



**Emergency Prevention System for
Transboundary Animal and Plant Pests and Diseases**

- Desert Locust Component -

Central Region Programme

EMPRES/CR

Progress Report

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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 (CR), 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 (EMPRES/CR) 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 overall **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/CR team in duty stations at Asmara, Sana’a, Khartoum and Addis Ababa.

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

Campaign Planning and Contingency Arrangements

Campaign planning procedures and contingency arrangements are being developed in close cooperation 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/CR, namely the Netherlands, the USA (through USAID), Germany (through GTZ) and Switzerland. 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\$ 4.5 million was spent during the 4-year Phase I of the Programme (1997 – 2000). Following an Evaluation Mission in 1999 which recommended that there should be a Phase II of EMPRES/CR, a Programme Planning Workshop for Phase II was held in El-Tur (Egypt) in March 2000.

A 3-year Phase II of the EMPRES/CR Programme (2001 – 2003) started in January 2001, taking into account the recommendations of the Evaluation Mission and based on the Implementation Document developed by participants at the EL-Tur Workshop. The total cost was US\$ 3.53 million, covering staff salaries, operational expenses, equipment and contracts, research programmes, training and support costs.

The Purpose of Phase II was formulated as:

“Components of preventive Desert Locust control management developed and adopted.”

The following eight results were anticipated to contribute to the above purpose:

- R-1: Operational mandate of different regional organizations in Desert Locust management harmonized,
- R-2: National and regional communication networking enhanced,
- R-3: Desert Locust early warning and information systems improved,
- R-4: Desert Locust survey procedures of the member countries improved,
- R-5: Desert Locust technicians and officers qualified,
- R-6: Contingency plans available and implemented,

R-7: Efficient and environmentally safer control methods introduced and

R-8: Systematic methods of campaign evaluation developed.

Phase II of the Programme was evaluated twice. The first evaluation took place in August 2001 as part of a general review of the EMPRES Programme of Phase I in the Western Region (WR) and Phase II in the Central Region. The evaluation was initiated at the request of FAO's Director-General with the view to provide donors, participating countries and FAO with an independent and objective assessment of the status of programme implementation at the time of the World Food Summit – Five Years Later.

In February/March 2003, the routine EMPRES/CR Phase II evaluation was conducted. The mission came to the conclusion that substantial progress had been made towards achieving the Programme goals, in particular that the governments of the EMPRES/CR countries continued to regard the preventive control of the Desert Locust as a high national priority. Likewise, regional interaction and collaboration increased among countries, communication channels improved during Phase II as well as planning and management of survey and control operations. Other important results achieved during Phase II included: improved collaboration between EMPRES/CR and the FAO Commission for Controlling the Desert Locust in the Central Region (CRC), the introduction of the GIS based data locust management system RAMSES¹ in most of the member countries, the introduction of *eLocust* for wireless field data transmission, promotion and gradual introduction of environment-friendly control agents such as Metarhizium and Phenylacetonitrile (PAN), research towards improved Desert Locust control strategies, field-testing of advanced spray equipment, and the creation of a cadre of national master trainers that can pass on their know-how to a larger number of Desert Locust staff. In general, the mission was of the opinion that sufficient progress has been made during Phase II to warrant an extension of the programme to a third (Phase III), and probably final, phase of three years, which would address some of unfinished components within the overall objective of establishing a sustainable locust management system for the Central Region.

The results and recommendations of the Phase II evaluation were discussed in the 5th Consultative Committee Meeting in Rome, 19-23 May 2003 and a participatory planning workshop was conducted to develop the conceptional framework of Phase III. The workshop participants defined the purpose of Phase III as:

“Improved preventive Desert Locust control management approaches reinforced on sustainable basis”,

and identified four important results to be achieved during Phase III:

R1: EMPRES/CR Desert Locust management components² gradually taken over by the CRC and the participating countries,

¹ *Reconnaissance And Management System of the Environment of Schistocerca (RAMSES)*

² **Components of safer control technologies:**

- Training of staff
- Contingency planning & rapid deployment
- Stakeholder interaction
- Early detection and early warning
- Economic and environmentally safer control technologies

- R2: Implementation of improved early warning systems supported,
- R3: Campaign evaluation measures and contingency planning mechanisms in place and
- R4: Alternative control technologies supported.

The implementation of the Phase III activities started in January 2004. A 4th Evaluation Mission of the EMPRES/CR Programme was conducted in September/October 2005. Six EMPRES/CR member countries were visited, namely Egypt, Eritrea, Ethiopia, Saudi Arabia, Sudan and Yemen. The results and recommendations of the evaluation were discussed in the 6th Consultative Committee Meeting in Cairo, 19-23 November 2005. The Mission had concluded that important achievements have been made in integrating preventive management components into national programmes in a sustainable way and that the member countries attach high importance to prevention of Desert Locust outbreaks. Various achievements of the programme were highlighted, but the Mission had also identified some constraints concerning the adoption rate of some technologies and approached provided by EMPRES/CR by some of the member countries. It was noted that this variation requires further attention and follow up in the future when the Secretary of CRC is coordinating EMPRES/CR. The Mission strongly recommended appointing a Regional Technical Officer to assist the Secretariat of the Commission in ensuring that standards of preventive Desert Locust management in the member countries are maintained. The mission also recommended that the CRC member countries should in their next meeting determine the required level of support to be provided by CRC to EMPRES/CR participating countries.

During 2006 EMPRES/CR was supported from five sources of funds; Switzerland, the United States, the Trust Fund of the CRC, the Trust Fund of the Desert Locust Control Committee (DLCC) and FAO Regular Programme (RP). FAO re-submitted a proposal to Saudi Arabia and submitted another proposal to Qatar for support to a three-year EMPRES/CR Phase IV. If these funds were secured from Saudi Arabia, Qatar or other donors, EMPRES activities integrated into the Central Region Commission would be fully realizable.

By the end of 2005, one FAO-EMPRES/CR staff based in Sana'a remained. The Former EMPRES/CR Coordinator left the Central Region by 24th December 2005 to join the Programme in the Western Region. As before, EMPRES/CR is supported by national EMPRES Liaison Officers (ELOs) in eight of the nine member countries and by an EMPRES Link Person in Somalia representative of the Desert Locust Control Organization for Eastern Africa (DLCO-EA). A new ELO for Eritrea was appointed in January 2005. In view of the situation in Somalia with no identified government, EMPRES activities were followed up by an "EMPRES Link Person" (ELP) based in Hargeisa.

B. Status Report

B.1 Achievements of Outputs

Result 1: EMPRES/CR Desert Locust management components gradually taken over by the CRC and the participating countries.

Indicator 1.1: Improved preventive Desert Locust management component taken over by 2 countries by 2004, 3 more by 2005, 2 more by 2006.

It is expected that, during Phase III and thereafter, member countries will take on more ownership and responsibility for implementing improved Desert Locust management components within their own national systems. To achieve this, it is essential that CRC member countries fulfil their financial commitments to the Commission so that the CRC has the resources to be able to help frontline countries of limited resources to cover the costs of maintaining EMPRES activities and the use of new technologies. The CRC Secretariat is therefore expected gradually to take over more responsibility for following up EMPRES practices. Monitoring and backstopping will be important tasks for the CRC by the end of Phase III. EMPRES/CR will hence assist the Secretariat in pursuing the EMPRES approaches of preventive control. However, some countries are likely still to need some small support from the donor community to maintain their preventive control capacity beyond Phase III.

One of the important EMPRES/CR components is training. It is anticipated under Result 1 (R-1) that the training concept developed during Phase I and II is further supported to strengthen regular and more self-reliant national training programmes with reduced technical and financial inputs from EMPRES/CR and FAO. Also, appropriate management/administrative procedures of the resources, planning, coordination and monitoring of survey and control operations are issues that need to be addressed as part of contingency planning.

The Country Focus Programmes (CFPs) had a key function in the EMPRES/CR approach by analysing the main features of the organizational and policy framework of a country's Desert Locust management system and developing adapted strategies for future action. CFPs were therefore seen as an important analytical tool for improving survey and control procedures and also as a suitable mechanism for building ownership within the Programme. The approach was considered as the best way to develop and maintain national locust control capacity as opposed to a "one size fits all" approach. Support to CFPs will therefore continue during Phase III.

Planned Activities	Status / Reasons for Deviation
<p>1.1 Support member countries to develop sustainable national training programmes, with reduced technical and financial support from EMPRES.</p>	<p>As in year 2005, also in 2006 EMPRES/CR gave support to continuing training of locust officers, plant protection staff and other target groups. The objective was to conduct at least one training course in each of the member countries per year.</p> <p>In total six national and local training courses were conducted in 2006 in six out of the nine EMPRES/CR countries, namely in Egypt (1), Eritrea (2), Oman (1), Sudan (1) and Yemen (1) by using the EMPRES/CR Master Trainer's Training Manual. All training courses were organized and conducted by the national Master Trainers. Only in the case of Yemen, the EMPRES/CR NPO participated as observer and provided some technical backstopping to the Master Trainers. The main subjects addressed were Desert Locust biology and behaviour, survey and control principles and reporting. In total 105 plant protection staff, extension staff, scouts, farmers and labourers were trained and retrained.</p> <p>The feedback from the trainees and the national authorities on the training courses remained positive. After the experiences made during the operation of the emergency campaign (2003-2005) in the Central Region, Egypt, Eritrea, Saudi Arabia and Sudan and the management of Locust Control Centres and the Plant Protection Departments in these countries fully understood the advantages of the EMPRES training approach and undertook substantial initiatives in 2006 to improve its training capacities with remarkable success.</p> <p>It was planned that DLCO-EA would prepare and announce a training programme on aerial survey and control for all countries in the Central Region. An incomplete training manual draft on aerial survey and control was prepared by DLCO-EA and received in July 2006. DLCO-EA and CRC are working on appropriate handouts and transparencies for the manual. The training programme is expected to be undertaken in the first half of 2007.</p> <p>Two Master Trainers from Oman and Sudan were invited to join the second sub-regional training course, organized by CRC for non-front-line countries in the Central Region, in Doha, Qatar in April 2006, in order to assist in the training course and to gain experience in the Desert Locust advance technologies and training approaches.</p> <p>A Regional Workshop³ on RAMSES version 3 and the second version of eLocust (eLocust2), as well as on remote sensing imagery interpretation, was carried out by DLIS. The workshop was attended by two of the designated Information Officers each of Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Yemen and two staff from DLCO-EA. The workshop, which was supported by EMPRES-CRC, took place in Cairo during March 2006. EMPRES/CR also supported the FAO-WMO (World Meteorology Organization) joint workshop organized in Muscat in April 2006</p> <p>A self-reflection workshop was conducted in Sudan in April 2006 and in Yemen in March 2006. Recognizing the importance and value of self-reflection exercises, the frontline countries, Egypt, Eritrea, Oman, Saudi Arabia, Sudan and Yemen, were encouraged during the 14th EMPRES/CR Liaison Officers meeting in November 2006 to conduct such workshops at least once a year. In case of any assistance required, the concerned ELOs should address their request to CRC.</p> <p>Trained locust officers from EMPRES/CR countries gave on-the-job training during surveys for other locust staff on eLocust2 and backstopping on RAMSES without external technical assistance. However, as also pointed out by the 4th EMPRES/CR Evaluation Mission in 2005, further training is</p>

