

LOCUST CRISIS



MADAGASCAR

Response to the locust plague in Madagascar Campaign 2013/14

**INTERIM REPORT N. 1
September 2013 - February 2014**





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(1 September 2014 to 28 February 2014)

Title:

Emergency Support to the Locust Campaign 2013/14 in response to the locust plague in Madagascar

Background and donor response

The current Malagasy Migratory Locust plague started in April 2012. Rice, other crops and pasture resources for livestock are at risk of considerable damage by the locust plague, which can have a wider impact on domestic supply and cereal prices. The locust plague threatens the food and nutrition security of 13 million people in Madagascar. The Ministry of Agriculture (MoA) of Madagascar declared a national disaster on 27 November 2012. In December 2012, the MoA requested technical and financial assistance from the Food and Agriculture Organization of the United Nations (FAO) to address the locust plague, ensure the mobilization of funds and coordinate and implement an emergency response.

In response to the plague, an emergency Programme costing USD 43.9 million* for three consecutive locust campaigns (2013-2016) has been jointly prepared by FAO and the MoA in December 2012.

* Revised upwards from USD 41.5 million in September 2013 based on market prices of inputs and services at the time.

The three-year Programme consists of five components and numerous activities.

Components and activities of the three-year Programme	
Component	Activity
1 Capacity for monitoring and analysis of the locust situation strengthened	1.1. Strengthening of human capacity in data collection and information management 1.2. Support to survey operations
2 Locust control capacity strengthened	2.1. Human capacity building for locust control 2.2. Support to locust control operations
3 Human health preserved and environment protected	3.1. Strengthening of human capacity for human health preservation and protection of the environment 3.2. Support impact monitoring (of treatment) on human health and the environment 3.3. Construction of the pesticide storage facility (Toliara)
4 Implementation and coordination of the Programme	4.1. Implementation of the National Locust Emergency Plan 4.2. Coordination of the three-year long Programme
5 Assessment of the effectiveness of locust campaigns and the impact of the locust plague on crops and pastures	5.1. Assessment of the effectiveness of locust campaigns 5.2. Assessment of the impact of the locust crisis

The first locust campaign was launched in September 2013 and will end in August 2014 during which, 1.5 million hectares are expected to be treated. This will protect crops and pastures and reduce the threat to farmers' livelihoods that are already vulnerable on account of the plague and other factors (cyclones, droughts, political instability, etc.).

Donor response to the resource mobilization efforts made by FAO has been timely and positive. As of 28 February 2014, USD 26.2 million had been provided by the Central Emergency Response Fund of the United Nations Office for the Coordination of Humanitarian Affairs (CERF), the European Union, and the Governments of Austria, Belgium, France, Italy, Madagascar (through a World Bank loan), Norway and the United States of America.

Objectives and target beneficiaries of the triennial Programme

The overall objective of the Programme is to safeguard the food security of rural populations in Madagascar.

The specific objective of the first year of the Programme (i.e. from September 2013 to August 2014) is to stem the dynamics of the Malagasy Migratory Locust populations. The strategy will include identifying the hotspots of the locust populations, regularly monitoring these populations to establish accurate forecast and deploying and doing the best use of available control means according to good practices in agriculture, human health and the environment.

Target beneficiaries include:

- (1) The Plant Protection Directorate (PPD) of the MoA, through the establishment of the 'Locust Watch Unit' to improve the capacity to monitor and analyse the locust situation in the country.
- (2) The National Antilocust Centre (CNA: *Centre national antiacridien*) by strengthening its capacity to respond to the locust threat.
- (3) Some 13 million people in Madagascar, whose livelihoods are affected by the locust plague.

Progress on implementation

The first of three locust campaigns that is being implemented and coordinated by FAO from September 2013 to August 2014 focuses on:

- improving the monitoring and analysis of the locust situation;
- strengthening large-scale aerial control operations; and
- monitoring and mitigating the impact of locust control operations on human health and the environment.

The campaign was officially launched on 20 September 2013. The period from February to August 2013 preceding the official launch of the campaign was mainly characterized by three activities:

1. the establishment and the maintenance of the Locust Watch Unit to gather and analyze data on locust and weather situations as well as on damage to crops and pastures ;
2. the procurement of goods and services critical for survey and control operations (aerial services/flying hours, vehicles, pesticides and equipment for surveying, spraying, camping, communication and protecting personnel); and
3. the deployment of staff key to the coordination and implementation of the campaign in Madagascar.

