment cost of the Dutch proposal was above US\$ 9 000 000 and the annual recurrent costs were estimated at US\$ 500 000 per station, i.e., US\$ 1 000 000 for Africa, while the eastern region remained uncovered.

35. At the same time, FAO has received reactions from counterpart organizations in the field from which it was clear that there will be insufficient funds from Desert Locust sources to support these high recurrent costs if the present proposal is to be implemented in full.

It was clear that:

- the current project proposal was clearly beyond the present absorptive capacity of the regional organizations and/or member governments and the benefits which would be obtained from the proposal would not justify its costs;
- funds would not be adequate to ensure the maintenance and operation of the proposed receiving/processing stations;
- the basic need of the reporting and forecasting system can be met by receiving NOAA/AVHRR imagery at a centralized point in order to cover the total invasion area; this appears to be the greatest operational need of the system;
- processed NOAA/AVHRR data can be obtained and have been used operationally for 18 months through joint FAO/NASA cooperation with satisfactory results for the centralized reporting and forecasting service;

- this solution is more rational and economical than building expensive satellite receiving stations in the field without any guarantee of continuing outside financial support, effective counterparts or support by locust organizations;
- processed NOAA/AVHRR data can be used by existing reporting and forecasting staff at Headquarters and in the field.

36. The question for FAO was to study how best to obtain and process NOAA/AVHRR data economically and on a permanent basis, it being understood that the continuation of the present FAO/NASA cooperation on a fully operational scale is possible for a three-year period only, beyond which it is not certain.

37. Therefore, based on the above consideration FAO submitted in February 1984 a revised project proposal in which the tapes containing satellite data would be sent by NOAA/NASA to East Africa (Addis Ababa) where they would be processed and then the imagery could be sent to Rome for use by the reporting and forecasting system. The total cost of the project was estimated at US\$ 1 700 000, which includes the establishment of a Meteosat digital data reception and processing facility in the Netherlands for the development of soil moisture monitoring.

38. The weakness of that approach consisted, on one hand, in the long delay for the incoming imagery to reach FAO Headquarters and assist in forecasting and other uses. On the other hand, the same delays would be encountered between Addis Ababa and other field users in the Desert Locust area.

39. In February 1984, ILCA (International Livestock Centre for Africa) decided to upgrade their computer facilities to process NOAA/AVHRR digital data during 1984 and has started negotiations for the acquisition and installation of a NOAA/AVHRR receiving station in Addis Ababa.

40. One conclusion from this, in order to avoid duplication of efforts, is that any project proposal to a donor no longer includes this element in the field, it being understood that, as mentioned above, this does not represent the most satisfactory solution in view of the delays which would be introduced by virtue of routing imagery Washington-Rome via Addis Ababa.

41. A more rational solution would be to upgrade the computer facilities at the FAO Remote Sensing Centre, Rome so that NOAA/AVHRR imagery could be processed there in formats appropriate to the various users in Headquarters. Technically this task presents no major problem. This approach also coincided with the view expressed in late March by the donor that the proposal should cover other activities than the locust programme and that the work be integrated with the FAO Remote Sensing Centre. It was also felt that the establishment of a soil moisture facility should not be an integral part of the project, which focused on operational activities. Finally, the project would be based at Headquarters where it would provide various types of data to FAO centralized programmes, e.g., the Global Information and Early Warning System (GIEWS), Locusts and other Migratory Pests, Rangeland Monitoring, with the minimum of delay and therefore maximum impact. This new approach implies that field activities would be reduced to the provision of processed information to the various regional and national organizations (thus avoiding duplication and expensive receiving and processing equipment), training and technical assistance.

42. The above proposal involves about US\$ 300 000 for upgrading existing FAO facilities and the annual operational costs of an operational system may not exceed US\$ 250 000, including imagery and materials, duty travel, contractual services, technology transfer and personnel services. This annual expenditure could, after the end of the donor-assisted project, be shared by all potential users of NOAA/AVHRR vegetation index imagery such as the agro-ecological zones, the desertification programme, the GIEWS, grazing management, food security, etc.

43. The Committee fully endorsed the wise and prudent steps undertaken by FAO to seek a long-term solution to increase programme efficiency and provide for more cost-effective control of the Desert Locust. This can be largely based on the in-house resources and at the lowest cost possible to Desert Locust control users. It expressed its sincere wishes that FAO immediately implements this approach with donor assistance. It also requested FAO to include in the proposal:

- (a) the means of securing the most rapid ways of communicating satellite data between FAO Headquarters and the field users;
- (b) exploration of the ways and means which will permit the improved utilization and operation of already existing and future national receiving stations in member countries;
- (c) provide for adequate training for member countries' personnel as it is essential to the full and successful utilization of the new technology.

Coordination with UNDP/FAO Action Programme for Improved Plant Protection

44. The Committee reviewed the activities of this project undertaken in strengthening national plant protection services and was informed that the official termination date of the project was June 1984 with a possible extension until the end of 1984. In expressing its full appreciation of the objectives of this Programme, the Committee took note of the achievements and reiterated its firm conviction that strengthening of national plant protection services remains the best long-term solution to prepare countries to prevent new upsurges of the Desert Locust. In this context, the Committee recommended the extension of the programme beyond 1984 in order to achieve the initial objectives of the Action Programme. It took note of the decision of FAO, endorsed by the 22nd FAO Conference, to undertake concentrated action in plant health, and requested all donors, including UNDP, to study in depth the possibilities of providing assistance for strengthening national plant protection services. The Committee also requested FAO to establish on a permanent basis the post of "Regional Plant Protection and Locust Officer in Eastern and Southern Africa", whose activities since 1980 have been fully appreciated by the countries and regional organizations concerned.

FAO/GERDAT Desert Locust modelling project

45. The project of the bio-ecological modelling of the Desert Locust commenced in January 1983 within the framework of the UNDP-assisted project RAF/81/020 (Assistance to OCLALAV) by bringing together the facilities and the specialists of three bodies: FAO (through the Locusts, Other Migratory Pests and Emergency Operations Group of AGPP), GERDAT, France (through PRIFAS, the Acridological Unit), and OCLALAV in order:

- (a) to create a descriptive forecasting bio-model of population dynamics of the Desert Locust, mainly in West Africa;
- (b) to establish a prototype model by geographical areas;
- (c) to gather and process the data by the most appropriate means to construct a model easy to operate;
- (d) to develop a forecasting tool as an aid in decision making with regard to the planning of surveys and assessing the risks of locust outbreaks.