³ This workshop attended by the designated Locust Information Officers in the countries and DLCO-EA, which uses RAMSES.

Planned Activities

Status / Reasons for Deviation

needed on new technologies to raise the regional expertise.

To follow up the recommendations made by an independent evaluation mission in 2005 regarding the Desert Locust Diploma Course organized by the University of Khartoum, the Secretary of the Commission visited the University of Khartoum in December 2006. It was noted that the course programme has been redesigned and improved; e.g. the Desert Locust survey session was moved to the first semester and the control course to the second semester; the time allotted for locusts and grasshoppers collection, preservation and identification was reduced to 6 hours instead of 36 hours. The sessions concerning locust information management and forecasting, contingency planning and campaign organization are being held under the supervision of the Locust Officers at the Locust Control Centre. The complete set of courses handouts will be ready for the academic year 2007/08. New lecturers were identified and are being trained by joining the students in their field exercises and attending the classroom sessions. The Secretary of the Commission received most of the field reports and student's dissertations. The course coordinator is in the process of analysing the evaluation made by the students of the academic year 2005/2006, who were using the questionnaire as prepared by the course evaluation mission. The results will be included in the coordinator's report. The students of the academic year 2006/07 will be assigned to conduct a small research project during the field exercise in the 2nd semester; their findings will be included in the field reports. The English and Arabic Desert Locust Master Trainer Manuals are now being used in the teaching process of the students. The University also agreed to issue certificates for all graduated students as soon as possible. The Dean of the faculty promised to follow up the issue. All certificates will be passed to the students through CRC.

CRC, EMPRES/CR and FAO supported the academic programme at the University of Khartoum since 2000. The first batch started in 2001 with six students from Eritrea, Ethiopia and Sudan, who graduated in August 2002. So far 32 students graduated in six batches; Egypt (6), Eritrea (1), Ethiopia (4), Jordan (1) Oman (1), Saudi Arabia (2), Sudan (9), Syria (1), Yemen (5), one from Libya (CLCPRO) and one from India (SWAC).

The Sixth batch of students (Egypt 1, Ethiopia 1, Iraq 1, Sudan 2 and Yemen1) has been enrolled at the University for the academic year 2006-2007. All students had been involved in various research projects, which were carried out in Port Sudan and took part in some of the surveys conducted by the Locust Centre of Sudan.

For incorporating technical Desert Locust management subjects into technical teaching programmes, it was aimed to make agreements with the agricultural secondary schools of the member countries to include Desert Locust survey and control subjects in the curriculum. In this respect, a meeting was held with the Dean of the College of Agriculture Studies of the Sudan University of Science & Technology during the visit of the Secretary of the Commission to Sudan in December 2006, the Secretary gave an introductory lecture on Desert Locust to the 4th and 5th year students. The Sudan University agreed to accommodate technical Desert Locust management subjects into technical teaching programmes starting from the academic year 2006/2007. Eritrea reported in the 14th ELO Meeting that the Desert Locust Management course had been accommodated at Hamelmalo College of Agriculture in Asmara; the Eritrean ELO was requested to send details of the syllabus and the teaching staff to CRC-EMPRES.

Apart from Sudan and Eritrea, EMPRES/CR and CRC did not receive copies of agreements from the other countries, although Yemen indicated that advanced steps and progress in this direction had been made.

Planned Activities	Status / Reasons for Deviation
<p>1.2 Support the national Locust Control Units in improved management and administrative procedures and methods.</p>	<p>During 2006, progress in improving administrative and managerial procedures have been observed in almost all countries. The importance of better staff management and human capacity development has been recognized, and delegation of responsibilities, planning and monitoring of survey and control activities is gaining momentum. All countries are undertaking more efforts in keeping track of their resources, its distribution and use, and are providing CRC-EMPRES with regular updates of their inventory (at least twice per year during recession and more frequently in emergency periods). This inventory is essential for the Commission and FAO to monitor the equipment of the member counties in order to detect shortfalls prior to a likely locust emergency in order to initiate timely assistance.</p> <p>Unfortunately, the progress made in managerial aspects of dealing with the Desert Locust remained behind expectations. A prerequisite for adopted operations management in full structural and financial autonomy of the national LCUs, is not the case in all countries. The LCUs are mainly part of the general plant protection services with no or limited authority over the locust staff and the material, and with no own budget. This makes management of locust operations unpredictable and subject to either neglect by the national authorities during recession periods or frequent interference during emergencies, both with negative consequences for the efficiency of the campaigns. As recommended by the 13th ELO Meeting held in Sana'a, Yemen in December 2005, the CRC Secretary and the Chairman of the Commission decided to visit Sudan and Yemen to support the importance of providing the national LCUs with more autonomous financial aspects. Sudan was visited in July 2006; the Minister of Agriculture was convinced and promised to provide the LCU in Sudan with its own financial sources. The visit to Yemen was postponed to 2007 due to the internal reasons and the assembly election that took place in October 2006 and the expectation of changes at the Government.</p> <p>To exchange managerial experience with the Western Region, it was planned that Desert Locust control managers in Egypt and Saudi Arabia from the Central Region visit Mauritania and Morocco. But due to important commitment of the manager of the LCU in Saudi Arabia, only the manager of the LCU in Egypt visited Mauritania and Morocco in July 2006. Along the same line, and within the scope of exchanging experience, It was considered in December 2006 that the EMPRES/CR-NPO seizes the opportunity of the current Desert Locust infestation in the Western Region, specifically in Mauritania, and joins the Mauritanian survey teams in the field. The intention of the NPO visits is to be well informed on how Desert Locust survey practices are handled in the WR and what tools are used in the Information Office for analysing Desert Locust data and accordingly planning for surveys. The travel to Mauritania took place in January 2007; technical report including conclusion and recommendations based on the NPO findings is expected in February 2007.</p>
<p>1.3 Support member countries in initiating bilateral projects on selected Desert Locust management components.</p>	<p>In general and in case of an emergency, locust-affected countries are relying to a high degree on FAO to provide assistance. In order to support own initiatives to solicit bilateral assistance, EMPRES/CR prepared guidelines in 2005 on how to prepare more sensible project proposals to local donors and was made available to all member countries. In view of the calm Desert Locust situation in 2006, no country has requested any bilateral assistance from local donors.</p> <p>As a result of the efforts made by EMPRES/CR and CRC, the Government of Saudi Arabia agreed by the end of 2005 to support Eritrea with US\$ 300,000 to re-establish their Desert Locust control capacities. The funds were received and the Government of Eritrea is in the process to procure 10 vehicles with vehicle-mounted sprayers, protective equipment and other items including a portion of the fund to be used for DL operations.</p>

1.4 Prepare a Monitoring and Evaluation system in collaboration with the CRC.

The Secretary of CRC took the responsibility of all EMPRES/CR aspects, day-to-day follow up and monitoring of the various activities and operations, since December 2005. The CRC Secretary continued to follow the preventive Desert Locust management approach after EMPRES/CR ended as a separate donor supported programme.

The CRC-EMPRES website is accessible since July 2006 on <http://www.crc-empres.org/index.aspx>. The website provides the member countries and concerned parties with information on ongoing and past activities in the Central Region. It also offers a range of important technical references, forms, Desert Locust and other guidelines on various aspects of preventive Desert Locust management. The website provides links to other relevant and important websites. The Secretary of the Commission is regularly updating the information on the website.

1.5 Give support to Country Focus Programmes (CFPs)

EMPRES/CR continued in 2006 to give support to the Country Focus (CFP) approach to Eritrea, Ethiopia, Saudi Arabia, Somalia, Sudan and Yemen.

Because of **Eritrea** strategic importance, EMPRES/CR gave particular attention to strengthen its preventive control capacities since the beginning of EMPRES/CR in 1997. After the appointment of a new ELO in January 2005 the implementation of the CFP gained significant momentum. The activities focused on re-establishing the early warning, supporting the training activities and improving the reporting process.

Eritrea's membership to the Commission was accepted and approved by the Commission during its 25th session in Doha in July 2006 as the 16th member of CRC. With Eritrea all EMPRES/CR member countries (except Somalia) are members of the Commission.

The Locust Information Officer (LIO) continued to undertake regular surveys and established closer links to the regional agricultural offices at Zoba (District) level, as well as to conduct training and re-training programme with two training courses (one national for locust officers and on local for farmers and scouts) for 40 plant protection staff.

The survey efforts resulted in early detection of a local Desert Locust outbreak in Eastern Lowlands in the area of Shelsela and Shieb-Ghedged in December 2006. The control activities could be initiated with the resources provided under the project TCP/INT/3003(e) and the airlifted 25,000 litres donated by the Governments of Sudan and Senegal in August and September 2005.

