

# REPORT

## **Technical Workshop on Locusts in Caucasus and Central Asia (CCA)**

Dushanbe, Tajikistan

13-17 November 2017



**Food and Agriculture  
Organization of the  
United Nations**



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Participants in the “Technical Workshop on Locusts in Caucasus and Central Asia”

Dushanbe, Tajikistan, 13-17 November 2017

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## LIST OF ACRONYMS AND ABBREVIATIONS

AGPMM	Plant Production and Protection Division (FAO)
a.i.	active ingredient
ASDC	Automated System of Data Collection
CCALM	Caucasus and Central Asia Locust Management System
CBS	Cross-border surveys
CCA	Caucasus and Central Asia
CIT	<i>Calliptamus italicus</i> (Linnaeus 1758), Italian Locust
CNLAA	National Centre for Anti-Locust Control, Morocco
DCPP	Department of Chemicalization and Plant Protection, Kyrgyzstan
DMA	<i>Dociostaurus maroccanus</i> (Thunberg 1815), Moroccan Locust
EC	Emulsifiable concentrate
ET	Economic Threshold
FAO	Food and Agriculture Organization of the United Nations
FTPP	FAO-Turkey Partnership Programme
GLI	Global Locust Initiative, Arizona State University, United States of America
GPS	Global Positioning System
ha	Hectare
IGR	Insect Growth Regulator
Kaznau	Kazakh National Agrarian University, Kazakhstan
LMI	<i>Locusta migratoria migratoria</i> (Linnaeus 1758), Asian Migratory Locust
LV	Low Volume
LW-CCA	Locust Watch in Caucasus and Central Asia (FAO)
MCC	Microcontainers
MAM	Ministry of Agriculture and Melioration, Kyrgyzstan
MoA	Ministry of Agriculture
NFA	National Food Agency, MoA, Georgia
PPE	Personal Protective Equipment
RP	Regular Programme (FAO)
RRS	Region of Republican Subordination, Tajikistan
SE-LCE	State Entity "Locust Control Expedition", Tajikistan
SPCS	State Phytosanitary Control Service, MoA, Azerbaijan
ToT	Training-of-Trainers
TSAU	Tashkent National State Agrarian University, Uzbekistan
TSS	Technical Support Services
UNGM	United Nations Global Marketplace
USAID	United States Agency for International Development
USD	United States Dollar

## INTRODUCTION

1. The Technical Workshop on Locusts in Caucasus and Central Asia took place in Dushanbe, Tajikistan, on 13-17 November 2017. It was organized by the Food and Agriculture Organization of the United Nations (FAO) in the framework of the “Programme to improve national and regional locust management in Caucasus and Central Asia (CCA)”.
2. The following ten countries participated in this Technical Workshop: Afghanistan, Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Russian Federation, Tajikistan, Turkmenistan and Uzbekistan. The total number of participants, including CCA countries’ Delegates and Embassies Representatives, Japan and Japan International Cooperation Agency (JICA) Representatives, FAO staff and consultants as well as observers, was of 48. The List of Participants is given in Annex I.
3. The Technical Workshop was opened by Ms Jamila Saidova, Deputy Minister for Agriculture, Tajikistan, who indicated that locust management was a global issue and a priority for her country. Ms Saidova stressed that Tajikistan plays a very active role in promoting regional cooperation considering the transboundary nature of the pest. She also indicated that activities such as trainings and cross-border surveys organized at the national and regional levels are fundamental to improve national capacities in locust management. She formulated the wish that this workshop will provide the appropriate impulse for extending the current project funded by Japan/JICA to additional countries and by scaling up activities; this includes locust monitoring, developing the use of important tools such as the Geographic Information System (GIS) for data collection and analysis, cross-border surveys, enabling the use of biopesticides in the future and thus improving environmental protection. Ms Saidova thanked the Government of Japan, JICA and FAO for the important support and partnership provided. She concluded her speech by wishing a fruitful meeting to the participants.
4. Mr Viorel Gutu, FAO Representative in Tajikistan, welcomed the participants and indicated that he was very pleased that the regional workshops took place on an annual basis on locusts, a pest not having political boundaries. For this reason, FAO provides countries with a platform for cooperation, with some outcomes already tangible such as the improved communication among countries. He continued by thanking the donors supporting countries and FAO in this effort, namely the Government of Japan/JICA, the FAO-Turkey Partnership Programme (FTPP), the United States Agency for International Development (USAID), FAO also contributing to the Programme using its own funds. He reminded that farmers are the ultimate beneficiaries, the Programme aiming at ensuring food security. Finally, he reiterated the importance of such meetings, both at the technical and political levels as cooperation among countries is crucial for transboundary pest management. He concluded by thanking the Tajik authorities for hosting this workshop.
5. Mr Hideki Tanabe, Chief Representative, JICA Tajikistan Office, welcomed the audience on behalf of the Ambassador and Representatives of the JICA office. He reminded that agriculture is a very important sector in national economies of CCA countries and that locusts can cause severe damages. The ultimate goal is thus to support farmers by improving locust management. He also reminded that cooperation is required not only at the technical level but also politically in Central Asia, as underlined by the Government of Japan, when the Prime Minister came to Tajikistan in 2015. Regional cooperation is fundamental for political stability and locust is a common problem that can be solved working together and also by strengthening national capacities in locust management and prevention. He wished fruitful discussions.
6. On behalf of Ms Annie Monard, Senior Officer, Team Leader “Locusts and Other Transboundary Plant Pests and Diseases” (AGPMM), FAO, Ms Marion Chiris, Locust Programme Officer, AGPMM, welcomed the participants and thanked the hosting country and donors. She reminded that this was the second locust meeting organized in Tajikistan in similar transition period. The first one was held in 2010, when the FAO Programme on locusts in CCA had already been agreed upon and before it was launched, the next year. Similarly, this 2017 workshop was held following the review of results achieved over the 2011-2016 period and definition of main directions for the way forward (in 2016), and pending the start of new projects. It was stressed that sustainable management of transboundary pests like locusts



can only be achieved with a strong regional cooperation and strengthening of national capacities. As done during previous years, the workshop would offer the opportunity, during the three first days, to report on activities for Year 6 of its implementation, discuss a number of technical issues as well as the workplan for Year 7. One full day would also be devoted to the preparation of new projects for CCA countries while a side-meeting would also be held on the ongoing Japan/JICA project, with the three beneficiary countries, Afghanistan, Kyrgyzstan and Tajikistan. Finally, it was indicated that this workshop was organized with the financial support from the projects funded by Japan/JICA, FTTP and the FAO Regular Programme. She concluded the speech by wishing an interesting and fruitful workshop to everybody.

## **OFFICERS OF THE SESSION**

7. The following officers were elected:

Chairperson: Mr Shamsiddin Soliev (Tajikistan)

Vice-Chairperson: Mr Otar Skhvitaridze (Georgia)

Drafting Committee: Mr Vladimir Pak (Kyrgyzstan)

Mr Andrei Zhivykh (Russian Federation)

Ms Annie Monard, Senior Officer, Team Leader, AGPMM (FAO)

Ms Marion Chiris, Locust Programme Officer, AGPMM (FAO)

Mr Alexandre Latchininsky, International Consultant, Senior Locust Expert, (FAO)

Ms Nadiya Muratova, International Consultant, GIS Expert, (FAO)

Ms Greta Graviglia, International Consultant, Operations Expert (FAO)

## **AGENDA**

8. The Agenda, as adopted, is given in Annex II.

## **SESSION 1: NATIONAL 2017 LOCUST CAMPAIGNS AND FORECASTS FOR 2018**

### **Item 4- National locust campaigns in 2017**

9. All delegates made comprehensive presentations on their respective national 2017 locust campaigns. The surveyed, infested and treated areas per country as well as the outstanding points from the presentations are presented below (see also maps in Annex III).

**Table 1. Surveyed, infested and treated areas in 2017**

Country	Area in hectare (ha)		
	Surveyed	Infested	Treated
<b>Afghanistan</b>	170 000	142 600	114 742
<b>Armenia</b>	57 850	41 000 of which 1 050 (CIT) & 203 (grasshoppers) > ET*	1 050 [and 203 for grasshoppers]
<b>Azerbaijan</b>	407 797	102 488 of which 39 249 > ET	39 249
<b>Georgia</b>	115 000	17 500	15 100
<b>Kazakhstan</b>	38 963 700	3 349 100 of which 1 885 000 > ET	1 885 000
<b>Kyrgyzstan</b>	132 461	111 006 of which 106 979 > ET	106 979
<b>Russian Federation</b>	13 433 140	1 986 960	768 750
<b>Tajikistan</b>	554 000	97 100	104 037
<b>Turkmenistan</b>	221 314	116 062	116 062
<b>Uzbekistan</b>	620 700	587 500	467 700
<b>Total</b>	54 675 962	6 551 316	3 618 669

\*ET: Economic Threshold

10. The Delegate from Afghanistan explained that most anti-locust treatments were conducted against the Moroccan Locust *Dociostaurus maroccanus* (DMA) in the north and northeast of the country. The largest areas were treated in Balkh (22 518 ha), Samangan (20 106 ha), Takhar (19 100 ha) and Baghlan (16 844 ha) provinces, representing 72 percent of the total treated area. In total, 35 061 liters of pyrethroid and Insect Growth Regulators (IGR) pesticides in Ultra-Low Volume (ULV) formulation were used. Treatments were implemented by numerous hand-held and 11 vehicle-mounted ULV sprayers. In total, 76 centralized staff, 50 local staff and 800 volunteers were involved in control operations; 47 vehicles were rented during the campaign. Problems encountered included low quality of pesticides used, lack of centralized database on locust survey and control operations and inaccessibility and insecurity in certain locust-infested areas. The Delegate also called for increased regional cooperation.
11. The Delegate from Armenia reported that the locust situation remained calm in 2017. The Italian Locust *Calliptamus italicus* (CIT) is the only economically important locust pest in the country. In total, over one thousand hectares were treated with pyrethroids in the Ararat valley.
12. The Delegate from Azerbaijan explained that the treated areas, of nearly 40 000 ha, more than doubled compared to 2016. Treatments used pyrethroid insecticides and were applied against DMA. Use of vehicle-mounted ULV sprayers was very effective. Swarm from Iran were reported and the Delegate requested that Iranian representatives be invited to the next CCA workshops to improve international collaboration. The Delegate from Turkmenistan supported this proposal. The Delegate from Azerbaijan also pointed out that the Karabakh area should not be designated as an Armenian territory on the map shown by the Armenian Delegate. In the unrecognized Republic of Karabakh, which is an important reservoir for locusts, information on locust survey is not available because of ongoing fighting. The Delegate from Armenia clarified that on that map Karabakh was designated as “the Karabakh Republic” and not as part of Armenia.

