



---

**REPORT**

**EMERGENCY PREVENTION SYSTEM**

**FOR TRANSBOUNDARY ANIMAL AND PLANT PESTS AND DISEASES**

**(EMPRES)**

**(DESERT LOCUST COMPONENT)**

**9<sup>TH</sup> EMPRES LIAISON OFFICERS MEETING**

**KHARTOUM, SUDAN**

**13 – 18 OCTOBER 2001**

**Plant Protection Service**  
**Food and Agriculture Organization of the United Nations**  
**2001**

---

**Table of Contents**

<b><i>I. OPENING</i></b> .....	<b>3</b>
<b><i>II. MEMBER COUNTRY ACHIEVEMENTS AND PROGRESS</i></b> .....	<b>3</b>
Djibouti .....	3
Egypt .....	4
Eritrea .....	4
Ethiopia.....	4
Oman.....	4
Saudi Arabia.....	4
Sudan .....	5
Yemen .....	5
DLCO-EA.....	5
<b><i>III. SPECIFIC TOPICS</i></b> .....	<b>5</b>
Improved preventive Desert Locust management strategies .....	5
Experiences and lessons learned from joint surveys .....	6
Improving survey and information systems in the Central Region .....	6
Introduction of the new spray monitoring form .....	6
Aims and objectives of the GTZ Desert Locust Project .....	7
Importance of ecological assessment in improved Desert Locust management.....	7
<b><i>IV. EMPRES ACTIVITIES, ACHIEVEMENTS AND OBSTACLES DURING 2001</i></b> .....	<b>7</b>
<b><i>V. EMPRES PLANNING FOR 2002</i></b> .....	<b>8</b>
<b><i>VI. ADOPTION OF THE REPORT OF THE MEETING</i></b> .....	<b>8</b>
<b><i>VII. CLOSING</i></b> .....	<b>9</b>
<b><i>VIII. RECOMMENDATIONS</i></b> .....	<b>9</b>
<i>Annex 1. List of Participants</i> .....	<i>10</i>
<i>Annex 2. Agenda</i> .....	<i>12</i>
<i>Annex 3.: 9<sup>th</sup> ELO Meeting, Evaluation of EMPRES activities in 2001</i> .....	<i>14</i>
<i>Annex 4.: Draft EMPRES work plan 2002</i> .....	<i>32</i>

**Ninth EMPRES Liaison Officers Meeting  
13 – 18 October 2001  
Khartoum, Sudan**

**I. OPENING**

1. The meeting began with an introduction by Ms. Nagat Mubarak and a prayer.
2. Mr. Saeed Suleiman, Director of General Directorate of Plant Protection, gave a welcome address. He emphasized the importance of Desert Locust in Sudanese agriculture. He appreciated that Sudan was chosen for the 9<sup>th</sup> ELO Meeting and wished everybody a fruitful and happy stay.
3. Mr. Clive Elliott, Senior Officer from AGPP, FAO HQ, gave a welcome presentation on behalf of the FAO HQ. He noted that this is the first time that an ELO Meeting is held in Sudan. Considering the importance of Desert Locust in Sudan, it is only appropriate that this meeting is convened here. He thanked the Government of Sudan, the General Directorate of Plant Protection, and the FAO Representation in Sudan for accepting to host the meeting. He reminded everyone that EMPRES is a special programme of the Director General of FAO to which special attention is attached. The achievements of EMPRES will be the combined efforts of ELOs and EMPRES staff supported by donors yet at the same time they must be sustainable. EMPRES Central Region member countries need to continue supporting Desert Locust activities even in recession periods when interests often dwindle. Lastly, he congratulated Mr. Peter Odiyo on being confirmed as director of DLCO-EA, Mr. Christian Pantenius as Coordinator of EMPRES and Mr. Munir Butrous as Secretary of CRC.
4. The FAO Representative in Sudan, Mr. Bin Yehia, thanked the Government of Sudan for hosting the 9<sup>th</sup> ELO Meeting and the participants for coming to Sudan. He pointed out that lessons learnt during Phase I will be important to guide achievements in the current phase (Phase II). He also emphasized the importance of sustainability. He said that the aim of EMPRES should be to develop strategies that will reduce dependence by national programmes on foreign aid.
5. The official opening of the meeting was given by His Excellency Mr. Abd El-Gabar Hussein, State Minister of Agriculture. In his opening statement, Mr. Hussein expressed his appreciation to FAO for supporting the Government of Sudan in fighting the Desert Locust and thanked AOAD for hosting this meeting. He referred to the unpredictable nature of Desert Locust and the example of the 1988 plague that affected large areas of Sudan. He said that the efforts of EMPRES to improve the Desert Locust management through training and early warning systems in the Central Region are highly appreciated by the Government of Sudan.
6. The agenda was introduced by the EMPRES Coordinator, Mr. Christian Pantenius and accepted with minor amendments. Mr. Peter Odiyo and Mr. Rachid Elmi Hersi were elected as Chairman and Vice Chairman, respectively. Mr. Keith Cressman and Mr. Tsedeke Abate were elected as secretariat. A list of participants and the agenda as adopted are presented in Annexes 1 and 2 respectively.

**II. MEMBER COUNTRY ACHIEVEMENTS AND PROGRESS**

7. A short presentation was given by each ELO on the progress made during the past year in their country. The reports were distributed. Participants suggested that the reporting of country achievements and progress in the future should be standardised and include milestones and achievements to facilitate follow-up. A summary of the discussions that followed each presentation is presented below.

**Djibouti**

8. Current constraints to locust survey and reporting are a lack of national resources, including a vehicle, and operational funds. There is a need for a systematic approach to survey and identification of breeding areas. The country relies on DLCO-EA for control operations although

spray and survey equipment has been previously provided in 2000 under EMPRES of which one sprayer is out of order.

### **Egypt**

9. A locust base was established in the new agricultural areas in the Western Desert at Sharq Uweinat following a visit made by FAO in October 2000. A national training course was held in Hurghada in November. Regular surveys were conducted along the Red Sea coast and in the Western Desert. There has been no need for control operations against Desert Locust except in Sharq Uweinat where these were mixed with grasshoppers and African Migratory Locust. The Locust Control Unit (LCU) would like to conduct field trials on *Metarhizium* in these areas.
10. Shortages in field equipment (GPS, compass, anemometers) were mentioned as possible constraints to monitoring locust activities. It was suggested that the data collected during surveys could be used better for planning the timing and location of future surveys. There are plans to install email at all of the locust bases in the near future.

### **Eritrea**

11. Training was undertaken in the Country Focus Programme in which farmers, agricultural officers and trainers were trained. A training manual has also been prepared. A survey was conducted on the Red Sea coast this past spring to validate remote sensing imagery. The results still need to be analysed by the Desert Locust Information Service at FAO HQ (DLIS).
12. The ELO expressed his concern about the operational use and maintenance of RAMSES. Countries asked whether locust surveys had been undertaken this year in the summer breeding areas of the western lowlands where rains have been unusually good. Direct communications should be established between the Eritrean Plant Protection Department (PPD) and EMPRES/DLIS. It was felt that it is not realistic to undertake the planned joint survey along the Eritrean-Sudanese border until there is a significant improvement in security.

### **Ethiopia**

13. The meeting was told that Federal MOA staff carries out locust surveys every month for ten days. RAMSES has been installed since October 2000 and is being used on an operational basis for entering locust and environmental data. Locust data for 1950-2000 have also been entered into the system. A student completed a MSc study on the distribution of locust populations within Ethiopia during recessions since 1963. Radios have been installed in some states but more are needed in order to cover all states perceived to be important for Desert Locust. The need for establishing regular and direct communication links between countries was emphasized especially given the fact that Ethiopia is primarily a country that is invaded by Desert Locusts. The Government showed interest in introducing and testing *Metarhizium*. An additional crop protection staff member needs to be trained as the Locust Information Officer.
14. Participants agreed that national locust programmes should not depend on EMPRES to carry out routine support activities such as communications even though there is a possibility for limited support in the short-term such as, for example, subscriptions to Internet access.

### **Oman**

15. Good rains fell during the summer in coastal Dhofar. Although no Desert Locusts have been reported so far, surveys are planned for the near future. Despite the continued absence of Desert Locusts and a very small number of staff at the National Locust Control Unit HQ, a set of locust guidelines in Arabic for Omani agricultural technicians was prepared and 14 technicians were trained in survey and control.

### **Saudi Arabia**

16. The Desert Locust situation has been calm since 1998. Much time was taken for a campaign against the Rift Valley Fever during 2000. Attempts are being made to establish a computer

network involving each officer at the Locust Centre in Jeddah. This network will be connected to the Internet as well as to other stations. Interest was expressed in establishing RAMSES in 2002 for improved data management. It was stated that 80 Garmin GPS units were purchased in addition to 70 that were bought last year. These are being distributed to the agricultural branches. A Micronair company technician gave a ten-day training course on calibration.

17. Approval has been received by the Locust Centre to conduct a joint survey along the Saudi-Yemen border at any time. This survey could be organised for sometime next year. One Satlock DGPS unit will be installed on an aircraft in the next few months. A demonstration will be held in which participants from interested countries and DLCO-EA could attend. The Locust Centre is interested in introducing *Metarhizium* as a biological control agent against Desert Locust. Field trials need to be conducted in the Kingdom to facilitate the registration process there. FAO should assist in establishing contacts with NRI regarding the introduction of RAMSES.