Due to the absence of an identifiable unit for locust control within the structure of the MoA, the locust control capacities in Eritrea remain fragile. However, the weak communication network and restrictions to facilitate rapid transmission of locust relevant information from the field to the LIO in Asmara had been significantly improved since the introduction of eLocust2 in 2006.

The CFP in **Ethiopia** continued to be affected by the results of the structural reforms at the MoA and the appointment of undependable ELO in September 2004. Consequently and for the second consecutive year the formally well functioning locust information network continued to collapse and little use was made of the RAMSES system and the provided funds. Although the newly nominated ELO had received comprehensive training, retraining and advice on how to operate RAMSES and to organize the national locust information network, he continued to be in no position to make appropriate use of the data base as required.

Planned Activities**Status / Reasons for Deviation**

The Department Head acknowledged the difficulties and the need to strengthen the capacity of the Locust Information Office by at least one additional competent staff. It is expected that after the appointment of an additional LIO, more and more effective trainings on survey and reporting could be conducted in the near future and that the locust monitoring and reporting systems in Ethiopia improves again.

The main objectives of the CFP in **Saudi Arabia** for 2005 and 2006 were to improve the locust survey and control skills of the plant protection staff of the Regional Agricultural Departments, who usually play an important role during Desert Locust campaigns, and to improve the operational use of the RAMSES data management system, but the implementation still remained behind expectations. As reported in 2005, arrangements have been made to provide assistance in resolving the problems faced in operating RAMSES. The plan was for the Yemeni Locust Information Officer to visit Saudi Arabia to assist his counterparts. Up to date and despite several interventions, the Yemeni LIO was not granted an entry visa to the country. The issue was beyond the authority of the LCU, but it was understood in the 14th ELO meeting in Oman in November 2006, that the Under Secretary of the MoA is following up the matter. Since no national training course conducted by the Saudi Locust Control Centre in 2006, the participants of the 14th ELO Meeting strongly recommended that the management of the Locust Centre should undertake more effort to conduct training courses more regularly. As a result of the regional NDVI workshop conducted in Cairo in March 2006 and the transfer of better qualified staff to the Locust Information Office the quality of the locust information and reporting system improved.

Due to the importance of the Desert Locust breeding areas in **Somalia** for the whole Region, and because of the political instability and the absence of viable governmental structures, EMPRES/CR continued to give special attention to northern Somalia to secure regular monitoring of the Desert Locust breeding areas. The EMPRES Link Person (ELP), who was nominated by the local MoA in Hargeisa in 2002 resigned from the MoA and joined DLCO-EA as Caretaker of the Organization in Hargeisa in February 2006. A new ELP was appointed by the MoA in April 2006 and received on-the-job-training and backstopping from EMPRES staff. Soon after the changes, difficulties regarding the authority over the survey operations and the EMPRES/DLCO-EA Office occurred between the ELP and the DLCO-EA Caretaker. FAO and CRC explained to the new ELP the modus of operation in northern Somalia and was requested to work closely with the DLCO-EA Caretaker, to jointly undertake regular surveys and to continue frequent reporting to FAO-DLIS and CRC-EMPRES. He was also requested to maintain the radio communication network as established by predecessor (comprising 22 trained private radio operators in the locust prone areas). Fortunately, the survey operations were not too much affected by the above difficulties. The Desert Locust situation remained calm in 2006 and no action was required to initiate any control operations.

The CFP in **Sudan**, initiated in 1999, achieved its objective with the ministerial *decree* dated 20 March 2004 to create an autonomous *Central Institution of Desert Locust Research and Control*. (See also Report on Progress 2004). However, its budget and authority over the resources remained with the Plant Protection Department. Efforts were made by the CRC Secretary during his July 2006 visit to encourage the MoA to provide an autonomous budget to the Locust Control Centre (LCC). The issue remains unsolved and in the hand of the Ministry of Finance. FAO and CRC-EMPRES need to follow up the matter at a higher level.

The Government of Sudan releases annually about US\$ 1.5 million for locusts operations to cover cost of flying hours and pesticides.

Planned Activities

Status / Reasons for Deviation

One survey and control training course for plant protection staff and technicians was conducted in April 2006 in Wad Medani in Central Sudan.

In April 2006 the Locust Control Centre organized a self-reflection workshop. It was noted in the workshop that the availability of national budget at the right time remained the major problem for undertaking Desert Locust operations. Several areas for improvement have been identified with regard to early warning and locust information management, staff training and organizational and managerial aspects during operation in the field and at the HQ, and suggestions made on how to address the weaknesses (e.g. technical difficulties in the use of eLocust1; difficulties in the use of RBGAN portable satellite modem; the Information Office was not connected to broad band internet connection, which makes internet connection and downloading very slow; difficulty in sharing responsibilities, in a transparency way, with Senior Locust Officers in the Locust Centre.

The Desert Locust Monitoring and Control Centre (DLMCC) in **Yemen** made further good progress in improving its operations and to gain full autonomy. The Locust Information Office of the Centre is still one of the best in the CR; it issues frequent reports of good quality to DLIS (also see progress Report 2005) and is actively participating in field-testing new monitoring technologies.

The Centre organized one S&C training course in July 2006 for 20 trainees in Aden and in March 2006 it organized a second self-assessment workshop. The participants identified two crucial constraints: the very limited staffing level (the Survey & Control Section still consists of only two Officers) and financial limitations. Although the MoA acknowledged the importance of an autonomous Desert Locust Centre, the autonomous budget of the Centre remains the main problem. The participants of the 14th ELO Meeting, therefore, strongly recommended that the Head of the DLMCC should continue pursuing the question regarding a national budget for locust control with the Minister of Agriculture and Irrigation, and also recommended that the Chairman and the Secretary of the Commission should visit Yemen to support the Locust Centre in this respect. The question regarding the establishment of an independent Desert Locust Steering Committee remained pending.

The Centre organized a second sensitisation workshop in June 2006 for 13 information providers⁴ from the summer breeding belt. The approach continued to be very successful and it was recommended to be repeated prior to each season.

⁴ Agricultural graduates from different disciplines trained to provide Desert Locust information to the Locust Centre and to join in locust campaigns if needed.

Result 2: Implementation of improved early warning systems supported.

Indicator 2.1: Improved early warning systems (routine survey, functional national information offices etc.) are operational in at least 6 Locust Control Units (LCUs) by 2006.

The ultimate objective of an improved preventive locust control strategy is to locate and control gregarizing locust populations at the earliest possible stage, preventing them from developing into a major outbreak or even a plague. Nevertheless, finding early gregarized patches or even hopper bands in vast areas is extremely difficult. It is therefore important to find better methods that will increase the likelihood for detecting “hot spots”. One of these methods is to limit surveys to those areas that received good rainfall and have been identified as green by using the GIS locust data management software, RAMSES and remote sensing images. By narrowing down the potential target area, surveys and hence costs can be reduced.

RAMSES is an important prerequisite for improved early warning systems and was one of the major concerns of EMPRES/CR during Phase II. The custom geographic information system (GIS) provides a platform for reviewing past records of Desert Locust occurrence, displaying current survey and control results and viewing remote sensing images as a means of improving decision-making in respect of locust survey and control. During Phase I and II RAMSES has been installed in Eritrea, Ethiopia, Oman, Saudi Arabia, Sudan and Yemen, while RAMSES has been installed in Egypt during phase III. However, minor constraints associated with its daily operation occur every once in a while that are normally addressed by the Desert Locust Information Service (DLIS) in Rome assisted by available local expertise. These constraints require further attention by EMPRES/CR during Phase III in order to make RAMSES a sustainable operational tool and to encourage the LCUs to make routine use of it.

The objective of improved interpretation of remote sensing imagery is to facilitate locust surveys by directing them to those areas where ecological conditions are more suitable for locust breeding; hence, making better use of limited resources and reducing the costs and time associated with survey operations. During the past years there has always been uncertainty regarding the reliability of satellite imagery to identify green vegetation in traditional Desert Locust breeding areas and guiding survey teams to these places. Recent technical developments in satellites imagery, including higher resolution images such as the 250 m Moderate Resolution Imaging Spectroradiometer (MODIS) imagery, make it possible to obtain and more reliably analyse these products on an operational basis. Initial work on accessing these images and ground-trusting those in the field began during Phase II. This needs to be continued and expanded during Phase III if the full potential for the technology is to be achieved on a sustainable basis.

In order to ensure that locust surveys are complete, special attention has to be given to potentially important breeding areas in which access may be restricted because of civil conflicts and/or other forms of insecurity. In the Central Region, such areas are presently located between the borders between Somalia/Ethiopia, Eritrea/Sudan, Yemen/Saudi Arabia, and Sudan/Egypt. During Phase II progress has been made in organizing joint surveys with the participation of Desert Locust officers of the concerned countries. It is expected that EMPRES/CR will continue to promote joint border surveys during Phase III, both as a means of covering all potentially

favourable locust habitats, but also to foster a greater understanding and confidence between neighbouring national LCUs.