13. In Georgia, the area of anti-locust treatments (15 100 ha) decreased compared to 2016 (23 600 ha). Most treatments were applied to CIT. The largest areas were treated in Kakheti region. ULV and Low Volume (LV) technologies were used. The proportion of areas treated by vehicle-mounted ULV sprayers increased in 2017. In terms of constraints, the Delegate indicated the lack of means of transportation and the use of pesticides that may be harmful for human health and the environment. Regular exchanges and cooperation with Azerbaijan were stressed out.
14. In Kazakhstan, locust surveys were implemented on almost 39 million ha out of which over 3 million ha were infested. Treatments were applied to the area of 1 885 000 ha, which was infested at densities exceeding the Economic Threshold (ET). Over 1 000 staff were involved in anti-locust activities. In general, areas infested by CIT and the Asian Migratory Locust *Locusta migratoria migratoria* (LMI) slightly declined compared to 2016 while DMA infestation levels increased compared to 2016. Close cooperation with the Russian Federation and China was mentioned.
15. The Delegate from Kyrgyzstan explained that because of cold 2017 spring, DMA and CIT hatching started about one month later than in 2016. Nevertheless, locust-infested areas increased compared to the previous year and the general situation was comparable to 2008, when the country experienced a serious locust outbreak and 157 000 ha were treated. In 2017, the total treated area increased twice compared to 2016 and exceeded 100 000 ha including 65 491 ha treated against DMA and 41 488 ha treated against CIT. Pesticide used belonged to pyrethroid and organophosphate groups. The Delegate expressed gratitude to FAO and Japan/JICA, explaining that the country had the capacity to manage this unexpected locust situation and to prevent crop and pasture losses from locusts thanks to the well-targeted equipment delivered in 2016 and 2017.
16. In the Russian Federation, the total locust-infested areas decreased in 2017. Nevertheless, locust emergencies were declared in some administrative units. In particular, DMA infested areas increased in the South (Stavropol, Dagestan, Kalmykia and even Astrakhan oblast). This is a relatively recent problem for Russia where typically, CIT and LMI represent most of the problems. In total, 633 different sprayers were used to treat 768 750 ha. Control operations on state-owned lands are covered by federal funds while those on private lands are covered by local budgets and private funds. For locust monitoring, the country has been producing for the first time in 2017 electronic maps thanks to the GIS, which was developed for all especially dangerous plant pests by the Federal State Budget Organization "Russian Agricultural Center" of the Ministry of Agriculture. In this regard, it was indicated that the Automated System for Data Collection (ASDC) developed by FAO was very interesting and that experiment in using it should continue in other regions than Saratov; the relation between the national GIS and the one developed under the FAO Programme will have to be determined further. Fruitful collaboration with Kazakhstan in the border areas allowed resolving all transboundary locust issues.
17. In Tajikistan, locust control is planned and implemented by the State Entity "Locust Control Expedition", which is funded through state budget. Most of the control operations were carried out against DMA. Infested areas increased compared to 2016. In some cases, it was necessary to treat the same areas more than once, the reason why the total treated area was slightly higher than the infested area. Technical support by FAO, particularly vehicles, allowed conducting operations in remote areas.
18. In Turkmenistan, anti-locust treatments (116 062 ha in total) were implemented against DMA, the Saxaul Grasshopper *Dericorys albidula* and several non-swarming grasshopper species. Pyrethroid pesticide (active ingredient – a.i.: alpha-cypermethrin) was used in the treatments, which were applied by 22 vehicle-mounted ULV sprayers. Aerial treatments were carried out against the Saxaul Grasshopper. The Delegate indicated that LMI had been observed in desert areas in July 2017, which could not be explained.
19. The Delegate from Uzbekistan explained that the locust-infested areas increased compared to 2016 and, in total, almost half a million hectares were treated. However, 8 000 ha only were treated against LMI because most of its habitats in the Aral Sea zone were still flooded; therefore most control operations were carried out against DMA, CIT and grasshoppers. Approximately half of all treatments (233 400 ha) were done using vehicle-mounted ULV sprayers. About 80 percent of all control

operations were implemented in areas bordering Tajikistan and Turkmenistan. All treatments used locally manufactured pesticides. Because of transboundary DMA swarm movements, locusts destroyed 1 000 ha of cotton with an economic damage of USD 3 million. The LMI situation in the Aral Sea zone remains very serious after the water started to recede in the autumn, and the Delegate mentioned that he had requested FAO support to survey those areas; that FAO support was provided and the survey will be carried out later in November. The Delegate underlined that he was pleased that the situation in Kyrgyzstan was under control; he indicated that a high level of alert will be needed in the coming year, especially in border areas with Tajikistan and Turkmenistan.

#### Item 5- Locust forecast for 2018 and preparation of the next campaign

20. The countries provided locust forecast for 2018 in terms of the areas subject to treatment as follows (in ha):

**Table 2. Areas (in ha) subject to treatments against locusts in CCA countries in 2018 (forecast)**

Country	Area (ha) - subject to treatment
Afghanistan	154 300
Armenia	1 000 – 2 000
Azerbaijan	55 000 – 65 000
Georgia	20 000 – 25 000
Kazakhstan	1 924 000
Kyrgyzstan	120 000
Russian Federation	841 100
Tajikistan	104 037
Turkmenistan	109 000
Uzbekistan	523 000

## SESSION 2: IMPLEMENTATION OF THE PROGRAMME TO IMPROVE LOCUST MANAGEMENT IN CAUCASUS AND CENTRAL ASIA

#### Item 6- Overview on Programme implementation in 2017 and funding situation

21. The FAO Locust Programme Officer, AGPMM, provided an overview of the implementation of the “Programme to improve national and regional locust management in Caucasus and Central Asia (CCA)” during Year 6 of the Programme, from 1<sup>st</sup> October 2016 to 30 September 2017. The main achievements for Year 6, under the different Programme results, were summarized as follows:

- The Technical Workshop on Locusts in CCA held at the start of Year 6, on 14-18 November 2016, Astana, Kazakhstan, played a particular role as it allowed reviewing the results achieved in the framework of the Programme over the 2011-2016 period: an extremely positive feedback was given by the ten CCA countries and the two participating donors, USAID and Japan/JICA, in particular on the now existing regional cooperation and capacity strengthening. Countries requested Programme continuation and the workshop also allowed defining the way forward for the coming years, thus also serving as a basis for resource mobilization.

- In 2017, for the eighth consecutive year, national and regional monthly bulletins were prepared, respectively by all countries and FAO; an important step was that national bulletins were prepared this year in the absence of any external funding, thus by national staff of all ten countries in the framework of their usual duties –which is important in terms of sustainability.
- Further efforts were made to improve national human capacities, with a high number of beneficiaries trained in 2017, i.e. 323 persons from eight countries during 19 training sessions on several topics related to locust management. In this respect, the Training-of-Trainers (ToT) on locust management funded against the Japan/JICA project continued to play a key role. Special mention was also made of:
  - the sub-regional training on locust monitoring and information management jointly organized by the Russian Federation and FAO in Stavropol (April 2017); both the Federal State Institution "Russian Agricultural Center", Ministry of Agriculture, and the FAO Programme covered the related costs to the benefit of the four countries involved;
  - the refresher course on locust spraying and pesticide risk reduction (as part of the ToT) organized for three Afghan Experts in Georgia (July 2017), the availability of the National Food Agency (NFA) of the Ministry of Agriculture (MoA), Georgia, to host and train the Afghan Experts as part of CCA intra-regional assistance, being greatly appreciated;
  - The State Entity "Locust Control Expedition", Tajikistan, also continued to support regional cooperation by hosting the Afghan Experts for the ASDC review and introduction of the Caucasus and Central Asia Locust Management System - CCALM (September 2017).
- Joint or cross-border surveys (CBS) continued to be organized in 2017 (four in April and May) as a key activity for collecting data and evaluating jointly the locust situation in border areas, reducing tensions and contributing to the regional technical network.
- An important step was reached in 2017 with regard to CCALM as the GIS is now fully available (i.e. both basic and advanced functions). It was introduced to different extents in seven countries and started to be tested. Tangible GIS products could be showed to Locust Experts from these countries, also allowing to advocate with high-level authorities for its use at the national level, which is a very important aspect.
- Overall, in 2017, efforts continued to strengthen not only the human but also the operational capacities, especially of Afghanistan, Kyrgyzstan and Tajikistan thanks to the Japan/JICA project with delivery of locust survey and control equipment (a few items only remaining to complete the procurement as per project document).
- Activities aiming at reducing risks of control operations on human health and the environment continued in 2017: the work of the Tajik and Kyrgyz Human Health and Environmental Monitoring Teams was carried out for the third and second consecutive years respectively. In Azerbaijan, a mission was carried out by the FAO International Consultant, Senior Environmental Expert (June 2017), who formulated a number of recommendations with the objective of developing an integral monitoring system for health and environmental monitoring of locust control operations.
- Overall, a number of background documents were prepared or are under preparation, including: two Practical Guidelines –one on the three locust pests in CCA (subfinalized in English and Russian) and one on locust control and pesticide risk reduction (draft available in English); a calendar for 2018 on safety measures to be adopted by local populations before, during and after locust control operations. Two videos on pesticide storage and pesticide warehouse management, produced for advocacy and tutorial purposes in the framework of the emergency Three-year FAO Programme in response to the locust plague in Madagascar, were also translated

into Russian to the benefit of CCA countries. The Website “Locust Watch in CCA” was eventually moved to a more performing platform and will go live by late 2017.

- Last, based on the way forward defined with all CCA countries during the 2016 Technical Workshop and as a continuation of the existing Japan/JICA project, a Concept Note was prepared and shared with Japan/JICA, which had indicated to FAO its interest in further supporting locust management in Central Asia and Afghanistan in the coming years. It will serve as a basis for the discussions with all stakeholders during the Technical Workshop in view of new projects covering CCA countries.