#### **Sudan**

18. Despite favourable ecological conditions in the summer breeding area, only insignificant numbers of Desert Locusts have been found so far. Under the Country Focus Programme, an annual plan for locust activities this year was prepared, the PPD started to send locust reports by e-mail to EMPRES countries in August 2001, a national training course on survey and control was conducted, radio operators were trained on the use of the FAO Survey Form, a "self reflection" workshop was held and a contingency plan was prepared. Furthermore, a Desert Locust reference library has been established at the PPD, and a workshop was held on Desert Locust management and the role of DLCO-EA.
19. Shortage of equipment (vehicles, ULV Micro-ulva sprayers, rain gauges, power supplies for radios), lack of funds for rehabilitating seasonal camps, inaccessibility of some locust breeding areas due to insecurity and remoteness, and delays in releasing the approved budget, were mentioned as the major constraints to the locust programme.

#### **Yemen**

20. Good rains have fallen along the Red Sea coastal areas and four desert locust surveys were conducted so far this year. Improvements were made in: data management (RAMSES was moved to the Locust Control Centre (LCC) in the summer of 2001); in receiving more rainfall data regularly from the Tihama); improved communications between the LCC and the field. A national training course was held on survey and control. RAMSES training was provided to staff and now the system is being used operationally to manage locust and environmental data. The Desert Locust staff has been transferred back to the LCC and their job descriptions are being finalized. A new ELO, Mr. Adel Al-Shaibani, was appointed.
21. FAO suggested that the data entered into RAMSES should be transmitted electronically to DLIS on a regular basis. There remain several obstacles to good locust management: information often arrives late from the field; there are not enough staff qualified in the use of RAMSES; the budget is not allocated quickly enough; the organizational structure in the field is unclear.

#### **DLCO-EA**

22. The organization continued to provide support to its member countries. Since the departure of the UNV in Northern Somalia, training was given to a new DLCO-EA officer, equipment was installed and a new office is in the process of being established in Hargeisa. EMPRES provided some assistance to DLCO-EA (computers, blood testing kit). Attempts were made to improve data management by recruiting a new information officer, and it is hoped that country offices will become computerized. It was emphasized that the organization's aircraft are licensed to fly in all of the EMPRES/CR countries.

### **III. SPECIFIC TOPICS**

#### **Improved preventive Desert Locust management strategies**

23. Mr. Tsedeke Abate's presentation provided a historical background of preventive control, its principles and practices, and opportunities for improvement. It was emphasized that plagues do not develop overnight; instead, they require a sequence of events that starts with sufficient rainfall. This rainfall must continue over several months in order to allow successful breeding and several generations to develop. Initially a localized outbreak may develop that, if not controlled, can expand into a regional upsurge. Plagues follow from upsurges when upsurge control fails. Nevertheless, good rainfall does not necessarily mean that an outbreak will occur. He concluded by saying that the shortcomings in preventive control can be addressed by well-targeted research efforts.
24. During the discussion, several participants pointed out that some of the research activities cannot be carried out by national institutions and there will be a need to consider other institutes outside of the region. It was suggested that simple and practical research activities should be undertaken that are easily achievable with existing national resources.

#### **Experiences and lessons learned from joint surveys**

25. Mr. Fuad Bahakim reminded participants that the objectives of a joint survey are: (1) to assess the Desert Locust situation, (2) to supplement normal surveys that are often not carried out in border and inaccessible areas, (3) to exchange experiences and information amongst the participants, and (4) to carry out ad hoc ground truthing of SPOT-VGT imagery. Potential areas for joint surveys are the borders of Sudan/Eritrea, Saudi Arabia/Yemen, Egypt/Sudan (and Libya). These should be carried out when there is the greatest chance of finding locusts. Some of the main lessons learned from the two recent joint surveys were that small survey teams are more manageable in terms of logistics, and a good knowledge of the habitats preferred by the Desert Locust is essential.
26. The ensuing discussion concentrated on the need of aerial surveys prior to the ground survey. It was concluded that in some circumstances aerial surveys may be justified but this requires further examination. It would be useful to include photos of the habitat and survey in the final report. The report should be sent to EMPRES/DLIS within one week of the end of the survey. It was also suggested that joint surveys could be carried out on the borders of Djibouti/Eritrea and Djibouti/Northern Somalia.

#### **Improving survey and information systems in the Central Region**

27. Mr. Keith Cressman presented an overview of the survey and information system, and the need to improve it. One method of measuring progress in this area is to analyse the reports received at FAO DLIS in terms of quality, timeliness and frequency. A country by country analysis revealed that while good progress has been made, it varies from country to country and there is room for further improvements. Specific examples were provided of less than complete reports. A new technology, eLocust, is being tested in Mauritania as one potential way to improve data recording in the field and its transmission to the national headquarters of the Locust Control Unit. The system consists of a handheld computer connected to a GPS and a HF radio modem.
28. During the discussion, it was reiterated that field data should not only be passed on to FAO DLIS but it should be analysed by the LCU and used for planning national surveys and control operations. In order to improve the quality of survey data, the *FAO Desert Locust Survey and Control Form* should be used by all field officers, training may be required in the completion of this form, and field officers should include their own comments and interpretation on the form. It was agreed that Mauritania, Sudan and the EMPRES NPO/Survey should document their experience of using eLocust in the field so that the next CRC session can consider funding for the provision of one eLocust set for each of the key countries in the Region. This could be supplemented by experience from others who received eLocust under the GTZ project (see the GTZ project section below).

#### **Introduction of the new spray monitoring form**

29. Mr. Munir Butrous introduced and explained in detail the *FAO Spray Monitoring Form* that was adopted on a trial basis at the recent meeting of the Desert Locust Control Committee (DLCC) in Rome last month. The form has been designed to facilitate the recording of data at each control

location in the field and to minimize the amount of writing that the field officer must do. A total of six control operations can be recorded on the one-page form. It will be translated into Arabic and French and made available on the Internet. The *Spray-Monitoring-Form* should be used in conjunction with the *FAO Desert Locust Survey and Control Form*. The data on the form should be analyzed at the LCU to help identify problems during control operations such as efficacy, environmental effects and human safety. The completed form should also be passed to the CRC and EMPRES for further research on improved control operations.

30. During the discussion, several participants expressed their concern that there was too much detail on the form and it would take too long to complete in the field. It was mentioned that the electronic version of the form could be used in eLocust. To overcome these concerns, it was suggested that each country, under the supervision of the ELO, should test the handling of the form in the field, even if control operations are not undertaken or are carried out against other locust species, and during training courses.

#### **Aims and objectives of the GTZ Desert Locust Project**

31. On behalf of Mr. Hans Wilps who was absent due to illness, Mr. Christian Pantenius made a short presentation on a bilateral GTZ project associated with EMPRES, entitled "Desert Locust Management in Africa". The objective of the project is to encourage LCUs to do timely survey and control operations in an environmentally safe manner. The duration of the project corresponds with phase II of EMPRES (January 2001 to December 2003). The project is expected to produce three results: (1) the provision of funds during emergency periods, (2) increased national knowledge on improved preventive control strategies, and (3) the availability of economically sound and environmentally safer preventive control tools to LCUs and Regional Organizations for Desert Locust management. Under the latter and if opportunities arise either in the Central or Western Region, field trials will be conducted on the use of Metarhizium and PAN as alternative products for Desert Locust control. Although the project focuses on control, in case there are no significant populations of Desert Locust, activities will concentrate on improving data management at the national level (RAMSES, eLocust) and compiling descriptions of high frequency breeding areas (location, vegetation, ecological sensitivity).
32. It was noted that GTZ would respond positively to supporting eLocust. Any requests from countries could be channeled through the EMPRES Coordinator.

#### **Importance of ecological assessment in improved Desert Locust management**

33. A presentation was made by the APO, Ms. Helena Eriksson in which she stressed the need for collecting data in the field to identify ecologically sensitive areas (ESA) that should be considered during Desert Locust control operations. Methodologies need to be further refined and adopted for use in the Central Region. A few practical suggestions were made: (1) establish a database on ESAs in the Central Region, (2) use RAMSES to analyze field data and compare ESAs to Desert Locust distributions and control locations, (3) provide maps that could be used in the field during control operations, (4) prepare guidelines for locust control in ESAs, and (5) consider appointing an Environmental Officer in each of the LCU/PPDs who would be responsible for ESA issues.
34. During the discussion, it was brought to the attention of the participants that the Pesticide Referee Group now indicates the environmental risk of each product used in Desert Locust control. This information should be integrated into ESA work and Desert Locust management. From a practical standpoint, it was suggested that a special national team be created to collect additional ecological data whenever control operations are carried out. It was further suggested to involve all potential sources of ESA data such as universities, regional and national institutes and LCU/PPDs. The Eritrean ELO, who expressed interest in ESA work, was encouraged to make a proposal to EMPRES for appropriate assistance in this matter.

#### **IV. EMPRES ACTIVITIES, ACHIEVEMENTS AND OBSTACLES DURING 2001**

35. The EMPRES staff presented this topic. Progress was good in many areas but a significant number of obstacles were faced in initiating or completing several of the activities. These were reviewed and addressed in the workplan for 2002. (For further details see annex 3)

## V. EMPRES PLANNING FOR 2002

36. The participants divided themselves into three working groups to develop the workplan for 2002 using the card system to identify activities, milestones, responsibilities, and the timeframe. This was followed by a plenary discussion to review the activities proposed under each of the eight primary results. (For further details see annex 4)

R1. Operational mandates of different regional organisations harmonised

No significant modifications to the proposal presented by the group.

R2. National and regional communication network enhanced

In most cases, responsibilities are those of the ELO with follow up by the NPO. This will be clarified for each activity. DLCO-EA indicated that they can assist in the harmonisation of radio models in the region. The specific model(s) should be compatible with HF modem use by eLocust.