Details on activities carried out and results achieved as of 28 February 2014 follow.

Component 1: Strengthening of national capacities for the monitoring and analysis of the locust situation

Expected outcome: The capacity to monitor and analyse the locust situation is strengthened, thus making it possible to understand the dynamics of the locust populations, to implement the locust control strategy, to make necessary tactical adjustments during the campaign, and to identify the targets for the large-scale control operations.

Result as of 28 February 2014: *Locust survey operations between 26 September 2013 and 28 February 2014, using just over 251 hours of flying hours, supplemented by some ground surveys, covered 20 million ha, to identify locust hotspots and targets, of which a total infested area of some 500 000 ha requiring pesticide treatment. Ten-day and monthly bulletins, produced by the Locust Watch Unit, report on locust situation and provide continually-updated analyses.*

Activity 1.1: Improving data collection, analysis and information management

Locust Watch Unit

- As early as February 2013 (i.e. two months after having received the request for emergency assistance from the Government of Madagascar), FAO advanced emergency funds of its own to establish a Locust Watch Unit (*Cellule de veille acridienne*) within the PPD in Antananarivo. The Unit was staffed by three data analysts specializing in meteorological data, data related to locust dynamics and crop/pasture damage related data. The timely contribution of donors to the 2013/14 locust campaign allowed the continuity of the Locust Watch Unit beyond the initial three-month period. The three experts benefited from a refresher training delivered by the Coordinator of the FAO response to the locust plague in Madagascar during her mission to Madagascar in September and December 2013. In addition, they receive day-to-day distant support from the Coordinator (based in Rome) and a Senior Locust Expert (based in France), who had conducted the initial training for the Locust Watch Unit in February 2013.

- The Locust Watch Unit was strengthened by the recruitment of a national expert in Geographical Information Systems (GIS), in October 2013. In addition technical support and training were provided by an international GIS expert in (i) the establishment and management of the GIS database; (ii) on creating thematic maps on the dynamics of the locust populations, the locust situation level (seriousness) and the weather situation (estimated rains); (iii) locust forecasting; and (iv) mapping locust control treatments. The international GIS expert was fielded to Madagascar a second time in January 2014 for one month to: (i) reinforce the training provided earlier; (ii) improve the growing geo-referenced database of information related to meteorological conditions, locust dynamics and control operations, as well as the environmental/human health and socio-economic aspects of the locust campaign; and (iii) further strengthen the capacity of the Locust Watch Unit in mapping and forecasting. When not in Madagascar, the GIS expert continues to provide distance (online) support to the Locust Watch Unit in information management/analysis and mapping.
- Between March 2013 and February 2014, 15 ten-day and 12 monthly bulletins (documenting the spatial-temporal development of the locust populations, the means used to monitor them, and the details on locust control operations) were produced and published on the FAO [Web site](#) dedicated to the locust emergency in Madagascar.
- Between February and September 2013, the Locust Watch Unit carried out six ten-day ground survey/field assessment missions. Since the aerial survey operations were launched in September 2013, the Locust Watch Unit relies on data collected during aerial surveys, completed by ground reports, for its analyses. Since early 2014, the Locust Watch Unit carried out three four-week missions.

Crop and pasture damage assessment

- A study on the impact of the locust damage to crops and pastures was published in September 2013. The report ([available here](#)) provides estimates of the impact of the locust plague on agricultural production. Localized observations made during the study, conducted in May 2013, indicated that rice crop losses due to locusts in 2012/13 varied from 10 to as much as 40 percent in 17 of Madagascar's 22 regions. Losses are mainly concentrated in the south, where as much as 40 percent of the crop may be lost due to locusts, in combination with other factors such as recurrent droughts and cyclones. The Crop and Food Security Assessment mission conducted by FAO, the World Food Programme and the Ministry of Agriculture in July 2013 also warned of the potentially serious impact the locust plague could have on next season's crop, if not controlled ([summary of the report available here](#)).

