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Emergency Prevention System for  
Transboundary Animal and Plant Pests and  
Diseases

- Desert Locust component

Central Region Programme

EMPRES/CR

**Progress Report**

December 1999 — December 2000

## **A Introduction**

The Desert Locust component of EMPRES (Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases) was initiated in mid 1994. Its purpose was to strengthen the locust management capacity of locust-affected countries with the aim of minimising the risk that Desert Locust plagues will develop. It was designed as a collaborative programme in which affected countries, regional organizations, donors, and FAO, participate in the development of improved preventive control strategies. Preparatory activities started in 1995 in the Central Region, comprising nine countries around the Red Sea (Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan and Yemen). This area is considered to be the origin of most Desert Locust outbreaks.

The **primary development objective** of the EMPRES Central Region Programme is stated as:

To minimise the risk of Desert Locust plagues emanating from the Central Region of the Desert Locust distribution area through well-directed surveys and timely, environmentally sound interventions in order to mitigate food security concerns in the Central Region and beyond.

The **Programme goal** was re-defined in February 2000 as:

To strengthen the capabilities and capacities of the national, regional, and international components of the Desert Locust management system to implement effective and efficient preventive control strategies based on early warning and timely, environmentally sound, early control interventions.

A full donor-assisted programme began in 1997 with the recruitment of the EMPRES team in duty stations at Asmara, Sana a, Khartoum and Addis Ababa.

EMPRES activities focus on five main areas:

### **Early Detection**

Desert Locust survey and forecasting methodologies and systems are being strengthened and improved. Timely action relies on efficient information networking.

### **Early Reaction**

Technical assistance and advice is being provided to affected countries in order to increase their early intervention capacity, and to assure more effective and environmentally safer control operations

### **Research**

EMPRES provides the platform for joint national and international research programmes on improved Desert Locust control tactics and strategies. Initial topics being covered include biocontrol, population dynamics, survey methodology, barrier treatment, economic impact, and environmental impact. These involve, for example, field trials on insect growth regulators (IGR), botanical insecticides, and mycopesticides.

### **Campaign Planning and Contingency Arrangements**

Campaign planning procedures and contingency arrangements are being developed in close co-operation with Central Region countries. The aim is to improve preparedness for Desert Locust interventions so that the necessary resources can be mobilised early enough when critical situations arise.

### **Capacity Building**

Apart from improvements in technical and organizational areas, EMPRES concentrates on the development of human capacity through intensive international, regional, and national training programmes for different target groups and on relevant subject matters. Database and information management, training of national trainers and field staff, and training of scouts, farmers and nomads, are being addressed.

Following the approval of the EMPRES Programme by the FAO-Council in mid-1994, a number of donors provided support to FAO for EMPRES (Desert Locust), namely the Netherlands, the USA (through USAID) and Germany/Switzerland (through GTZ). Other development agencies such as those from the U.K., Belgium, Japan and Norway provided assistance bilaterally or to specific areas of the Programme. All in all, including FAO funds from the Regular Programme, an amount of about US\$ 5 million has been allocated to the first 4-year Phase of the Programme (1997 — 2000). The funds cover staff salaries, operational expenses, equipment and contracts, research programmes, and training.

Following the recommendations of the EMPRES/CR Evaluation Mission, which took place in mid-1999, the general Programme Document was revised and distributed in February 2000.

As at the end of 2000, there are six EMPRES staff operating from Khartoum, Sana a, Hargeisa and Addis Ababa. The position of the EMPRES Coordinator is vacant since October 1999 and is temporarily administered by the Senior Field Officer from Addis Ababa. A Vacancy Announcement for the post has been issued and the post is expected to be filled by mid-2001. The APO for contingency planning left the Programme in August 2000, but was hired on a temporary post for five months to assist the Acting Coordinator. A new APO for environmental assessment started her assignment in November 2000 in Khartoum. The posts of International Research & Development Expert (Sana a), National Professional Officers — Control (Khartoum) and Survey (Sana a), and UN Volunteer (Hargeisa) are unchanged. As before, EMPRES is supported by national Liaison Officers in each of the member countries except Somalia.

## **B. Status Report**

### **B.1. Achievements of Outputs**

#### **Output D1: EMPRES activities coordinated**

**Indicator D1.1:** Proper programme management (programme planning & monitoring) and regular coordination meetings with relevant stakeholders (EMPRES Liaison Officers, FAO Commission for Controlling the Desert Locust in the Central Region (CRC), Consultative Committee Meeting etc.) made standard procedures by end of 1997.

**Indicator D1.2:** Up to 2 bilateral projects initiated annually and implemented in the Central Region starting from 1998.