R3. DL early warning and information systems improved

In the case of conflict and insecure areas, the participants stressed the importance of taking the necessary steps to obtain and use information from all other sources, such as nomads and security forces. In order for DLIS to provide SPOT imagery to countries and improve its reliability, an extra staff member will be required in DLIS. FAO reported that such a staff member would join the Locust Group by early in 2002 on a short-term contract. The participants expressed interest in testing eLocust in each of their countries.

R4. DL survey procedures of member countries improved

DLCO-EA clarified that the organization has a caretaker in northern Somalia, not a base manager.

R5. DL technicians and officers qualified

The participants agreed that it was not reasonable to expect that a training manual would be finalised by December 2002. Instead, it might be possible that a first draft in English could be available in December 2002. The regional training course in 2002 will actually be an international train-the-trainers course. Local training should be carried out by the appropriate ELO and be followed up by the NPO.

R6. Contingency plans available and implemented

It is expected that there will be substantial discussion at the Contingency Planning Workshop (Feb. 2002) on the current draft guideline for contingency planning. This will contribute to developing a revised draft of the guidelines.

R7. Efficient and environmentally safer control methods introduced

An electronic version of the *FAO Spray Monitoring Form* should be developed for use on eLocust.

R8. Systematic method of campaign evaluation developed

The *FAO Spray Monitoring Form* could be used as one of the tools for evaluating locust campaigns. It was suggested that the form should be adapted by DLCO-EA so that it could also be used for *Quelea* and *Armyworm*.

37. The final workplan, with the above suggestions, will be distributed to all participants as soon as it has been finalised by the EMPRES Coordinator.

## VI. ADOPTION OF THE REPORT OF THE MEETING

38. The participants adopted the draft of the report of the meeting with minor modifications.



## VII. CLOSING

39. It was tentatively agreed that the next ELO meeting would be held in October 2002 in Jeddah, Saudi Arabia. Djibouti was agreed as an alternate. The preparations for this meeting should be initiated as soon as possible. Ma'asalama.

## VIII. RECOMMENDATIONS

### Country presentations

1. The reporting of country achievements and progress in the future should be standardised and include milestones and achievements to facilitate follow-up.
2. Direct communications should be immediately established between the Eritrean PPD and EMPRES/DLIS.
3. It is not realistic to undertake the planned joint survey along the Eritrean-Sudanese border until there is a significant improvement in security.
4. National locust programmes should not depend on EMPRES to carry out routine support activities such as communications even though there is a possibility for limited support in the short-term, for example to cover subscriptions to Internet access.
5. In case a demonstration will be held in Saudi Arabia on Satlock DGPS, participants from interested countries and DLCO-EA should attend.
6. FAO should assist in establishing contacts between Saudi Arabia and NRI regarding the introduction of RAMSES.

### Specific topics

7. Simple and practical research activities should be undertaken that are easily achievable with national resources. In case that certain research activities cannot be undertaken by national institutes, suitable institutes outside of the region should be considered.
8. ELOs should ensure that survey results are analyzed by the LCU and used for planning their own survey and control operations.
9. In order to improve the quality of data, the *FAO Desert Locust Survey and Control Form* should be used during all field operations. Training may be required in the use of this form. Field officers should include their own comments and interpretation on the form.
10. The Sudan ELO and the EMPRES NPO/Survey should document their experience on the use of eLocust. The EMPRES/WR NPO has already reported on field tests of this technology and will continue to keep FAO informed of experience gained in WR. Funding one eLocust set for each of the key countries in the region will be considered at the next CRC session in March 2002. GTZ is also willing to provide support for eLocust.
11. The LCUs using RAMSES should transmit their data electronically to DLIS on a regular basis.
12. The results from the ground-truthing survey carried out on the Red Sea coastal plains of Eritrea should be analysed by FAO DLIS as soon as possible.
13. Each LCU, under the supervision of its ELO, should try using the *FAO-Spray-Monitoring-Form* in the field, even if control operations are not undertaken or are undertaken against other locust species, and during training courses.
14. Information from the Pesticide Referee Group should be used in the framework of the ecological sensitivity analysis study in Sudan and Desert Locust management.
15. A special national team should be created to collect additional ecological data whenever control operations are carried out.
16. Reports of bilateral studies should be received by the EMPRES/CR Coordinator and circulated to EMPRES countries.

These recommendations will be reflected in the workplan for 2002.

**Annex 1. List of Participants**

<b>Name</b>	<b>Address</b>	<b>Contacts (Tel., Fax, E-mail)</b>
Rachid Elmi Hersi	Plant Protection Section B. P. 3466 Djibouti	Tel. 00253 341774 (office) Tel. 00253 341949 (home) Fax 00253 341794 E-mail: <a href="mailto:empres@intnet.dj">empres@intnet.dj</a> <a href="mailto:rachideh@yahoo.com">rachideh@yahoo.com</a>
Mahmoud Mohamed El Said	Ministry of Agriculture Locust Control Department Cairo, Egypt	Tel. 0020 2 7488974 Fax 0020 2 749184 E-mail: <a href="mailto:Said97@eric.claes.sci.eg">Said97@eric.claes.sci.eg</a>
Bereke Ogbamichael Kiflay	Ministry of Agriculture P. O. Box 1048 Asmara, Eritrea	Tel. 00291 1 182179 Tel. 00291 1 181077 Fax 00291 1 181415
Merid Kumsa	Ministry of Agriculture Addis Ababa, Ethiopia	Tel. 00251 1 610189 E-mail: <a href="mailto:empreseth@telecom.net.et">empreseth@telecom.net.et</a>
Abdalla Salim Al-Darmaki	Ministry of Agriculture DLU/DPP P. O. Box 467 113 Muscat, Sultanate of Oman	Tel. 00968 540648 Fax 00968 540720 E-mail: <a href="mailto:dlumaf@omantel.net.om">dlumaf@omantel.net.om</a>
Jaber Al-Shehri	P. O. Box 7208 Jeddah, 21462 Saudi Arabia	Tel. 00966 2 6210096 Fax 00966 2 6204085 E-mail: <a href="mailto:Locust@sps.net.sa">Locust@sps.net.sa</a>
Rabie A. Khalil	Head of Locust Unit Plant Protection Directorate P.O. Box 14 Khartoum North, Sudan	Tel/fax 00249 13 337495/7437 E-mail: <a href="mailto:ppdlocust@sudanmail.net">ppdlocust@sudanmail.net</a>
Adel Al-Shaibani	GDPP – Desert Locust Control Centre Sana'a, Republic of Yemen	Tel. 00967 1 250980/250 956 Fax 00967 1 250980/228064 E-mail: <a href="mailto:empr.fao.ye@y.net.ye">empr.fao.ye@y.net.ye</a> <a href="mailto:Adel_Alshaibani@hotmail.com">Adel_Alshaibani@hotmail.com</a>
Peter O. Odiyo	DLCO-EA P. O. Box 4255 Addis Ababa, Ethiopia	Tel. 00251 1 4661477/460308 E-mail: <a href="mailto:dlc@telecom.net.et">dlc@telecom.net.et</a> <a href="mailto:dlcfin@telecom.net.et">dlcfin@telecom.net.et</a> Fax: to be communicated
Christian Pantenius	Coordinator, EMPRES/CR c/o FAORNE El Eslah El Zerai Str. POB 2223 Dokki, Cairo, Egypt	Tel. 0020 2 331 6130 Fax 0020 2 761 6804 E-mail: <a href="mailto:Christian.Pantenius@fao.org">Christian.Pantenius@fao.org</a>
Munir Butrous	CRC Secretary c/o FAORNE El Eslah El Zerai Str. POB 2223 Dokki, Cairo, Egypt	Tel. 0020 2 331 6018 0020 2 331 6000 ext. 2515 Fax: 0020 2 749 5981/761 6804 E-mail: <a href="mailto:Munir.Butrous@fao.org">Munir.Butrous@fao.org</a>
Tsedeke Abate	EMPRES Yemen c/o FAO Office P.O. Box 1867 Sana'a, Republic of Yemen	Tel/fax 00967 1 250980 E-mail: <a href="mailto:tabate@y.net.ye">tabate@y.net.ye</a> <a href="mailto:empr.fao.ye@y.net.ye">empr.fao.ye@y.net.ye</a>

Name	Address	Contacts (Tel., Fax, E-mail)
Fuad Bahakim	EMPRES, FAO Yemen P. O. Box 1867 Sana'a, Yemen	Tel/fax 00967 1 250980 E-mail: <a href="mailto:empr.fao.ye@y.net.ye">empr.fao.ye@y.net.ye</a>
Helena Eriksson	APO, EMPRES/CR, FAO P. O. Box 1117 Khartoum, Sudan	Tel/fax 00249 13 335380 Mobile 249 12360305 E-mail: <a href="mailto:helena44@hotmail.com">helena44@hotmail.com</a>
Clive Elliott	Senior Officer Locust and Other Migratory Pests Group Plant Protection Service AGPP FAO, Rome, Italy	Tel. 0039 06 57053836 Fax 0039 06 57055271 E-mail: <a href="mailto:Clive.Elliott@fao.org">Clive.Elliott@fao.org</a>
Keith Cressman	Locust Forecasting Officer Locust and Other Migratory Pests Group Plant Protection Service AGPP FAO, Rome, Italy	Tel. 0039 06 5705 2420 Fax 0039 06 5705 5271 E-mail: <a href="mailto:Keith.Cressman@fao.org">Keith.Cressman@fao.org</a> E-mail: <a href="mailto:eclo@fao.org">eclo@fao.org</a> (DL reports) Internet: <a href="http://www.fao.org/news/global/locusts/locuhome.htm">www.fao.org/news/global/locusts/locuhome.htm</a>
Annie Monard	Locust Officer Locust and Other Migratory Pests Group Plant Protection Service AGPP FAO, Rome, Italy	Tel. 0039 06 5705 3311 Fax 0039 06 5705 5271 E-mail: <a href="mailto:Annie.Monard@fao.org">Annie.Monard@fao.org</a>
Ould Ahmedou Mohamed Lemine	NPO EMPRES West c/o Representation de la FAO B. P. 665 Nouakchott Mauritania	Tel. 00222 2 5259815 (office) Tel. 00222 6332263 (mobile) E-mail: <a href="mailto:mohamed.lemine@toptechnology.mr">mohamed.lemine@toptechnology.mr</a>