22. With respect to the Workplan for Year 6, the Locust Programme Officer indicated that a few activities had been delayed, including the monographs on the locust pests in CCA and the preparation of the two above-mentioned practical guidelines. Two other activities were partially implemented only: out of the three envisaged fellowships on locust issues, two were ongoing but the third one had to be cancelled because no agreement could be reached between FAO and the concerned university. Concerning impact assessment of control operations, the conclusion of the critical review of the procedures applied by the Central Control and Toxicology Laboratory of Bishkek (February 2017) was that conditions were not met to carry adequate pesticide residue analysis and this activity was therefore cancelled in agreement with Kyrgyzstan. Delays were also encountered for the delivery of some items for locust survey and control operations, including tablets and camping kits (the latter delivered in two batches) for Afghanistan and Kyrgyzstan as well as of Personal Protective Equipment (PPE) for Afghanistan, Kyrgyzstan and Tajikistan (also delivered in two batches). Two tenders for procurement of tablets for Georgia had resulted unsuccessful and procurement was thus ongoing, to be completed by the end of 2017.
23. Afterwards, the Locust Programme Officer presented the funding situation of the Programme as well as expenditures for Year 6. She indicated that three projects were partially or fully active during Year 6: the USAID project, which came to an end on 30 April 2017, as well as the FTPP and Japan/JICA projects, still ongoing at Year 6 completion; the FAO Regular Programme had also provided a contribution. In total, the annual expenditures (estimates), from 1<sup>st</sup> October 2016 to 30 September 2017, amounted USD 1 300 700 (see table in Annex IV). Details were then given for various funding sources.
24. It was recalled that the USAID project (GCP/INT/134/USA), out of a total budget of USD 3 million for four components, made USD 1 660 000 available for Component 1 on locusts in CCA. During Programme Year 6, USD 223 700 were spent, representing 109 percent of the annual budget of USD 205 000. The expenditures for Year 6 were thus slightly higher than envisaged, a margin of flexibility being however allowed between the project components. The following was indicated with respect to expenditures for Year 6: the annual Technical Workshop on Locusts in CCA held in November 2016 in Astana, Kazakhstan, had a higher cost than initially planned; the project continued to contribute to the preparation of the Practical Guidelines on the three locust pests in CCA (i.e. translation into English and peer review); the envisaged support to the operational use of ASDC and introduction of CCALM in Caucasus and the Russian Federation also allowed providing a training/refresher course on locust monitoring and was coupled with a joint survey in order to maximize the use of available funding; the negative amount under Result 5 corresponded to an accountability adjustment between the project components as the costs of the critical review of the management of empty containers of pesticides used for locust control in CCA (carried out during Year 5) was eventually shared between Component 1 on locusts in CCA and Component 4 on sound pesticide management; the Technical Support Services (TSS) were claimed as per technical assistance provided by FAO staff to project implementation.
25. As far as the FTPP project (GCP/SEC/004/TUR) is concerned, USD 210 300 were spent, representing 79 percent of the annual budget of USD 266 680. The following was indicated with regard to expenditures during Year 6: overall, the fellowships have a lower cost than initially planned due to the cancellation of one of the three and to the fact that the two ongoing post-graduate studies (one PhD and one Master) were conducted in students’ home countries (and not in Europe or North America); the tablets purchased for Azerbaijan in 2017 had also a lower cost than initially envisaged; and the

procurement of human health and environmental monitoring equipment for Azerbaijan was still ongoing at Year 6 completion.

26. The FAO Regular Programme contributed to Programme implementation during Year 6 with an envelope of USD 15 300 (representing 66 percent of the initially envisaged contribution of USD 23 000). This support concerned the organization of the Technical Workshop on Locusts in CCA held in November 2016 in Astana, Kazakhstan.
27. As of 30 September 2017, the expenditures against the Japan/JICA-funded project (GCP/INT/238/JPN) amounted USD 851 400 (against a budget of USD 1 295 460 for project Year 2 covering however a longer period, up to 2 December 2017). It was said that detailed comments would be provided at the occasion of the side meeting scheduled with the three concerned countries during the week.

#### **Item 7- Regional cooperation in 2017: joint or cross-border surveys**

- **Joint survey between Armenia, Azerbaijan, Georgia and Russian Federation, April 2017**

28. The Delegate from the Russian Federation reported on the joint survey by Armenia, Azerbaijan, Georgia and Russia, which took place on 11-13 April 2017 in the Stavropol region, South Russia, during the Sub-Regional Training on Locust Monitoring and Information Management (USAID funding). This event was organized jointly by FAO and the Russian Agricultural Center.
29. Fourteen specialists from Armenia (two), Azerbaijan (two), Georgia (three) and Russia (seven) participated in the survey, which took place in Andropov and Mineralovodsky districts (250 km South-East Stavropol) and in Izobilnensky district, from Lake Ptichie to the border with Novoaleksandrovka district (80 km North-West Stavropol). The purpose was to look for LMI egg-beds but no egg-pods were found. During the survey, participants improved their skills in using the Global Positioning System (GPS) navigation devices and ASDC. Overall, the survey continued strengthening cooperation between all countries.
30. The Delegates from Georgia and Azerbaijan emphasized the importance of the joint surveys because they bring together specialists from different countries and thus foster regional collaboration and information exchange. Such an annual survey for Caucasian countries and the Russian Federation, undertaken thanks to the FAO Programme, has become a good tradition and needs to be pursued. The Delegate from the Russian Federation stressed the effectiveness of such joint survey and regional activities, supported their organization in the future and indicated that his country was fully available to host representatives from other countries to conduct joint surveys.
31. Answering the question about the joint and cross-border surveys between Russia and Kazakhstan, the Delegate from Russia explained that in 2017, 240 specialists from the two countries jointly surveyed 248 200 ha of locust sites along the Kazakh-Russian border.

- **Cross-border survey between Tajikistan and Uzbekistan, April 2017**

32. The Delegate from Tajikistan reported on the CBS between Tajikistan and Uzbekistan, which took place on 11-18 April 2017 (USAID funding). The six specialists (three per country) surveyed 30 000 ha in Tajikistan and 50 000 ha in Uzbekistan. DMA infestations at densities of 250 to 300 early-instar hoppers per square meter were found during the CBS.
33. The Delegate from Uzbekistan added that the CBS was instrumental in finding DMA hot-spots along the Uzbek-Tajik border. Because of the visa regime between the two countries, cross-border activities are particularly difficult; however good working relationships were existing. He thanked FAO for supporting this important part of the Programme and expressed the wish that, in the future, such support continues; if possible, more days could be allocated for such surveys.
34. During the discussion, the Delegates from Kazakhstan and Uzbekistan agreed that one area needs joint attention from both countries: it is the DMA-infested zone in South-Kazakhstan where locust densities

increased in the recent years. It was agreed that exchanges should be intensified. It was also mentioned by the Delegate from Turkmenistan the good technical cooperation between his country and Uzbekistan.

- **Cross-border survey between Kyrgyzstan and Tajikistan, May 2017**

35. The Delegate from Kyrgyzstan reported on the CBS between Kyrgyzstan and Tajikistan, which took place on 3-8 May 2017 (Japan/JICA funding). The ten participants (five per country) surveyed 16 000 ha of DMA sites in the mountains surrounding the Fergana valley, particularly in Sughd region of Tajikistan and Batken region of Kyrgyzstan. High densities of DMA early-instar hoppers were found in areas located at 500 to 1 000 m from crops.
36. The Delegate from Kyrgyzstan explained that during the CBS, one DMA hot-spot on the Kyrgyz side was found particularly threatening. It was possible to enter into an agreement with border protection to bring Tajik tractor sprayer on the Kyrgyz side; as a result, 200 ha of DMA-infested land were treated preventing the development of a potentially serious transborder locust problem. The FAO Agronomist (Plant Protection/Locusts), who also participated in the CBS, underlined its fruitful and practically important results.

- **Joint survey between Afghanistan and Tajikistan, May 2017**

37. The Delegate from Tajikistan reported on the joint survey with Afghanistan, which took place in Khatlon on 26-30 May 2017 (Japan/JICA funding). An area of 20 000 ha was surveyed in Djaikhun and Pyandj districts during DMA mating and egg-laying by the team consisting of five Afghan and ten Tajik specialists and an FAO Agronomist (Plant Protection/Locusts). The Delegate from Afghanistan confirmed that such joint events strengthen the bilateral collaboration.
38. The FAO International Consultant, Senior Locust Expert, concluded that the joint or cross-border surveys and more largely regional cooperation were one of the main outcomes of the FAO Programme. FAO support was very important and needed to be continued.

## **Item 8- National capacities' development in 2017**

### Item 8 a - Trainings

- **Locust monitoring and information management, jointly with Automated System of Data Collection (ASDC) and Caucasus and Central Asia Locust Management System (CCALM), March and April 2017**

- **National session, Uzbekistan, March 2017**

39. The Delegate from Uzbekistan reported on the Training on Locust Monitoring, Collection, Transmission and Analysis of Locust Information, which took place in Bukhara, Uzbekistan, on 6-10 March 2017, i.e. before the start of the locust campaign (FTPP funding). He explained that in late 2016, a new Joint-Stock Company "*Uzagrokimyohimoya*" ("*Uzbek Agrochemistry*") has been established with Locust and Mulberry Pyralid Control divisions in each of the 12 oblasts of the Republic, the Autonomous Republic of Karakalpakstan and the city of Tashkent (14 divisions in total). Many new staff were hired, therefore needing training.
40. This five-day training on locust biology, survey and management of locust information for 19 Uzbek locust personnel was conducted by Mr A. Latchininsky, FAO International Consultant, Senior Locust Expert. All trainees were men; their age varied from 24 to 65 years old. During the theoretical part, participants learned about biology, ecology, population dynamics, survey, monitoring and forecasting of three locust pests (CIT, DMA, and LMI) economically important in Uzbekistan. An emphasis on the use of ASDC and locust Geographic Information System CCALM, was made. During the practical part, a field trip was organized to Gijduvan district, 60 km North-East of Bukhara, where participants practiced to correctly fill out FAO survey forms and operate GPS devices.



41. The Delegate pointed out that the training was delivered in Russian, which is not the mother tongue of the trainees. Therefore, on certain occasions, he had to provide translation into Uzbek, which increased the efficiency of the learning process. Overall, the training was very successful. It strengthened the capacity of the Uzbek locust control units all over the country. The trainees particularly appreciated numerous educational materials provided by the trainer on a memory key.

- **Sub-regional (Armenia/Azerbaijan/Georgia/Russian Federation) training, Russian Federation, April 2017**

42. The Delegate from the Russian Federation made a report on the Sub-Regional Training on Locust Monitoring and Information Management -including ASDC and CCALM, which was jointly organized the Russian Agricultural Center and by FAO in Stavropol, Russia, on 7-14 April 2017 (USAID funding). Training was conducted by FAO International Consultants, Mr A. Latchininsky, Senior Locust Expert and Ms N. Muratova, GIS Expert, with participation of Mr Dmitrii Govorov, Deputy Director of the Russian Agricultural Center. Fourteen specialists from Armenia (two), Azerbaijan (two), Georgia (three) and Russia (seven) attended the event. Age of participants varied from 25 to 55 years old, three were women. The venue –Stavropol in South Russia– was chosen because the region prone to frequent locust infestations and hosts one of the two locust coordination centers (the second one is in Orenburg, 1 200 km North-East Stavropol), recently established within the Russian Agricultural Center.

43. The training included theoretical and practical parts. The content was similar to the training delivered in Uzbekistan with an emphasis also made on the use of ASDC and CCALM. In addition, special attention was given to DMA because after decades of low numbers, it recently started to increase its populations in Stavropol and infest thousands of hectares. During the latter, the field trip was organized to typical LMI and DMA habitats where participants practiced to correctly fill out FAO survey forms by using ASDC and operate GPS devices.