To-date, the following tasks have been completed:

- compilation of all reference tables which constitute the main body of the model;
- the regional/ecological map of the West African zone of the distribution area of the Desert Locust;

- the qualitative and quantitative description of each natural region and of the biotopes recognized in each one of them;
- various partial procedures of computer programming of the model.

46. On completion of consultations on the subject, the preparation of the text and validation tests of the model will be undertaken. The final document will be published jointly by FAO and GERDAT in early 1985 and will be widely distributed to all national and interested bodies concerned with the control of the Desert Locust.

47. Should this method of approach arouse the interest of Desert Locust specialists in the world, once the results so far achieved have been published, and should further contributions be numerous, varied, complementary and of adequate standard, it should be possible to reach an operational level for the model by means of micro-computers using simple inputs and legible outputs for all users, wherever adequate reliable information on the environment and the pest is available. It should then prove to be a useful tool, in decision making, for surveys and control on a local and regional scale.

Review of work at Desert Locust field research stations

48. The Committee reviewed work currently in progress at Desert Locust field research stations. It recognized that there were differing priorities in view of differing types of locust populations and breeding habitats in the various countries, differing legal restrictions on the use of certain insecticides in some countries and varying states of development of control equipment and techniques. Application of some persistent organo-chlorine compounds in tropical areas presents less of a long-term hazard than in temperate areas and is widely used in some countries subject to invasion by the Desert Locust and grasshoppers. Nevertheless, research to find suitable alternatives to BHC and Dieldrin should be continued. A major concern was the need to reduce dosages. Another is to develop and improve spraying equipment in order to apply minimal doses for each pest in its particular environment. The Committee recalled that the main priority areas for research had been agreed at its 24th Session and emphasized the need for cooperation and collaboration between existing field stations and laboratories in all member countries and for the rapid dissemination of all particularly promising results. In this connection a suitable mechanism was the Desert Locust Field Research Station Technical Series.

49. To facilitate the flow and exchange of information, it was recommended that the Secretariat prepare and distribute a brochure on field national and regional research stations dealing with locust problems, their location, fields of interest, staff, and resources available.

Training

50. The Committee took note of training activities undertaken since the last session (Annex 4).

51. The Committee appreciated the fact that in implementing this training programme FAO has adhered to the previous session's recommendations which gave priority to short- and medium-term duration fellowships and training courses. Long-term duration fellowships were considered necessary for research purposes and all sources of funds would have to be explored. The need for balance in the allocation of fellowships between the regions was strongly emphasized.

Trust Fund 9161 - Contributions and expenditure

52. The Committee was presented with a statement on the budget, statement of accounts for 1982 and 1983 and an estimate of expenditure for 1984 (Annex 5). The fund is being built up gradually but some countries continue to have arrears of payments for several successive years. The Committee was informed by representatives of India, Kenya and Morocco that the outstanding contributions are being settled.

53. Expenditures during 1982 and 1983 remained below or within the annual budgetary level, thus allowing the building up of a reserve.

54. Taking into account the contributions received as of June 1984, US\$ 226 084 are available at present.

55. The Committee accepted the budget and accounts as presented by FAO but invited the Secretariat to present the accounts in the future in the form of an audited accounting report. The Secretariat examined the matter with the FAO financial authorities and found that accounts were in accord with FAO financial regulations.

Status of regional locust commissions/organizations

56. The Committee studied a document prepared by the Secretariat on the status of the various regional locust commissions and organizations. It was amended by the participants during the session and appears in Annex 6 .

57. The Committee reiterated its concern about the situation of OICMA and OCLALAV which were continuing to encounter financial difficulties but was pleased to learn about their restructuring plans.

African Migratory Locust Situation

58. The Committee was informed that the situation was calm in both the Mali and Lake Chad outbreak areas up to August 1983. In September groups of adults formed around Lake Takadji in the western zone in the Mali outbreak area and in October, 234 ha were treated by exhaust nozzle sprayers. Field trials were undertaken using 16% BHC, Deltamethrin and 20% BHC in oil in Nigeria, where groups of adults and hopper band formation were observed. Numbers declined rapidly in November and since then the situation has been calm.

In South Africa swarms appeared in May in Central Transvaal for the first time since 1936. This followed a period of severe drought. Eighteen swarms were sprayed by helicopter in early June.

The Red Locust Situation

59. The most active outbreak area continued to be the Wembere plain in northern Tanzania. Two swarms left the outbreak area in June and later returned. In August and September further swarms escaped to the north-west and have not been reported subsequently. Small numbers of adults were found in southern Malawi but continuing high lake levels in the Rukwa valley prevented significant breeding there.

Any other business

60. The Committee was informed that Turkey was contacted on the possibility of its rejoining the Committee, but so far there had been no response.

61. The Committee was informed that in conformity with the recommendation taken at the 26th Session (October 1982), the Director-General of FAO has extended the membership of the Panel of Experts on Emergency Action against the Desert Locust and other Crop Pests, which is now composed of four members and four alternates instead of three and three respectively. The present membership is valid until 31 March 1986.

Date and place of next session

62. The Committee recommended that the Director-General of FAO convene the next session of the DLCC in 1986 at FAO Headquarters, Rome.

Anti-Desert Locust measures undertaken by various countries
and regional organizations, October 1982 - May 1984