**Annex 2. Agenda****Khartoum (Sudan), 13<sup>th</sup> October - 18<sup>th</sup> October 2001**

Day	Time	Activity	Remark
<b>Saturday</b> <b>1<sup>st</sup> Day</b> <b>(13.10.)</b>	09:00 – 10:00	Welcome Address  Opening Address	<ul style="list-style-type: none"> <li>• Director General (PPD)</li> <li>• FAO Rep. Sudan</li> <li>• Clive Elliott (FAO)</li> <li>• Ministry of Agriculture &amp; Forestry</li> </ul>
	10:00 – 10:30	Coffee Break / Snacks	
	10:30 – 13:00	<ul style="list-style-type: none"> <li>• Introduction, presentation of the objectives of meeting, procedures, introduction of new colleagues</li> <li>• Selection of Chairman and Secretariat</li> <li>• Adoption of the WS Agenda</li> </ul>	<ul style="list-style-type: none"> <li>• Christian Pantenius (EMPRES)</li> <li>• Munir Butrous (CRC)</li> <li>• Chairman</li> </ul>
	13:00 – 14:00	Break for coffee and pray	
	14:00 – 15:30	Presentation of country progress reports (max. 15 min. each plus 5 min. discussion)	ELOs present a country paper on the progress of introducing improved DL management components into the national DL control services.
	19:00	Welcome Cocktail	FAO/EMPRES
	<b>Sunday</b> <b>2<sup>nd</sup> Day</b> <b>(14.10.)</b>	8:30 – 10:00	Presentation of country progress reports (cont.)
10:00 – 10:30		Coffee Break / Snacks	
10:30 – 11:30		Presentation of country progress reports (cont.), final discussion and recommendations for the future	Chairman
11:30 – 12:00		Presentation of preliminary paper on improved preventive Desert Locust management strategies	Tsedeke Abate (EMPRES)
12:00 – 12:30		Discussion	Chairman
12:30 – 13:00		Experiences and lessons learned from joint surveys	Fuad Bahakim
13:00 – 14:00		Break for coffee and pray	
14:00 – 14:30		Discussion	Chairman
14:30 – 15:00		Improving survey and information systems in the Central Region	Keith Cressman
15:00 – 15:30	Discussion	Chairman	
<b>Monday</b> <b>3<sup>rd</sup> Day</b> <b>(15.10.)</b>	8:30 – 9:00	Introduction of the new spray monitoring form	Munir Butrous
	9:00 – 9:30	Discussion	Chairman
	9:30 – 10:00	Introduction of the aims and objectives of the GTZ Desert Locust Project	Christian Pantenius
	10:00 – 10:30	Coffee Break / Snacks	
	10:30 – 11:00	Discussion	Chairman
	11:00 – 11:30	Importance of ecological assessment in the context of improved Desert Locust management strategies	Helena Eriksson
	11:30 – 12:00	Discussion	Chairman
12:00 – 14:00	Break for coffee, pray and preparation for the workshop sessions		

Day	Time	Activity	Remark	
	14:00 – 16:00	Detailed presentation of EMPRES activities, achievements and obstacles during year 2001 (30 min. discussion)	EMPRES staff (card method)	
<b>Tuesday</b>	8:30 – 9:00	Introduction of the card method	Christian Pantenius	
<b>4<sup>th</sup> Day (16.10.)</b>	9:00 – 10:00	Planning for year 2002: Committed towards achieving the goals. Identification of necessary activities and important achievements for 2002.  Division of tasks between the participants in 3 groups @ 5 persons	<b>Group 1:</b> <b>R1</b> <sup>1</sup> Operational mandates of different regional organizations in DL management harmonized <b>R6</b> Contingency plans available and implemented <b>R8</b> Systematic method of campaign evaluation developed  <b>Group 2:</b> <b>R2</b> National and regional communication network enhanced <b>R3</b> DL early warning and information systems improved <b>R4</b> DL survey procedures of member countries improved  <b>Group 3:</b> <b>R5</b> DL technicians and officers qualified <b>R7</b> Efficient and environmentally safer control methods introduced	
	10:00 – 10:30	<b>Coffee Break</b>		
	10:30 – 13:00	Group work (cont.)		
	13:00 – 14:00	<b>Break for coffee and pray</b>		
	14:00 – 15:30	Group work (cont.)		
	<b>Wednesday</b>	8:30 – 10:00	Group work (cont.)	
	<b>5<sup>th</sup> Day (17.10.)</b>	10:00 – 10:30	<b>Coffee Break</b>	
10:30 – 13:00		Group work (cont.)		
13:00 – 14:00		<b>Break for coffee and pray</b>		
14:00 – 15:30		Presentation of findings in the plenary and discussion	60 min. per group incl. discussion	
<b>Thursday</b>	8:30 – 13:00	<ul style="list-style-type: none"> <li>Write up of minutes of meeting</li> <li>Visit to University of Khartoum</li> </ul>	<ul style="list-style-type: none"> <li>Secretariat</li> <li>Participants</li> </ul>	
<b>6<sup>th</sup> Day (18.10.)</b>	13:00 – 14:00	<b>Break for coffee and pray</b>		
	14:00 – 15:30	<ul style="list-style-type: none"> <li>Presentation of Minutes of Meeting</li> <li>Tentative Closure</li> </ul>	<ul style="list-style-type: none"> <li>Plenary</li> <li>Director General of the PPD / FAO-EMPRES</li> </ul>	

<sup>1</sup> As per Phase II Implementation Document (April 2000)

**Annex 3.: 9<sup>th</sup> ELO Meeting, Evaluation of EMPRES activities in 2001**

**Result 1:** Operational mandates of different regional organizations in DL management harmonized

**Indicator 1.1:** At least 1 EMPRES country joins the CRC as new member by 2001

**Indicator 1.2:** A draft Memorandum of Understanding between CRC/DLCO-EA on implementation of sustainable DL management concepts in the Central Region formulated by 2003

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
1.1 Support working group of staff from CRC, DLCO (IGAD)	Draft TOR for working group ready by 04/01	Draft TOR for first meeting of the Technical Advisory Committee (TAC) between CRC, EMPRES/CR and DLCO drafted and submitted to AGPP for approval in March 2001. DLCO and AGPP have endorsed TOR.		
	The joint committee meets at least twice per year via rotation in Cairo / Addis Ababa	The first planned meeting in April 2001 did not take place	The envisaged meeting of the TAC in Addis Ababa did not materialize, since the vacant position of the CRC Secretary was only filled in Aug. 2001	It was agreed with AGPP, DLCO and CRC to hold the first meeting in Dec. 2001
1.2 Organize inter-governmental exchange on legal matters on DL Reg. Organizations	Memorandum of Understanding (MoA) prepared by 2003 and presented to the member governments of the CRC and DLCO	Not yet due		
	Exchange of legal documents by 04/01	Information on CRC constitution and set-up has been distributed to the relevant authorities in Eritrea, Ethiopia and Djibouti as a first step to encourage non-CRC EMPRES/CR member countries to join the CRC	Revised DLCO constitution not yet available	Both parties (CRC and DLCO) have all relevant documents compiled by the 1 <sup>st</sup> TAC Meeting in Dec. 2001

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
	Discussion paper on common and conflicting areas ready by 09/01	No activity carried out yet	CRC Secretary's position vacant until Aug. 2001	Subject to be tabled in the 1 <sup>st</sup> TAC meeting, Addis Ababa, 03 – 05 Dec. 2001
1.3 Promote CRC membership of non-member countries of the Central Region	Representatives from ERI, ETH and DJI take part in CRC meetings as observers	<ul style="list-style-type: none"> <li>DJI accepted formal CRC membership in Sept. 2001</li> <li>ETH also expressed interest to join the CRC</li> </ul>	The CRC Meeting did not take place as planned (see 1.2)	EMPRES supports participation of representatives from ERI and ETH in the next CRC meeting planned for March 2002
1.4 Develop joint approaches between CRC, DLCO and EMPRES towards creating sustainability	Mechanisms of shared responsibilities established (joint work plans, coordination mechanisms, registration of bio-pesticides, improved survey and control strategies etc.) by 2003	<ul style="list-style-type: none"> <li>CRC / EMPRES and DLCO / EMPRES work plans harmonized by March 2001.</li> <li>Co-funding of various training, research and survey activities achieved</li> <li>Participation in Virginia Tech / DLCO Pan African workshop on harmonization of registration process of bio-pesticides supported</li> <li>Country Focus Prog. SDN: Implementation further progressing successfully</li> <li>Country Focus Prog. ERI: Implementation started in 2001</li> <li>Country Focus Prog. YEM: Agreement on counterpart funding achieved in June 01. Implementation can be expected soon</li> </ul>	<ul style="list-style-type: none"> <li>Report on Virginia Tech / DLCO Pan-African workshop not yet available.</li> <li>Country Focus Prog. Saudi Arabia: Not yet initiated as planned due to Rift Valley Fever</li> </ul>	<ul style="list-style-type: none"> <li>Further strengthen the collaboration and harmonization process between the regional Organizations.</li> <li>Give support to the development of CF Prog. In ETH.</li> <li>Locust Control Units and PPDs to integrate EMPRES activities into their Annual Work Plans.</li> <li>Insert specific activity indicating support to Country Focus Prog. into the 2002 work plan.</li> </ul>