<b>Planned Activity</b>	<b>Status / Reasons for Deviation</b>
1.1 Conduct bilateral programmes	<ul style="list-style-type: none"><li>• 3 special Country Focus Programmes (CFP), in Eritrea, Sudan, Yemen, have been initiated in 1998/99 and partly implemented during 2000. The aim of the CFPs is to reflect the particular conditions of the key countries in order to enhance their operational survey and control capacities.</li><li>• The implementation of the CFP in Eritrea was severely hampered and delayed by unfavourable external conditions. Most of the staff of the Plant Protection &amp; Quarantine Unit of the MoA including the EMPRES-Liaison Officer were not on duty for long time and could not implement the CFP as planned. However, the necessary field material has been provided, a training programme developed and funds allocated to start the planned activities as soon as conditions are more favourable.</li><li>• The CFP in Sudan has been implemented very successfully by the Plant Protection Directorate and its Locust Control Unit (LCU). Several training programmes for local plant protection technicians and assistant field staff have been conducted. Special training on radio operation and computer handling has been provided (see also Output D 2). The national radio communication network has been improved and regular reporting schedules introduced. Also three possible DL scenarios have been developed in the context of a national contingency and rapid deployment plan. Further work on improving the national information management system is required. Also with regard to the national training and re-training programmes, it is recommended to evaluate training impact and introduce self-reliant and regular training schemes for the locust operators in the country.</li></ul>

- The implementation of the CFP in Yemen has been delayed due to so far unsolved financial questions as far as the counterpart contribution to the programme is concerned. In a meeting with the Director General of the General Department for Plant Protection (GDPP), it was agreed to develop a special Letter of Agreement, in which all the necessary details should be stipulated in order to obtain the expected support from the Government. The required information from the GDPP is still awaited. It is expected that the outstanding data will be provided as soon as possible in order to start the programme.
  - A CFP for Saudi Arabia was due to be initiated during November 2000. An outbreak of the Rift Valley Fever (RVF) on the Arabian Peninsula interrupted the operation. The Locust Research & Control Station was required to be fully involved in RVF control operations. It has been recommended to postpone the CFP in Saudi Arabia until 2001.
- 1.2 Coordinate EMPRES and CRC activities
- The collaboration between EMPRES and the Central Region Commission for Controlling the Desert Locust (CRC) has much improved during the reporting period. A joint CRC/EMPRES workplan was developed, as agreed and endorsed in March 2000. Several joint activities have been realized (see also Outputs D2 and D5), and a permanent interaction and consultation in all relevant matters maintained. The only shortfall was the non-participation of the CRC Secretary in the EMPRES Phase II Planning Workshop because of other commitments.
  - In September 2000, the CRC Secretary was appointed to a new position in FAO. Until the nomination of a new Secretary, CRC matters will be taken care of by the Chairman of the CRC and the Senior Officer i/c FAO Locust Group. The Session of the Commission, scheduled for 2000, has been postponed until 2001.

Other coordinating activities carried out:

- The EMPRES staff meeting was held in Addis Ababa from 12/01 — 14/01/00. During the meeting the individual workplans of the staff members were developed and several matters concerning streamlining, improving the administrative process and the reporting mechanisms within the EMPRES team were discussed.
- A participatory Planning Workshop for Phase II of the EMPRES/CR Programme was organized by FAO and EMPRES in El-Tur, Egypt, from 26/03 — 30/03/00. All relevant representatives from the member countries and from most cooperating donor agencies attended the workshop. On the basis of workshop findings, an Implementation Document for Phase II has been compiled and distributed to all relevant stakeholders in May 2000.

- In the context of coordinating EMPRES activities with member countries, the CRC, the donor agencies to the EMPRES programme, and other partners, the Acting Coordinator carried out a total of 13 travels: Eritrea (2 visits), Egypt (4), Djibouti (3), Oman (1), Yemen (2), U.K. (1), Holland (1), Rome (3) and Nairobi (1). During the year, the Acting Coordinator spent 113 days on duty travel.
- With regard to the cooperation with DLCO-EA, an aerial survey contract was established in December 1999 for 50 flying hours in Eritrea, Ethiopia and Somalia. Due to the calm locust situation over the year only 10 hours have been used in the context of ground truthing satellite images along the Red Sea coast in Eritrea in December 1999. Another 10 hours have been requested by Eritrean Government and DLCO-EA to repeat the operations by end of 2000. It is recommended to extend the contract with DLCO-EA.
- In collaboration with DLCO-EA, a provisional plan to introduce more self-reliant survey systems in northern Somalia has been developed (see also Output D2).
- In further collaboration with DLCO-EA, and with NRI, a biogeographical study on the DL recession areas in Ethiopia based on DLCO-EA archives has been agreed. The implementation of the study was delayed due to the health problems of the NRI consultant. A M.Sc. student from the Alamyu University in Ethiopia started the investigations and the archive research in October 2000.
- The reporter participated as observer and representative of FAO in the 45th Session of the DLCO-EA Council of Ministers Meeting. Major points of discussion were the difficult financial situation of the Organization and the proposed merger with IGAD.
- Collaboration with EMPRES/Western Region (EMPRES/WR) has been initiated. One staff member from EMPRES/WR visited Sudan from 17/08 — 24/08/00 for experience and information exchange with the NPO for Control regarding improved control techniques such as the use of Differential GPS (DGPS) technology for ground pesticide application and reduced application rates of pesticides. Furthermore, the Secretary of the North-West African Commission and the EMPRES/WR NPO participated in the 8th EMPRES/CR Liaison Officers Meeting and in the ad hoc research meeting organized by CRC and EMPRES/CR. It was further agreed that the Acting Coordinator should participate in the planning workshop of Phase I of EMPRES/WR in Nouakchott early in 2001.