<u>Country/ Locality</u>	<u>Month(s)</u>	<u>Type of Infesta- tion</u>	<u>Infested area (Km²) treated</u>	<u>Insecticide used l or kg</u>	<u>Method of Application</u>
<u>Pakistan</u>					
Baluchistan	April 1983	Hoppers	1	22 5	1 10% Dieldrin ground
Las Bela } Tharparkar } Nara } Cholistan }	July-Nov	Swarms Hopper bands Groups	3815	102 575 1 10% Dieldrin 13 846 1 98% Fenithrothion 26 512kg 12.5% BHC dust	ground air)
Baluchistan	May 1984	Hoppers	0.5	25kg 12.5% BHC dust	ground
<u>India</u>					
Jaisalmer	July	Hopper groups	673	122 625kg BHC dust	ground
Barmer	-	bands, swarms		1 430 1 18% Dieldrin	
Kutch	Oct			250 1 Malathion ULV 23 067 1/kg other	air
<u>United Arab Emirates</u>					
Dhaid Falaj Moalla	May-June	Swarm, hopper	11	8 000 1 Actellic	ground
<u>Yemen PDR</u>					
Ataq-Nisab	Oct 1982	Hopper bands, fledglings	600	4 565 1 20% Dieldrin 1 250kg 10% BHC dust	ground
Shuqra Ahwar	May-July	Hopper bands	68	1 491 1 20% Dieldrin 305 kg BHC dust	ground
<u>Yemen Arab Republic</u>					
Bajil	Feb-March 1983	Groups of hoppers & adults	30	250 1 20% Dieldrin 150 kg BHC	ground
<u>Saudi Arabia</u>					
Qunfidah	March 1983	Late instar hoppers adults		kg BHC	ground
Qunfidah-Gizan	May 1983	Late instar hoppers adults	65	Malathion	ground
Rub al Khali	Oct	Late instar hoppers adults	100	kg BHC	ground
<u>Sudan</u>					
Red Sea Coast	Oct '82 - Feb '83	Groups of hoppers & adults	25	58 600 kg BHC bait	ground
Musmar	August	Groups of hoppers	1	2 400 kg BHC bait	ground
<u>Ethiopia</u>					
Karora/ Akbanazuf	Jan-March 1983	Groups of hoppers & adults	620+	400 1 Fenitrothion 1 000 1 10-20% BHC 900 1 Dieldrin	air & ground
<u>Libya</u>					
Ghadames	June	Groups of hoppers, swarmlets	1.4	15 750 kg BHC bait	ground
Kufra	June-July	Groups of hoppers & adults	5.1	9 062 1 Fenitrothion 25 340 kg BHC bait	air ground
Kufra	Sept-Oct	Groups of hoppers		90 kg BHC bait 13 1 Malathion 50%	ground
<u>Algeria</u>					
Silet	June	Adults	1.5	900 1 Malathion 20% 2 000 kg BHC bait	ground

REVIEW OF THE EXISTING CONTROL POTENTIAL AT NATIONAL AND REGIONAL LEVELS

ANNEX 2

Country or Organization	Insecticides (tonnes/litres x 10 ³)						Sprayers			Dusters		Vehicles		Aircraft		Staff					
	Total/billions	Dieldrin 20% or equivalent	Permethrin 96% or equiv.	BHC liquid gamma 15%	BHC dust 25% or equivalent	BHC bait 0.1% gamma	Others	Exhaust nozzle	Manual	Power	Manual	Power	Light	Medium	Load carriers	Fixed wing, control	Fixed wing, transport	Helicopter	Radio	Technical	General
Benin	279.0	1.7	5	0.3	0.5	-	1.3	-	21	-	-	3	-	-	-	-	-	-	2	8	0
Cameroon	1272.5	-	28.4	-	195	-	-	42	-	9	-	1	5	3	-	-	-	-	-	15	59
Central Africa Repub.	800	-	20	-	40	-	-	-	-	264	-	-	6	5	-	-	-	-	-	6	43
Gambia	105	-	2	-	-	-	-	0	280	200	-	-	6	5	-	-	-	-	-	9	80
Ghana	-	-	-	-	-	100	-	-	Information not available	-	-	-	-	-	-	-	-	-	-	-	20
Ivory Coast	1294	0.75	21	25	420	-	6	110	40	99	6	6	5	6	-	-	-	-	-	-	-
Mali	606.5	0.5	7.9	4	1.5	0.8	5	360	10	2	20	7	5	7	-	-	-	-	7	8	11
Mauritania	3820	40	84	40	375	-	39.3	250	150	2	300	15	7	3	2	-	-	-	-	35	-
Niger	3345.7	40	15	300	400	-	300	350	400	620	300	15	15	2	2	-	-	-	-	-	-
Senegal	396	5.3	5.3	-	200	-	-	11	100	-	-	2	2	2	-	-	-	-	-	-	-
Upper Volta	7729.7	135.1	32.9	5.2	0.2	-	7.8	50	-	-	-	30	16	9	4	1	-	-	44	32	150
OCTALAV	23148	600	600	-	6.8	7.9	800	18	1052	-	47	69	114	25	15*	3*	-	-	31	20	50
Algeria	1317.9	40	34.6	30	46.4	100	63.3	4	24	-	16	35	15	4	*	-	-	8	18	4	
Libya	6176.1	7	20	758	755	376	47.6	37	26	12	26	6	27	15	-	-	-	-	-	20	100
Morocco	1195	-	-	-	850	-	75	13	67	275	130	4	2	1	6	-	-	-	-	20	100
Tunisia	110.5	2.5	2.5	-	40	-	-	3	5	50	-	2	1	-	-	-	-	-	-	-	6
Djibouti	1343	20.9	3.9	10.9	187	-	-	14	1108	1048	1427	-	-	-	-	-	-	-	-	-	-
Ethiopia	-	11.3	17.5	-	-	1700	-	20	Information not available	-	20	5	2	1	-	-	-	-	-	-	-
Kenya	1273.2	-	-	-	-	-	-	15	1200	750	-	5	15	20	4	3	-	-	35	20	100
Somalia	-	-	-	-	-	-	-	-	Information not available	-	-	15	15	-	-	-	-	-	-	-	-
Sudan	-	-	-	-	-	-	-	-	Information not available	-	-	123	9	3	9	3	-	-	-	-	71
Tanzania	6601.5	76	97.6	201.2	-	3.9	-	100	-	-	-	8	8	52	9	3	-	-	-	71	213
Uganda	64	3	-	-	10	-	8	-	32	-	2	25	2	4	-	-	-	-	-	16	
DRCOBA	161.5	2	-	-	-	150	4	3	60	40	3	25	2	4	-	-	-	-	19	80	
Bahrain	20	-	-	-	-	-	6	20	20	1000	-	6	10	1	-	-	-	-	-	50	
Egypt	126.4	2.5	-	5	2	-	1.5	2	50	50	2	10	4	4	-	-	-	-	-	15	
Iraq	366.3	13	-	12	57	-	5	-	32	15	3	3	7	4	-	-	-	-	5	15	
Israel	88	1	-	-	2	-	4	4	14	-	1	5	7	1	-	-	-	-	5	50	
Jordan	11.4	4	-	-	-	-	4	4	130	-	1	6	5	1	-	-	-	-	12	120	
Kuwait	100	4	-	-	-	-	4	-	-	-	1	6	5	1	-	-	-	-	-	12	
Lebanon	5407	4.2	22.5	-	225	-	75	80	80	-	142	120	120	1	-	-	-	-	-	10	
Oman	452	20	-	9.5	400	-	7.5	13	256	-	204	10	10	1	-	-	-	-	-	4	
Qatar	603.7	38	5	1	107	-	15	15	40	-	3	17	11	1	-	-	-	-	5	4	
Saudi Arabia	1356.9	27	4	5	17	-	66	35	112	95	3	17	11	1	-	-	-	-	16	6	
Syria	1525.2	13.1	22.0	17.5	1225	-	-	10	46	28	6	11	2	1	-	-	-	-	7	4	
United Arab Emirates	1805.5	10	-	8	9.6	-	2.7	39	1	6098	179	98	1	2	14	14	1	2	10	59	
Yemen Arab Republic	923.7	10	10	60.6	94.82	-	-	40	2000	200	15	100	20	32	20	20	2	63	143	46	
Yemen PDR	7901.7	125.08	12.84	60.6	94.82	108.7	-	64	-	-	3	91	25	6	22	-	-	-	42	50	
Afghanistan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	582	
India	1805.5	13.1	22.0	17.5	1225	-	-	10	46	28	6	11	2	1	14	14	1	2	10	59	
Iran	923.7	10	10	60.6	94.82	-	-	40	2000	200	15	100	20	32	20	20	2	63	143	46	
Pakistan	7901.7	125.08	12.84	60.6	94.82	108.7	-	64	-	-	3	91	25	6	22	-	-	-	42	50	