Planned Activities	Status / Reasons for Deviation
<p>2.1 Make routine use of the RAMSES locust database and the interpretation of results.</p>	<p>Currently the GIS locust data management system, RAMSES, is installed, and in use by trained staff in Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Sudan and Yemen. Due to the low volume of Desert Locust and data to manage, RAMSES has not been installed in Djibouti. The same applies to Somalia where also the absence of viable governmental structures and the inadequate staffing level are the reason for less data collection.</p> <p>Data from standardised forms and/or eLocust2, collected during surveys and control operations, are being stored and analysed in RAMSES. With increasing confidence and experience, most countries using the system are preparing their operations with the help of the database. The data-files are shared with the Desert Locust Information Services (DLIS) office at FAO HQ, CRC and neighbouring countries by e-mail. Eritrea, Egypt, Ethiopia, Oman, Saudi Arabia, Sudan and Yemen attach RAMSES maps to their Desert Locust reports and national Bulletin/Newsletters (see also CRC-EMPRES website). The countries preparing national bulletins include also a paragraph on the rainfall situation.</p> <p>Egypt, Eritrea, Oman, Sudan and Yemen are using RAMSES in a satisfactory way. Ethiopia's performance has improved after the NDVI workshop in March 2006 in Cairo. However, LIOs at the LCUs had to be reminded to check the data more carefully, particularly the coordinates to avoid misleading information. Most of the countries are becoming more professional in analysing the data and are making better use of the various RAMSES tools. For example, creating maps, viewing and comparing historical data from earlier "Locust years" with recently collected data that could reveal characteristic patterns of breeding and infestation in certain situations/areas, which could give further information on potential key breeding sites etc.</p> <p>In case of difficulties with RAMSES or eLocust2 most LCUs are actively seeking advice from DLIS by e-mail, who immediately provides technical advices and solutions to the countries. Also local RAMSES expertise from within the Region is being solicited whenever possible to solve technical problems. In this regard the Commission is still supporting the visit of the LIO in Yemen to Saudi Arabia.</p> <p>As mentioned above, a Regional Workshop on RAMSES, eLocust and satellite imagery interpretation (NDVI workshop) took place in Cairo in March 2006. The workshop was organized by the Information and Forecasting Officer of the Locust Group at FAO HQ (Mr. K. Cressman) and his assistant (Mr. N. Al-Harthy), and was supported by CRC-EMPRES.</p> <p>In addition to the RAMSES version 3 and eLocust2, additional new tools such as rainfall estimates and MODIS satellite pictures were tested by DLIS and provided to all countries in the Central and Western Regions. The rainfall estimate and MODIS maps are provided via Internet and can be displayed in RAMSES. These tools are now being used by most of the countries to direct the survey teams to more targeted areas, which helps in saving time, efforts and funds and at the same time increasing the probability of finding locusts. In order to sustain accessibility of this important information it was recommended by the 25th Session of CRC to cover the estimated cost of US\$ 19,000 per year for eLocust2 data transmission and the annual fees of US\$ 3,000 for the rainfall estimates and the MODIS maps. It was also agreed that EMPRES/CR would also cover the cost to develop country specific MODIS maps, which are easier to download than the currently available and rainfall estimates, being approximately US\$10,000–15,000, as a one-time payment.</p>

Planned Activities	Status / Reasons for Deviation
<p>2.2 Facilitate the interpretation of remote sensing satellite images and their use in directing survey operations.</p>	<p>DLIS provides 1 km resolution <i>SPOT-VGT Normalized Difference Vegetation Index</i> (NDVI) satellite maps to the EMPRES/CR countries in 10 days intervals and 250 m resolution MODIS imageries in 16 days intervals. The LIOs in Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Sudan and Yemen in addition to DLCO-EA, are using these vegetation maps for directing survey teams. Training has been provided to the LIOs on the interpretation of the maps, to take advantage of this tool for early warning in connection with RAMSES.</p> <p>DLIS requested the countries to provide brief ground verifications with their survey reports of the SPOT satellite image to verify the actual vegetation cover and to avoid false positive or false negative values. So far only Yemen is regularly including photos of the vegetation in their survey reports. (For easy reference the forms are available on the Locust Watch website, http://www.fao.org/ag/locusts/en/info/info/index.html).</p> <p>Tools for directing survey operations and improving early warning and decision-making also include the mentioned rainfall estimates (see 2.1). The other two resources, Locust Mapper and Locust Chaser are available free of charge on the Internet. Locust Mapper was developed about seven years ago and has recently been updated. The new version has improved maps and a better interface. Locust Chaser is an Internet-based trajectory model that estimates Desert Locust movement up to one week in advance, if the initial location and date are known. Users can enter the altitude of flying swarms and their estimated speed. Based on the inputs, the tool will display the predicted migration route on a map that can be printed or downloaded.</p>
<p>2.3 Support joint cross border survey.</p>	<p>A joint cross border survey between Egyptian and Sudanese survey teams (the fifth of its kind) was conducted in the winter breeding areas of the Red Sea coast in March 2006. A fourth joint border survey between Yemeni and Saudi teams was undertaken in the winter breeding areas of the Red Sea coast of the Tihama in September 2006. Omani Locust Officers were invited to participate in the fifth joint border survey between Yemen and Saudi Arabia in 2007. In view of unsuitable ecological conditions, staffing changes and the internal situation in Somalia, the planned joint border survey between Djibouti and Somalia did not take place.</p>
<p>2.4 Support development of survey practices and technologies through solicited research projects.</p>	<p>The sponsorship of an M. Sc. student at the University of Khartoum, which started in 2004, had been finalized in August 2006. The objective of the two-year study was to provide more accurate estimates of Desert Locust infestation; copy of the thesis is available on the CRC-EMPRES Website. The researcher aimed in his study to evaluate the current methodologies of Desert Locust ground survey with attempts to introduce improvements to increase efficiency of survey process. Through the combination of computer software for applying principles of geometry and field testing, the researcher tested three methods of foot surveys (current foot transect, the modified method developed by Iranian researcher in 2002 and the proposed foot transect in the study) and two methods for survey by vehicles. According to the researcher, the results indicated that Desert Locust Officers could be able to detect stationary locust groupings at 5 meters on each side of the foot transect line but this method appeared to be less accurate by vehicles. The researcher stated in his findings that the proposed methods of survey (foot and vehicle) would enable survey officers to cover wider infested area, but more time is needed.</p> <p>It was stated by the researcher that the findings of this study could improve the efficiency of the Desert Locust operations, which is considered important and needed to increase the capacity of the current Desert Locust preventive management strategy.</p>

Planned Activities	Status / Reasons for Deviation
<p>2.5 Up-date national locust information systems.</p>	<p>In the same trend, the Commission in the Central Region will be sponsoring a second M. Sc. research study on improved survey practices in 2007.</p> <p>It has been noted in previous reports that a well-organized and reliable information set-up in each of the locust affected countries is the basic requirement for a functioning global early warning system and hence for preventive Desert Locust management. The quality and timeliness of data collected in the field by survey teams, local plant protection officers or scouts are crucial to assess the locust situation, forecasting of the developments, planning of operations and evaluation of the country's needs. Also the quality of forecasts issued by DLIS ultimately depends on the reliability of the national information systems. In actual fact and for this reason, EMPRES/CR gave and is still giving high priority to this matter and is supporting the member countries in various organizational and technical aspects as far as collecting and transferring of field data is concerned. The importance of operational information systems at the national level has clearly been demonstrated during the 2003-05 upsurges, specifically in January 2005, in containing the Desert Locust swarms invading the CR through the western Egypt-Libya border.</p> <p>Also in 2006, the best managed national information system in Yemen continued to improve further. In Sudan, the information system has improved, particularly after the appointment of better qualified staff. Although the network in Ethiopia had been affected after the departure of the former ELO, but progress has been observed particularly after the NDVI and Remote Sensing workshop in March 2006; satisfactory progress were recorded in Egypt, Eritrea, Oman and Saudi Arabia.</p> <p>Internal communication within an affected country on locust and rainfall events depends mainly on HF radios. Mobile phones and fax are sometimes used for transmitting information from the field to HQ in parts of Oman, Saudi Arabia and Yemen.</p> <p>In order to improve the mode of communication by HF radios, EMPRES/CR advocated regular and defined contacts between the LCUs/Locust Information Office and the field stations. For this reason, a Standard Operating Procedure (SOP) for radio communication for mobile teams and a poster for base stations were prepared by EMPRES/CR, DLIS and CRC. The SOP and the Poster were finalized and distributed to all countries August 2006.</p> <p>In general, good progress has been made in all aspects of locust reporting by all countries. Nevertheless, small improvements are still required, mainly regarding the quality. The FAO Locust Forecasting Officer from DLIS prepared an assessment of the reporting quality and timeliness, presented by the CRC Secretary during the 14th ELO Meeting. Compared to an average of the last five years the quality of the reports had improved in almost all countries. With regards to timeliness, in general, all countries had improved their frequency of reporting as compared to the previous years.</p> <p>In conclusion, the countries were reminded to maintain the information during recession and to increase the reporting frequency in emergencies and to not wait until the end of the month to report and to use RAMSES on a regular basis. As it was also recommended during the 13th ELO Meeting that more efforts should be made to strengthen the Locust Information Offices in Eritrea, Oman and Sudan with additional qualified staff. Although the information system improved again in Ethiopia more efforts should be made by the MoA to provide better qualified staff.</p> <p>Although the Desert Locust situation was calm during 1 January – 31 December 2006; DLIS received at least one Desert Locust report per month from all national LCUs. More frequent reports were prepared by Eritrea, Egypt, Saudi Arabia, Sudan and Yemen particularly in the occasion of rainfall.</p>