- The 8th EMPRES/CR Liaison Officers Meeting was conducted in Muscat, Oman, from 22nd — 26th October 2000. EMPRES/CR progress was jointly evaluated. Based on the Phase II Implementation Document, the main features of the EMPRES workplan for 2001 were defined. One of the encouraging features of the meeting was to note the actions taken by Sudan under its CFP to incorporate improved preventive locust management components into its national contingency planning. It is hoped that this kind of self-reliant initiative can further be enhanced in other member countries during the next phase of the EMPRES/CR Programme.
- The 3<sup>rd</sup> EMPRES/CR Consultative Committee Meeting was held in Rome from 7<sup>th</sup> — 8<sup>th</sup> December 2000 in which a report on the progress made during the year was presented to the representatives of the member countries and the donor community. In general the participants acknowledged the efforts and the achievements of the Programme and endorsed the report. Also an outline of the planned activities during the first year of Phase II of the Programme, based on the results of the 8<sup>th</sup> ELO-Meeting, was provided. The work plan for 2001 was accepted with some minor suggestions for changes.

#### **Output D2: Survey and early warning systems improved**

- Indicator D2.1:** At least 16 national master trainers in up to 8 EMPRES Member Countries are qualified to organize and to conduct national Survey & Control training courses on a regular basis by 2006. (Same as I.D4.1)
- Indicator D2.2:** At least 80 % of all Survey and Information personnel under the Desert Locust Control Units in the Member Countries is regularly trained on improved survey methods, data assessment, regular reporting, forecasting and survey planning by 2006.
- Indicator D2.3:** Improved Survey guidelines are developed and introduced at the Locust Control Units as standard for all Survey procedures by 2006.
- Indicator D2.4:** Survey and communication equipment is specified, procured and made available in at least 8 of the Member Countries by end of 2004.
- Indicator D2.5:** Improved planning, reporting and communication schemes are introduced and implemented by at least 5 of the Locust Control Units by end 2004
- Indicator D2.6:** Effective Desert Locust forecasting systems through improved cooperation with national and international meteorological agencies are in place in up to 5 of the Member Countries by 2006.

<b>Planned Activity</b>	<b>Status / Reasons for Deviation</b>
2.1 Qualify national trainers	<ul style="list-style-type: none"><li>• In collaboration with NRI, one international ToT training course on survey, control, environmental aspects, course organization and adult education has been conducted in Muscat, Oman from 22/01 — 02/02/00. Twenty trainees attended the course, of which 10 trainees came from CRC and EMPRES countries. In total 36 locust experts from all 9 EMPRES member countries received at least one training opportunity to be qualified as national master trainers during Phase I. Selected master trainers from Oman, Ethiopia and Sudan have been involved in the organization of national training Survey and Control training courses and have also acted as trainers, under the supervision of EMPRES staff.</li><li>• During Phase II the international training courses will entirely be substituted by regional events involving the qualified master trainers.</li></ul>
2.2 Qualify locust officers	<ul style="list-style-type: none"><li>• Five national survey and control training courses, supported by the CRC and EMPRES, have been conducted in Sudan (April 2000, 17 trainees), Djibouti (September 2000, 18 trainees — 3 from Somalia), Oman (October 2000, 14 trainees), Ethiopia (October 2000, 16 trainees) and Egypt (November 2000, 14 trainees). The planned training course in Yemen did not materialize.</li><li>• EMPRES staff assisted as observers and partly also as trainers in the above events. The training course in Sudan was conducted under the umbrella of the CFP and was mainly organized by the Plant Protection Directorate.</li><li>• 79 locust officers, plant protection staff and technicians benefited from the training opportunities during the past months. Throughout the four years of Phase I of the EMPRES Programme, 286 locust staff from the Region have been trained on technical locust survey and control matters, and a database on all events including the names of those trained has been developed.</li><li>• A special Diploma Course on locust management has been established at the University of Khartoum and officially announced. With assistance from GTZ, Khartoum University has been supplied with the necessary technical equipment and teaching material such as computers, insect dissection kits and visualization material. In order to initiate the course, it is necessary to publicise the course and to provide funding from CRC and EMPRES.</li><li>• During two local training events in Sudan for scouts, nomads and assistant staff in April and August 2000, 28 trainees have been trained. A locally organized course on survey and control aspects was conducted in Oman for 29 trainees during March 2000, and another course on the use of GPS during October 2000 for 61 trainees.</li></ul>



- Given the high number of trained locust personnel who have been trained, the question of their actual performance in the field becomes more and more relevant. In the absence of any locust infestations, no direct field monitoring of performance was possible. A tentative approach for evaluating training impact has been developed and will be applied as soon as the situation allows. It has been agreed that the ELOs should be fully involved in monitoring. In addition, training needs assessments will be conducted in Sudan, Yemen, Oman and Ethiopia. An important prerequisite for such assessments is to have a full picture of the staff of the member countries directly or indirectly involved in locust operations. This kind of baseline data is not always made available by the national Locust Control Units (LCU) and needs to be developed. Improved staff management requires a better overview of the staff situation at the LCUs and at related national partner institutions, which contribute to locust management.
- 2.3 Prepare training manual
- A standard training approach on locust subjects was developed in early 1999 and adopted during the 8th ELO Meeting in Muscat. The training concept aims at strengthening national training schemes and incorporating locust aspects as a regular subject into the national training curricula for technicians, extension workers and other staff involved in locust operations. One important factor in the approach is to develop a standard training manual, which not only provides the needed reference material for the trainees but also gives guidelines for the national trainers on how to teach and to organize training courses reflecting basic principles of adult education. In addition visual aids and standard field reference tools will be provided with the manual.
  - To allow the manual to be easily up-dated according to the technical developments and to make it accessible to an interested audience, it is envisaged to publish the manual on CD ROM and on the Internet. NRI has shown interest in developing the manual in collaboration with EMPRES. It is expected that NRI and FAO will soon reach an agreement on collaborative arrangements for the manual s production.
  - Desert Locust Guidelines are being revised, updated and have been designed in an entirely new and more user-friendly format under the leadership of the Locust Group at FAO HQ. It is expected that the Guidelines will be finalized in 2001 and made available to the affected countries. Once the final version is produced, it is expected that the Guidelines will be an important contribution to improved locust management in the EMPRES/CR countries.
- 2.4 Support national Information Officers
- In cooperation with the CRC, one Forecasting Training Course has been conducted in Ismailia, Egypt, in April 2000. Nine national Information Officers from the EMPRES member countries attended this course.