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
	Harmonize training procedures between CRC, DLCO and EMPRES by 2002	Agenda item of the 1 <sup>st</sup> TAC Meeting		

**Result 2:** National and regional communication network enhanced

**Indicator 2.1:** Timeliness in sending DL reports to DLIS improved 20 % by 2001, 50 % by 2002, 80 % by 2003

**Indicator 2.2:** Fixed radio schedules defined and made standard communication procedures at 5 DL Units by 2003

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
2.1.1 Introduce regular radio schedules on DL information	Schedules for radio contacts established in at least 1 country (SDN) by 10/01	<ul style="list-style-type: none"> <li>Defined radio schedules introduced at the PPD SDN as standard radio communication between the PPD HQ and the Sub-stations in April 2001.</li> <li>For ERI agreement for standard radio communication has been reached in March 2001</li> </ul>		Prepare distribution list and maps of the radio stations in ERI
2.1.2 Assist in the establishment of national DL information networks	At least one additional (apart from SDN) has initiated specific steps by 12/01	YEM was provided with pagers (Oct. 2001) as substitute for radios		



Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
2.2 Maintain and update communication and radio equipment		<ul style="list-style-type: none"> <li>10 pagers provided to DLC in YEM.</li> <li>SDN submits request radio and solar power units for sub-stations by Nov. 2001.</li> <li>Request from DLCO for radio station in Hargeisa submitted in May 2001, demand is being processed.</li> </ul>		

**Result 3:** DL early warning and information systems improved

**Indicator 3.1:** RAMSES system installed and being used in at least 5 countries by 2003

**Indicator 3.2:** Remote sensing images incorporated into surveying decision in at least 2 countries by 2003

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
3.1.1 Define national information systems, requirements and needs	At least 4 of the member countries have provided a detailed summary to EMPRES and the CRC by 05/01	ERI, SDN and YEM defined their information system. SDN identified additional needs and requirements.	ERI and YEM did not yet identify their specific needs to improve their DL information systems.	<ul style="list-style-type: none"> <li>Encourage ELOs of YEM and ERI to provide EMPRES with their suggestions for improving the nat. information systems by early 2002.</li> <li>Collaborate with DLCO and Saudi Arabia to define information systems; requirements and needs should be submitted to EMPRES by first quarter of 2002</li> </ul>

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
3.1.2 Develop recommendations for improved DL information systems	Recommendations submitted for approval to ELOs (Saudi Arabia, SDN, ERI, YEM and DLCO) by 08/01	Draft recommendations submitted for approval to SDN, ERI and YEM.	Recommendations for Saudi Arabia and DLCO in process	Final recommendations after tech. clearance from DLIS ready by 12/01
3.2 National locust information routinely dispatched to DLIS	Reports arrive at DLIS (< 25 <sup>th</sup> of every month) within 5 days after completion of survey	Data on DL reports from the member countries were collected. Summary report due by Dec. 2001.		
3.3 Harmonize DL information systems between CRC, DLCO and DLIS (modalities, procedures of information management etc.)	Regional Organizations alert the countries on special locust events	Activity not yet started		
	Draft recommendations ready by 09/01	Delayed (see 1.1.2)		
3.4 Incorporate DL data management systems (RAMSES) at the LCUs.	At least 2 additional LCUs make regular use of GIS by 12/01	<ul style="list-style-type: none"> <li>RAMSES successfully introduced in ETH and operational since April 2001 (&gt; 1,500 maps on historical DL data produced)</li> <li>NRI trained 3 experts from ETH on the use of RAMSES</li> </ul>	<ul style="list-style-type: none"> <li>The implementation process in SDN delayed due to the uncertain future of DFID's support to the DL programme at NRI.</li> <li>The regular use of RAMSES in YEM and ERI hampered due to series of technical problems and change of trained staff.</li> </ul>	<ul style="list-style-type: none"> <li>Review the implementation approach of RAMSES.</li> <li>Search for modalities to make the Locust Information systems more sustainable and user friendly</li> <li>LCUs to give serious attention to the regular use of RAMSES and staff development.</li> <li>Information Officers to produce regular reports on the DL situation for the Department Heads</li> </ul>

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
	At least 2 Info Officers and 1 EMPRES staff trained on RAMSES by 06/01	Special RAMSES training programme on trouble shooting and system maintenance at NRI for 2 national experts and 1 EMPRES staff initiated for Nov. 2001	Slow and delayed response from NRI due to internal difficulties	Alternatives to NRI support should be considered if necessary, including the use of independent consultants.
3.5 Introduce new technologies including remote sensing into the early warning systems	UP to 3 countries (ERI, OMA, SDN) are regularly provided with satellite images	No satellite images were regularly dispatched to the selected countries	No expert on remote sensing currently working on calibration of satellite images at AGPP.	FAO HQ to facilitate sending of SPOT satellite images to the affected countries.
3.6 Carry out ground truthing operations	At least 3 ground truthing operation conducted by 12/01	2 ground truthing were conducted in ERI and SDN		DLIS should analyze results of the ground truthing surveys for further calibration of satellite images.

**Result 4:** Desert Locust survey procedures of member countries improved

**Indicator 4.1:** Survey plans developed and made integral procedures of the PPDs in at least 4 member countries by 2003

**Indicator 4.2:** Key breeding areas of at least 2 member countries identified and described by 2003

**Indicator 4.3:** Up to 2 joint border surveys conducted on 2 borders in the Central region by 2003

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
4.1.1 Develop reference survey plans for member countries	Draft reference survey plan submitted for approval to CRC / EMPRES and DLIS by 10/01	The draft will be ready by 11/01	Some delays faced	
4.1.2 Develop national survey plans	Survey plans developed and implemented in at least 2 countries (ERI, SDN) by 06/01	Draft survey plan for winter and summer breeding seasons in SDN was prepared and reviewed by 05/01	Survey plan for winter breeding season in ERI was not prepared due to staff shortage at the PPD	Survey plan from ERI will be submitted to NPO-S for review by 11/01

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
4.1.3 Make regular use of survey plans		SDN implemented survey plan for summer breeding season. Preparation for the winter season accomplished		
4.1.4 Follow up implementation process	At least 1 country visited during the relevant season	<ul style="list-style-type: none"> <li>Survey plan in SDN in use.</li> <li>Visit to SDN in 08/01.</li> </ul>		
4.1.5 Assemble information on emerging technologies that aim to maximize the chance of locust detection	Relevant information compiled and reported by 10/01	Comprehensive report on important habitats as indicators for locust distribution prepared (09/01)		Circulate report to interested parties and conduct field workshop for national experts
4.2 Define and describe potential breeding areas in the Central Region	Maps and descriptions available by 10/02			Consider development of eLocust and SPOT satellite imageries for practical use
4.2.1 Take inventory of high frequency and distribution habitats	Inventory compiled from at least 3 countries by 07/01	<ul style="list-style-type: none"> <li>Historical data (PPD files, DL Bulletins, RAMSES &amp; literature) compiled for ERI, SDN and YEM</li> <li>Inventory of high DL frequency and distribution areas in ERI, SDN and YEM reported (09/01)</li> </ul>		
4.2.2 Characterize important DL habitats and breeding areas	Significant initiatives have been undertaken in at least 2 countries (SDN, YEM) by 05/01	Map and description of DL breeding habitats for Red Sea coast of SDN produced under WU/EMPRES project (09/01)		Organize demonstration of results to national officers in field workshop (12/01)
4.3.1 Conduct joint border survey along SDN-ERI border	2 joint surveys conducted by 2003	Not implemented	Security conditions do not allow survey for the time being	Conduct joint survey in ERI during 2002

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
4.3.2 Conduct joint survey in SDN		1 SDN/EGY survey conducted in SDN from 24/08 – 03/11/01. Report submitted to EMPRES and CRC		
4.4 Strengthen self-reliant survey capacity in SOM	Master plan for survey systems in SOM ready by 03/01	<ul style="list-style-type: none"> <li>• A joint DLCO/EMPRES mission visited SOM 03.01.</li> <li>• A short-term action plan has been developed and agreed upon between EMPRES, DLCO and the local MoA to initiate self-reliant survey systems after the departure of the UNV.</li> <li>• 1 survey training course conducted in Hargeisa 06/01.</li> <li>• Links initiated to UNDP office in Hargeisa and other potential local collaborators (NGOs and UN projects).</li> <li>• Former UNV and DLCO information officer sent on short term mission to review the situation in northern SOM 09/01</li> </ul>	<ul style="list-style-type: none"> <li>• Implementation of action plan suffered significant delay due to sudden death of DLCO caretaker in 04/01.</li> <li>• Newly appointed DLCO caretaker does not perform as desired.</li> <li>• Local MoA delayed agreed upon nomination of EMPRES link person.</li> <li>• The links to the UNDP office in Hargeisa turned out as not as reliable as agreed.</li> </ul>	<ul style="list-style-type: none"> <li>• DLCO to replace the caretaker in Hargeisa by more suitable candidate.</li> <li>• DLCO to assure supervision and backstopping of caretaker in close collaboration with EMPRES</li> </ul>
	DL information from SOM is transferred to DLIS without delay			Since the departure of the UNV (06/01) no locusts reports received from Somalia