*Available if necessary.

REVIEW OF REMOTE SENSING APPLICATIONS TO DESERT LOCUST SURVEY AND CONTROL

Activities undertaken in 1983

In anticipation of the approval of donor funding for the proposed Phase II of the FAO Development Project on Remote Sensing Applications for Desert Locust Survey and Control, having the objective of establishing an operational satellite monitoring system for the Desert Locust, the following semi-operational and developmental activities were undertaken during 1983 by the Locust Group:

- As a continuation of the successful experimental use of NOAA/AVHRR data for large area vegetation change monitoring in the Desert Locust recession area during 1982, a fully operational programme for near real time assessment of Desert Locust breeding conditions was executed during the winter/spring and summer breeding seasons of 1983 in close cooperation with NASA/GSFC and NOAA/NESDIS/SISD.

NOAA/AVHRR data, processed in a photographic georeferenced vegetation index format, automatically screened for cloudcover, was received every ten days for an area of approximately 6 500 000 square kilometres.

The data was analyzed/interpreted in conjunction with the concurrent meteorological and locust data, on the basis of which the monthly Desert Locust Situation Summary and Forecast, issued by FAO, was prepared.

The information content of the NOAA/AVHRR data in terms of general vegetation biomass levels in the recession area, was evaluated to be adequate for forecasting purposes and the regular use of this type of data enabled a significant improvement in the identification of areas with suitable breeding conditions as well as areas which remained unfavourable due to the lack of sufficient rainfall.

It was demonstrated that this type of satellite remote sensing data can be acquired, processed and analyzed for the entire Desert Locust recession area within the time constraints of the operation of the centralized Reporting and Forecasting Service at FAO Headquarters.

- High-quality Landsat imagery was acquired and processed for an area of approximately 300 000 square kilometres in West Africa, partly in Mali, Niger and Algeria. The resulting false colour imagery at scale 1:200 000 was used as an input for the FAO Desert Locust Habitat Mapping Programme. This programme has the objective to establish a systematic cartographic data base showing the distribution of the potential Desert Locust habitats in the recession area, to be used as the basis for the evaluation of actual breeding conditions as provided by real time Meteosat/NOAA data, showing soil moisture and vegetation status.
- The mapping programme was started in West Africa for defining and testing of the methodology and will subsequently be expanded to the Near East, East Africa and South-West Asia.
- Cooperation was developing with the TAMSAT Project within the Meteorology Department of the University of Reading concerning the development and testing of algorithms for precipitation estimation/soil moisture change quantification in arid and semi-arid areas based on the use of Meteosat digital visible and thermal infrared data.
A data base, containing half hourly frequency digital Meteosat data, acquired over West Africa during the rainy seasons of 1982 and 1983, now exists to support this developmental research.
- An operational monitoring system for the Desert Locust, based on the use of Meteosat/NOAA and Landsat data, as defined on the basis of the experience gained during the past few years and submitted by FAO to the Government of the Netherlands for funding, is still under active discussion with the donor.

- Assistance was provided in the formulation of the ecological survey to be undertaken in the framework of the regional UNDP/FAO Project on Coordination of Cooperative Action to Reduce Bird Damage to Crops in Eastern Africa (RAF/81/023). The ecological survey, which will take place between February and July 1984, will involve the use of repetitive low level false colour infrared photography and acquisition/processing of NOAA/AVHRR LAC and GAC data for correlation with the environmental and bird observations during the study period.
- Assistance was provided to remote sensing training courses on the use of remote sensing in operational agrometeorology and digital analysis applied to land resources in Niamey (Niger) and Feldafing (Federal Republic of Germany) respectively.

FAO funded the remote sensing expert and other activities were financed from the following trust funds:

TF9123 (South West Asia Commission) :	\$ 10 000
TF9409 (Near East Commission) :	\$ 20 000
Belgian Trust Fund GCP/INT/389/BEL :	\$ 15 000
	\$ 45 000

ANNEX 4

TRAINING

Training of Locust Officers has been continued at all levels under the Regional and International Desert Locust Trust Funds, TCP and UNDP.

The tables below show FAO fellowships and training courses implemented since the Twenty-Sixth Session.