- One Information Officer from Sudan started his on-the-job training at the DLIS at FAO HQ in October 2000 for eleven months. It is anticipated that the trainee will not only contribute significantly to building up the Information Unit at the PPD in Sudan after his stay in Rome, but also will act as regional expert, assisting the other member countries in the subject.
  - Despite the fact that no significant locust developments took place over the past months, survey activities in some member countries improved compared to the previous years. Also the reporting frequency of survey observations to the DLIS in Rome and quality of the information improved. However, it is necessary that further efforts are made in future by some of the member countries and that EMPRES provides the required assistance in developing survey plans and national networks.
  - In the context of the efforts to improve the national and international Desert Locust information system, the DLIS has a key function in analyzing locust and ecological information from the affected countries and in providing the Locust Control Units with accurate forecasts in time. To fulfill its obligation and to provide the expected high quality services making full use of new technologies such as remote sensing data, and to provide advice and training also in the field, it becomes apparent that the DLIS needs more staff. FAO should reconsider this matter carefully in cooperation with the donor community.
  - The monthly DLIS Desert Locust Bulletin is distributed to the affected countries in English, French and also Arabic.
- 2.5 Support joint surveys
- One joint border survey has been organized along the Sudanese — Egyptian border from 26/02 — 08/03/00. The survey was at the same time a regional training exercise for several CRC and EMPRES locust officers. In total 16 locust officers participated in this event. During the survey, ground truthing checks on satellite images were carried out and a new previously unknown potential locust breeding area was discovered.
  - A joint border survey between Sudan and Eritrea has been proposed. Since some of the important locust breeding grounds are located in this area, which was inaccessible for both sides over the past years, EMPRES is looking favourably into this opportunity. DLCO-EA has been requested to evaluate the situation and seek for clearance from the two Governments in order to launch the operation as soon as possible.
  - One joint Sudanese — Egyptian in-country survey was planned to be conducted in Northern Kordufan and North Darfur, Sudan, during July-August 2000. Several internal and external reasons contributed to the fact that the operation could not take place as intended. Joint surveys as regional training events can overstretch the capacity of the national Units. It was concluded that in future the inclusion of participants other than from the two neighbouring countries, and the extent to which training is expected, should be reviewed case-by-case. This survey will now be conducted in 2001.

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| 2.6 Provide survey equipment                  | <ul style="list-style-type: none"> <li>• All Locust Control Units in the member countries have been equipped sufficiently with the standard survey material such as GPS and other field equipment over the past years. During the year 2000 in particular Sudan and Yemen benefited from this contribution.</li> </ul>  |
| 2.7 Strengthen the survey capacity in Somalia | <ul style="list-style-type: none"> <li>• The survey system in northern Somalia has relied mainly on the efforts of one EMPRES UNV based in Hargeisa. Efforts are now being made, in consultation with DLCO-EA, to build up national capacity. It was agreed to cooperate closely in this aspect, to broaden the scope of local survey expertise and to establish strong information links via the DLCO-EA base in Hargeisa to DLIS in Rome. However, the situation in Somalia requires careful attention and close observation. As a first step a clear concept on how to approach the subject has to be developed with DLCO-EA.</li> </ul> |

**Output D3: Regional information exchange system linked to the FAO HQ**

**Indicator D3.1:** Necessary communication facilities are in place in all of the Locust Control Units and effectively being used for information exchange on Desert Locust issues with FAOHQ by end 1998

<b>Planned Activity</b>	<b>Status / Reasons for Deviation</b>
3.1 Provide training on computer handling and data processing	<ul style="list-style-type: none"> <li>• 20 staff from the Locust Control Unit (LCU) in Sudan has been trained on handling standard computer programmes such as MS Word, Excel and Access, during May 2000.</li> <li>• Funds for computer training in Djibouti have been provided in July 2000 upon request. Unfortunately the funds have not been used.</li> </ul>
3.2 Get access to the Internet	<ul style="list-style-type: none"> <li>• At the LCU in Sudan direct Internet access has been installed under the address <a href="mailto:ppdlocust@hotmail.com">ppdlocust@hotmail.com</a> since August 2000. The LCU in Djibouti can be reached directly under the address <a href="mailto:empres@intnet.di">empres@intnet.di</a> since November 2000. Only the LCU in Yemen is left without direct e-mail contact.</li> </ul>
3.3 Introduce RAMSES system	<ul style="list-style-type: none"> <li>• In collaboration with NRI efforts have been made during the past years to introduce the RAMSES data management system (Reconnaissance And Management System of the Environment of Schistocerca) in Eritrea and Yemen. Unfortunately the use of the system was disrupted by a number of technical problems and the non-availability of one of the qualified personnel, respectively. The technical problems in Eritrea could be solved and the newly assigned Information Officer in Yemen is being trained on-the-job by the ELO, who received training by NRI in December 1999 and February 2000.</li> </ul>