**Result 5:** DL technicians and officers qualified

**Indicator 5.1:** At least 50 % of DL technicians trained in each of the CR countries by 2003

**Indicator 5.2:** At least 2 trainers trained according to agreed standards for each country by 2002

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
5.1 Define training standards	Training standards defined in consultation with CRC, EMPRES and DLCO by 2001	CRC/EMPRES/DLCO meeting postponed until 12/01		
5.2 Define training needs on technical DL subjects at different levels	Training needs of at least 5 member countries is known by 2002	Training need for 2 countries known (ERI, SDN):  <b>ERI:</b> Use of GPS, map reading, and use of compass, ULV and EC sprayer calibration, and classification of pesticides.  <b>SDN:</b> Radio operation, training for farmers, scouts, nomads on survey principles, assistant to information officer.		
5.3 Develop training curricula / manual for ToT courses and locust officers	In English and Arabic, ready by and introduced as training aids by 2002	A mutual understanding with AGPP and EMPRES/WR has been achieved to give support to the development of a ToT training manual	<ul style="list-style-type: none"> <li>The attempt to get financial assistance from DIFD to the training manual failed.</li> <li>The process of finding a common understanding took long.</li> </ul>	<ul style="list-style-type: none"> <li>Allow development of the training manual as soon as possible.</li> <li>Include training assessment standard procedures into the training manual</li> <li>The member countries incorporate DL management topics into their national Plant Protection training curricula</li> </ul>

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
5.4.1 Assist universities in DL curriculum development and involve students in EMPRES activities	At least 5 students are enrolled at the University of Khartoum per year	<ul style="list-style-type: none"> <li>The DL Diploma course at the University of Khartoum started its first term 09/01.</li> <li>6 students from SDN, ERI, ETH benefited from CRC / EMPRES scholarships.</li> </ul>	Beginning of the course delayed by one month	<ul style="list-style-type: none"> <li>FAO HQ to provide CRC and EMPRES with full sets of fellowship application forms initiate next term in time.</li> <li>University of Khartoum and students report experiences to CRC and EMPRES</li> <li>CRC and EMPRES provide funds for at least 6 students in 2002.</li> <li>ELOs to provide CRC and EMPRES with candidates.</li> </ul>
5.5.1 Conduct regional survey and control management training course	1 regional training course conducted in SDN by 10/01	<ul style="list-style-type: none"> <li>Regional training course conducted at Port Sudan (23/10 – 31/10/01)</li> <li>16 participants from 8 EMPRES countries and 6 CRC countries</li> </ul>		
5.5.2 Conduct national training courses on survey and control operation in SDN, ERI and YEM	National training courses on survey and control operations conducted in 3 countries	<ul style="list-style-type: none"> <li>National training course conducted in SDN, ERI, YEM, SOM:</li> <li>SDN: 18 trainees (03/02 – 11/02/01)</li> <li>ERI: 16 trainees (19/02 – 03/03/01)</li> <li>YEM: 14 trainees (23/06 – 04/07/01)</li> <li>SOM: 9 trainees (10/06 – 13/06/01)</li> </ul>		

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
5.5.3 Conduct local training courses	Local training courses on survey and control aspects conducted in 3 member countries	Training course for scouts and farmers conducted in SDN 09/01	<ul style="list-style-type: none"> <li>ERI received support in the context of the Country Focus Prog. for local training course. Course not conducted</li> <li>No request for assistance from other countries received</li> </ul>	ELO ERI should spend more efforts to implement CF Prog incl. its training component
5.5.4 Provide training for information and forecasting officers	1 training course	Not yet conducted	DLIS suggested not to organize regional information management seminars due to the differences of each set up in the member countries	Train information officers on-the-job during visits
5.5.5 Organize regional management and evaluation seminar		Preparations for seminar completed and ToR for consultancy finalized	<ul style="list-style-type: none"> <li>Originally envisaged consultant withdrew from the assignment at short notice.</li> <li>Alternative consultant identified.</li> <li>Difficulties to find a window for the remaining period 2001 to organise the seminar.</li> </ul>	Postpone seminar to more suitable period during 2002
5.6 Develop and introduce regular training impact mechanisms	Impact evaluation carried out by 2003	<ul style="list-style-type: none"> <li>Training impact mechanisms discussed 04/01.</li> <li>2 training course assessment questionnaires drafted but not finalized.</li> </ul>	Draft protocol not yet finished	NPO-S to take lead and discuss matter with ELOs as soon as possible



**Result 6:** Contingency plans available and implemented

**Indicator 6.1:** National contingency plans for recession monitoring and outbreak control, upsurges and plagues adopted in up to 6 countries by 2002

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
6.1 Introduce national contingency and rapid deployment plans into the locust management systems	At least 3 draft Contingency Plans are prepared in 3 countries and submitted to FAO and the MoAs by 11/01	<ul style="list-style-type: none"> <li>Only the LCUs in SDN and ETH drafted CPs</li> <li>The CP for SDN has been reviewed for 2001 including arrangements for the summer breeding season</li> </ul>	So far no third initiative is behind schedule	ERI and YEM to include rapid deployment arrangements in their Country Focus programmes
	Up to 3 member countries create national Contingency Steering Committees by 12/01	No activity observed	Delayed due to slow action by the member countries	ELOs to establish a committee in their countries to review DL planning, incl. PPD Directors, Heads of LCUs, Meteo Dept. in 2002
	1 regional Contingency Planning seminar conducted by 12/01	A detailed seminar outline has been drafted. Venue and timing agreed.	On request of the consultant the seminar has been postponed until 02/02	

**Result 7:** Efficient and environmentally safer control methods introduced

**Indicator 7.1:** At least 1 new additional control technology introduced in at least 3 countries by 2003

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
7.1 Facilitate development and testing of new technologies (taking into account human health and the environment)		FAO will hold experts consultation in harmonizing registration of <i>Metarhizium anisopliae</i> in Rome by 12/01		
7.1.1 Purchase and distribute additional field equipment and material	Pre-positioning of field trial equipment in ERI, YEM, SDN finished by 06/01	All missing items have been procured with support from GTZ and have partly arrived at the destination	Due to imposed embargo some field equipment for ERI has been temporarily routed to EGY	
7.1.2 Organize various field trials with selected technologies	At least 1 new technology tested in the field by 12/01	<ul style="list-style-type: none"> <li>An agreement has been signed between ICIPE and FAO in 09/01 to promote testing of the PAN for the next 2.5 years.</li> <li>A GTZ project associate to EMPRES has started operating since 04/01 from Cairo to give support to field trials.</li> <li>AGPP initiated field testing of Green Muscle in Niger</li> </ul>	The still prevailing calm locust situation in the CR and WR does not yet favour field tests on a large scale as desired	
7.1.3 Test new spray equipment and suggest improvement for introduced equipment	Report of test results submitted to FAO	Test of new spray equipment and / or suggests for improvement of introduced equipment not conducted	<ul style="list-style-type: none"> <li>Due to the fact that NPO-C has been transferred to his new post as CRC Secretary in Cairo</li> <li>List of companies is incomplete</li> </ul>	New spray equipment testing workshop recommended to be held in Cairo EGY before 06/02 in collaboration between CRC, EMPRES and NRI

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
7.1.4 Introduce DGPS technology fro aerial and ground pesticide application	DGPS introduced by at least 1 LCU or Reg. Organization by 02/03	DGPS technology for aerial and ground application not demonstrated	<ul style="list-style-type: none"> <li>• Investigation and contact with companies was in progress but decision was not taken to conduct the test due to</li> <li>• Investigation not completed</li> <li>• Annual fees problem</li> <li>• NPO-C moved to Cairo</li> <li>• Delayed response from EMPRES/WR</li> </ul>	Investigation and contacts with companies by EMPRES/CR and EMPRES/WR should be completed to reach a decision and conclude a recommendation as soon as possible
7.2.1 Develop blood testing programme	Programme prepared by 06/01, TestMate available to DLCO by 06/01	Blood testing programme surveys of locust operations developed	Due to US embargo the purchased blood testing kit could not be provided to SDN. Alternatively the kit as well as the programme was sent to DLCO to conduct the study in ERI.	DLCO should liaise with ELO ERI to conduct the programme
7.2.2 Conduct baseline blood testing surveys of locust control operators	At least 1 survey conducted in SDN by 12/01	Baseline blood testing programme surveys of locust operators was prepared but not conducted	See above, but no response from ELO ERI	Efforts should be considered by DLCO to conduct study in ERI within the CF Prog. during winter breeding season 2001
7.2.3 Assess ecological sensitive areas in Sudan	At least 2 key study sides selected by 05/01	1 study site selected at Khor Gowb. 2 <sup>nd</sup> study site chosen in Atbara riverine system		

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
	Preliminary report on the faunal diversity of the 1 <sup>st</sup> study site ready 06/01 and form the 2 <sup>nd</sup> study site ready by 12/01	<ul style="list-style-type: none"> <li>Baseline survey conducted: ground living invertebrates, flying insects, termites, crab activity, micro-organisms, birds, plant communities, meteorological data, soil characteristics</li> <li>Literature review</li> </ul>		
	Information on indicator species and taxa in key study areas collected and made available 12/01	Classification in progress. Preliminary list ready. Voucher species sorted.		
	A preliminary report on different pesticides effects on non-target organisms ready by 09/01	The report in progress		
	Conclusion from wind drift survey reported by 04/01	Contact with NRI to conduct the drift survey is in progress	Report expected to be ready by 12/01	
	Detailed data base on past spraying at the Red Sea coast and Atbara river ready by 11/01	Excel file of spray history at the Red Sea coast compiled	Spray history data base of Atbara river region pending	
	Preliminary report on effects of pesticides on non-target organisms in selected areas ready by 04/02	Preparations for 12/01 accomplished		Engage student for minor field studies on sampling of fauna (SIDA funded)
7.3 Support operational research projects	At least 3 additional research projects are implemented by 12/01	<ul style="list-style-type: none"> <li>A total of 14 research proposals received and screened</li> <li>7 proposals submitted to CRC and EMPRES for approval</li> <li>Draft LoAs for 3 research projects prepared</li> </ul>	No response from some contacted researches	<ul style="list-style-type: none"> <li>Encourage researches to respond</li> <li>Pay visit to some research institutions</li> </ul>