I. Short-Term Fellowships

1. Participation in the CNEARC/PRIFAS organized a three-month training course on "Acridologie Opérationnelle", Montpellier, France, 1 March to 1 June 1984 by:

Istanbouli, Antoun	Syria	Funded by TF 9409
Fotso, Gabriel	Cameroon	Funded by TF 9161
Favi, Françoise	Benin	Funded by FAO/TCP/BEN/2310
Lediambo, Betingam	Chad	Funded by TF 9161
Zoumana, Berthe	Mali	Funded by TF 9161
Mouhim, Amed	Morocco	Funded by TF 9161
Toukara, Moussa	OICMA	Funded by UNDP/RAF/81/021
Soumare, Lassana	OCLALAV	Funded by UNDP/RAF/81/020
Sydi, Alassane Magath	OCLALAV	Funded by UNDP/RAF/81/020
Niang, Balla	OCLALAV	Funded by UNDP/RAF/81/020

2. Continuing

Karra, F.M.	Libya	Tropical Development and Research Institute in the UK - started 1-10-83	8 months
		Classification of Grasshoppers, ended 9-5-84	
		funded by TF 9169	

3. Completed

Ahmed, A.O.	PDR Yemen	Desert Locust Control Training (India) funded by: TF 9409	3-month fellowship Sept.-Nov. 1982
Bachir, Chara	Algeria	Université de Paris-Sud Entomologie, funded by: TF 9161	6 months Feb.-July 1983

II. Long-Term Fellowships

1. Continuing

Ghafar, A.	Afghanistan	University in India Entomology, funded by: TF 9123	2 years started Nov. 1982
Ghorbandi, A.W.	Afghanistan	University in India Entomology, funded by: TF 9123	2 years started Nov. 1982
Ghedifi, Naoeur	Tunisia	University in France Entomology, funded by: TF 9169	3 years planned started Oct. 1983 ended April 1984

2. Completed

Ben Halima, T.	Morocco	University in France Migrant Locust Control funded by: TF 9169	3 years completed 10-7-83
Bahakim, F.M.	PDRY	University in Sudan Entomology, funded by: UNDP RAB/75/010	4 years completed 31-5-83

III. Study Tours

Samir El Simari	Egypt	Training in Aerial Spraying Techniques in relation to Locust Survey & Control-DLCO-EA funded by: TF 9409	2 months in 1982
Kupoluyi	Nigeria	Workshop on Needs and Constraints in Plant Protection of developing countries/Training & Transfer of information, Wageningen, Netherlands	1 week in 1983
Dawood, Ali	Iraq		Funded by: TF 9161
Ambool, F.H.	PDRY		TF 9409
Karimuddin, Ahmad	Pakistan		TF 9404
			TF 9123
Harb, M.F.	Egypt	Plant Protection/Toxicological research, DLCO-EA, funded by: TF 9409	2 months in 1983
El Din, M.I.F.	Saudi Arabia	Aerial operations of locust control, Sudan, funded by TF 9409	2 months in 1983
Khan, A.M.			
Ghamdi, M.S.G.			
Gerges, S.N.	Egypt	Locust control techniques Pakistan/Sudan/DLCO-EA, funded by TF 9409	1 month in March 1984
Ibrahim, M.A.	Egypt		
Harb, M.F.	Egypt	Gas chromatography, DLCO-EA funded by TF 9409	1 month in June 1984

IV Training Courses

Funded by:

1. Locust Survey and Control

Tunis (Tunisia)		
Regional Working Group on Bird Damage - N.W. Africa	9-14 May 1983	TF 9169
Agadir (Morocco)		
Regional course - orthopter classi- fication - N.W. Africa	11-23 December 1983	TF 9169

2. Remote Sensing Training Course

Rome (Italy)			Joint sponsor-
Application of remote sensing related to locust control	8-19 November 1982		ship FAO and other agency

3. Radio Operation and Maintenance

Jodhpur (India)		
National Training Course	17 Nov.- 1 Dec. 1982	TF 9123
Baghdad (Iraq)		
National Training Course	7-30 March 1983	TF 9409

4. Use of Pesticide (ground and aerial)

Short course on aerial application of pesticides,
Cranfield, U.K.

<u>5-16 September 1983</u>	N. K. Pthal	India	TF 9123
	Abbas Guavari Bami	Iran	TF 9123
	Emadussin Ghaisi	Afghanistan	TF 9123
	Mohammed Tawfik	Egypt	TF 9409
	Zakaria El-Khateb	Syria	TF 9409
	Mohamed Elkheir El Sheikh	Sudan	TF 9409
	Abdirazak Mohamed Hirsi	Somalia	TF 9161
	Ittiale i Orobia	IRLCO-CSA	TF 9161
	J. R. Mulimba	Tanzania	TF 9161

International Training Course in Ground and Aerial Application
Techniques at "Les Barges" near Montreux, Switzerland

<u>July 1983</u>	Gérard Muller	OCLALAV (Senegal)	UNDP RAF/81/020
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<u>2-14 October 1983</u>	Harish Ghandra Shrivastava	India	TF 9123
	Sindy Hassan	S. Arabia	TF 9409
	Abed El Fatah Abedel Hane	Egypt	TF 9409
	Siham Mourad	Syria	TF 9409
	Abdel Moneim Hassan Karrar	Sudan	TF 9409
	Mohamed Salah Abdallah	Somalia	TF 9161

V. Planned activities for 1984 and 1985

Selected countries are being invited to attend the above-mentioned short training courses in the U.K. and Switzerland during 1984 and 1985.

INTERNATIONAL TRUST FUND 9161 : CONTRIBUTIONS AND EXPENDITURE

Financial Report

1. The above Trust Fund was established by the Director-General of FAO following the recommendations of the Ninth Session of the Desert Locust Control Committee. The Director-General, as Administrator of the Trust Fund, consults with the Desert Locust Control Committee which is responsible for the general policy guidance of the Trust Fund; the Committee also reviews the annual budget and receives financial reports from FAO.

Budget, Statement of Accounts for 1982 and 1983

2. The annual budget of the Trust Fund, approved by the Fourteenth Session of the Committee in October 1970, is shown in Appendix A, together with the accounts for 1982 and 1983, based on the present level of funds and pledges to be received. A further transfer of US\$ 60 354 was effected in 1982 from the multi-donor Trust Fund 9577.

3. A breakdown of 1982 and 1983 expenditure is given in Appendix B.

The total expenditure in 1982 amounted to US\$ 56 849 and in 1983 to US\$ 139 610. These figures include, however, an expenditure of US\$ 1 920 and US\$ 43 888, respectively, which have already been reimbursed to the TF by DLCO. The annual expenditure remained or only slightly exceeded the annual budget. The position of the reserve fund as at the end of 1983 amounted to US\$ 137 989.

Budget and Accounts for 1984

4. The annual proposed budget of the Trust Fund, based on the increased scale of contribution, is shown in Appendix A, column 2 for approval by the Committee. The estimated expenditure and commitments during 1984 are indicated on the same Table.