- Preparations for introducing the RAMSES system in Sudan and Ethiopia are in progress. In Ethiopia the necessary computer equipment and Geographical Information System (GIS) software have been procured out of USAID funds. A consultant from NRI has conducted on-the-job training for two LCU staff and one student in October 2000. For Sudan the computer equipment has been purchased out of GTZ funds. The training of the Information Officers on the GIS system will be carried out in 2001.
  - In addition, Saudi Arabia, Oman and the DLCO-EA showed high interest in RAMSES. Efforts to obtain support from IDB for introducing the system in Saudi Arabia and Oman did not succeed so far. The possibility for establishing RAMSES at DLCO-EA will be assessed during Phase II according to the financial situation.
  - Recent experiences with relatively sophisticated GIS technology made it obvious that the introduction of the system is a long-term process. Efforts have to be undertaken also to build up regional expertise in order to provide assistance and advice in case questions or technical problems occur. It is expected that NRI will give the relevant support in this aspect during Phase II and that at least two regional experts and one EMPRES staff should become competent in providing the necessary services in future. In addition the new Information Officer in Yemen should receive a comprehensive training from NRI.
  - Regarding the high costs of making RAMSES system available to LCUs for data management and as a tool for better targeting of survey and control operations, it should be noted that the LCUs still need to exploit the system fully. The more historical locust and ecological data that are input, the more relevant and useful the GIS becomes for improving locust management.
- 3.4 Establish Desert  
Locust information  
and documentation  
systems
- The creation of a locust documentation centre at the LCU in Sudan is in progress. The collection of relevant key literature has almost been completed (see also Activity 5.2) and will be made available on the Internet. Apart from the positive example in Sudan, more effort needs to be made by the other LCUs to establish similar locust documentation centres.
  - One Ph.D. and one M.Sc. thesis on locust-related research at the University of Khartoum have been printed and copies distributed to EMPRES/CR and WR, the CRC, the DLCO-EA and FAO.
  - An Arabic textbook on locusts has almost been completed by the CRC with inputs from EMPRES and will assist Arabic-speaking EMPRES countries. Three expected contributions are still pending.
  - One video tape on Desert Locust has been prepared and can be requested from the FAO HQ. It has been suggested to make two copies available to each of the CR and EMPRES/CR countries.

#### **Output 4: Early control capacity improved**

- Indicator D4.1:** At least 16 national master trainers in up to 8 EMPRES Member Countries are qualified to organize and to conduct national Survey & Control training courses on a regular basis by 2006. (Same as I.D2.1)
- Indicator D4.2:** At least 80% of all control operators under the Locust Control Units of the Member countries are regularly trained on application techniques, impact assessment, new methodologies, safety and environmental aspects by 2006.
- Indicator D4.3:** Up to 3 economically sound and environmentally safe new locust control products / methods are recommended, registered and introduced as part of the national and regional Desert Locust control strategies in up to 5 of the Member Countries by 2006.
- Indicator D4.4** Up to 3 effective, economically sound and environmentally acceptable control approaches are jointly developed (EMPRES, CRC, national and international institutions) and adopted by the Locust Control Units in at least 5 of the Member Countries by 2006.

<b>Planned Activity</b>	<b>Status / Reasons for Deviation</b>
4.1 — 4.3	<ul style="list-style-type: none"> <li>• (In conjunction with activities 2.1 — 2.3)</li> </ul>
4.4 Conduct regional workshop on campaign organization and evaluation	<ul style="list-style-type: none"> <li>• The scheduled workshop for heads of the LCUs on campaign organization and evaluation has been postponed to 2001.</li> </ul>
4.5 Improve pesticides application techniques	<ul style="list-style-type: none"> <li>• It was planned to conduct Differential GPS (DGPS) demonstrations for improved aerial pesticide application in Saudi Arabia and Oman. Unfortunately the tests could not be carried out due to pre-conditions requested by the contacted companies such as a guarantee to purchase the equipment afterwards. These conditions were neither acceptable for EMPRES nor for Saudi Arabia and Oman. It was recommended to contact a company in Zimbabwe instead to conduct DGPS demonstrations in collaboration with DLCO-EA during 2001.</li> </ul>
4.6 Procure field trial equipment	<ul style="list-style-type: none"> <li>• Basic field trial equipment is in place in Sudan, Yemen and Eritrea. Additional equipment such as tents and camping equipment appears necessary and will be made available in 2001.</li> </ul>
4.7 Assess impact of pesticides on human health	<ul style="list-style-type: none"> <li>• It was planned to conduct at least one blood testing survey in Sudan. It was not possible to purchase the necessary test kit because of a trade embargo. Alternative arrangements have been made and the survey has been postponed to 2001.</li> </ul>

- 4.8 Review spray monitoring form
- The CRC requested to review the monitoring form to assess the impact of pesticide application in the field, which has been developed by EMPRES and NRI. The reviewed form has been distributed for comments to all of the CRC and EMPRES countries. Only three replies were received, and the suggested amendments have been incorporated. The spray monitoring form is now considered approved and should be routinely used during all locust control operations in future. The LCUs have been requested to pass copies of the completed spray monitoring forms to the CRC and the EMPRES HQ for further processing of the data.
- 4.9 Promote registration of spray equipment for Desert Locust control
- The Locust Group, FAO HQ is investigating the possibility of having spray equipment evaluated by specialist institutions and for the results to be made available to the member countries.
- 4.10 Support the disposal of obsolete pesticides
- Inventories on obsolete pesticides in the CRC countries have been compiled in a report in November 1999 and distributed to the member countries. It is anticipated that the concerned countries will seek potential donors to resolve the problem.