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
7.4.1 Promote registration of metarhizium products in SDN	Metarhizium registered in SDN by 12/01	Negotiations and contacts are in progress between LUBILOSA, PPD-SDN and the proposed agent to promote registration of metarhizium	Registration of metarhizium delayed. Negotiation between the concerned parties did not lead to results so far due unacceptable conditions posed by LUBILOSA on the agent	<ul style="list-style-type: none"> <li>Find solution with concerned parties</li> <li>LUBILOSA to send sample of metarhizium to PPD in order to conduct trials</li> </ul>
7.4.2 Promote phasing out of ENS	The number of ENS and vehicle mounted ULV sprayers in use documented by 12/01	Inventory of all ENS and vehicle mounted ULV sprayers prepared in most of the CR countries	EGY, ETH, and DLCO did not provide their inventories	ELOs from EGY, ETH and DLCO are requested to provide their sprayer inventories as soon as possible
7.4.3 Promote follow up of good spraying practices and guidelines	At least 5 of the member countries make regular use of spray monitoring form and copies sent to CRC and EMPRES	Electronic forms and hard copy of the spray monitoring form were sent to all EMPRES/CR countries by 06/01	Electronic forms and hard copy of the spray monitoring form were not used due to calm locust situation	<ul style="list-style-type: none"> <li>ELOs should enhance the use of spray monitoring forms whenever control operations are conducted.</li> <li>EMPRES NPO-S to take lead in cooperation with CRC.</li> <li>Also ELOs are encouraged to use the forms for reporting on other locusts and grasshopper control operations for testing.</li> </ul>
7.4.4 Analyze genetic make-up of ERI metarhizium isolate (ER-1)	The genetic correspondence with <i>Metarhizium anisopliae</i> var. <i>acridum</i> documented by 12/01	No progress observed	<ul style="list-style-type: none"> <li>The request to provide EMPRES with trial report on ER-1 has not been followed so far.</li> <li>Sample of ER-1 for genetic analysis not yet received</li> </ul>	ELO-ERI to provide sample of ER-1 isolate as soon as possible (12/01)

**Result 8:** Systematic methods of campaign evaluation developed

**Indicator 8.1:** 2 economic case studies conducted by 2002

**Indicator 8.2:** Models to identify efficient control strategies via scenarios completed by 2003

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
8.1.1 Develop EMPRES monitoring and evaluation system	Programme observation and steering mechanisms in use by 06/01	An internal FAO-EMPRES staff workshop has been conducted and new reporting system developed. The reporting system is in use since 2 <sup>nd</sup> Q. 2001	Different from the original expectation only an internal progress monitoring system has been developed due to the complexity of the EMPRES programme	<ul style="list-style-type: none"> <li>The ELOs to participate in the reporting process based on better planning mechanisms</li> <li>Draft reporting format for ELOs by 12/01 provided. Feedback from ELOs received by 03/02 latest.</li> </ul>
8.1.2 Assemble, analyze and document survey and control operations	Baseline for assessment of operational improvement ready by 06/02	Assessment of overall baseline data completed and draft report prepared by 07/01		Incorporate comments from EMPRES, CRC and DLCO and finalize document by 12/01
8.1.3 Assess current structure and state of survey and control practices and organization of LCUs	Baseline data compiled and analyzed by 05/01	Assessment of overall baseline data completed and draft report prepared by 07/01 (see 8.1.2)		Incorporate comments from EMPRES, CRC and DLCO and finalize document by 12/01
8.1.4 Assess basic organizational mechanisms of locust management at the LCUs	Mechanisms comprehensively described on the example of one country and recommendations made	Activity delayed	Report from WU not yet received	Approach WU
8.1.5 Prepare preliminary discussion paper on improved preventive control strategies	Paper submitted to FAO, CRC, DLCO for comments and approval	Draft report prepared and presented for discussion during 9 <sup>th</sup> ELO Meeting		Incorporate comments and finalize report by 12/01

Main Activities planned	Milestones	Achievements	Deviation from expected results	Recommendation for 2002 work plan
8.2 Analyze socio-economic impact of DL campaigns	At least 2 case studies conducted by 2002	<ul style="list-style-type: none"> <li>• 1 socio-economic study on farmers' perspectives on DL damage in SDN in progress</li> <li>• 1 similar study initiated by DFID as contribution to EMPRES in ERI</li> <li>• 1 study on alternative approaches to offset the effects of DL damage currently being conducted by the University of Gothenburg in ERI</li> </ul>	No report on progress received from University of Gothenburg so far	The responsible persons of bi-lateral projects to EMPRES are requested to keep EMPRES informed of the achievements.
8.3 Investigate scenarios on survey and control operations to improve strategies	Computer based model reviewed and introduced by 2002	<ul style="list-style-type: none"> <li>• 1<sup>st</sup> up-dated version drafted and submitted by 11/01</li> <li>• Up-date will be introduced during the contingency planning seminar 03/02</li> </ul>		

**Annex 4.: Draft EMPRES work plan 2002<sup>2</sup>**

**Result 1:** Operational mandates of different regional organizations in DL management harmonized

**Indicator 1.1:** At least 1 EMPRES country joins the CRC as new member by 2001

**Indicator 1.2:** A draft Memorandum of Understanding between CRC/DLCO-EA on implementation of sustainable DL management concepts in the Central Region formulated by 2003

Proposed Activities	Milestones	Responsibilities	Timeframe	Important Remarks / Considerations
Support working group CRC / DLCO / FAO				
Conduct 1 meeting on harmonization of information systems	Meeting held in Cairo and report circulated by 06/02	EMPRES	04/02	Include training aspects. Participation of DLIS in the information meeting.
Conduct 1 meeting on strategy questions and control operations	Meeting held in Addis Ababa and report circulated	EMPRES	11/02	
Delegation of AGPP / EMPRES / CRC visits ERI, ETH to encourage CRC membership	Visit carried out 12/02	AGPP	06/02	ERI, ETH welcomes the visit
Continue developing joint approaches (CRC / DLCO / EMPRES) including training, surveying, research projects and work plans	At least 3 tri-lateral activities carried out	CRC / DLCO / EMPRES	Continuous	
Harmonize activities between EMPRES/CR, -WR	Areas of collaboration identified and least 2 joint activities implemented	EMPRES/CR -WR		
Conduct Country Focus Programmes (CFP) as a contribution to creating sustainability	CFPs developed in ETH, OMA, Saudi Arabia	EMPRES, ELOs	ETH: 1 <sup>st</sup> Q S.A.: 2 <sup>nd</sup> Q OMA: 3 Q	Existing CFPs will continue to be supported in SDN, ERI and YEM

<sup>2</sup> As per workshop findings. NB: subject for revision



**Result 2:** National and regional communication network enhanced

**Indicator 2.1:** Timeliness in sending DL reports to DLIS improved 20 % by 2001, 50 % by 2002, 80 % by 2003

**Indicator 2.2:** Fixed radio schedules defined and made standard communication procedures at 5 DL Units by 2003

Proposed Activities	Milestones	Responsibilities	Timeframe	Important Remarks / Considerations
Introduce radio communication schedules for DL information	Inventories of radio equipment and communication schedules provided by all LCUs	ELOs (NPO for follow-up)	06/02	Saudi Arabia and Oman use mobile telephones
Complete national radio networks	Purchase and install radios in DJI	EMPRES / ELO-DJI / DLCO	03/02	
Up-date radio communication equipment	In at least 2 countries (SDN, YEM, ETH, ERI)	EMPRES / ELOs	09/02	Unify radio model in the Region for further eLocust compatability
Encourage the use of Email by ELOs	DL survey reports circulated regularly to member countries	ELOs	Continuous	Support Internet subscription

**Result 3:** DL early warning and information systems improved

**Indicator 3.1:** RAMSES system installed and being used in at least 5 countries by 2003

**Indicator 3.2:** Remote sensing images incorporated into surveying decision in at least 2 countries by 2003

Proposed Activities	Milestones	Responsibilities	Timeframe	Important Remarks / Considerations
Define information system requirements and needs		ELOs	03/02	
Submit needs and requirements to EMPRES	Information received from Saudi Arabia, ETH, OMA, EGY, and DJI by 03/02 latest	ELOs		