44. The Delegate from Armenia thanked for the excellent training. He indicated that the training had allowed to learn how to use ASDC on the two tablets received by his country and this knowledge was transferred to other staff during a national training organized subsequently. He added that the entomological kits delivered by FAO with the cooperation of Georgia were useful for the survey activities. He also requested that a similar high-level training be organized in his country. The Delegates from Georgia and Azerbaijan noted that the information exchange was very useful and that they had learned a lot. The GIS Expert explained that, during this training, information collection using tablets with installed ASDC as well as the presentation of CCALM was done for the first time ever. She thanked Georgian colleagues for their assistance in this matter. The only impediment of the training, which was otherwise very well organized, was insufficient speed of the Internet, which did not allow to accomplish online show of CCALM. She added that during the training, the Armenian participants had translated the Locust Survey and Spray Monitoring Forms and as well as the ASDC interface into Armenian, the last national language to be covered. The Delegate from the Russian Federation reiterated the usefulness of such activities and the availability of his country to host future joint activities. The training was featured in a special program on one of the leading Russian television channels and on the site of the Russian Agricultural Center.

- **National training, Azerbaijan, April 2017**

45. The Delegate from Azerbaijan reported on Training on Locust Monitoring and Information Management, including ASDC and CCALM, which took place in Baku, Azerbaijan, on 17-22 April 2017 (FTPP funding). Twenty specialists from locust-infested regions attended the event. Age of participants varied from 38 to 64 years old; gender composition included 19 men and one woman.

46. The theoretical part of the training was held in Baku. Practical field training was held in Gobustan and Hajigabul regions on 20 and 21 April respectively. Tablets and entomological kits were handed over to each participant. All participants received printed materials and files with presentations. The training was delivered interactively, with a lot of questions, answers and comments. It was conducted in

Russian with consecutive translation into Azeri, which was very helpful for the participants. The first part of the training was devoted to the basics of the locust biology, ecology, monitoring and forecasting. The trainees received comprehensive information on the three main locust species, CIT, DMA and LMI, with particular emphasis on DMA, which is the main economic locust pest in the country. The second part of the training consisted in the preparation of the tablet for field work and ASDC use. More specifically, the trainers gave detailed explanation on how to adjust the language setting in ASDC, fill out the Locust Survey/Spray Monitoring Form and send it to server. The training was covered by the national television and reflected in an article in the Orthopterists' Society Newsletter "Metaleptea". The Delegate from Azerbaijan concluded by indicated that the training had been extremely useful for the participants. He requested FAO to repeat such training in Azerbaijan in 2018. The Senior Locust and GIS Experts added that the training was very well organized; the management had paid high attention to this activity and was committed in using ASDC and introducing CCALM at the national level.

- **ToT - National sessions on ASDC use in Kyrgyzstan and Afghanistan, April and September 2017**

47. The Master-Trainers (also respective Delegates from Kyrgyzstan and Afghanistan) presented the national sessions on ASDC use, organized in 2017 as part of the ToT on locust management (Japan/JICA funding), as follows:
  - **National session, Kyrgyzstan:** delivered to the benefit of 18 Kyrgyz Locust Experts by the national Master-Trainer, Mr A. Alakunov, in Osh, Kyrgyzstan, on 3-6 April 2017, i.e. immediately before the start of the campaign;
  - **National session, Afghanistan:** delivered to the benefit of 33 Afghan Locust Experts by the national Master-Trainers, Mr A. Hanif and Mr A. Ahmadzai on ASDC and Mr A.M. Salek and Mr A.J. Mohammadi on GIS, in Mazar-i-Sharif, Afghanistan, on 17-19 September 2017.
48. The presenters indicated that these national sessions on ASDC use had been organized upon receipt of the tablets. The Kyrgyz Expert had prepared the national session in close liaison with the FAO International Consultant, GIS Expert while the Afghan Master-Trainers had recently benefitted from the ASDC review and CCALM introduction, together with the GIS Expert (early September 2017, Dushanbe, Tajikistan). All tablets in Kyrgyzstan were registered and activated at the occasion of the workshops. The content of the national sessions included the following topics: (a) for Kyrgyzstan: locust bio-ecology, the basics of locust monitoring, types of surveys and related field methods; control methods ; human health and environmental impact of locust control and risk reduction; (b) for both countries: filling in the Locust Survey and Spray Monitoring Forms; ASDC installation on tablets as well as devices/users registration; ASDC use on tablets/mobile phones or on computers/laptops (from the Web-interface); GPS use; and (c) for Afghanistan: also a brief presentation of CCALM products. The Delegates from Kyrgyzstan stressed the excellent support received from the FAO-Representation in Kyrgyzstan. The Delegate from Afghanistan indicated that ASDC would be used as widely as possible during the next locust campaign, although the use of tablets could be hampered in some areas due to insecurity; in that cases, paper forms would be used.
49. The GIS Expert underlined that these national trainings, delivered by the Master-Trainers, were a clear demonstration of the successful strategy applied by FAO, consisting of training Master-Trainers, in turn able to deliver training sessions to national staff, also allowing reaching a high number of beneficiaries. In the present case, she underlined how the Master-Trainers succeeded to act as trainers and ensure transfer of knowledge and expertise.
50. To a question regarding the payment of Master-Trainers, it was replied by FAO that delivering national trainings as part of the ToT was considered as being part of the duties of the staff who had gained experience from regional training, refresher course abroad, etc. The Delegate from Kyrgyzstan supported this approach, indicating that it was the direct responsibility and part of the functions of the Master-Trainers, representing also a contribution from the respective governments, to share the

knowledge and expertise gained with the colleagues at the national level. He added that this had to be done not only during the national sessions but on a regular basis, whenever the Master-Trainers were going to the field. The Delegate from Afghanistan expressed the wish to have longer national sessions in the future to allow additional practical exercises for the trainees.

- **ToT - Refresher course on locust spraying and pesticide risk reduction for Afghan Experts (ToT), Georgia, July 2017, and national session, Afghanistan, September 2017**

51. The Delegate from Afghanistan, as well as the Delegate from Georgia, i.e. Mr O. Skhvitardze in his quality of trainer, reported on the refresher course organized as part of the ToT to the benefit of three Afghan Experts/Master-Trainers, Mr A.R. Faizee, Mr A. Hanif and Mr N. Haji Zada, in Dedoplistskaro and Signaghi municipalities, Georgia, on 19-22 July 2017 (Japan/JICA funding). The refresher courses included both theoretical and practical sessions and covered spraying aspects, including calibration of ULV sprayers, as well as pesticide risk reduction/human health and environment aspects. The Delegate from Afghanistan mentioned the very high quality of the refresher course; he also presented the national session delivered to the benefit of 33 Afghan Locust Experts in Mazar-i-Sharif, on 20-22 September 2017, i.e. after the above-mentioned refresher course, where similar topics were covered. It was indicated that the national session was successfully organized.
52. The Locust Programme Officer, AGPMM, indicated that the refresher course had been organized in Georgia in view of the knowledge and experience gained by the Experts of this country. She also said that if the FAO Programme had covered the costs related to the travel and organizational aspects, the delivery of the training was ensured by the National Food Agency of Georgia, and in particular by Mr Skhvitardze accompanied by Mr Nutsubidze. She mentioned it as an excellent example of intra-regional assistance. She added that such refresher course and national session were fully in line with the envisaged strategy for the coming years, i.e. promotion of coaching formula between the countries on the one hand and national trainings delivered by Master-Trainers on the other.

- **ToT – One-day briefing sessions on locust spraying and pesticide risk reduction, Kyrgyzstan and Tajikistan, April to July 2017**

53. The Delegates from Kyrgyzstan and Tajikistan presented the briefing sessions delivered as part of the ToT in 2017 (Japan/JICA funding):
  - **Briefing sessions, Kyrgyzstan:** five sessions delivered to the benefit of 68 Kyrgyz Locust Experts by the national Master-Trainers, Mr Alakunov, Mr Duyshebiev, Mr Mambetakunov, Mr Erkinbek uulu and Ms Sultanbek Kyzy, in Jalal-Abad, Osh, Batken and Naryn, from April to July 2017;
  - **Briefing sessions, Tajikistan:** four briefing sessions delivered to the benefit of 58 Tajik Locust Experts by the national Master-Trainers, Mr Haitov, Mr Komilov, Mr Majitov, Mr Yorov and Mr Kadyrov, in Khatlon, Region of Republican Subordination (RRS) and Sughd, Tajikistan, from April to June 2017.
54. Such briefing sessions lasted one day each and targeted, immediately before control operations, staff and local manpower involved in locust spraying operations in given regions or districts; they also provided the occasion to present a short overview on locusts bio-ecology to the participants as well as on ASDC use when possible. To a question of the Locust Programme Officer, AGPMM, about the usefulness and effectiveness of such one-day briefing sessions, held for the first time as part of the ToT, both the Delegates from Kyrgyzstan and Tajikistan replied that they had been very fruitful. The Delegate from Kyrgyzstan indicated that they had also allowed increasing awareness of the local authorities in the concerned regions and that such activity should be repeated and extended to other regions at the national level.

#### Item 8 b - Update on fellowships on locust management

55. The FAO Locust Programme Officer, AGPMM, introduced this item by recalling that, as part of Result 2-“National capacities strengthened” Activity 2.3-b, of the “Programme to improve national and regional locust management in Caucasus and Central Asia (CCA)”, the fellowships were covered by the FTTP project. Following two calls for interest (2015), three students had been selected but only two of them were pursuing studies, as follows:
- Mr Almaz Alakunov (Kyrgyzstan) for a PhD on “Application of satellite images and Geographic Information Systems (GIS) to locust monitoring, risk assessment and forecasting” in the Kyrgyz National Agrarian University and Central Asian Institute for Applied geosciences (CAIAG), Bishkek, Kyrgyzstan –effective start in January 2016 (three-year duration, ongoing);
  - Mr Nematjon Allabergenovitch Abdaliazov ABDALIAZOV (Uzbekistan) for a Master on “Locust biological control” in the Tashkent National State Agrarian University (TSAU), Uzbekistan – effective start in September 2016 (two-year duration, ongoing);
  - Mr Karimzoda Sorboni (Tajikistan), for a Master on “Locust control tactics and strategies” in the Kazakh National Agrarian University (Kaznau), Almaty, Kazakhstan –start scheduled in the 2016/17 academic year (two-year duration); however this fellowship had to be cancelled the first trimester of 2017 as no agreement could be reached between FAO and the University. As it was not possible to launch a new and third call for interest considering project timeframe, available project funds were re-allocated to other training activities.
56. Mr A. Alakunov, PhD student (and one of the two Delegates from Kyrgyzstan at the 2017 Workshop) indicated that he had pursued his studies as planned during the PhD second year. Taking into consideration the long field mission carried out between March and August 2017, as part of his work at the Department of Chemicalization and Plant Protection (DCPP), Ministry of Agriculture and Melioration (MAM), Kyrgyzstan, it was agreed that the report for the second year would be provided to FAO by the end of December 2017.
57. Mr Furkat Gapparov (Delegate from Uzbekistan), in his quality of one of the Professors supervising Mr N. A. Abdaliazov, reported briefly about the field mission carried out by the student in Karakalpakstan in August/September 2017 to collect individuals of LMI and CIT from different development stages with the objective of identifying entomopathogens or parasites that could be used for biological control of locust populations. He also indicated that the student was very interested and committed in his studies. In reply to his question on possible additional support for fellowship considering the need to train more scientists, the Locust Programme Officer, AGPMM, indicated that such activity could be included in new projects if all countries agreed. The Delegate from Uzbekistan also informed that the Tashkent University was increasing its capacities, thus being able to train more students, including from other countries.