Planned Activities	Status / Reasons for Deviation
<p>2.6 Support introduction of eLocust</p>	<p>Since 2001 EMPRES/CR, in close cooperation with DLIS, supported the countries in improving the national communication network by providing the LCUs with new data recording and transmission technologies such as eLocust. This first system (eLocust1) consisted of a handheld computer that allowed the field officer to enter survey and control data at the field location. The data was then transmitted via modem and HF radio directly to the Information Office and imported into the RAMSES system. Several weaknesses, such as difficult to use, loss of data, difficulty to correctly configure the components of system and the fact that the hardware was no longer manufactured, were reported.</p> <p>Thanks to emergency funds available during the 2003-05 upsurge, an updated version, eLocust2, was developed under the guidance of DLIS that addressed the shortcoming of the first version. The system was tested in the field by locust officers in Egypt and Yemen (as well as three countries in the Western Region). The updated version consists of a single rugged touch-screen unit with a built-in GPS and has the ability to transmit data via satellite.</p> <p>An extra day was included in the NDVI work shop held in March in Cairo, for training on eLocust2. In early 2006 a sufficient number of eLocust2 units were distributed to all countries to improve monitoring Desert Locust in the Central Region as well as in the other regions. The eLocust2 units were provided to Djibouti - 2, Egypt - 6, Eritrea - 4, Ethiopia - 2, Oman - 7, Saudi Arabia - 4, Somalia - 2, Sudan -10, Yemen - 4; additional units were ordered to Egypt - 4, Eritrea - 2, Ethiopia- 1 and Saudi Arabia - 6. It was agreed during the 13th ELO Meeting that FAO would cover the transmission costs for the first year while the Regional Commissions should cover these costs thereafter; this recommendation was endorsed by the 25th Commission Session in Doha.</p> <p>Six countries Egypt, Eritrea, Oman, Saudi Arabia, Sudan and Yemen have been using eLocust2 in 2006. As mentioned previously, the ELO in Ethiopia did not spend any efforts to use eLocust2, but with the appointment of a new ELO, in January 2007, better performance is expected. Although two eLocust2 were distributed to each of Djibouti and Somalia, but they were not in use since RAMSES is not provided to both countries</p> <p>To develop the regional capacity for the support of new technologies such as RAMSES and eLocust, the LIO in Yemen and DLCO-EA gained a lot of practical experience during the past years in all aspects of RAMSES operation and eLocust. Their expertise is available to their counterparts of the other member countries. Mr. N. Al-Harthy (Oman), who was trained for 11 months at DLIS Rome, and then recruited for two years to assist the Information and Forecasting Officer of the Locust Group, is an excellent expert available for the three regions.</p> <p>Information Technology (IT) has developed rapidly over the past decade. It has become more and more reliable and less expensive with more applications. Satellite communications is likely to become the standard means for communication and real-time data transfer over long distances in remote areas that constitute the majority of important Desert Locust habitats. The incorporation and use of new technologies will continue to rely on the substantial support and backstopping of FAO and DLIS. The Commission in the Central Region will continue to cooperate with DLIS to evaluate and test new technologies and will further assist the countries in getting acquainted in applying the technologies within their national programmes.</p>
<p>2.7 Support survey teams.</p>	<p>EMPRES/CR Programme made sure that most countries are sufficiently equipped with survey material which comprises of GPS, compass, anemometer (wind measurements), psychrometer (temperature and humidity measurements), stop watch, hand-lens and maps. Due to losses or damage, a small stock of equipment is kept in Cairo at the Commission's</p>

Planned Activities	Status / Reasons for Deviation
2.8 Prepare national survey plans.	<p>office in order to replenish countries in need.</p> <p>In order to facilitate better identification of plant species relevant to locust breeding and to help the survey teams to better distinguish the Desert Locust from other locusts and grasshopper species, pocket-size vegetation and locust/grasshopper index field cards were prepared in 2003. Both required time for revision and important modifications, which delayed the actual planned publication of the index field cards. The field cards on locust/grasshopper were ready, printed and distributed in September 2005. The vegetation index cards are under revision for the second time since October 2006 by a national consultant in Sudan and are expected to be ready for printing by February 2007.</p> <p>EMPRES/CR continued encouraging the LCUs to use the provided tools such as NDVI maps, RAMSES and meteorological data to organise their survey operations and to routinely monitor the most important breeding sites, also during recession⁵ periods. This should help the LCUs to organise more targeted surveys with better chances to detect early signs of gregarization. Survey plans during 2006 were made by Egypt, Eritrea, Oman, Saudi Arabia, Somalia, Sudan and Yemen. EMPRES/CR-CRC and DLIS need to continue providing backstopping, especially in more sensible interpretation of RAMSES and NDVI maps and how to draw valid conclusions for preparing surveys.</p>

⁵ Period without widespread and heavy infestations by Desert Locust bands or swarms.

Result 3: Campaign evaluation measures and contingency planning mechanisms in place.

Indicator 3.1: National contingency planning mechanisms adopted and the operationally assessed as satisfactory for 2 countries by 2004, 3 more by 2005, and 2 more by 2006.

Indicator 3.2: Regional contingency planning mechanisms adopted by the CRC and operationally assessed and satisfactory by 2005.

In the framework of long-term sustainability, EMPRES-CR and the CRC will give priority to the development of national and regional contingency planning mechanisms during Phase III as well as to procedures to assess and to further improve control campaign cost-effectiveness.

Contingency planning has been identified as a vital component of the prevention of Desert Locust plagues. In order to be better prepared for emergencies, the LCUs as well as the regional and international bodies need to be organized for a full range of scenarios, from recession to plague situations, and need to have appropriate instruments at hand in order to allocate additional resources quickly enough to be effective. During Phase II, only the Sudan was in the position to develop contingency plans for the summer and winter breeding seasons in an adequately comprehensive manner. Contingency planning with the aim of having the necessary arrangements in place is a complex matter which requires well functioning coordination at the national, regional and international levels in addition to appropriate mechanisms that facilitate the process. Further attention to contingency planning during Phase III is therefore an essential step in creating a preventive control strategy that works in practice.

One of the important aspects in this matter is to encourage member countries to create national locust management committees (Steering Committees). Such committees serve to keep the concerned governmental institutions informed of locust developments and can assess the capacities of the responsible LCU to respond to each particular situation. In addition, past experience has shown that national partner institutions lack the necessary management expertise to make proper arrangements in advance and to solicit additional assistance in case of shortfalls.

At the regional level, similar arrangements need to be put in place both for the CRC and the Desert Locust Control Organization for Eastern Africa (DLCO-EA) in order to facilitate rapid deployment of additional resources and timely aerial intervention. EMPRES/CR will assist the CRC and DLCO in developing regional contingency planning mechanisms which are compatible with those of the participating countries and of FAO.

At the heart of the EMPRES programme is the objective of improving the effectiveness and efficiency of locust control. Such improvements should be measured through campaign monitoring and evaluation, but to do this realistically during recession periods has proved difficult. There are two main aspects: the first is the efficiency and effectiveness of Desert Locust control campaigns; and the second is to assess overall impact and economic justification. The various socio-economic case studies carried out under the umbrella of EMPRES/CR during Phase II

revealed that the poorest farmers were the most vulnerable to locust invasions and considered the pest as the second most important threat to their livelihood after drought. The idea of introducing insurance schemes to compensate for crop damages caused by the Desert Locust was rejected as not realistic and not viable given the uncertainty of the insurance market in most of the affected countries. The Phase III Planning Workshop recommended that a study of the comparative economic advantage of preventive Desert Locust control as against the high cost of emergency control would be a useful element in the argument of the value of the preventive approach.

Planned Activities	Status / Reasons for Deviation
<p>3.1 Encourage the concerned countries to create national locust management committees (Steering Committees).</p>	<p>The strategy by EMPRES/CR and the CRC with regard to Contingency Planning is based on the following components: Constant monitoring of the locust situation in collaboration with DLIS, regional and national action plans, monitoring and assessment of the national intervention capacities, stakeholder information, rapid assistance and national Desert Locust Steering Committees.</p> <p>Desert Locust Steering Committees made up of governmental institutions, donor representatives and senior officers from the LCUs have proved to be useful. Generally, the committees have the following objectives:</p> <ul style="list-style-type: none"> • to create awareness, • to analyse the locust situation and the immediate consequences on food security and the livelihood of the people in the country, • to analyse the capacity of LCU to cope with the situation/threat, • to harmonise the necessary actions and • to monitor the operations carried out by the LCU. <p>The initiative by EMPRES/CR to create such committees in Eritrea, Ethiopia, Sudan and Yemen started in 2001. As of December 2005, Steering Committees have been established in Egypt, Eritrea, Ethiopia, Sudan and Yemen (National Disaster Management Committee). The constitution and frequency of meetings of the Steering Committees varied from country to country and according to the Desert Locust situation. During the emergency from 2003-2005 the Steering Committee of Sudan met most often with good results regarding the mobilization of national resources to the Desert Locust campaign.</p> <p>In Yemen, locust emergency matters are handled by a National Disaster Management Committee, which is dealing with the whole range of natural calamities. But with regard to the importance of the Desert Locust to food security of the country, it has been recommended to establish a separate committee for Desert Locust operations only, since it was believed that a smaller and independent body is in a better position to respond more rapidly to the developing needs of the DLMCC. The Ministry of Agriculture and Irrigation proposed the creation of an independent Desert Locust Steering Committee in December 2005, but until the end of December 2006, the subject was still pending at the Legal Department.</p> <p>With the exception of Sudan, Steering Committee meetings were not held in Egypt, Eritrea, Ethiopia and Yemen during the past period due to the current Desert Locust recession period. However, in order to keep the committee members and other parties informed, the monthly Desert Locust Bulletins/Newsletters continued to be another very important instrument of awareness creation also during so called “calm” periods. By February 2006, the monthly Desert Locust Bulletins are issued regularly by all countries including Somalia; all Bulletins are placed on the CRC-EMPRES Website. In addition, the lists of available resources proved to be an important reference in the context of the Steering Committee Meetings and for FAO. These Capacity Information Spread Sheets, developed by EMPRES/CR, have been used by the countries to regularly report on their available resources (staff and material), for surveys, control operations etc. During</p>