Activity 1.2: Support for survey operations

Establishment of aerial bases and provision of flying hours for survey operations

- Following a competitive tender process, FAO procured the services of an experienced contractor to provide helicopters, skilled pilots and related logistics services for aerial survey operations in Madagascar. The first helicopter arrived in Madagascar on 15 September 2013. The locust campaign was officially launched on 20 September 2013 in the presence of the Minister for Agriculture, the FAO Representative for Madagascar and donors. Aerial survey operations began on 26 September in western Madagascar. The second helicopter arrived on 10 October 2013 and two airbases were subsequently established in the west (Tsiroanomandidy) and the southwest (Ihosy). The second helicopter began survey operations on 4 November 2013. A third airbase equipped with its own helicopter was established in February 2014. The locations of the airbases change according to the evolving locust situation and security constraints in the country. As of 28 February 2014, the bases were located in Toliara and Befandriana-Sud in the southwestern coastal plains and Morondava in the west.
- Between 26 September 2013 and 28 February 2014, the three helicopters had flown just over 251 hours to survey infested (or likely to be infested) areas.
- On each aerial base, a national team is responsible for the collection and transfer of data related to the locust situation gathered during aerial and ground survey operations.
- In September-October 2013, an international logistician trained the CNA staff, aerial base personnel, surveyors and helicopter crews in the organization, management and security-related aspects of an aerial base.
- The purpose of the extensive aerial surveys carried out at the beginning of the campaign is to assess the nature and size of the adult locust populations surviving from the previous locust generation at the end of the dry and cool season (bad season for locusts) and localize the 'hotspots' of locust populations (thus mapping the most infested areas) in order to forecast their likely movements, decide where the aerial bases should be deployed and prepare timely control (treatment) operations. During the campaign, aerial surveys provide a synoptic overview of the locust situation and the information needed to decide whether the aerial bases need to be redeployed and where.

- As of 28 February 2014, approximately 20 million ha of land had been surveyed (equal to 25 percent of the target of 80 million ha for the period September 2013 to August 2014). The aerial surveys carried out as of 28 February 2014 identified a total infested area of some 500 000 ha requiring pesticide treatment.

Procurement and delivery of vehicles and equipment

- Following competitive procurement processes, FAO procured vehicles and equipment for survey operations for delivery to Madagascar in time to begin ground survey operations in September 2013. As of 28 February 2014, the following equipment had been delivered to establish aerial bases and enable ground and aerial survey operations: camping equipment (tents, camping beds, tables, chairs, cookware, generators etc.); survey equipment (entomological/scientific equipment); eight motorcycles; two 10-tonne trucks; 27 four-wheel drive vehicles including 24 double-cabin pick-ups, one single-cabin pick-up and two station-wagons; 46 radios (11 fixed radios for base stations and 35 mobile radios for vehicles); four satellite phones; four digital cameras and 39 Global Positioning System (GPS) units.

Ground surveys to supplement aerial surveillance

- Aerial surveys are being supported by ground surveys for the assessment and mapping (delimitation) of infested areas (blocks to be treated). The ground surveys are being carried out by CNA staff mobilized for survey operations, and the operating costs (fuel, vehicle maintenance, daily subsistence allowance for team members mobilized by CNA etc.) of ground survey teams was and continues to be covered by campaign funds.
- To ensure the safe and efficient conduct of ground surveys (on rough terrain, in remote areas, in wet and difficult conditions, and sometimes for prolonged periods away from the base) the logistician/security advisor also trained drivers on the use of logbooks; the importance and techniques for conducting daily vehicle checks; and the safe road passage and delivery of camping, survey and protective equipment to the warehouses, airbases and teams on the ground.

Component 2: Strengthening of national locust control capacities

Expected outcome: Locust populations are reduced in infested areas and damage to crops and pastures due to the locust plague is limited.

Result as of 28 February 2014: *The application of insect growth regulators on 106 280 ha have resulted in a locust mortality rate of up to 85 percent, while the spraying of conventional pesticides on 130 981 ha have resulted in a mortality rate of up to 95 percent.*

Activity 2.1: Human capacity building for locust control

Training in campaign and airbase management

- Two international logisticians were fielded to Madagascar from early September until late December 2013 to supervise and advise on the management of the airbases, the ground (vehicle) fleet and security-related aspects of both ground and air operations. In September-October 2013, the international logistician/security advisor trained CNA staff (airbase personnel, surveyors, ground control teams) and helicopter crews in the organization, management and security-related aspects of an aerial base. The logisticians were redeployed to Madagascar, in January and February 2014 respectively, to assist in the establishment of a third base in preparation for the arrival of a third helicopter as well as a fixed-wing aircraft to boost survey and control operations.