A breakdown of expenditure and estimated expenditure for 1984 as at 11 June 1984 is also given in Appendix B.

Contributions

5. The scale of government contributions to the Trust Fund is given in Appendix C. Details of outstanding contributions as at 11 June 1984 are given in Appendix D. Arrears prior to 1982/83 were still outstanding from many countries whose governments are requested to bring their contributions up to date as soon as possible. In view of steeply rising costs, it is essential that all funds pledged should be available to meet the needs of the member countries. Member countries are therefore recommended to respond to the FAO call-in letter as promptly as possible.

APPENDIX A

INTERNATIONAL DESERT LOCUST TRUST FUND 9161

BUDGET AND STATEMENT OF ACCOUNT (Expressed in US\$ Equivalents)

	Approved Annual Budget 82/83	Proposed Annual Budget 84	Receipts		
			1982	1983	1984 (as at 11-6-84)
Receipts					
Balance brought forward	-	-	107 030	210 899	137 989
Contributions from Member Governments (including interests)	80 916	200 000	100 364	66 700	50 738
Transfer from TF9577 and TF9462	-	-	60 354	-	-
Reimbursement from ILCO	-	-	-	-	43 478
	<u>80 916</u>	<u>200 000</u>	<u>267 748</u>	<u>277 599</u>	<u>232 205</u>
Cash Expenditure					
Code					
10 Personal Services	10 000	35 000	19 409	10 946	1 394
20 Travel	15 000	20 000	121	7 618	4 975
30 Contractual Services	10 000	20 000	21 899	16 141	3 000
40 General Operating	-	5 000	-	6 124	-
50 Supplies	4 100	10 000	1 420	7 947 ^{2/}	239
60 Equipment	25 000	35 000	855	55 905 ^{3/}	148
80 Fellowships and Training	5 000	50 000	6 605	18 868	31 188
90 Project Service Costs (13%)	8 983	22 750	6 540	16 061	-
Total Expenditure	<u>78 083</u>	<u>197 750</u>	<u>56 849 ^{1/}</u>	<u>139 610 ^{3/}</u>	<u>40 944</u>
(Expenditure excluding ILCO-EA's charges)			(54 929)	(96 887)	
Unallocated Balance	2 833	2 300	210 899	137 989	

1/ including US\$1 920 to be reimbursed by ILCO

2/ including US\$1 165 reimbursed by ILCO

3/ including US\$42 723 to be reimbursed by ILCO

The Director-General of FAO was empowered by the 14th Session of the ILCC, 1970, to change the allocation of sums allotted to different chapters in order to meet the changing needs of the locust situation, subject to the total annual expenditure not exceeding the total budget.

APPENDIX B

INTERNATIONAL DESERT LOCUST TRUST FUND 9161

Breakdown of 1982 and 1983 Expenditure and Commitments to 1984

	<u>Expenditure</u>		<u>Estimated</u>
	<u>1982</u>	<u>1983</u>	<u>Expenditures</u> <u>as of 11/6/84</u>
10. <u>Personal Services</u>			
Consultants (Desert Locust, radio)	19 366	6 742	1 394
Insurance	43	-	-
Support to OCLALAV field courses Mauritania, Mali, Niger (field staff)	-	4 204	-
	<u>19 409</u>	<u>10 946</u>	<u>1 394</u>
20. <u>Travel on Official Business</u>			
Staff Travel (field experts)	-	3 411	2 034
Non-staff travel	121	4 207	2 941
	<u>121</u>	<u>7 648</u>	<u>4 975</u>
30. <u>Contractual Services</u>			
Translation and Printing of Reports (including the monthly Desert Locust Summary and Forecast and Commission Reports)	16 899	16 141	-
Edition of Insecticide Index Poster	5 000	-	3 000
	<u>21 899</u>	<u>16 141</u>	<u>-</u>
40. <u>General Operating Expenses</u>			
Support to OCLALAV field survey Mauritania, Mali, Niger	-	6 000	-
Various	-	124	-
	<u>-</u>	<u>6 124</u>	<u>-</u>
50. <u>Supplies</u>			
Books and Journals (Locust Grasshopper Manual and Manuel de prospection acridienne)	520	6 140	-
Reimbursement by DLCO for expenditure of office equipment	900	(1 165)	-
Training material (radios and spraying equipment)	-	2 700	239
Various	-	273	-
	<u>1 420</u>	<u>7 947</u>	<u>239</u>
60. <u>Equipment</u>			
office equipment for DLCO on reimbursable basis (82), vehicles (83)	1 020	43 888	-
Various	(165)	-	-
Spraying equipment, DLCO Ethiopia	-	7 132	148
Two transceivers (Somalia)	-	6 050	-
Reimbursement by DLCO for expenditure of office equipment	-	(1 165)	-
	<u>855</u>	<u>55 905</u>	<u>148</u>

APPENDIX B (cont.'d.)

	<u>Expenditure</u>		<u>Estimated</u>
	1982	1983	<u>Expenditures</u> <u>as of 5/3/84</u>
80. <u>Fellowships</u>			
Latigo (ILCO-EA)	2 599	1 030	-
Ainam (ILCO-EA)	1 706	1 186	-
Arif G.M. Ahmed (Sudan)	2 236	-	-
Bachir Chara (Algeria)	-	4 903	4 097
Salem Abdallah (Somalia)	-	2 131	1 697
T. Orobis (Zambia (IRLCO-CSA))	-	4 193	477
A.M. Hirsi (Somalia)	-	3 706	324
Kpolulyi (Nigeria)	-	1 719	593
Various	64	-	-
3 months fellowship (France) :			
Fotso, Gabriel (Cameroon)			6 000
Lediambo, Betingam (Chad)			6 000
Zoumana, Berthe (Mali)			6 000
Mouhin, Ahmed (Morocco)			6 000
	<u>6 605</u>	<u>18 868</u>	<u>31 188</u>
90. <u>Project Servicing Costs (13%)</u>	6 540	16 060	-
<u>TOTAL</u>	<u>56 849</u> ^{1/}	<u>139 610</u> ^{2/}	<u>40 944</u>