Planned Activities	Status / Reasons for Deviation
<p>3.2 Prepare guidelines for national contingency planning mechanisms.</p>	<p>2006 and since the Desert Locust situation remained calm; updates have been received twice from all countries; the information is available on the Website. From DLCO-EA, quarterly up-dates were received in 2006 on the status of its air fleet and monthly reports on the Desert Locust and other migrant pests have been received and are available on the Website.</p> <p>The relatively small LCUs need to be quickly reinforced during periods of higher Desert Locust activity either by mobilizing additional national resources or by addressing their needs early enough to FAO and to the international donor community. The Emergency Centre for Locust Operations (ECLC) was re-established at FAO HQ in 2004 and comprises of technical experts from the Plant Production and Protection Division and operational staff from the Emergency Operations and Rehabilitation Division. ECLC was operational throughout 2005 and 2006. A consultant was appointed from DLCC for organising probable and certain Desert Locust threats and which mechanisms to be used at the various levels. A draft guide for contingency planning at country level has been submitted to FAO HQ in 2004 and is in the process of being reviewed. The 14th ELO meeting recommended that the Secretary of the Commission to follow up the matter with FAO HQ.</p> <p>A regional preventative control workshop, planned to be held in Cairo in 2005, did not take place because of the involvement of the FAO-EMPRES/CR staff and the ELOs in the emergency operations and the transfer of the EMPRES/CR Coordinator in December 2005 to the Western Region. The 14th ELOM recommended that CRC should request AGPP to liaise with CLCPRO for organizing an inter-regional workshop on preventive management of the Desert Locust.</p>
<p>3.3 Support the national entities in developing national contingency planning mechanisms.</p>	<p>EMPRES/CR continued assisting the member countries in various aspects of national emergency management and contingency planning. Some of the mechanisms had been addressed and trained already during the previous years (see EMPRES/CR Progress reports 2001-2004). Sudan continued to be the country that submitted plans most regularly, and attentively applied the mechanisms during the campaign. Other countries which developed advanced mechanism were Egypt, Ethiopia, Saudi Arabia and Yemen.</p> <p>It was recommended in 2004 that the CD ROM containing computer simulations and spread sheets on assessing resources needed for various levels of Desert Locust situation should be used on regular bases. Apart from ad hoc emergency prevention meetings organized by EMPRES/CR in March and September 2004, this CD ROM and the spread sheets was not used by any of the countries in the Central Region in 2006. Regardless of the Desert Locust situation, it would be advisable to organize a training programme to train the Locust Officers on how to use the spread sheets for better estimate of the required resources for various levels of Desert Locust situation.</p> <p>The quality of the Desert Locust Bulletins, whose objective is to keep the national authorities and stakeholders informed of the locust development and the actions undertaken by the LCUs, further improved during the reporting period. Well informative Bulletins were being produced in 2006 on regular bases and in a good timing with better quality of information e.g. survey conducted, activities carried out, problems faced and requirements for possible solution; the Bulletins also include rainfall data, available resources and attached with MODIS maps and RAMSES maps indicating the area surveyed during the month.</p> <p>The guidelines for preparing the Bulletins, distributed in 2004 by CRC-EMPRES/CR, are believed to be the reason for this improvement as well as their continuous assistance to the countries for the preparation. The Bulletins have become standardised and information more comparable. During 2006, in total 97 Bulletins were issued by Egypt, Saudi Arabia,</p>

Planned Activities	Status / Reasons for Deviation
<p>3.4 Assist the CRC in developing regional contingency planning mechanisms in accordance with those of the countries and FAO.</p>	<p>Oman, Sudan and Yemen being in the lead with regard to quality and numbers. Eritrea and Ethiopia started, from February 2006, to issue their national bulletins; Somalia issued its first bulletin in June 2006.</p> <p>In the emergency 2003 – 2005 EMPRES/CR introduced a sequence of planning procedures at the regional and national levels to better coordinate the response actions and to address the threat in a more systematic and targeted manner (see EMPRES/CR progress reports 2004 and 2005). This instrument proved to be reasonably successful and has been taken on by several LCUs also in 2006 despite the calm situation. Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Sudan and Yemen continued preparing national action plans every year. Also Djibouti was encouraged during the 14th ELOM to produce their national action plan in January 2007.</p>
<p>3.5 Assess the “operationality” of the contingency planning mechanisms.</p>	<p>A formal assessment of the operationality of the contingency planning mechanisms, as developed and applied by EMPRES/CR, has not been carried out. But it is believed that the various instruments helped the countries to develop a more realistic picture of the likely Desert Locust movements, the expected degree of infestations, their possible short falls in terms of human and material resources, and more realistic trigger mechanisms to solicit rapid assistance. However, it would be advisable to review the approach in the context of the FAO Crisis Management Centre currently in the process of being set up in order to harmonise and better synchronise the national and global response mechanisms.</p> <p>EMPRES/CR prepared simulated Desert Locust outbreak field exercises to be carried out during calm periods in order to practice outbreak campaigns with the staff of the LCUs. These exercises are meant to be a supplement to regular staff training, to refresh the ability of the survey and control teams to detect and to control Desert Locust outbreak populations, and to better plan for the probability on an outbreak. Because of the relatively calm Desert Locust situation in 2006 the 14th ELO meeting proposed to conduct a simulated outbreak campaign in Yemen in 2007 (see also 3.9).</p>
<p>3.6 Develop guidelines for campaign evaluation.</p>	<p>To develop guidelines to assess the success and impact of a Desert Locust campaign proved to be extremely difficult, if not impossible, because of the rapidly changing parameters as the real situation unfolds. It turned out to be equally difficult to keep external experts on stand-by for a long period and to be flown in to join the survey and control teams in their operations. During the 2003-2005 campaign, EMPRES/CR has chosen a more pragmatic approach by carrying out frequent field visits and organizing self-assessment sessions with the staff of LCUs. Although these actions were not well prepared in advance and not carried out in a systematic manner, gaps regarding the national information systems and the use of inappropriate control tactics had been detected. These deficiencies had been addressed with the result that many of the points raised have been corrected in the following.</p> <p>As already noted in the 2005 report, overall campaign evaluation dose not only include monitoring of the technical aspects of the operations in the field, but also organizational, financial, environmental and livelihood issues. This requires a multidisciplinary approach combining technical, social and economical expertise. This needs to be addressed in collaboration with FAO HQ and partner agencies in the context of contingency planning and risk management. As a result of the Multilateral Independent Evaluation (MIE) of the recent Desert Locust campaign carried out from November 2005 to March 2006, FAO is making efforts in this direction and formed a working group in the 38th DLCC meeting in September 2006 to follow the implementation of the recommendations of the MIE which particular emphases on risk management and livelihood issues. The Secretary of CRC is also part of this working group.</p>

Planned Activities	Status / Reasons for Deviation
<p>3.7 Develop mechanisms to collect data on the extent of infestations, crop damage etc. during control campaign.</p>	<p>For this purpose, a Spray Monitor Form has been introduced to the LCUs to be regularly used during control operations, but because of the calm Desert Locust situation and the comparatively limited control operations conducted by the Central Region countries during 2006, the forms were not used. In this respect, it should be noted that the teams in Sudan started to make practical use of the forms in 2005; but the countries have been requested and reminded in the 14th ELO meeting to pass copies of the filled forms to CRC-EMPRES/CR for analysis and to identify any difficulties in filling the forms.</p>
<p>3.8 Evaluate economic advantage of preventive control vs. emergency control.</p>	<p>The early detection and rapid response capacities developed in the CR from 1997 to 2003 helped to eliminate an outbreak of the Desert Locust in Sudan by mid 2004, an invasion from the WR by early 2005 and again another local outbreak in Eritrea by end of 2005, at comparatively low cost. The total cost to date of the Central Region EMPRES Programme from its first initiation in 1994 up to 2006 has been US\$ 11.5 million, and an additional US\$ 15 million was spent on control efforts during 2004-2005, which was mainly covered by national sources.</p> <p>In contrast, the total cost of the recent campaign and subsequent rehabilitation in Northwest Africa was estimated at the Desert Locust Control Committee meeting in September 2006 at about US\$ 280 million plus US\$ 120 million for food aid including multilateral, bilateral, and national contributions. Indirect costs include the environmental, productive and health costs of the 13 million hectares, that were treated with chemical insecticides to bring an end to the upsurge.</p> <p>It became clear that if the EMPRES Programme had been fully operational in the Western Region, the total costs of the campaigns and their environmental and livelihood impacts could have been reduced by up to 50% in most of the affected countries.</p>
<p>3.9 Assist member countries in developing simulated outbreak control campaigns in the field.</p>	<p>As some EMPRES/CR countries showed high interest in practising medium size mock survey and control exercises on simulated outbreak campaigns, especially during recession periods. EMPRES/CR developed in 2005 referring guidelines for mock outbreak campaigns. The guidelines were compiled and distributed in September 2005 and are now available on the CRC-EMPRES website.</p> <p>Currently there is a proposal under revision to conduct a simulated outbreak campaign. EMPRES/CR-NPO was requested to prepare and submit to CRC/EMPRES a proposal for conducting a simulated Desert Locust outbreak campaign at regional level. Yemen proposed to host the simulated outbreak campaign. The proposal should include, time table, participants list, resources needed and a budget plan; March 2007 has been suggested as a target date for the simulation. In this respect and in order to strengthen further the cooperation and the interaction with EMPRES in the Western Region, it would be momentous for locust officers from the Western Region to participate in the proposed simulated outbreak campaign, hence technical views and opinions of the findings and problems/obstacles of the campaign should be discussed between officers of the two regions. Conclusion on how campaign should be carried out in an efficient and in a satisfactory way should be reported.</p>

Result 4: Alternative control technologies supported.

Indicator 4.1: At least one bio pesticide against the Desert Locust registered in at least 3 countries and ready for operational use by 2006.

National laws and regulations governing bio-pesticides are in a state of uncertainty and change. Some countries are using existing guidelines for chemical pesticides to evaluate bio-pesticides while others have guidelines and authorities specifically to process and encourage registration of bio-pesticides. The need for a pragmatic but critical approach to regulatory requirements for bio-pesticides is essential if opportunities for the development and utilisation of environmentally friendlier control agents are not to be wasted.

During Phase II, EMPRES/CR encouraged progress by supporting various efforts at international and national levels. The promulgation of new regulations can be a slow process. However, EMPRES/CR will further participate with member countries and other collaborators in FAO efforts to harmonize bio-pesticide regulations. Provided that national legislations allow the registration of locust bio-pesticides, it is expected that at least one bio-pesticide against the Desert Locust will be registered in at least three countries for operational use by 2006.