Calibration of sprayers

- In November 2013, the Campaign Coordinator provided practical training to the airbase teams on the calibration of sprayers (specifically, the calibration of the Micronair sprayer mounted on the helicopters).

Sensitization on risks and risk prevention/mitigation

- In October 2013, the international logistician/security advisor provided a briefing to sensitize airbase personnel and ground control teams mobilized by FAO, CNA and the helicopter crew, on various topics related to the risks associated with the operations of an airbase and inform them of risk prevention/mitigation measures including: ensuring safety of movement around a helicopter; fire hazards and handling of fire extinguishers; risks related to the use and temporary storage of pesticides and the need for personal protective equipment (suits, gloves, boots, masks, aprons) while handling pesticides; emergency measures in case of contact with pesticides; the importance of atropine kits on the bases; risks associated with large animal herds straying from nearby fields; and risks related to potential alcohol-abuse by airbase personnel.

Inputs/supplies management

- A software tool to assist in the management of inputs/supplies (inventory of the number and types of inputs acquired, manufacturer, date of acquisition, delivery, redistribution and use, routine checks/quality control if necessary, replenishment etc.) was adapted from the one currently in use by the National Antilocus Centre (*Centre National de Lutte Antiacridienne*) in Morocco and installed in the CNA office in Toliara. Between 27 October and 3 November 2013, the Campaign Coordinator briefed the staff of CNA in Toliara on the use of the software, as well as the importance of and methods for managing the vehicle fleet and equipment (GPS, radios etc.).

Activity 2.2: Support for locust control operations

Procurement and delivery of equipment

- The equipment listed under Activity 1.2 (vehicles, radios, GPS, etc.) were procured for use during both survey and control operations. As of 28 February 2014, in addition to the afore-mentioned equipment, personal protective equipment such as gloves, boots, goggles, overalls and aprons, 201 sprayers (50 knapsack/backpack sprayers, 150 hand-sprayers, one vehicle-mounted sprayer) and 21 pesticide pumps (15 chemical pesticide pumps, six biopesticide pumps) were delivered for use by ground control teams.
- Additional quantities of camping equipment, pumps and surveying (entomological/scientific) equipment are also being procured, and will be delivered from March 2014 onwards.

Procurement and 'triangulation' of pesticides

- The strategy adopted to tackle the locust plague includes full cover treatments using conventional chemical pesticides against adults (winged locusts), barrier treatments with insect growth regulators for the rapid protection of large areas contaminated by hopper groups and bands¹, and treatments with a biopesticide when control operations are required in environmentally-sensitive areas. FAO used competitive tender processes to commercially procure 288 000 litres of conventional pesticide (Chlorpyrifos 240 ULV) and 200 000 litres of insect growth regulators (Teflubenzuron) as well as a total of 1 500 kg of biopesticide (Green Muscle®) from the sole supplier of this input.
- The remaining quantity of the conventional pesticide (259 600 litres) was donated by the Governments of Algeria (30 000 litres), Mauritania (30 000 litres) and Morocco (199 600 litres) from their pesticide stocks. Programme funds allowed FAO to transport these pesticides from northwestern Africa to Madagascar by sea and air. This process, called 'triangulation' of pesticides, reduces the total global quantities of chemical pesticides that need to be manufactured by making use of readily available stocks located elsewhere; this limits the environmental risks associated with their prolonged storage (for example, through leakage) and eventual disposal if not used before they become obsolete. The quantities of pesticides (litre or kg) delivered and used as of 28 February 2014 are provided in Table 1.

Table 1: Quantities of pesticides required, procured/triangulated and used as of 28 February 2014

Pesticides (litres except where indicated)	Quantity required from September 2013 to August 2014	Quantity procured	Quantity delivered	Quantity used
Conventional pesticides	550 000	** 547 600	*** 517 600	131 116
Insect growth regulators	* 200 000	200 000	144 800	21 150
Biopesticides (kg)	1 500	1 500	680	0

* The quantity of insect growth regulators required for the 2013/14 campaign was revised upward from 150 000 litres to 200 000 litres.

** This includes the pesticides to be transported (triangulated) from Morocco (199 600 litres), Mauritania (30 000 litres) and Algeria (30 000 litres).

*** This includes 199 600 litres from Morocco and 30 000 litres from Mauritania effectively transported (triangulated) as of 28 February 2014.