**Output 5: Desert Locust management methods and strategies improved**

**Indicator D5.1:** Up to 8 national and 1 regional Desert Locust control strategy(-ies), comprising different scenarios, survey and control tactics developed and used as reference for improved locust management in the Member Countries by 2008.

<b>Planned Activity</b>	<b>Status / Reasons for Deviation</b>
5.1 Support operational research projects	<ul style="list-style-type: none"><li>• It was planned to initiate up to five locust research projects in collaboration with the CRC during the reporting period. Most of the project proposals received from different national and international research entities did not meet the basic demands. The proposals concentrated mainly on a few modern topics, while other areas of interest were completely neglected. In addition, the authors scarcely referred to the distributed CRC/EMPRES research guidelines either in respect of the outline or of the ceiling of USD 15,000 per project and year.</li><li>• Out of the submitted proposals, two have been selected for support. One research project in collaboration with the Aden University aims to demonstrate to beekeepers and locust officers the benign nature of biological control agents such as metarhizium on honeybees and other non-target organisms. The project started in June 2000 and is expected to finish in May 2002. The second project is with Khartoum University, and aims to develop a better understanding of the key factors influencing the population dynamics of the Desert Locust. The duration of the project is estimated as July 2000 — June 2002.</li><li>• Given the unsatisfactory progress on research under the EMPRES programme, it was suggested to hold a CRC/EMPRES meeting to assess the situation and determine the reasons for the limited results. A workshop of scientists and locust experts from the affected countries as well as international institutions and FAO met in Cairo from 06/11 — 08/11/00 to draw conclusions from the experience so far and to come up with suggestions on improved approaches. The lack of effective coordination in this field has been identified as an important obstacle. It was recommended further to strengthen collaboration between the CRC, EMPRES/CR and EMPRES/WR. The earmarked research topics have been prioritized and potential partners identified, which should allow the relevant topics to be addressed in a more targeted manner with a better likelihood of achieving the expected results for improving locust management strategies.</li><li>• ICIPE in Nairobi has been visited in July 2000 to assess the potential of collaboration in the field of pheromone research and making the male aggregation pheromone, phenylacetonitrile (PAN), available as a promising alternative to chemical control. Although it is unlikely that the IFAD support to the ICIPE pheromone project will start before 2002, it has been agreed to conduct small field trials in collaboration with ICIPE in Sudan during 2001.</li></ul>

- 5.2 Carry out research in the Central Region
- The climatic conditions throughout the year were unfavourable for major Desert Locust developments in the Central Region. Due to the lack of locust infestation it was not possible to conduct any field trials on new or alternative control technologies. Referring to the enhanced collaboration with EMPRES/WR it has been agreed to take advantage of locust infestations in the respective Regions for field trials in future and also to strengthen the interregional exchange of expertise. In addition, calm periods should be used for testing of new spray equipment and improvement of existing equipment in collaboration with EMPRES/WR.
  - A Ph.D. project at the Wageningen University (WU) is carrying out a field study on the population dynamics of solitary locusts on the Red Sea coast in Sudan. Data were collected during November 1999 — March 2000 and November — December 2000. It is anticipated that the results of the investigation will contribute to the development of improved locust survey and monitoring methods.
  - The assessment of the locust research capacities of the national research institutions in the Region is still in progress. It is expected that final results will be available by the first half of 2001.
  - A first draft of a compiled Desert Locust bibliography has been submitted in October 2000. Some important gaps have been identified, which should be filled by early 2001. After completion, the bibliography will be made available on the Internet.
- 5.3 Improve the understanding of the environmental impact of Desert Locust control measures
- (See also activity 4.7)
  - It was planned to conduct one environmental safety seminar in collaboration with LOCUSTOX and the CRC. The seminar was held in Cairo during February 2000. Seven participants from EMPRES countries attended the seminar. No report has been submitted so far.
  - An APO from Sweden for identification and assessment of ecological sensitive areas has started her assignment in Khartoum, Sudan, on 25 November 2000.
- 5.4 Improve the understanding of economic impact of Desert Locust control measures
- Up to three economic impact studies of Desert Locust control measures were planned for 2000. Because of the controversial nature of the topic, it was decided as appropriate first to reach a consensus on the procedures for assessing economic impact. An experts meeting was held at FAO HQ in June 2000, involving scientists and economists from the Region as well as from Europe and Australia. Areas of collaboration with the Universities of Hannover and Göteborg on alternative approaches such as damage insurance schemes have been identified. Based on the findings, a concept paper has been drafted and its major components incorporated into the workplan for Phase II.



- Representatives from the Hannover University presented a draft economic assessment guideline to FAO during the meeting. The general outline was much appreciated and some amendments suggested. The guidelines will be published under the technical series of the University as contribution to the EMPRES programme.
- 5.5 Enhance preventive Desert Locust control management
  - It was anticipated to have a first discussion paper reviewing locust management components and strategies ready by 12/00, but the whole process has been delayed. It is now expected to be finalized by 04/01.