#### Items 8 c & d- Update on the monographs of the three locust pests and Practical Guidelines on locusts in CCA: Biology, ecology, behaviour

58. The International Consultant, Senior Locust Expert, presented an update on the preparation of the monographs on the three locust pests and on the Practical Guidelines on locusts in CCA. The Russian version of the monograph on CIT has been finalized in early 2017. It is available for download from the FAO website “Locust Watch – Locusts in Caucasus and Central Asia”<sup>1</sup>. The next steps –the translation into English, the formatting and printing of hard copies in both languages– are pending subject to funds availability. The Russian versions of the monographs on LMI and DMA are currently being finalized.

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<sup>1</sup> <http://www.fao.org/ag/locusts-CCA/en/index.html>

The process was delayed because of the very large size of the manuscript, especially concerning the literature references on LMI.

59. Regarding the Practical Guidelines, it was reminded that were intended as a set of guidelines on various topics related to locust management, targeting mainly staff of CCA countries. While additional guidelines could be prepared in the future, funding was currently available for two of them. For the first one, the Practical Guidelines on locusts in CCA: biology, ecology and behavior, the English and Russian drafts were undergoing a peer-review process by FAO (FAO Regular Programme and USAID funding). The second one, related to locust control and pesticide risk reduction, was available as a draft, in English for the time being, and next step will be the peer-review process (Japan/JICA funding).
60. The Delegate from Kyrgyzstan said that it was a pity that the hard copies of the monographs were not available yet; similarly to CBS, edition of these documents should be a priority for the Programme in the future. The Delegate from Tajikistan also emphasized the importance of such publications, especially in national languages.

#### Item 8 e- Equipment to strengthen operational capacities: update on delivery in Afghanistan, Kyrgyzstan and Tajikistan

61. The FAO International Consultant, Operations Expert, presented an update on the locust equipment provided under the Japan/JICA-funded project entitled "Improvement of locust management in Afghanistan, Kyrgyzstan and Tajikistan" (GCP/INT/238/JPN). Locust control and survey equipment amounts to about USD 3.2 million, i.e. 70 percent of the total project budget of USD 4.8 million. It was reminded that the nature and quantity of items were defined during the project preparation phase thanks to intensive exchanges with the three countries and based on their respective technical needs. Against that background, the Consultant provided an overview on the FAO procurement policy, stressing that FAO conducts procurement according to the policy accepted by all 194 Member Countries and various Donors, meeting the highest standards of International Public Procurement and accountability. In addition, FAO respects the fundamental principles of fairness, competitiveness, transparency and Best Value for Money. A database of more than 32 000 national and international vendors is maintained by FAO and most of FAO tenders are published on the United Nations Global Marketplace (UNGM). Technical specifications are prepared by FAO taking into account the highest international quality and safety standards. FAO ensures maximum benefit versus cost: it follows market developments; besides, the results of each tender exercise are compared with the outcomes of any similar recent tender, with price analysis carried out to ensure that they are in line with current international market prices for products of comparable quality standards at the time of the award.
62. Besides the equipment delivered in 2016, the equipment procured from November 2016 to October 2017 under Programme Result 3 "Locust monitoring improved" includes one last set of office equipment for Kyrgyzstan, motorcycles for locust survey for Afghanistan and Tajikistan and vehicles for Kyrgyzstan and Tajikistan (both for locust survey and control). Survey kits have been ordered for Afghanistan and technical evaluations are in progress for similar items to be delivered in Tajikistan and Kyrgyzstan, together with laboratory equipment for insect identification for Kyrgyzstan. Tablets for ASDC use were provided both to Afghanistan and Kyrgyzstan in 2017.
63. Under Programme Result 4 "Locust control operations supported", camping kits were partially provided to Afghanistan and Kyrgyzstan; remaining items will be delivered by the end of the year. The procurement of prefabricated houses for Tajikistan is ready, pending agreement with the country.
64. Under Programme Result 5 "Risk reduction on human health and environment ensured", PPE kits were partially delivered to the three countries and remaining items will be provided by the end of November 2017. Human health and environmental monitoring equipment was provided to Kyrgyzstan and Tajikistan while procurement of analytical standards for pesticide residue analysis to assess the impact of locust control operations in Kyrgyzstan and Tajikistan was cancelled in line with the outcome of the mission of two FAO experts in pesticide residue analysis who visited Kyrgyzstan in February 2017. The

Delegate from Kyrgyzstan thanked the presenter for the work done and FAO for the timely delivery of equipment.

#### Item 9- Programme of work during 2018

65. The FAO Locust Programme Officer, AGPMM, presented the proposed Workplan for Year 7 (from 1st October 2017 to 30 September 2018) and related budgets. She started by indicating that three funding sources were available, as follows:
- FTTP project (GCP/SEC/004/TUR): this project can be implemented in the countries having signed both project document and agreement, i.e. Azerbaijan, Kyrgyzstan, Tajikistan and Uzbekistan. Because Kyrgyzstan and Tajikistan had benefitted from project activities in the project first years and considering that they were now well covered by the Japan/JICA project, activities for 2017 as well as 2018 would mainly concerned Azerbaijan and Uzbekistan.
  - FAO Regular Programme (RP): a small contribution may be available.
  - Japan/JICA project (GCP/INT/238/JPN): the budget for 2018 for this project would be discussed separately with the three countries during a side-session scheduled during the Technical Workshop.
66. After a presentation of the envisaged activities for Programme Year 7, the participants endorsed the Workplan presented in Table 3 (funding source indicated below in italic):
- **Under Result 1:**
    - Activity 1.1.2. Organization of the annual Technical Workshop on Locusts in CCA, November 2017, Dushanbe, Tajikistan (*FTTP and JPN/JICA projects as well as FAO RP*).
  - **Under Result 2:**
    - Activity 2.2. Contribution to the translation of the CIT monograph (*FAO RP, subject to funds' availability*).
    - Activity 2.3. Support to fellowships' field missions, in particular for the Uzbek fellow (*FTTP project*).
  - **Under Result 3:**
    - Activity 3.1.1. Operational support to three LMI assessment missions in the Aral Sea area, Karakalpakstan, Uzbekistan, in late November 2017, May and September 2018 (*FTTP project*).
    - Activity 3.1.1. Organization of a training/refresher course on locust monitoring and information management, including ASDC, in April 2018, in Azerbaijan (*FTTP project*).
    - Activity 3.1.2 Delivery of survey equipment to Azerbaijan (six GPS, one desktop computer and from three to six digital cameras according to budget availability) and to Uzbekistan (15 GPS) (*FTTP project*).
    - Activity 3.3.1 In-depth introduction of CCALM in Azerbaijan, April 2018 – coupled with above-mentioned training/refresher course (*FTTP project*).
  - **Under Result 5:**
    - Activity 5.2.2. Delivery of small Human Health and Environmental monitoring equipment to Azerbaijan (*FTTP project*).
    - Activity 5.2.3. Operational support for setting up an Human Health and Environmental Monitoring Team during the 2018 locust campaign in Azerbaijan (*FTTP project*).

- **Other:**

- Contribution to the supervision, coordination and implementation of the Programme (*F TPP project*).

67. Last, it was indicated by the FAO Locust Programme Officer that the F TPP project will end in February 2019. The only remaining project activity will be a contribution to the next Technical Workshop (November 2018). It was also specified that the allocation from the FAO Regular Programme can be used in 2018 for the translation of CIT monograph or for other small needs that may arise during the next year.

**Table 3 - Workplan for Year 7 of Programme implementation and related budget**

Res. & Act.	Description - Activities envisaged for Year 7	Beneficiary countries	TOTAL BUDGET FOR YEAR 7 (USD) -JPN excluded-	AVAILABLE FUNDS FOR YEAR 7 (USD)	
				TURKEY Mar. 2014- Feb. 2019	FAO Regular Programme
<b>R1 - Regional cooperation</b>			<b>35,000</b>	<b>35,000</b>	<b>0</b>
1.1. Facilitate regional exchanges to manage locust situations			35,000	35,000	0
1.1.1. Create/maintain regular regional information sharing of standardized data (Nat. CsIt for bulletins)					
1.1.2. Allow direct experience exchange (technical workshop)			35,000	35,000	
1.2. Develop coordination, including through transboundary policy			0		
1.3. Identify the best long-term solution for sustainable regional cooperation			0		
<b>R2 - National capacities</b>			<b>9,000</b>	<b>4,000</b>	<b>5,000</b>
2.1. Training-of-Trainers (ToT) programme - locust management			0		
2.2. Make available/accessible background documentation on locust pests			5,000		5,000
a	Biblio & Material to be made available (e-committee)				
b	Monographies	all (translation - subject to funds availability)	5,000		5,000
c	Guidelines				
2.3. Allow internships and post-graduate formation			4,000	4,000	
a	One-month internship				
b	Fellowship: 2 or 3-year diploma for 3 students & E-committee	UZB Fellow field trips	4,000	4,000	
2.4. Promote and support applied research			0		
a	Two grants for applied research				
b	Entomological and chemical equipment for 6 laboratories				
<b>R3 - Locust issues and disasters better anticipated and mitigated</b>			<b>51,000</b>	<b>51,000</b>	<b>0</b>
3.1. Improve survey operations for better field locust monitoring			36,000	36,000	
3.1.1. Strengthen human capacities (techn. consultations on survey)			28,000	28,000	
3.1.2. Strengthen operational capacities (survey equipment)			8,000	8,000	
3.2. Organize regular cross-border surveys			15,000	15,000	
3.3. Develop monitoring and analyzing systems			0		
3.3.1. Extend use of Geographical Information System and remote sensing			15,000	15,000	
3.3.2. Improve forecasting					
3.4. Enhance preparedness for risk reduction - contingency plans			0		
<b>R4 - Improved response mechanisms to locust outbreaks</b>			<b>0</b>	<b>0</b>	<b>0</b>
4.1. Allow early reaction and appropriate control operations			0		
4.1.1. Strengthen human capacities (techn. consultations on control)					
4.1.2. Strengthen operational capacities (control equipment)					
4.1.3. Enhance public-private partnership					
4.2. Promote less harmful pesticides and alternatives to conventional pesticides			0		
4.2.1. Develop ULV formulations and related techniques					
4.2.2. Propose alternatives to conventional pesticides (demonstration)					
4.2.3. Encourage registration of more pesticides					
<b>R5 - Impact on human health and the environment mitigated and</b>			<b>10,000</b>	<b>10,000</b>	
5.1. Mitigate impact of locust control operations on human health and the environment			0	0	
5.1.1. Strengthen human capacities (techn. assistance)					
5.1.2. Strengthen operational capacities (PPE)					
5.1.3. Pesticides and empty containers management					
5.1.4. Produce extension material for mitigating impact of locust treatments					
5.2. Monitor impact of locust control operations on human health and the environment			10,000	10,000	
5.2.1. Strengthen human capacities (techn. assistance)					
5.2.2. Strengthen operational capacities (Testmate, environmental material, etc)			3,000	3,000	
5.2.3. Develop integral system for environmental and health monitoring			7,000	7,000	
5.2.4. Facilitate impact assessment & analysis of material (residue analysis)					
<b>R6 - Public information and awareness increased</b>			<b>0</b>	<b>0</b>	
6.1. Develop awareness and education among local populations			0		
6.2. Enhance visibility of locust issues and management and of related donor support			0		
6.2.1. Prepare and implement a communication plan					
6.2.2. Create and update a website on locusts in Caucasus and Central Asia					
<b>Other</b>			<b>35,000</b>	<b>35,000</b>	<b>0</b>
Supervision, coordination, management of Five-year Programme			35,000	35,000	
Evaluation			0		
TSS			0		
<b>Sub-total</b>			<b>140,000</b>	<b>135,000</b>	<b>5,000</b>
Support cost			20,000	20,000	0
<b>Total</b>			<b>160,000</b>	<b>155,000</b>	<b>5,000</b>