Proposed Activities	Milestones	Responsibilities	Timeframe	Important Remarks / Considerations
Develop recommendations for improved information systems	Recommendation and feedback provided to selected countries by 06/02	DLIS / EMPRES	06/02	
Implement recommendations	At least in 3 countries implemented	ELOs / EMPRES	09/02	
Locust information regularly dispatched to DLIS	At least 1 high quality report received timely on monthly basis from all countries	ELOs	Continuous	<ul style="list-style-type: none"> <li>Quality, time, and frequency of locust reporting improved by all countries</li> <li>Make use of other information resources (Military)</li> </ul>
Harmonize DL information systems between CRC, DLCO and DLIS	FAO survey and control form used by all parties	EMPRES, DLCO, CRC, ELOs	Continuous	
Incorporate DL data management systems (RAMSES) at the LCUs	In at least 2 additional countries (SDN, S.A., OMA)	EMPRES / CRC	12/02	
Conduct training RAMSES application and maintenance	At least 1 person from each country is able to apply RAMSES by 12/03	CRC / EMPRES	12/02	
Introduce new technology incl. remote sensing	At least 2 member countries receive SPOT satellite imageries for testing purposes.	DLIS	Continuous	DLIS has extra staff member
Provide extra software and training for use of satellite imageries	All EMPRES member countries are provided with according software	DLIS	By 09/01	See above
Carry out ground truthing operations	1 survey in selected country	DLIS / ELOs	By 09/01	Ground truthing survey organized in consultation with DLIS
Improve collection and transmission of field data	Elocust facilities introduced to at least 3 countries	GTZ / DLIS / NPO-S	By 09/02	

Proposed Activities	Milestones	Responsibilities	Timeframe	Important Remarks / Considerations
Improve data transmission from the field to LCUs	At least 2 countries have tested successfully wireless field data transmission	NPO-S / ELOs	By 09/02	

**Result 4:** Desert Locust survey procedures of member countries improved

**Indicator 4.1:** Survey plans developed and made integral procedures of the PPDs in at least 4 member countries by 2003

**Indicator 4.2:** Key breeding areas of at least 2 member countries identified and described by 2003

**Indicator 4.3:** Up to 2 joint border surveys conducted on 2 borders in the Central region by 2003

Proposed Activities	Milestones	Responsibilities	Timeframe	Important Remarks / Considerations
Develop reference survey plan for member countries	Final reference survey plan distributed to all countries by 02/02	NPO	By 02/02	
Develop and make use of national survey plans	National survey plans developed in at least 3 countries (YEM, S.A., EGY) by 06/02	ELO / NPO-S		
Follow up use and handling of survey plans	Up to 3 assessment visits per year	NPO-S	11/02	
Define and describe high frequency breeding areas in the Central Region	At least 2 high frequency breeding areas are described by 12/02	R&D Expert / GTZ		Outputs incorporated into RAMSES and SWARMS GIS
Take inventory of high frequency breeding areas	Inventory ready by 12/02	R&D Expert		
Conduct field workshop on improved survey procedures	1 workshop conducted in Port Sudan by 02/02	R&D Expert / WU		In collaboration with WU

Proposed Activities	Milestones	Responsibilities	Timeframe	Important Remarks / Considerations
Carry out joint surveys				
Conduct joint border survey	Up to 2 surveys conducted between S.A. / YEM, DJI / SOM	CRC / EMPRES / DLCO	2nd half 2002	
Conduct joint in-country survey	1 in-country joint survey conducted in ERI	EMPRES	01/02	
Strengthen self-reliant survey capacity in northern Somalia	New caretaker appointed as soon as possible	DLCO	01/02	
Develop survey plan for northern Somalia	Survey plan developed and submitted to DLCO by 06/02	NPO-S, DLIS		
Carry out regular surveys in northern Somalia	At least 1 survey carried out per month	DLCO		
Supervise and backstop DLCO caretaker in Hargeisa	Locust reports regularly sent to DLIS and EMPRES	DLCO / EMPRES / DLIS	Continuous	

**Result 5:** DL technicians and officers qualified

**Indicator 5.1:** At least 50 % of DL technicians trained in each of the CR countries by 2003

**Indicator 5.2:** At least 2 trainers trained according to agreed standards for each country by 2002

Proposed Activities	Milestones	Responsibilities	Timeframe	Important Remarks / Considerations
Define training standards	Standards defined and implemented in at least 3 countries by 04/02	CRC / DLCO / EMPRES	04/02	
Define training needs on technical DL subjects at different levels	Training needs defined in at least 3 countries by 12/02	ELOs / EMPRES	12/02	

Proposed Activities	Milestones	Responsibilities	Timeframe	Important Remarks / Considerations
Develop training curriculum for ToT courses	English draft finished by 12/02	EMPRES / NRI	12/02	Consultancy
Support DL Diploma course at the University of Khartoum	At least 6 additional students enrolled by 08/02	CRC / EMPRES / Uni Kht.		
Conduct international survey and control training course	1 course conducted for at least 6 trainees from the CR by 10/02	NRI, EMPRES, CRC	10/02	
Conduct national S&C training course	In up to 3 member countries	CRC / EMPRES	To be decided	To be decided according to requirements of the member countries
Conduct local training courses	At least 3 countries organize local training course for scouts, farmers and nomads by 12/02	ELOs (follow-up by NPO-S)		
Provide on-the-job training for Information Officers	Up to 3 Information Officers trained by 12/02	DLIS		During visits of FAO Forecasting Officer
Organize Campaign management and evaluation seminar	Seminar conducted in Cairo by 12/02	EMPRES / CRC		Consultancy
Develop and introduce training impact mechanisms	Guidelines introduced by mid 2002	EMPRES		

**Result 6:** Contingency plans available and implemented**Indicator 6.1:** National contingency plans for recession monitoring and outbreak control, upsurges and plagues adopted in up to 6 countries by 2002

Proposed Activities	Milestones	Responsibilities	Timeframe	Important Remarks / Considerations
Introduce national contingency and rapid deployment plans into the locust management system				
Conduct contingency planning seminar	Regional seminar held by 03/02	EMPRES	02/02	Consultancy
Review contingency planning guidelines	Reviewed guidelines finalized and circulated by 12/02	EMPRES	Continuous	Consultancy
Develop rapid deployment plan for aerial interventions in the Central Region	Aerial intervention deployment plan finalized and circulated by 12/02	EMPRES / CRC/ DLCO	Initiated by 04/02	Consultancy in collaboration with DLCO
Adopt and implement contingency planning and rapid deployment approaches at national level	At least 3 national contingency plans adopted and implemented at national level by 10/02	ELOs / EMPRES	By next ELO meeting (10/02)	Other member countries should undertake efforts to draft national contingency plans
Create national steering committees	At least 3 member countries (SDN, ERI, YEM) have created national steering committees by 10/02	ELOs (EMPRES to follow up)	10/02	FAO to be informed

**Result 7:** Efficient and environmentally safer control methods introduced

**Indicator 7.1:** At least 1 new additional control technology introduced in at least 3 countries by 2003

Proposed Activities	Milestones	Responsibilities	Timeframe	Important Remarks / Considerations
Conduct various field trials on selected technologies	At least 1 control method is tested under at least semi-natural conditions	EMPRES / GTZ	12/02	In collaboration with EMPRES/WR, LUBILOSA, ICIPE etc. according to best fit opportunities
Test new spray equipment and suggest improvements	1 workshop conducted in Cairo by 06/02	EMPRES / CRC / NRI	06/02	
Introduce DGPS technology for aerial pesticides application	Up to 2 DGPS gears installed and demonstrated in 1 Saudi and 1 DLCO aircraft by 12/03	EMPRES / DLCO / ELO Saudi Arabia	By 2003	
Carry out blood testing programme	In at least 2 countries (ERI, SDN)	EMPRES / DLCO	09/02	In collaboration with EMPRES/WR
Identify and describe ecological sensitive areas	At least 2 ecological sensitive areas described	EMPRES	12/02	
Support adapted research projects	Up to 6 additional projects initiated	EMPRES / CRC	12/02	
Follow-up registration process of metarhizium in SDN and promote registration also in other countries	Progress made towards registration in at least 2 member countries (SDN, ERI)	MoAs (Follow up by EMPRES, LUBILOSA)	12/02	
Promote phasing out of ENS	Inventory of ENS and vehicle mounted ULV sprayers available from all member countries by 06/02	LCUs (Follow up by EMPRES)	06/02	
Incorporate spray monitoring form into eLocust programme	eLocust programme modified by 12/02	DLIS		
Analyze the genetic make-up of ERI metarhizium isolate	Genetic correspondence known by 12/02	ELO ERI / EMPRES		

**Result 8:** Systematic methods of campaign evaluation developed

**Indicator 8.1:** 2 economic case studies conducted by 2002

**Indicator 8.2:** Models to identify efficient control strategies via scenarios completed by 2003

Proposed Activities	Milestones	Responsibilities	Timeframe	Important Remarks / Considerations
Develop EMPRES monitoring and evaluation system				
Develop and circulate reporting format for ELOs	New reporting format for ELO finalized and in use by 06/02	EMPRES / ELOs	06/02	ELOs are expected to apply reporting format for next ELOM
Review baseline document	Review completed by 06/02	EMPRES / CRC	06/02	Consultancy
Review discussion paper on improved preventive control strategies	Review completed by 12/02	EMPRES / CRC / DLCO	12/02	Consultancy
Apply of new version of spray monitoring form		ELOs	Continuous	Spray monitoring form to be use for test purposes for also for tree locust and grasshopper sprays
Circulate copies of spray monitoring form forwarded to CRC and EMPRES	All CRC and EMPRES countries are provided with spray monitoring form by 03/02	EMPRES / CRC		
Conduct 2 <sup>nd</sup> socio-economic study	Study conducted by 12/02 (in S.A. or EGY)	EMPRES	Continuous	Consultancy
Liaise with bilateral institutions carrying out socio-economic studies	Copies of completed studies obtained, new studies initiated with EMPRES	EMPRES	Continuous	DFID, Universities of Hanover and Gothenburg
Up-date economic impact assessment model (ELS)	ELS-Model up-dated by 12/02	EMPRES	12/02	Consultancy
Review computer model for control studies	Model reviewed by 12/02	EMPRES / WU	Continuous	