**Output 6: Rapid deployment plans and contingency arrangements in place**

**Indicator D6.1:** Contingency arrangements, comprising principles of preparedness, pre-positioning of all necessary resources developed and adopted in up to 8 of the Locust Control Units by 2006

**Indicator D6.2:** The management and planning capacities of the Heads of the Locust Control Units in up to 8 of the Member Countries is enhanced and proper planning and monitoring instruments are applied by 2006.

<b>Planned Activity</b>	<b>Status / Reasons for Deviation</b>
6.1 Introduce rapid deployment procedures	<ul style="list-style-type: none"> <li>• Based on the guideline developed jointly under EMPRES, Sudan, Ethiopia and Yemen agreed to introduce scenario-based contingency plans by 12/00. Substantial progress has only been made in Sudan where drafts have been developed in the context of the CFP. The current guideline has been found not always to reflect the capability of the LCUs to develop rational Desert Locust scenarios and theoretical best-fit reactions. The development of contingency plans at the LCUs requires special training. In collaboration with the WU, it is expected to develop more user-friendly guidelines, incorporating also an improved campaign simulation model. This will allow an optimal deployment of resources in relation to anticipated locust scenarios to be assessed.</li> </ul>
6.2 Improve the management system at the LCUs	<ul style="list-style-type: none"> <li>• The Acting Coordinator has been assigned to assess the potential of training institutes to organize a tailor-made locust campaign planning and management seminar for heads and deputies of departments. One German institute responded positively by submitting draft ToRs for such a seminar to be held in mid-2001.</li> </ul>

## C. Staff status and Equipment

### C.1 Staff situation

#### a. Professional staff

1 Programme Coordinator	Vacant since 12 October 1999.
1 Senior Field Officer (Addis Ababa, Ethiopia)	Post under GTZ project terminates 31 December 2000; contract extended under Swiss project to 31 March 2001. Acting Programme Coordinator since Oct. 1999.
1 Senior Expert for Research & Development (Sana a, Yemen)	Post planned until June 2002; current contract until 30 June 2001.
1 National Professional Officer for Control (Khartoum, Sudan)	Post planned until 2006; current contract until 15 October 2001.
1 National Professional Officer for Survey (Sana a, Yemen)	Post planned until June 2002; current contract until 4 November 2001.
1 Associate Professional Officer (Sana a, Yemen)	Contract ended February 2000. Recruited under a temporary post in Addis Ababa from 1 March - 31 August 2000.
1 Associate Professional Officer (Khartoum, Sudan)	Contract began 25 November 2000, for 2 years.
1 UN Volunteer (Hargeisa, Somalia)	Contract extended until 30 June 2001.

#### b. Support staff

- 1 Administrative Secretary in Asmara, Eritrea (Fixed-term)
- 1 Driver in Addis Ababa (Temporary)
- 1 Driver in Addis Ababa (Fixed-term, on sick leave since June 2000)
- 1 Secretary in Addis Ababa (Temporary)
- 1 Driver in Sana a (Fixed-term)
- 1 Secretary in Sana a (Temporary)

## C.2 EMPRES equipment procured up to December 2000

- Djibouti:
- 1 Toyota Pick up (damaged)
  - 1 Desk-top computer incl. accessories
  - 1 fax machine
  - 4 Garmin GPS
  - 5 Windspeed meter
  - 3 ULVAmast sprayers
- DLCO-EA
- 1 Desk-top computer incl. accessories
- Egypt:
- 1 Toyota Landcruiser Stationwagon
  - 1 Desk top computer incl. accessories
  - 2 Desk-top computers inc. accessories (FAOR-NE)
  - 1 Photocopier (FAOR-NE)
- Eritrea:
- 1 Toyota Landcruiser Stationwagon
  - 2 Toyota Landcruiser pick up
  - 1 fax machine
  - 1 typewriter
  - 3 computers incl. Accessories
  - 1 heavy duty photocopier
  - 1 video camera
  - 2 test-mate OP kits
  - Various field equipment
  - 1 Motorola mobile radio
  - 5 HF station radio
  - 13 Micron Ulvamast sprayers
  - 205 SOLO motorized sprayer
  - 200 SOLO manual knapsack sprayers
  - 20 Solo-Port 423
  - 100 micron ULVA sprayer
  - 120 solo motorized sprayer
  - 2 generators
  - 9540 I Dursban
- Ethiopia:
- 2 Hi Lux Toyota pick ups
  - 1 Toyota, Prado Landcruiser (EMPRES Office)
  - 1 Lap-top computer
  - 2 Lap-top computers (EMPRES Office)
  - 3 Desk-top computers incl. accessories
  - 1 Desk-top computer incl. accessories (EMPRES Office)
  - 1 fax machine (EMPRES Office)
  - 1 light photocopier (EMPRES Office)
  - Various field equipment (20 GPS, etc.)
  - 4 base HF radios
  - 1 mobile HF radio
  - 2500 Locust Manuals in Amharic
  - 2 Garmin GPS (EMPRES Office)
  - 1 Digital camera (EMPRES Office)
- Somalia:
- Various field equipment
- Saudi Arabia:
- 2 mobile HF radios
  - 5 base HF radios
  - Various field equipment