### SESSION 3: DEVELOPING MONITORING AND ANALYSING SYSTEMS

#### Item 10- Developments of ASDC in 2017 and next steps for 2018

68. The FAO International Consultant, GIS Expert, reminded that the ASDC was created in 2013 in order to facilitate collection and sharing of standardized locust data. It integrates the FAO standard “Locust Survey Form” and “Spray Monitoring Form” for CCA and serves as a basis for the locust GIS in CCA, CCALM. ASDC is available for use on tablets, smartphones and computers. During the annual Technical Workshop on Locusts in CCA held in November 2016, in Astana, Kazakhstan, the majority of countries stressed that such tools represented the future and that a strong support would be needed so that ASDC and CCALM be operationally used in all or most CCA countries, including training as well as tablet delivery for ASDC use.
69. In 2017, as a result of tenders for the procurement of tablets launched by FAO, a total of 74 tablets of three different models were delivered as follows: 36 units of model Samsung Galaxy Tab S2 in Afghanistan (Japan/JICA funding) and two units in Armenia (USAID funding); 20 units of model Lenovo Tab3 850 in Azerbaijan (FTPP funding) and 16 units of model SonyXperia Z3 in Kyrgyzstan (Japan/JICA funding). Thus, taking into account those already available, the total number of tablets in CCA countries is of 153 with the following distribution (the figure into brackets indicates the remaining needs): Afghanistan –40(0), Armenia –2(10), Azerbaijan –21(35), Georgia –15 under procurement(0), Kazakhstan –0(160), Kyrgyzstan –20(22), Russian Federation –13(143), Tajikistan –40(12), Turkmenistan –0(10), Uzbekistan –2(18). In the future and as far as possible, a standardization of the models of tablets utilized for ASDC is recommended for guide writing and training session preparation as well as for maintenance and problem-solving purposes.
70. During the 2017 locust campaign, trainings on ASDC use were delivered to the benefit of 148 Experts from eight countries against different funding sources (see item 8-a) and ASDC was further updated based on their comments and recommendations. This update concerns an improvement of the Kyrgyz version (suggested changes introduced in April) and availability in one more languages, Armenian, in early May (in addition to the ten other languages: Azeri, Dari, English, Georgian, Kazakh, Kyrgyz, Russian, Tajik, Turkmen and Uzbek). A few additional changes in the Locust Survey and Spray Monitoring Forms were proposed. The GIS Expert informed the participants that all suggested changes had been introduced, the ASDC version 1.8.4 being finalized in 11 languages in November 2017.
71. During the 2017 locust campaign, 904 reports from 58 users from seven out of the ten countries were received in ASDC, which is a big progress compared to 2016 (165 reports from five countries). As far as the three other CCA countries are concerned, one of the reasons of the absence of ASDC report is that no training on ASDC use has been delivered yet to Kazakhstan and Turkmenistan as well as no training for WEB-interface use for Uzbekistan.
72. Participants were also informed about recommendations for future improvement of ASDC, formulated during the meeting held with the Senior Officer, Team Leader, AGPMM, and staff in FAO-headquarter in April 2017 (detailed in the related Working Paper).
73. The GIS Expert explained that the overall objective is that all or most CCA countries operationally use ASDC in the coming years, together with CCALM. In FAO views, the following activities are required to that end: organization of refresher courses to the benefit of national Locust Experts at locust campaign start in Afghanistan, Azerbaijan, Kyrgyzstan and Tajikistan (against Japan/JICA and FPPP projects) as well as in Georgia on its own funds after delivery of tablets by FAO (ongoing procurement); financial support to cover mobile Internet access in Afghanistan,

Kyrgyzstan and Tajikistan during the 2018 national locust campaigns (against Japan/JICA project); and remote FAO technical assistance on a continuous basis for all CCA countries. For the Russian Federation, it was recommended to extend ASDC use by involving the southern oblasts (Orenburg and Volgograd oblasts, Republic of Kalmykia, Stavropol Territory), using available tablets, mobile phones or computers. For Kazakhstan, Turkmenistan and Uzbekistan, it was suggested to support ASDC test by national Experts by inserting the filled-in paper Forms in the web-computer application or using available tablets and mobile phones. Overall, it was also recommended that filling the FAO standard “Locust Survey Form” and “Spray Monitoring Form” should be included in the usual and mandatory tasks of the Locusts Experts.

74. During the discussions, the Delegate from Armenia underlined the importance of ASDC and requested FAO assistance for tablets delivery and related training. The Delegate from Azerbaijan supported this and also indicated that the development of an electronic system for all pests would be most useful. The Delegate from the Russian Federation informed that the Russian Agricultural Center had developed a new GIS system, in which information on all particularly dangerous pests is reflected. Concerning ASDC, it may be difficult to introduce it on the national level as it collects detailed information. Nevertheless, the Delegate supported ASDC relying on FAO experience and he expressed the readiness to implement ASDC in the Stavropol Territory in 2018. He also indicated that ASDC should be used by all countries and that training and tablet delivery were needed to that end. To fully cover Russia regions affected by locusts, it would be necessary to find the way to integrate ASDC within the national GIS. The Delegate from Kazakhstan expressed readiness to use ASDC in pilot oblasts where infestations by gregarious locusts are the most frequent. The Delegate from Uzbekistan promised to negotiate with the Manager of the Plant Protection organization and to report later on the decision. The Delegate from Tajikistan expressed his positive opinion on the ASDC use in 2017 in all oblasts where locust surveys were conducted and emphasized the importance of refresher course for Locust Experts at the beginning of the next locust campaign. The Delegate from Kyrgyzstan requested FAO assistance for getting additional tablets in order to reach a 100 percent ASDC cover of locust-infested areas. The Delegates from Georgia expressed the interest to pursue ASDC use. The Delegate from Turkmenistan informed that his country would start using ASDC paper form in 2018.
75. Answering the questions from the delegates, the FAO Locust Programme Officer, AGPMM, explained that, as soon as new resources become available, activities to be organized would include: organization of a Training-of-Trainers on filling in the standard Locust Survey and Spray Monitoring Forms and using ASDC; delivery of required tablets for ASDC use; delivery of annual refresher courses by the Master-Trainers (including with coaching formula, depending of each country situation and taking advantage of the experience gained by Georgian and Russian experts since the pilot phase); provision of FAO remote technical assistance to the countries and continuous improvements of the system, in liaison with CCALM.

#### **Item 11- Developments of CCALM in 2017 and next steps for 2018**

##### Items 11 a & b- CCALM introduction at the national level and CCALM improvement and management

76. The FAO International Consultant, GIS Expert, indicated that CCALM advanced functions (summary, analysis, forecast) -including displaying of locust information, GIS products and QGIS projects creation- was now fully available and accessible to all countries. It was deployed at the end of March 2017 and it is available in two languages, English and Russian. The system, developed by the Institute of Space Technique and Technologies, Almaty, Kazakhstan, is in line with FAO technical standards and is currently located at: locust.kz.

77. The new CCALM interface includes three main tabs: “Data Display”, “Reports” and “Administration”. The functionalities of “Data Display” tab include the following menus for: cartographic base option; selecting and viewing locust survey/spray monitoring data; creating GIS products; and building current and forecast soil temperature maps at a depth of 0 to 10 cm. These different menus provides the ability to filter the data by: region (all CCA countries; the three Caucasian countries and Russia; the six Central Asian countries and Russia), country and oblast; locust species (CIT, DMA, LMI) and development stages (egg-pods, hoppers, hopper bands, imago, swarms), according to certain intervals of time and to the filling methods (from tablet or through WEB-interface); and export filtered data to the QGIS project. The functionalities of “Reports” tab includes menus for obtaining the number of Locust Survey and Spray Monitoring Forms recorded by tablet or for a given period and country. The “Administration” tab allows to carry out a management of user account/ tablets/ Locust Survey Forms/ Spray Monitoring Forms/ locust statistical information/ various reference/background information, by country. The HELP function allows accessing to ASDC Operator guide; User Manual to obtain GIS analysis and forecast products; QGIS guide and Guide “Technical Service and Administration of the Locust GIS in CCA”.
78. The newly-developed CCALM (basic and advanced functions) was introduced to seven countries during the 2017 national locust campaigns. CCALM presentation was delivered to 14 Locust Experts from Armenia, Azerbaijan, Georgia and Russia during the sub-regional session on 7-14 April 2017 in Stavropol, Russian Federation (USAID funding), to 19 Experts during the national training on 17-22 April in Baku, Azerbaijan (FTPP funding) and to a total of 48 Experts from Kyrgyzstan (9-12 August 2017, Bishkek) as well as Afghanistan and Tajikistan (6-9 September 2017, Dushanbe) – Japan/JICA funding. The test of CCALM advanced functions was carried out during an in-depth CCALM training delivered to 11 Experts from the last three countries. The staff designated to be responsible for CCALM management at the national level made a number of recommendations concerning: the registration forms of the tablet/user; the viewing/editing and validation of data sent through ASDC; the creation of GIS products; QGIS Programme and future CCALM use (specific recommendations to that end can be found in Working Paper for Item 11 of the Provisional Agenda). A key recommendation for the effective functioning of CCALM was to support ASDC use in all CCA countries.
79. The GIS Expert underlined that a separate training of the staff responsible for CCALM management should be conducted on the practical use of CCALM and QGIS for (a) creation of maps of planned surveys / indicating areas to be treated for the next campaigns; (b) using the satellite products reflecting the current state of vegetation; (c) downloading full ASDC information for the country and analysis of locust situations on the base of QGIS-projects reflecting multiyear survey information.
80. At the end of the CCALM presentation, the GIS Expert informed the participants of FAO recommendations for CCA Locust GIS management as follows:
- (a) Extend CCALM products from country/first administrative level (region or province or oblast) to country/second administrative levels (i.e. also district or rayon);
  - (b) Develop CCALM interface in national languages to get the possibility to fill in forms via the WEB-interface in those languages with appropriate field names and drop-down lists;
  - (c) Issue a video tutorial on ASDC, CCALM and QGIS use;
  - (d) Continue an advocacy for high-level support to ASDC and CCALM at the national levels;
  - (e) Nominate, in each CCA country, two Information Officers who will be responsible for CCALM management at the national level;
  - (f) Deliver specialized annual trainings to the benefit of these Information Officers on data validation, analysis, forecast and reporting as well as CCALM maintenance and use, including QGIS;

(g) Migrate ASDC and CCALM from the presently rented server to the FAO server together with their administration, update and maintenance.