^{1/} including US\$1 920 to be reimbursed by ILCO

^{2/} including US\$4.2 723 to be reimbursed by ILCO

SCALE OF GOVERNMENT CONTRIBUTIONS TO THE
INTERNATIONAL DESERT LOCUST TRUST FUND No. 9161

<u>Country</u>	<u>Old scale up to</u>	<u>New scale up to</u>
	<u>30/6/83</u>	<u>1/7/83</u>
	<u>US\$</u>	<u>US\$</u>
Afghanistan	1 910	3 480
Algeria	2 580	7 700
Bahrain	720	920
Cameroon	1 440	2 780
Chad	1 800	3 520
Djibouti	420	1 120
Egypt	3 920	5 740
Ethiopia	2 180	4 320
Gambia		2 420
Ghana	1 950	3 280
India	10 000	20 000
Iran	3 690	20 000
Iraq	2 480	7 440
Jordan	1 730	3 420
Kenya	1 800	3 580
Kuwait	420	7 180
Lebanon	1 350	3 060
Libya	1 820	10 640
Mali	1 800	3 600
Mauritania	1 720	2 900
Morocco	2 990	5 360
Niger	1 800	3 760
Nigeria	3 650	8 940
Oman	830	2 100
Pakistan	5 860	6 520
Qatar	830	1 760
Saudi Arabia	1 830	20 000
Senegal	2 010	3 520
Somalia	596 ^{a/}	3 500
Sudan	2 250	3 980
Syria	2 010	4 520
Tunisia	1 990	4 460
Uganda	1 650	3 380
United Arab Emirates	5 500	4 600
Yemen Arab Republic	1 840	3 580
Yemen, People's Democratic Republic	120	2 920
	<u>79 486</u>	<u>200 000</u>

^{a/} Expressed in US Dollars at current UN exchange rate (17.38) although the pledge is the equivalent in US\$ of Somali Shillings 10 353.00 per annum.

APPENDIX D

Trust Fund No. 9161.00 - International - Desert Locust Control Project

Position at 11 June 1984
(expressed in US Dollars)

	Outstanding 1976/77	Outstanding 1980/81	Outstanding 1981/82	Contributions due for 1982/83	Contributions due for 1983/84	Received during 1984 up to 11/6/84	Outstanding as at 11/6/84
Afghanistan	-	-	-	(1,910.00)	3,480.00	-	1,570.00
Algeria	-	-	-	(1,740.00)	7,700.00	-	5,960.00
Bahrain	-	-	-	-	920.00	-	-
Cameroon	-	-	-	61.18	2,780.00	2,841.18	-
Chad	7,200.00	1,800.00	1,800.00	1,800.00	5,740.00	-	16,120.00
Egypt	-	-	-	2,049.94	3,520.00	-	-
Ethiopia	-	-	-	420.00	4,320.00	829.00	5,540.94
Djibouti	840.00	420.00	420.00	-	-	-	3,220.00
Gambia	-	-	-	-	1,120.00	-	2,420.00
Ghana	-	(2,944.06)	1,950.00	1,950.00	3,280.00	-	4,235.94
India	-	3,690.00	3,690.00	-	20,000.00	10,000.00	10,000.00
Iran	-	-	-	-	20,000.00	1,890.00	21,800.00
Iraq	-	-	-	-	7,440.00	-	7,440.00
Jordan	-	-	-	1,730.00	3,420.00	-	-
Kenya	-	-	1,790.00	1,800.00	3,580.00	-	5,712.47
Kuwait	-	-	420.00	420.00	7,180.00	-	8,020.00
Lebanon	-	-	-	1,350.00	3,060.00	-	1,240.00
Libya	-	-	1,820.00	1,820.00	10,640.00	-	14,280.00
Mali	-	-	-	1,800.00	3,600.00	-	5,400.00
Mauritania	6,465.09	1,720.00	1,720.00	1,720.00	2,900.00	-	14,525.09
Morocco	-	2,990.00	2,990.00	2,990.00	5,360.00	5,980.00	8,350.00
Niger	-	-	-	1,800.00	3,760.00	-	5,560.00
Nigeria	-	-	-	3,650.00	8,940.00	-	12,590.00
Oman	-	-	-	-	2,100.00	2,100.00	-
Pakistan	-	-	-	5,860.00	6,520.00	4,545.04	2,291.96
Qatar	-	-	-	830.00	1,760.00	5,543.00	2,590.00
Saudi Arabia	-	-	-	-	20,000.00	20,000.00	-
Senegal	675.67	2,010.00	2,010.00	-	3,520.00	4,139.25	6,086.42
Somali Republic a/	-	-	-	(25.38)	3,500.00	699.85	2,774.77
Sudan	6,750.00	2,250.00	2,250.00	2,250.00	3,980.00	-	17,480.00
Syrian Arab Republic	-	2,010.00	2,010.00	2,010.00	4,520.00	-	10,550.00
Tunisia	-	-	-	(1,145.00)	4,460.00	-	(6,100.96)
Uganda	1,650.00	1,650.00	1,650.00	1,650.00	3,380.00	7,415.96	9,980.00
United Arab E.	-	-	-	5,500.00	4,600.00	-	-
Yemen Arab Rep.	-	-	-	(6,844.00)	3,580.00	-	(6,285.66)
Yemen PDR	240.00	120.00	120.00	120.00	2,920.00	-	3,520.00
	23,820.76	15,715.94	24,640.00	37,616.74	200,000.00	50,738.39	196,871.97

a/ Expressed in US Dollars at current UN exchange rate (15.10) although the pledge is equivalent in US\$ Somali Shillings 10.353 per annum.

STATUS OF REGIONAL LOCUST COMMISSIONS/ORGANIZATIONS

1. South-West Asia Commission

The Commission held its 15th Session in Rome on 21-24 March 1983. The Commission:

- reviewed the desert locust situation and noted that the general situation continued to be one of recession, although there were a number of seasonal regional upsurges.
- discussed the question of surveys and expressed the opinion that future surveys should be combined with ecological and biological studies on locusts. Thus, in addition to providing information on the current Desert Locust situation, they would help towards the assessment of the ecological potential of various locust habitats as a valuable background to the elaboration of the ecological Desert Locust map. The surveys would also provide a very useful opportunity for field refresher courses for the technical antilocus personnel.
- reviewed the results and achievements of the remote sensing project and agreed to allocate US\$ 10 000 from the Trust Fund for this activity in the Region pending the financing of phase II by an eventual donor.
- expressed the opinion that the interpretation of satellite imagery would be greatly enhanced if examined against the background of an ecological map of the potential desert locust breeding areas during recession and recommended that such a map be prepared for the Eastern Region.
- appreciated training activities undertaken in 1982/83 and noted with appreciation and interest that the Government of Pakistan organized a high level desert locust training course in Karachi early in 1983.