¹ A hopper, or nymph, is a wingless locust not yet able to fly and breed. The hoppers of the Malagasy Migratory Locust develop in five successive hopper instars, whose duration is of 30 days during the rainy season, and up to 60 days during the dry one (should a breeding occur during that period).

Aerial and ground control operations

- Locust control operations were launched on 5 November 2013, about a month after survey operations began. As of 28 February 2014, the three helicopters had flown almost 191 hours for control operations including treatment (with conventional pesticides) and protection (with insect growth regulators) and almost 230 hours for the deployment of the helicopters from the arrival airport to the aerial bases, and between aerial bases and the filling (with pesticide) /refuelling stations. A fourth aircraft (fixed-wing) is expected to arrive in March 2014 to further strengthen control operations. These operations are carried out from the aerial bases which are successively deployed as close to the locust hotspots as possible (according to the outcomes of the extensive surveys) and taking into account logistic and security constraints. It is sometimes necessary to establish temporary filling (with pesticide) /refuelling stations and approach flights (beyond surveys and treatments) may therefore be required.
- Aerial control operations by the three helicopters were complemented by localized ground treatments when needed. As of 28 February 2014, a total area of 237 261 ha had been treated with conventional pesticides or insect growth regulators through aerial and ground control operations. Table 2 provides a breakdown of the area treated/protected between 5 November 2013 and 28 February 2014.

Table 2: Area treated (ha) during the 2013/14 campaign (between 5 November 2013 and 28 February 2014)

Pesticides/type of treatment	Area to be treated/protected from September 2013 to August 2014	Area treated/protected (Base 1)	Area treated/protected (Base 2)	Area treated/protected (Base 3)	TOTAL AREA treated
Conventional pesticides (full cover treatment)	550 000	52 934	45 100	32 947	130 981
Insect growth regulators (barrier treatment)	900 000	25 000	59 280	22 000	106 280
Biopesticides	30 000	0	0	0	0
Total	1 480 000	77 934	104 380	54 947	237 261

Component 3: Preservation of human health and protection of the environment

Expected outcome: No incident affecting human health during the aerial control operations or the handling of pesticides is reported; the impact on the environment from the control operations is limited

Result as of 28 February 2014: Human health and environmental monitoring is carried out on a regular basis resulting in monthly reports. No accidents affecting human health or the environment have occurred. Out of close to 1 300 drums handled to date, two pesticide drums leaked during transport between the port of arrival and the pesticide warehouse; the pesticides were safely transferred to secure empty containers and precautions are being taken to load/unload pesticide drums with more care.

Activity 3.1: Capacity building for human health preservation and protection of the environment

Pesticide management

- The Pesticide Stock Management System (PSMS) database was developed by FAO in 2004/05 at the end of the Desert Locust campaign in the Sahel to help countries better manage their pesticide stocks and minimize the risk of obsolescence. This online database allows inventory-keeping and monitors pesticide-use to ensure traceability from acquisition to disposal of empty containers through an automated and simplified management system that uses labels with unique bar codes for each pesticide drum. From 9 to 15 November 2013, a specialist provided technical assistance and training on PSMS-based pesticide management to CNA and PPD staff. The training took place in two phases, first on labelling and inventory techniques held on site at three warehouses in Toliara, Sakaraha and Ihosy, which was followed by 'classroom' sessions on data entry and data use in the PSMS related to pesticide type, manufacture, active-ingredient, stocks, location, movement (within Madagascar and abroad), sampling for routine quality-control tests, loss or damage, pesticide-use (how much, where, dosage, equipment used for application etc.), disposal of empty containers etc.

Human health and environmental management

- Two environmentalists were among the first international experts to be deployed to Madagascar in August 2013. The consultants, in close collaboration with the CNA, the PPD and the National Coordination Unit, developed the Human Health and Environmental Management Plan that is now being implemented. The Plan summarizes the environmental policy of the Government of Madagascar; provides an evaluation of the risks posed by the different treatment techniques being used by the locust campaign; lists measures to be respected and implemented to reduce the negative impacts of large-scale control operations (such as this one) on human health and the environment; and provides the tools (forms) necessary for proper monitoring and follow-up. It is accompanied by an action plan for sensitising the affected communities to the risks associated with locust control operations in their areas and clarifies the responsibilities of the team charged with health and environmental monitoring during the campaign.
- An environmental expert was deployed to Madagascar in February 2014 for a period of one month, to provide training to CNA and PCN staff on evaluating the environmental impact of locust control operations. The training included methods for monitoring and evaluating the impact of treatment on terrestrial and aquatic wildlife, for collecting and preparing soil, vegetation and water samples for pesticide residue analysis and for evaluating environmental accidents caused by locust treatment.