- Sudan:
- 1 Toyota Landcruiser station wagon
  - 4 Toyota Landcruiser pick-up (1 pick-up hijacked in Nov. 1999)
  - 2 Fax machines
  - 4 Desk top computers incl. accessories
  - 1 Lap top computer
  - 1 Generator
  - 1 Heavy duty photo copy machine
  - Various field equipment
  - 12 HF Base radios
  - 10 HF mobile radios
  - 20 portable VHF radios
  - 1 Test mate kit
  - 16 Ulvamast sprayers
- Yemen:
- 1 Toyota Landcruiser station wagon (EMPRES Office)
  - 1 Toyota Landcruiser pick-up (EMPRES Office)
  - 1 Desk-top computers incl. Accessories
  - 3 Desk-top computers incl. Accessories (EMPRES Office)
  - 1 Lap-top computer (EMPRES Office)
  - 1 heavy duty photocopier (EMPRES Office)
  - 4 HF radios
  - 1 Test-mate OP kit
  - 2 Garmin GPS (EMPRES Office)
  - 1 Digital camera (EMPRES Office)

## D. General Assessment

Conclusion whether the programme purpose can be achieved  
Recommendations on necessary steps to be taken  
Future action required

The recommendations made by the EMPRES Evaluation Mission in July-August 1999 have been successfully implemented during the year 2000. The EMPRES Programme Document has been reviewed in February 2000 and circulated to all interested parties. A planning workshop for Phase II, involving stakeholders of the programme, has been conducted in Egypt from 26 — 30 March 2000. A logical framework has been developed on the basis of the workshop findings for a three years phase from the 1 January 2001 — 31 December 2003, which was expanded into an Implementation Document for EMPRES Phase II. In addition, the cooperation with the CRC has been put on an operational level, which resulted in a joint workplan and in several joint events such as training courses, survey operations and research projects. In order to further strengthen the interaction with the CRC and to incorporate the strategic components of the EMPRES programme into the CRC approach, the decision has been made to move the EMPRES Coordinator's post to Cairo. The post has been advertised and a new appointment is expected to be made around mid-2001. Since the appointment of the former CRC Secretary to a new assignment in September 2000, the CRC Secretary post is vacant. The recruitment process for a new Secretary has been initiated by FAO. It is expected that the promising cooperation between the two partners will continue.

The collaboration with the LCUs of the member countries has been improved by introducing participatory approaches into the annual EMPRES Liaison Officers Meetings. The progress of the EMPRES activities is being evaluated jointly and a common understanding of the context for the next planning period achieved. This meeting style allows the ELOs on the one hand to identify national interests in the Programme more closely and on the other hand to develop a better understanding of the significance of the national programmes to the success of the EMPRES programme as whole. Promising initiatives to improve and promote preventive locust management aspects have been observed in several of the member countries. Nevertheless, in some others more effort would be much appreciated in future. It is also expected that the member countries will take further steps to improving national survey and information management systems during Phase II.

With the planning workshop of Phase II, the possibilities for the donor and research agencies to interact and to link up with the EMPRES programme have been defined more specifically so that the collaboration became more transparent not only for the different agencies but also for the EMPRES management. It has been agreed that several of the components or modules will be conducted in future in the form of bilateral arrangements under responsibility of a partner agency, contributing to the achievement of the EMPRES goals. This is the case with operational field research, economic aspects and improved locust management strategies. Weaknesses remain in the financial commitments and provision of technical know-how in some of the areas, in particular in field of development of the locust information systems and some of the economic aspects. For the EMPRES management better to plan and steer the activities in fulfillment of agreed obligations vis- -vis the member countries, it would be appreciated if some collaborating institutions could point out their specific areas of involvement on the basis of the Implementation Document and the log-frame.

The activities for the year 2000, planned during the 7<sup>th</sup> EMPRES Liaison Officers Meeting 1999, have largely been implemented according to the expected results. However, some external and also internal factors hampered the implementation in certain areas. For example, the calm locust situation did not allow field trials to be

conducted as expected. Also with regard to the research component more efforts have to be undertaken in future.

The technical and administrative tasks under the EMPRES programme not only increased during the period under review, but also the coordination and follow-up of the various activities in different fields and with various national and international partners. The temporary coordination office in Addis Ababa was originally not designed to handle these matters and increasingly reached its limits. In the planned link between the CRC and EMPRES coordination office, the support units of both offices could be merged. This would likely enhance the capacity to handle the various administrative issues at a lower cost. In addition, monitoring, both with regard to the impact of the EMPRES activities as well as the performance of the different parties, becomes more and more important. A special monitoring system has to be designed, reflecting the complex nature of the EMPRES programme, to facilitate the Programme coordination and steering on a day-to-day basis and to improve transparency as a whole. A reporting system within the staff has already been introduced, but since the EMPRES programme is understood as a joint effort, it would be appreciated if the different stakeholders could also join in this aspect.

With the planning workshop for Phase II and the revised Programme Document, the Programme has been put on a solid basis with a good expectation of developing sustainable modern Desert Locust management approaches at the LCUs in the Central Region, and of these being more effective, ecologically safer and economically sound. The targets have precisely been defined and the framework of cooperation and collaboration determined. It is anticipated that the results and efforts of the EMPRES programme during Phase II will lead to more confidence not only from member countries but also from the donor community in their support of the EMPRES objectives.