The next session of the Commission will be held early in 1985, preferably in India.

2. Commission for controlling the Desert Locust in the Near East

The Commission held its thirteenth session in Rome on 16-18 May 1983.

The Commission:

- (a) reviewed the desert locust situation and noted it was calm in Saudi Arabia, Yemen A.R., P.D.R. of Yemen, U.A.E., Oman and Egypt. In Sudan increased locust activity was reported in November 1982 in the Tokar delta and the northern Ethiopian coasts of the Red Sea; control operations were undertaken up to May 1983.
- (b) discussed the question of special surveys and recommended undertaking such surveys in the strategic regions of the Sultanate of Oman, whenever necessary. A regional project for ecological surveys of strategic areas parallel to the Red Sea in Egypt and Sudan was also considered and requested representatives of both countries concerned to prepare a joint study for possible assistance by the Commission in its implementation.

- (c) took note of progress achieved in the field of training, recommended the organization of regional and local training courses on locust control and spraying techniques, the promotion of short-term training courses and fellowships and visits to the various institutions, countries and regional organizations.
- (d) reviewed research activities at Jeddah (Saudi Arabia) and Dokki, Cairo (Egypt) research stations.
- (e) reviewed the programme of work and budget, the financial statement of the regional Trust Fund, the annual contribution of member countries and the position of arrears.

The 14th session of the Commission was to have been held in Rome on 2-8 July 1984, but because there was no quorum, only the 13th Session of the Executive Committee was considered official. This considered:

- the locust situation and control potential within the Region;
- training in 1983 and the training programme for 1984-85;
- assistance to member countries, including special surveys;
- research activities within the Region;
- the programme of work and budget;
- relations between the Commission and DLCO-EA.

Egypt issued an invitation to hold the next Session of the Commission in Cairo in June-July 1985. The USA expressed its wish to attend future sessions of this Commission.

3. Commission for controlling the Desert Locust in North-West Africa

The twelfth session was held in Tunis from 8 to 14 May 1983 with the participation of acridologists, meteorologists and ornithologists from Member Countries.

The Commission:

- reviewed the locust situation in the region; it remained calm throughout the year.
- reviewed the locust control potentialities in the region and noted that Algeria and Libya have purchased new vehicles. Tunisia and Morocco continued to authorize the use of dieldrin for locust control in desert regions but Algeria and Libya have banned its use.
- discussed problems of training.
- followed the progress of using satellite data in the survey of the desert locust and took note of present measures of strengthening and widening meteorological networks in the Region.
- supported the project on survey of Orthoptera in the region and the establishment of reference collection.

- reviewed OCLALAV problems and appreciated the assistance of 10 000 l. dieldrin provided by Morocco to OCLALAV.
- studied the programme of work and budget and approved to increase the annual Trust Fund from \$80 000 to \$ 133 000.
- organized a workshop on bird pests.

The next meeting of the Commission will be held in Rabat in April 1985.

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

The 28th regular session of the DLCO-EA Council of Ministers took place in Mogadishu on 16-18 May 1983.

The Council:

- (a) agreed a new scale of contributions.
- (b) adopted the Programme of Work for 1983-84.
- (c) agreed that DLCO-EA should convene a meeting of regional tsetse experts with a view to launching a regional tsetse control project.
- (d) approved a budget of US\$ 4 317 454 for 1983-84, representing an increase of 3.01%.
- (e) reviewed the locust situation, and agreed that operations could be undertaken against tree locusts at times when the resources necessary were not otherwise engaged.

The 29th Session of the Council was held in Addis Ababa on 3-5 May 1984.

The Council:

- adopted the Programme of Work for 1984-85
- approved a budget of US\$ 4 553 005 for 1984-85
- reviewed the locust situation and noted that there would be no threat to the Region before October-November 1984
- was informed that late payment of contributions had curtailed operational activities in recent years
- instructed DLCO-EA to prepare proposals concerning a possible merger with IDLCO-CSA

The next meeting of the Council will be held in February 1985 in Khartoum.

5. Joint Locust and Bird Control Organization (OCLALAV)

The Governing Council met in Banjul (Gambia) from 20 to 23 July 1983.

The Council:

- reviewed the activities of the organization and noticed the decrease in its operational activities due to its financial situation.
- adopted the study on restructuring prepared by FAO/France/UNDP/OCLALAV with minor modifications. The President of the Council requested OCLALAV Administration and FAO to study the modalities of submitting the various needs of restructuring to donors.

- reviewed the activities of UNDP/FAO projects: RAF/81/020 on the Desert Locust and RAF/81/022 on grain-eating birds.
- approved the programme of work and budget and emphasized the critical financial situation of the organization.

The next meeting of the Council will be held in July 1984 in Dakar.

6. International African Migratory Locust Organization (OICMA)

The Administrative Council met in Bamako from 15 to 17 March 1983.

The Council:

- reviewed the situation of the African migratory locust; it remained calm in Mali and Lake Chad Basin outbreak areas but in Angola control operations covered 150 000 ha.
- approved the programme of work and budget and noticed the catastrophic financial situation of the organization.
- recommended to undertake a study on restructuring. The study was done by a technical committee in June 1983 and will be discussed at the next meeting of the Council.
- thanked UNDP for its assistance; UNDP has approved the extension of its assistance for the period 1983-1986 for an amount of \$ 485 000.

The next meeting of the Council will be held in Bamako on 25-27 June 1984.

7. International Red Locust Control Organisation for Central and Southern Africa (IRLCO-CSA)

The Governing Council held its 13th Session at Kampala, Uganda, on 31 August - 2 September 1983.

The Council:

- recommended that the Chairmen of IRLCO-CSA and DLCO-EA should consult with one another with a view to merging the two organizations.
- approved the programme of work for 1984, which was essentially the same as for 1983.
- approved a project proposal for strengthening and coordinating migrant pest control in Southern Africa and agreed that the Chairman would sign a letter forwarding the project proposal to the Minister of Agriculture, Zimbabwe, which was responsible amongst SADC countries for Food Security.
- learned that while contributions had been paid in full and on time, there were considerable delays in transferring the funds to Zambia, so that the financial situation of the organization was at times acute.

The next meeting of the Governing Council will be held in Harare, Zimbabwe, 26-27 July 1984.