Activity 3.2: Monitoring the impact of pesticide treatment on human health and the environment

Provision of equipment

- Monitoring supplies and equipment such as cholinesterase kits were delivered to Madagascar at the start of the campaign in September 2013. Cholinesterase is a blood enzyme required for the functioning of the nervous system, and chemicals in pesticides can interfere with the activity of this enzyme with mild to severe consequences for the person, depending on the level of exposure. The kits that have been supplied measure the level of cholinesterase in the blood stream of personnel involved in control operations to check whether there is a decrease compared to the results of the previous test. The kits require minimal training. Atropine is the antidote given when treating cholinesterase inhibition, and 50 atropine kits (given by injection) have been delivered to Madagascar.

Establishment of teams for health/environmental monitoring and pesticide-drum management

- A team has been established to monitor the impact of the locust control treatments on human health and the environment and the management of empty pesticide drums. Programme funds are covering the operating costs (fuel, vehicle repairs, daily subsistence allowance for team members mobilized by CNA, salaries of drivers etc.). Human health and environmental monitoring is carried out on a regular basis resulting in monthly reports.

Activity 3.3: Construction of the pesticide storage facility (Toliara)

- The process was initiated in October 2013 with the recruitment of an international architect to finalize the drawings, technical specifications and bill of quantity of a concrete pesticide-storage facility in Toliara. The international architect worked under the technical supervision of FAO's Infrastructure and Facilities Management Branch and was supported by a national engineer. An international tender will be launched in the first semester of 2014, and work is expected to begin on-site in the second semester of 2014 for a planned duration of 10 months. The warehouse, once completed, will be able to stock as much as 40 000 litres of pesticides (200 drums x 200 litres each), making it the largest pesticide-warehouse facility in Madagascar conforming to national standards legislated by the Government and to international standards set by FAO (currently, none of the nine larger warehouses in Madagascar, with capacities ranging from 14 000 to 150 000 litres, meet the international standards required of these facilities).

Component 4: Implementation and coordination of the Programme

Expected outcome: The supervision and technical and operational coordination of the Programme as well as those of the field operations are performed and the expected outcomes are achieved.

Result as of 28 February 2014: *the FAO Plant Production and Protection and the Emergency and Rehabilitation Divisions (based in Rome), in close collaboration with the FAO Representation in Madagascar (based in Antananarivo), ensure the supervision, coordination and implementation of the Programme.*

To coordinate and implement the three-year Programme, FAO has established teams in Rome and Madagascar. The main objectives of this arrangement are to:

- carry out the procurement of sufficient inputs and services;
- ensure their timely delivery, including the deployment of specialized expertise to Madagascar;
- perform the provision of training and advice to partners (CNA, PPD) and field teams;
- ensure the collection and analysis of data related to the locust situation, pesticide use, flying hours and health and environmental concerns is appropriately done and the information obtained is disseminated; and
- maintain smooth running of survey and control operations.

Supervision as well as coordination and technical monitoring of the three-year Programme is handled by the FAO Plant Production and Protection Division in Rome and, more specifically by the Locusts and Transboundary Plant Pests and Diseases team. This includes: the necessary adjustments to the locust control strategy established beforehand, identification and direct supervision of the international consultants and revision of their reports, preparation of the technical specifications of the inputs to be procured, their adequacy to the context as well as appropriate use, analysis and technical validation of tenders, monitoring of all technical activities, support to the preparation of the 10-day and monthly bulletins, etc. The implementation of the Programme, including procurement of inputs and contracts, pesticide ‘triangulation’, operational and budgetary management, staff management, monitoring of activities and expenditures, etc. is under the care of the FAO Emergency and Rehabilitation Division. Resource mobilization and preparation of documents (drafting, revision and clearance) are undertaken jointly by both teams.