Low Desert Locust populations since 1998 until autumn 2003 have not allowed large-scale field trials on alternative control technologies. During Phase II, the introduction of bio-pesticides and the encouragement of the national authorities to adopt bio-control have had to depend on using reared Desert Locust. As an alternative, EMPRES/CR has also promoted bio-pesticide research on other locust species or grasshoppers.

Planned Activities	Status / Reasons for Deviation
<p>4.1 Participate with member countries and other collaborators in harmonizing bio pesticide regulations.</p>	<p>After the Sudanese registration⁶ of the bio-pesticide Green Muscle® (<i>Metarhizium anisopliae</i> var. <i>acridum</i>) in 2004 for the use against locusts and grasshoppers, Egypt and Yemen intensified their attempts to also register this more environmentally friendly product. So far both countries have completed the Green Muscle® Dossier; the company has identified and appointed national agents in both countries in order to initiate registration.</p> <p>As stipulated in the approved MoU (para. IV) between CRC and DLCO-EA, the Organization could play an important role in harmonizing the registration procedures for bio-control products in the Central Region. DLCO-EA had received substantial support in this matter from USAID and conducted several national, regional and international workshops to develop requirements and protocols for registration of bio-pesticides (workshops in Addis Ababa 21-23 July 1999, Nairobi 4-6 December 2000, Arusha 1-4 July 2003 and international workshop in Cotonou 29 January-2 February 2001). The compiled documentation regarding the standard protocols for biopesticide-registration was planned to be finalized by DLCO-EA in 2005 but by the end of 2006, CRC has not received a copy. CRC had followed up the matter with DLCO-EA, in which it was evident that the information on the biopesticide-registration schemes in DLCO-EA member</p>

⁶ Following the registration, for the first time in the country 400 L of Green Muscle® were purchased in 2005 to be used in case of a Desert Locust outbreak

Planned Activities	Status / Reasons for Deviation
<p>4.2 Support large-scale operational trials and small-scale demonstrations of the use and efficacy of bio pesticides and other novel technologies.</p>	<p>countries have been recently received by DLCO-EA, however the compiled standard protocol for biopesticide-registration yet to be prepared.</p> <p>However, EMPRES/CR supported DLCO-EA in conducting registration trials of Green Muscle® against mixed grasshopper population in Ethiopia. A first progress report has been submitted to EMPRES/CR and CRC. The results were not satisfactory due to the cross contamination by Green Muscle® and pesticides of the control plots. It was agreed to repeat the trial in 2006 on reared Desert Locust hoppers and adults. The final report has been submitted and cleared in December 2006. The results were very encouraging; DLCO-EA will follow up the matter with the concerned authorities in Ethiopia to initiate the registration process.</p> <p>EMPRES/CR gave support to large scale field trials whenever and wherever possible. But due to the relatively calm period since 1997 until 2003 little or no possibilities occurred. Alternatively, EMPRES/CR set up Desert Locust rearing facilities in collaboration with ICIPE at Port Sudan to pursue at least small scale semi-field trials with Green Muscle® and the locust pheromone Phenyl-Aceto-Nitrile (PAN). It was only with recent upsurge that for the first time it was possible to carry out larger scale field trials on natural hopper bands and non-marching groups with PAN and Green Muscle® in late 2004 and early 2005. The results confirmed the promising previous findings from various laboratory studies and semi-field trails (see also EMPRES/CR reports on progress 2004 and 2005).</p> <p>FAO received in 2006 financial assistance of Euro 1.5 million from IFAD (GCP/INT/964/IFA) to implement the development of preventive and environmentally safe approaches to Desert Locust control methodologies. The participating countries are Algeria, Burkina Faso, Cape Verde, Chad, Egypt, Eritrea, Ethiopia, The Gambia, Libya, Mali, Mauritania, Morocco, Niger, Senegal, Sudan and Yemen. The objective of the project was to undertake multi-site validation field trials with biological agents against Desert Locust, including the insect pathogen <i>Metarhizium</i>-based Green Muscle®; the insect pheromone PAN, and Insect Growth Regulators (IGRs). The project is being coordinated from FAO HQ but due to the long term experience in the CR with regards to Green Muscle® and PAN it is expected that EMPRES/CR will play an important role in the implementation of the project.</p>
<p>4.3 Support solicited research projects.</p>	<p>Since the beginning of the Programme, EMPRES/CR, CRC and FAO have provided support to a total of thirteen research projects. Eight projects have been completed, three are still in process and two were not completed and hence cancelled. In details, the following topics have been addressed:</p> <ul style="list-style-type: none"> • 1 project on efficacy of Green Muscle® since March 2005, Desert Locust Control Organization for Eastern Africa (completed December 2006), • 1 M.Sc. study on survey methods since Sept. 2004, University of Khartoum (completed August 2006), • 1 M.Sc. study on eco-toxicological aspects of PAN since June 2004, University of Khartoum (cancelled in 2005), • 1 project on efficiency of Green Muscle® since Aug. 2003, Plant Protection Research Institute, Cairo (Final report submitted December 2005), • 1 project on efficiency of Green Muscle®, University of Addis Ababa, February 2003 – June 2004 (completed), • 1 M.Sc. study on effect of herbal quality on DL distribution, University of Khartoum, since January 2003 – December 2005, (completed), • 1 project on impact of environmental factors and control operations on the Desert Locust population in Saudi Arabia, King Faisal

Planned Activities	Status / Reasons for Deviation
	<p>University, since July 2002, (cancelled in 2005),</p> <ul style="list-style-type: none"><li data-bbox="613 310 1399 373">• 1 M.Sc. study on control technologies, NRI, May 2002 – December 2002, (completed),<li data-bbox="613 384 1399 531">• 1 project on validation of the effects of PAN on gregarious hopper bands, International Centre of Insect Physiology and Ecology (ICIPE), Phase I from March to September 2002, Phase II from November 2002 - October 2003, Phase III from November 2003 - May 2004, (completed),<li data-bbox="613 541 1399 604">• 1 PhD study on population dynamics, University of Khartoum, September 2000 – April 2003 (completed),<li data-bbox="613 615 1399 678">• 1 study on effects of Green Muscle® on honey bees, University of Aden, September 2000 – October 2004 (completed),<li data-bbox="613 688 1399 772">• 1 MSc study on Desert Locust population comparison in different recession periods in Ethiopia, Alamaya University, October 1999 - May 2001 (completed),<li data-bbox="613 783 1399 846">• 1 PhD study on population dynamics, University of Wageningen, July 1999 – December 2003 (completed).

The observations, as mentioned in earlier EMPRES/CR progress reports concerning the unsatisfactory quality of preparation, implementation and the reporting on research projects are unfortunately still valid. In 2006 only one research proposal of acceptable quality on Desert Locust population dynamics has been submitted by DLCO-EA to CRC. Observations and comments were made by FAO and forwarded to DLCO-EA to make the necessary modifications to the project in order to be approved, but response has not yet been received.

C. Staff status and Inputs

C.1 Staff situation

a) Professional staff

1 National Professional Officer for Survey (Sana'a, Yemen) From May 1997 project-funded post.
Current contract until 31 December 2007

b) Support staff

1 Administrative Secretary (Cairo), project funded fixed-term contract until 31 December 2007.

1 Driver (Sana'a), project funded fixed-term contract ended 31 December 2006.

1 Driver (Cairo), project funded fixed-term retired 31 August 2006, recruitment of new driver is in the process; recruitment expected 30 January 2007

c) Consultants

During the reporting period one national consultant was recruited in October 2006 for revising the Vegetation Index Guidance Cards.

C.2 Equipment purchased since January 2006 (Phase III)

Djibouti	■	2 eLocust2
Egypt:	■	10 eLocust2
Eritrea:	■	7 eLocust2
Ethiopia	■	3 eLocust2
Saudi Arabia	■	10 elocust2
	■	5 Laptop computers
Somalia:	■	2 elocust2
	■	1 Photocopier
	■	1 Scanner
Oman	■	7 eLocust2
	■	1 Digital camera
	■	1 Media projector
	■	1 Notebook computer
Sudan:	■	14 eLocust2

Others:

The financial support (US\$ 300,000) from Saudi Arabia to Eritrea has been provided in December 2005 and received by Eritrea in 2006. According to the agreement between the Government of Saudi Arabia and the Government of Eritrea, it is expected that the funds will be used for 10 vehicles and vehicle mounted ULV sprayers, protective clothing and operational funds.

C.3 Training activities during the reporting period

- Egypt:** 1 national training S&C course, El-Ismailia, 30 October-5 November 2006, 16 trainees,
- Eritrea:** 1 national training S&C course, Gash Barka, 3-10 July 2006, 20 trainees,
1 local training S&C course, Tesseney, 12-13 July 2006, 20 trainees,
- Oman:** 1 national training S&C course, Alnagd, 16-23 December 2006, 12 trainees,
- Sudan:** 1 national training S&C course, Wad Medani, 20-26 May 2006, 17 trainees,
- Yemen:** 1 national training S&C course, Aden, 15-18 July 2006, 20 trainees,

C.4 Meetings, workshops, seminars attended by FAO EMPRES/CR and CRC staff during the reporting period

- Visit to Algiers, Algeria to participate in the 4th EMPRES/WR Liaison Officers meeting, 25 February-01 March 2006 and to represent the Commission for Controlling the Desert Locust in the Central Region in the meeting.
- Organize and conduct the 2nd Sub-regional Training Course on Desert Locust survey and control operations and follow-up on the arrangements concerning the 25th Commission Session, Doha, Qatar, 07-20 April 2006.
- Prepare and organize the 25th Session and the 28th Meeting of the Executive Committee of the Commission, Doha, Qatar, 26 May-02 June 2006.
- Introduce the Chairman of the Commission for Controlling the Desert Locust in the Central Region (CRC), Mr. Abdulla Safar Al-Khanji to the Locust Group at FAO, and to submit the report and the follow-up of the recommendations of the 25th Session of the CRC, Rome, Italy, 04-08 July 2006.
- Visit Khartoum, Sudan with the Chairman of the Commission, to meet and discuss with the Federal Minister of Agriculture and Forestry subjects related to autonomous financial to the LCC, Khartoum, Sudan 21-25 July 2006.
- Participation in the 38th Session of the Desert Locust Control Committee, Rome, Italy, 11-15 September 2006.
- Organize and participate in the 14th EMPRES Liaison Officers meeting, Muscat, Oman, 08-15 November 2006.
- Participate in the 25th Session of the Commission for Controlling the Desert Locust in South West Asia (SWAC), Tehran, Islamic Republic of Iran, 18-24 November 2006.
- Visit to Khartoum, Sudan to meet and discuss with the University of Khartoum the implementation of the recommendations of the Desert Locust Management Diploma Khartoum, Sudan 18-22 December 2006.