81. During the discussions, the Delegate from Kyrgyzstan thanked the Database Programmer and noted that majority of recommendations made were taken into account and implemented. The Delegate from the Russian Federation highlighted the important and fruitful work carried out to develop CCALM and noted its usefulness not only for practical work but also for scientific purposes. He wished to all participants to master CCALM use as soon as possible. The Delegate from Georgia noticed that a lot of work had been done and expressed readiness to test CCALM during the next locust season. The Delegate from Tajikistan stressed that CCALM represents the tool for large-scale analysis of locust situation. The Delegate from Kazakhstan underlined the usefulness of this system for collecting and analyzing locust information and informed that such a system is developing in Kazakhstan as well.
82. On the question of the FAO International Consultant, Senior Locust Expert, about the possibility to introduce meteorological, remote sensing and other cartographic data in CCALM to improve the locust forecast, the GIS Expert recalled that the main principle of the system is to use data from open sources. In this regard, the development of national GIS will be supported, which may provide access to other state sources of information, for example, Land cadastre, hydro-meteorological data, satellite products etc.

#### **SESSION 4: RISK REDUCTION FOR HUMAN HEALTH AND THE ENVIRONMENT**

##### **Item 12- Mitigating impact of locust control operations: background documentation**

83. The Senior Officer, Team Leader, AGPMM, presented two activities related to the mitigation of impact of locust control operations. The first one concerned two videos on pesticide storage and pesticide warehouse management, respectively realized for advocacy and demonstration purposes, relying on the innovative pesticide warehouse built in the framework of the Three-year emergency FAO Programme (2013-2016) in response to the locust plague in Madagascar. The first video, of about five minutes and entitled "How to properly store pesticides", presents the pesticide warehouse built in Toliara, Madagascar, while the second one is a tutorial video of 18 minutes on "How to manage a pesticide warehouse", explaining step by step the proper utilization of the pesticide warehouse and showing how to handle pesticide drums. Both videos are available in Arabic, English, French and Russian; they can be downloaded from the FAO website "Locust Watch in CCA"<sup>2</sup> and will also be provided on a flash disk to all countries during the Technical Workshop.
84. After the videos broadcasting, the Delegate from Uzbekistan asked whether the pesticides used in Madagascar were always contained in big drums. The Senior Officer explained that mainly 200-litre metallic drums had been delivered and used during the plague to facilitate aerial spraying operations (quick fill-in of the helicopter or airplane tank). Such drums were delivered to Madagascar thanks to the so-called "triangulation" process, i.e. pesticides donated by a country (in that case, mainly Morocco) having stocks and transportation costs covered by FAO. Plastic containers are also used. Once empty, they are cut and then transformed in small balls, which are melt to later do pipes, for example. To the question of the Delegate from Afghanistan

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<sup>2</sup> <http://www.fao.org/ag/locusts-CCA/en/index.html>

about the future of crushed metal drums, the Senior Officer replied that, after cleaning and crushing in a drum-crusher, they were sent to a foundry for melting and recycling.

85. Then, the Senior Officer presented a calendar for 2018 on safety measures associated to locust control operations using chemicals. This calendar provides practical advices on safety measures to be adopted by local populations before, during and after such operations. It includes six messages concerning: potential risks related to locust control; re-entry periods for people; pre-harvest intervals; withholding period for livestock; no re-use of empty pesticide containers; and honeybees' protection. As the calendar was produced against the Japan/JICA-funded project, it will be available in Dari, Kyrgyz and Tajik for a dispatch in early 2018. As it was first prepared in English and Russian, the Senior Officer informed that, upon request, background material will be provided in that two languages and can be used for reproduction or translation in other national languages.

### **Item 13- Monitoring impact of locust control operations**

#### Item 13 a- Developing a monitoring system for health and environmental monitoring of locust control operations, including on-the-job training on monitoring techniques, June 2017, Azerbaijan

86. The Delegate from Azerbaijan reported about the mission of Mr H. Van der Valk, FAO International Consultant, Senior Environmental Expert, held on 4-14 June 2017 to conduct a pilot activity aiming at developing an integral system for monitoring locust control operations with respect to quality, human health and environmental effects of treatments (FTPP funding). The Delegate indicated that the country had 17 mobile teams involved in locust control. Before control operations, medical check was ensured for workers and PPE made available. It was also said that vegetation samples were collected to analyze pesticide residue. During his mission, the Senior Environmental Expert, an delivered on-the-job training in three sites in Hacıqabul District and Aran region, in the centre-east of the country, where locust control operations were in progress. This was done to the benefit of a team including four staff of the State Phytosanitary Control Service (SPCS) from the Ministry of Agriculture (MoA) and one toxicologist of the Sector of Sanitary Epidemiological Surveillance from the Ministry of Health. Various monitoring activities were also conducted including: review of PPE use in the field, discussion on the Pesticide Use Passport, calibration of sprayers, environmental monitoring, use of the Human Health and Environmental Monitoring Form and sampling in view of insecticide residue analysis. Following discussion with national stakeholders and building on the measures already implemented to mitigate the risks related to locust control operations, a plan was drafted to strengthen further such measures and develop a monitoring system.
87. The Delegate from Azerbaijan expressed his gratitude for the organization of such important activity, allowing refreshing and strengthening national capacities in preventive measures to reduce the impact of locust control operations on human health and the environment. He informed that it was planned to set up an independent Human Health and Environmental Monitoring Team, responsible for monitoring operations starting from 2018.
88. The Senior Environmental Expert underlined the excellent job done by the Ministry of Agriculture and said that the objective of developing a monitoring plan had been reached. He congratulated Azerbaijan for the decision of monitoring activities next year with a single dedicated team. He also noted that monitoring systems differed from one CCA country to another, depending on the locust control organization structure; any activity should therefore be adapted to each specific country situation. Last, the Delegate from Azerbaijan requested the possibility of replicating the visit of the Expert. The latter confirmed his availability and concluded that collaboration will surely continue in the future.

Item 13 b- Human Health and Environment Monitoring Teams' work in Kyrgyzstan and Tajikistan, May-July 2017

89. The Delegate from Kyrgyzstan reported on the five, five-day each, field missions carried out by the Human Health and Environmental Monitoring Team during the 2017 campaign, from May to July, in Jalal-Abad (twice), Osh, Batken and Naryn oblasts. The Team was composed of four specialists. The Delegate first reminded that pesticides used in 2017 included organophosphates in ULV formulation and pyrethroids (a.i.: Deltamethrin) in ULV (53 percent of the control operations) and Emulsifiable Concentrate –EC- (47 percent) formulations. Then he indicated that the activities of the Team had included training and awareness raising, with more than 1 000 persons informed about measures to ensure preservation of human, animal health, bees, fish and the environment during information sessions, in addition to the use of television and radio. Regarding human health monitoring, this year all regional specialists passed a mandatory medical examination before the campaign; first aid kits were provided; pesticide-use passports were introduced; and cholinesterase measurements were done for nine operators: four persons showed deviations over 20 percent (both positive and negative) and one person had been temporarily (for 20 days) taken off work since reduction of cholinesterase was over 25 percent. It was indicated that such cholinesterase measurements should be continued in the next campaigns. As far as environmental monitoring is concerned, all nearby beekeepers were informed of forthcoming treatments and buffer zones applied to sensitive areas. Monitoring forms were filled out, tablets used and information sent using the ASDC system. In total, the environmental monitoring was conducted on 6 065 ha. It was noted that a large number of dead non-target arthropods (ground beetles, ants, cicadas, scarabaeids and cerambycids) had been observed. Last, it was said that two pesticide stores had been visited and checked and that empty containers (over eight thousand units) were triple-rinsed, punctured and stored, waiting for their disposal and possibly recycling.
90. The Delegate from Tajikistan presented the six field missions carried out by the Human Health and Environmental Monitoring Team from May to July 2017 in Khatlon, RRS and Sughd oblasts (twice each). During the 2017 locust campaign, organophosphates and pyrethroids were used; more than 100 staff were trained/informed on safety rules, human health and environment protection, proper use of PPE, use of sprayers and importance of informing local populations about control operations. Over 300 people were informed about the spraying during annual meetings in all three regions and local populations, shepherds, farmers, etc. were informed about the upcoming and recently completed treatments. Regarding human health monitoring, 395 people passed a medical examination before they start working; people under the age of 18 or those suffering from chronic diseases were not allowed to work with pesticides; a total of 68 pesticide-use passports were filled in; and cholinesterase was assessed: no cholinesterase inhibition over 20 percent was observed. The presenter thanked FAO for having provided such cholinesterase kits. For the environmental monitoring, a total of 22 monitoring forms were completed; special attention was paid to natural reserves and parks; insects killed during the treatments were taken back to HQ for further identification. It was indicated that empty containers were triple-rinsed, punctured and stored. Last, the Delegate said that pesticide residue analysis would be very useful but that there was no specialized laboratory in Tajikistan.
91. The Senior Environmental Expert thanked the Delegates for the very interesting presentations as well as for the well prepared campaign final reports sent by the two Teams. In reply to his question whether they had been able to identify pesticides requiring extra attention, the Delegate from Tajikistan informed about pesticides efficacy; the Delegate from Kyrgyzstan indicated that special attention should be given to organophosphate (ULV): he reported that people two kilometres far had complained about smell after locust control operations; treatments close to inhabited areas and water reservoirs were then conducted using

pyrethroids. The Senior Environmental Expert indicated that it was very important to document pesticides efficacy as well as the exact conditions –weather including winds, spray equipment, etc.- when any particular situation occurs. This would be in turn very useful to FAO to the benefit of all countries. He also asked the Teams’ feedback on lessons learnt for further improvement of the work, to their benefit as well as for other countries, and it was agreed that exchanges would occur before the end of the year on this topic as well as on the final report (on which the Senior Environmental Expert had some minor technical comments and queries). Last, the Chairperson asked for assistance regarding pesticides registration, the issue being currently tackled by the Tajik Committee of Environmental Protection: as this goes beyond locust control, contract should be taken with the relevant units in FAO-Headquarters.