The Locusts and Transboundary Plant Pests and Diseases team and the Emergency and Rehabilitation Division work closely with the FAO Representation in Madagascar based in Antananarivo. The FAO team in Madagascar consist of an Emergency Coordinator and a Deputy Emergency Coordinator. They supervise administrative, financial and operational activities of the Programme. They continue resource mobilization efforts at country level to raise funds for the second and third locust campaigns, both as yet underfunded, and liaise with the media, government authorities, humanitarian actors, and different donors supporting the Programme. They are assisted by a Programme Officer and an Operations Officer.

Day-to-day field activities related to anti-locust campaign in Madagascar (including activity in the capital, on the airbases and ground survey and control operations) are being overseen by an international Campaign Coordinator supported by a national Locust Expert. Three junior experts including two locust experts and one logistician (released by the National Anti-Locust Centre of Morocco) have been recruited to support field operations from January to June 2014.

Weekly and ad hoc teleconferences are held between Rome and Madagascar to discuss solutions to problems arising during the implementation of the campaign and to provide an update on the latest resource mobilization efforts; technical and operational support missions are organized to monitor the progress of planned activities.

A Web site dedicated to the locust crisis in Madagascar was launched on 21 March 2013 in both [English](#) and [French](#), with direct access from the home page of the [FAO in Emergencies Web site](#).

Component 5: Assessment of the effectiveness of the locust control campaign and of the impact of the locust plague on crops and pastures

Expected outcome: The results of the assessment of the locust campaign’s effectiveness and of the impact assessment of the locust crisis on crops and pastures are available to all stakeholders.

Result as of 28 February 2014: *the assessment of the effectiveness of the locust control campaign and of the impact of the locust plague on crops and pastures will be performed at the end of the current campaign.*

Difficulties encountered during implementation

The difficulties encountered up to 28 February 2014, and actions taken to resolve them, where possible, include the following:

- Lack of locust-related information in several parts of the country and in particular for the southwest, the outbreak area: this will be improved by a better exchange/flow of information between national stakeholders (CNA, PCN, DRDR).
- Control operations in remote and difficult to access areas: these will be improved through a contract for flying hours of a fixed-winged aircraft which has a longer range of action than a helicopter.
- Delays in delivery of camping and personal protective equipment: although suppliers are selected based on their cost and relative speed of delivery to Madagascar, some have reneged on their promised dates of delivery and consignments have reached Madagascar weeks after they were expected. Penalties are applied where applicable, and FAO's procurement service is contacting alternative suppliers who can ensure timely delivery.
- Some of the accessories such as the tubes used to transfer the pesticides from the pesticide drums to the helicopter-mounted hoppers of the pumps procured in the first lot showed not to be resistant to the corrosive formulation of some chemical pesticides. Alternative solutions have been found, and delivery of a new set of pumps is expected in March 2014.
- Problems of insecurity related to local conflicts and/or political events (e.g. elections) that sometimes limit aerial operations.

Conclusion and recommendations

The concerted efforts of teams in Madagascar and Rome, supported by several specialized missions, have made it possible to survey some 20 million ha against a target of 80 million ha for the first year. Approximately 500 000 ha were mapped for control operations, and close to 274 000 ha (roughly 55 percent of the area mapped) have been treated with pesticides.

To achieve these results, over 672 hours² of aerial operations were conducted by three helicopters, and more than 150 000 litres of chemical pesticides were used out of some 750 000 litres of chemical pesticides for use during the first campaign. All pesticide treatments were conducted without any incidents affecting human health or the environment. To further reinforce this large-scale locust campaign, a fixed-wing (spraying) aircraft is expected to begin operations from March 2014 onwards. Two trucks and 27 vehicles have been delivered, in addition to a large variety of camping, protective, survey and communication equipment.

All this was made possible by the timely contribution of USD 22.6 million made between May and August 2013, that financed the entire first year campaign.

As learned during the 2013/14 campaign, to ensure timely pre-positioning of inputs and services and thus continuity of field operations, FAO will launch in April 2014 procurement actions for the second campaign that begins in September 2014 and concludes in August 2015. However, the ability to do so will depend on the availability of funds for the 2014/15 campaign. To this end, donor funding needs to be available by June 2014.

Three consecutive and uninterrupted locust campaigns remain crucial to stop the locust plague and return to a remission³ situation, and safeguard the food and nutrition security of 13 million people affected by the plague in Madagascar.

² 672 hours includes 251 hours for surveys, 191 hours for control operations and 230 hours for deployment of the helicopters to and from the port of arrival to the airbases, and between airbases.

³ A period of deep recession marked by the complete absence of gregarious populations.