The 25th Commission Session, Doha, Qatar from 26 May - 02 June 2006 endorsed the merging of future ELO and CRC Executive Committee Meetings as the objectives of the meetings, such as monitoring the implementation of the preventive control strategy and regional work planning were similar. Therefore, the 14th ELO Meeting in Muscat, Oman that was held in the period 04-08 November 2006 was the last ELO Meeting in its current form.

C.5 Relevant publications and reports during the reporting period

- Report on 5th joint cross border survey between Egyptian and Sudanese survey teams in the winter breeding areas of the Red Sea coast (Desert Locust Control Centre, Egypt/Sudan), March 2006.
- Report on national Desert Locust management training course in Wad Medani, Sudan held 20-26 May 2005 (Locust Control Centre-Sudan), May 2005.
- M. Sc. Thesis on the distribution of Desert Locust in relation to herbage quality in the Red Sea coast of Sudan, at the University of Khartoum, May 2006.
- Report on the twenty-eighth Executive Committee Meeting and the 25th Session of the Commission for Controlling the Desert Locust in the Central Region, held 28 May-01 June 2006 (Doha, Qatar), July 2006.
- Report on national Desert Locust management training course in Barentu, Eritrea held 03-10 July 2006 (MoA Eritrea), July 2006.
- Report on local Desert Locust training courses conducted for farmers in Eritrea, in Tessenei 12-13 July 2006, (Ministry of Agriculture, Eritrea), July 2006.
- Report on the managerial visit of the Head Locust Control centre to Morocco and Mauritania in the period 17-28 July 2006, (Locust Control Ministry of Agriculture & Land Reclamation, Egypt), August 2005.
- M.Sc. Thesis on a method for detection of the Desert Locust and estimation of infested areas, at the University of Khartoum, Sudan August 2006.
- Report on testing the MULPIC hand sprayer Model: PM 510 Duo, in Sudan 5th September 2006 (Locust Control Centre-Sudan), September 2006.
- EMPRES/CR report on progress, 2005 (EMPRES/CR), September 2006.
- Report on 5th joint cross border survey between Yemeni and Saudi survey teams in the winter breeding areas of the Red Sea coast of the Tihama (Desert Locust Control and Monitoring Centre, Yemen/Saudi Arabia), 16-21 September 2006.
- Report on national Desert Locust management training course in El-Ismailia, Egypt held 30 October-05 November 2006 (Locust Control Ministry of Agriculture & Land Reclamation, Egypt), December 2006.
- Draft handout on Aerial Survey and Control training course (DLCO-EA), November 2006.
- Report on 14th EMPRES/CR Liaison Officers Meeting, Muscat, Oman, November 2006.
- Final report on field evaluation of Green Muscle (*Metarhizium anisopliae*) against Grasshoppers in Ethiopia (DLCO-EA), December 2006.
- Report on national Desert Locust management training course in Al Najed, Oman 15-20 December 2006 (Locust Control Centre-Oman), received 14th January 2007.
- Revised Vegetation Index Field Guide, December 2006.

D. General Assessment

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

A major change was the transfer of responsibility for all EMPRES/CR aspects to the Secretary of CRC in December 2005. Since the beginning of 2006, the Secretary of the Commission coordinated all activities related to EMPRES such as day-to-day follow up and monitoring of the various activities and operations, organizing a Regional Workshop on RAMSES and eLocust, and training. As stated in the Evaluation Mission report in 2005, it is unlikely that the Secretary of CRC, alone, will be in the position to meet all technical support to all countries in the region. It was experienced in 2006 that the load was high and that at least one technical Officer to be recruited to assist the Secretary of CRC in his task. It is hoped that through the two projects, submitted to Saudi Arabia and Qatar in 2005 and 2006 respectively to support EMPRES Programme for the coming three years, that this technical officer would be recruited.

Although the Desert Locust situation was calm in most parts of the Central Region during the reporting period, regular survey operations were conducted by all key countries in the Central Region, with only some support from EMPRES/CR to Eritrea and Somalia. In December 2006, widespread and heavy rainfall in the winter breeding areas resulted in limited local Desert Locust infestation of mixed solitary and transient hoppers and adults in the eastern lowlands of Eritrea. Control operations were launched immediately, where up to January 2007 11,000 hectares were treated by ground means. In all other countries, the Desert Locust situation remained calm. However, all countries on both sides of the Red Sea coast, where few solitary adults had been detected, were alerted to remain vigilant.

The EMPRES/CR Programme as a donor funded project ended in December 2006. The support to the Programme is currently reduced to a small amount, which is mainly covered by FAO, some remaining funds from USAID and Switzerland, and the contributions from the CRC member countries. But as reported in 2005, preventive Desert Locust management strategies are subject to continuous revision in the context of the scientific and technical development. RAMSES version3 and eLocust2 and the introduction of environmentally less harmful control technologies are true examples. Continuous coordination to ensure regular upgrading of proven technologies, staff training and to assist in updating and/or replacing outdated equipment should be considered as long-term commitments of EMPRES. In order to enable the CRC-EMPRES to fulfil this obligation vis-à-vis its member countries in an acceptable manner, two project proposals for funding EMPRES in the Central Region for an additional three years (2007-2009) were submitted to the Kingdom of Saudi Arabia (in 2005) and Qatar (in 2006). Although the economic relevance of preventive Desert Locust management strategies was clearly demonstrated during the 2003-2005 emergency campaign, a positive response is still pending. It should be noted that reluctant support to EMPRES during the currently calm period risks jeopardising the work of the past years and the achievement. If not supported within the next months, it cannot be excluded that the early detection and rapid reaction capacities would start deteriorating and that the risk of undetected and ineffectively controlled Desert Locust upsurges increases again with disastrous effects on the livelihood of the people of the affected countries, but also adverse political consequences cannot be excluded. This should be avoided by all means! In this respect, appeal is being made to CRC-EMPRES member countries to

pay their contribution to CRC regularly and to settle their arrears, to assure at least minimum assistance to the front line countries.

Also the affected countries themselves should not reduce their commitments and efforts to preventive control and should continue to give their full support to their national Locust Control Units. Despite the calm period, the Governments of the EMPRES/CR member countries should allocate autonomous funds to the LCUs to enable the LCU to ensure survey and control operations at any time and to preserve the technical skills of the survey and control staff through regular training prior to every season. Without any doubt, this would contribute substantially to the durability of the preventive control in the Central Region.

However, it remains doubtful whether the recurrent needs of preventive control systems can be entirely met by the countries themselves and from the contributions of the CRC member countries to the Commission without any donor assistance. As suggested in the 2005 report, EMPRES should be given a long-term attention and considered as a permanent programme to preserve its capability to serve the affected countries, in an attempt to prevent international crises due to the Desert Locust, bearing in mind that some of the key countries in the Central Region are belonging to the world's most vulnerable.

List of Acronyms

AGPP	Plant Protection Service (FAO)
CD	Condensed Disc
CF	Country Focus
CFP	Country Focus Programme
CLCPRO	FAO Commission for Controlling the Desert Locust in the Western Region
CR	Central Region
CRC	FAO Commission for Controlling the Desert Locust in the Central Region
DGPS	Differential Global Positioning System
DL	Desert Locust
DLC	Desert Locust Control
DLCC	Desert Locust Control Committee
DLCO-EA	Desert Locust Control Organization for Eastern Africa
DLIS	Desert Locust Information Service (FAO HQ)
DLMCC	Desert Locust Monitoring and Control Centre - Yemen
ELO	EMPRES Liaison Officer
ELP	EMPRES Link Person
EMPRES	Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases (FAO)
EMPRES/CR	EMPRES Central Region Programme
EMPRES/WR	EMPRES Western Region Programme
ESAF	Food Security and Agricultural Projects Analysis Service
FAO	Food and Agriculture Organization of the United Nations
GDPP	General Directorate for Plant Protection
GIS	Geographical Information System
GPS	Global Positioning System
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation)
HF	High Frequency
HQ	Headquarters
ICIPE	International Centre of Insect Physiology and Ecology, Nairobi, Kenya
IFAD	International Fund for Agricultural Development
IGR	Insect Growth Regulator
LCC	Locust Control Centre

LCU	Locust Control Unit (National)
LIO	Locust Information Officer
MIE	Multilateral Independent Evaluation
MoA	Ministry of Agriculture
MODIS	Moderate Resolution Imaging Spectroradiometer
MoU	Memorandum of Understanding
M.Sc.	Master of Science
NDVI	Normalized Difference Vegetation Index
NPO	National Professional Officer (FAO)
NRI	Natural Resources Institute (UK)
PAN	Phenylacetone nitrile
PPD	Plant Protection Department (National)
RAMSES	Reconnaissance and Management System of the Environment of Schistocerca (GIS data management and aid to decision-making)
RP	Regular Programme
S&C	Survey and Control
SOP	Standard Operating Procedures
SWAC	FAO Commission for Controlling the Desert Locust in Southwest Asia
TCP	Technical Cooperation Programme
ToT	Training of Trainers
UK	United Kingdom
ULV	Ultra Low Volume
USA	United States of America
USAID	United States Agency for International Development
US\$	United States Dollar
WMO	World Meteorological Organization
WR	Western Region
WU	Wageningen University