#### Item 13 c- Impact assessment of control operations and pesticide residue analysis, Kyrgyzstan

92. The Delegate from Kyrgyzstan presented the critical review of the processes and procedures for analysis of pesticide residue in vegetation samples applied by the Bishkek and Osh toxicology laboratories, carried out on 6-15 February 2017 by two FAO International Consultants, Mr Ignaz Buerge and Ms Heghine Gharibyan, Experts in pesticide residue analysis (Japan/JICA funding). Both laboratories were visited to check their compliance with international standards in procedures. Four days were spent at the laboratory in Bishkek and two days in Osh, with focus on handling, extraction and analysis of pesticides in plant samples. Main conclusions were that the lack of personnel (especially young specialists, because of low salaries) and obsolete equipment did not allow to conduct residue analysis.
93. The FAO Locust Programme Officer, AGPMM, reminded that the critical review was conducted in order to improve the capacities of the concerned laboratories prior to pesticide residue analysis of samples collected in Kyrgyzstan and Tajikistan, as part of the Japan/JICA funded project. Based on the consultancy report, the following conclusion was reached: overall, a substantial investment would be required so that the Bishkek and Osh laboratories be in a position to conduct pesticide residue analysis according to international standards, both in terms of strengthening of human resources (training and recruitment of new staff) and delivery of highly specialized and costly equipment. As this was not foreseen in the Japan/JICA project, the activity was cancelled, in agreement with Kyrgyzstan. It was concluded that such investments should rather be part of a national long-term strategy about pesticide residue analysis, i.e. going well beyond locust management.
94. The Delegate from Kyrgyzstan informed on plans of the Eurasian Economic Union to allocate funds in 2018/19 for provision of equipment, included for Bishkek and Osh laboratories. The Senior Environmental Expert, after having welcomed this very positive news, invited all delegates to reflect about the opportunity to include pesticide residues analysis in future projects. He recommended assessing which were the available toxicology laboratories in CCA countries. The Delegate from Georgia informed that a laboratory had been contracted two years ago to conduct analysis on food products; analysis could be carried out on samples taken after locust control during the 2018 locust campaign. The Delegate from Kyrgyzstan indicated that the toxicology laboratory of Yerevan, in Armenia, where Ms H. Gharibyan works, is able to conduct such analyses. The Delegate from Russia mentioned the Krasnodar Toxicology laboratory as well as its Expert, Ms A. Gorbunova, who had supported the Bishkek laboratory in 2014/15, and indicated the possibility to collaborate from next campaign onwards; he also expressed the wish that information on techniques and innovations be shared on a yearly basis on such topics. The Senior Environmental Expert stressed the need for data and said that, would countries be able to carry out pesticide residue analyses after locust control operations, FAO may with the share the already existing protocol on vegetation sampling; he said that countries may informed of their interest in receiving them at a later stage.

## Items 14 & 15- Progress made on control operations, pesticides and biopesticides and on safety and environmental precautions

95. The Delegate from Afghanistan reported that pesticides from two classes were sprayed against locusts in 2017: until the hoppers reach the third instar, an IGR, diflubenzuron, was used while a pyrethroid, deltamethrin, was applied to late-instar hoppers and adults. Pesticides were in ULV formulation and applied with hand-held and vehicle-mounted sprayers. Field tests of a fungal biopesticide with the conidia of *Metarhizium anisopliae* as a.i. were conducted in previous years and produced promising results. The use of PPE by personnel involved in anti-locust treatments was strictly enforced. The Delegate pointed out that the country experiences a problem of suboptimal quality of imported pesticides. He expressed hope that in 2018, when the national agrochemical analytical laboratory will be established, it will be possible to address the pesticide quality issue by analyzing their a.i. concentrations.
96. The Delegate from Armenia explained that ULV technology is not used in the country. Treatments are done by ground sprayers. Broad-spectrum pesticides are used, which can target different pests. Rural administration covers the costs of treatments except for the cost of pesticides, which is covered by the State budget.
97. The Delegate from Azerbaijan reported that in 2017, anti-locust treatments were done using 40 tractor- and six vehicle-mounted ULV sprayers. Pyrethroid pesticides were used. Before the campaign, locust personnel were briefed on proper PPE use. They also had to undergo medical exam. Vegetation samples were taken for pesticide residue analysis performed in national laboratory.
98. The Delegate from Georgia reported that during the past several years, the country had made a perceptible progress and accumulated a wealth of experience in anti-locust treatments. Pesticides used are fast-acting, pyrethroids (a.i.: deltamethrin, cypermethrin and alpha-cypermethrin) and organophosphates (chlorpyrifos). Controlling CIT presents a particular problem because its hatching is extended and its development is not synchronous. Pyrethroids are usually less effective against older hoppers. Therefore, up to the third instar, hopper infestations are treated with pyrethroids while later on an organophosphate is used. Eighty-seven percent of treatments are using ULV technology and 13 percent the LV one. Before the campaign, stakeholders are informed about oncoming treatments. Beekeepers move the hives away from the treated zones; there was no any incident of bee poisoning.
99. The Delegate from Kazakhstan explained that chemical pesticides from three groups, IGRs, neonicotinoids and pyrethroids, are used for anti-locust treatments in the country. Field tests of the two biopesticides were conducted in 2017. Responding to the question about the use of a plant extract (a.i.: azadirachtin) the Delegate explained that it is used against agricultural pests other than locusts.
100. The Delegate from Kyrgyzstan reported that pesticides from two chemical classes, pyrethroids (a.i.: deltamethrin, alpha-cypermethrin and lambda-cyhalothrin) and organophosphates (a.i.: chlorpyrifos), were used against locusts in 2017. In total, over 40 000 liters of pesticides were applied to treat 106 000 ha of locust infestations. The proportion of areas treated by ULV vs. EC formulations was of 53/47 percent. Ten vehicle-mounted ULV sprayers delivered to Kyrgyzstan by FAO under the Japan/JICA project were instrumental in efficient and timely treatments of locust infestations. The Delegate explained that in some cases, deltamethrin efficacy was insufficient; tank mixing of 50 percent deltamethrin with 50 percent chlorpyrifos successfully addressed the problem. Biopesticides were not used in 2017. Monitoring of acetylcholinesterase level in blood of personnel involved in organophosphate handling and spraying was done. Regarding empty containers, 80 percent are collected and stored at a special facility. Currently,



the country studies the possibility of establishing a plastic recycling plan for pesticide drums. In 2017, the total number of empty five-liter plastic drums used was 8 215, so recycling them appears a good option.

101. The Delegate from Russia explained that there are about 50 pesticide formulations currently used against locusts in the country. Most of them belong to pyrethroid and neonicotinoid chemical classes. Efficacy of these fast-acting pesticides varies between 80 and 95 percent one day after application. The Delegate showed the participants an interactive map from the website of the Russian Agricultural Center, which allows anybody to find information about locust densities and treatments in different geographic areas. He also informed about the agreement between Russian Agricultural Center and the Association of European Businesses, which unites several foreign agrochemical manufacturers, concerning education on empty pesticide container handling. The Delegate requested FAO assistance in providing information on novel pesticide quality assessment methods, as counterfeit pesticides is a growing problem in Russia. Regarding empty pesticide containers, they are collected by pesticide suppliers, rinsed, perforated and recycled to produce plastic sewage pipes.
102. The Delegate from Turkmenistan explained that in 2017, the only pesticide used for locust control was an imported pyrethroid (a.i.: alpha-cypermethrin). Vehicle-mounted ULV sprayers were frequently used to spray this pesticide despite the fact that it was in EC formulation. It was indicated that areas were frequently treated two or three times. Before the campaign, informational seminars on pesticide handling and safety and on PPE use were held.
103. The Delegate from Uzbekistan shared the results of field tests of the biopesticide Novacrid (a.i.: conidia of *Metarhizium acridum*) conducted in 2017 against DMA and CIT. The average locust mortality was about 90 percent two weeks after application. The product is selective against locusts and there was no negative impact on non-target arthropods such as ants and bees. The Delegate pointed out that the tested dose rate (50 g/ha) could be decreased in order to make the product economically competitive. He requested FAO support for the purchase of the biopesticide to treat up to 30 000 ha. Currently, Novacrid is under registration process in Uzbekistan. During the discussion, the Delegate from Kyrgyzstan inquired about the differences between the results of laboratory and field trials of Novacrid. The Delegate from Uzbekistan explained that the locust mortality under the laboratory conditions was higher (up to 100 percent) and achieved faster (in ten days) than in the field (86-89 percent mortality in two weeks). However, the field results still yielded very high and acceptable efficacy.

## **SESSION 5: RESOURCE MOBILIZATION**

### **Item 16- Preparation of new project(s)**

104. The FAO Locust Programme Officer, AGPMM, introduced the item by recalling that during the annual Technical Workshop held in November 2016 in Astana, Kazakhstan, CCA countries had indicating their strong willingness and need to pursue the Programme and agreed on the way forward. Based on these discussions, a Concept Note had been prepared by FAO and shared with JICA in July 2017. Some aspects were then clarified, in particular regarding the participating countries: the new envisaged project to be funded by Japan, being under the “Central Asia plus Japan Dialogue”, would cover six countries, namely Afghanistan, Kyrgyzstan, Kazakhstan, Tajikistan, Turkmenistan and Uzbekistan. Thus, separate funding would need to be identified for the Caucasian countries and the Russian Federation. In October, a slightly reviewed Concept Note was shared with all CCA countries for review. It still included the ten countries considering

that it would serve as a basis for the discussions to refine the technical needs of all countries during the forthcoming Technical Workshop.

105. In this context, the three main directions for the coming years, as agreed in 2016, were as follows: (1) Towards the sustainability of the existing regional cooperation; (2) Towards the implementation of the preventive locust control strategy; (3) Towards further harmonization and improvement of knowledge and best practices. It was indicated that the envisaged duration for the new project funded by Japan/JICA to the benefit of six countries would be for a maximum of five years while the budget needed to be further discussed with the donor. Then, the needs and activities for the coming years were discussed in detail, the resulting Roadmap being as follows:

**Table 4 - Roadmap for CCA countries: expected outputs and proposed activities against new projects (November 2017)**

OUTPUTS/ACTIVITIES	DESCRIPTION	BENEFICIARIES		TIMEFRAME				
		ALL	SPECIFIC COUNTRIES	Y1	Y2	Y3	Y4	Y5
<b>OUTPUT 1- Regional cooperation further developed</b>								
Activity 1.1. Facilitate regional exchanges to manage locust situations	National and regional monthly bulletins produced & annual regional workshops organized	✓	All beneficiary countries					
Activity 1.2. Support joint or cross-border surveys (CBS)	Bilateral or multilateral CBS supported	✓	All beneficiary countries					
Activity 1.3. Identify the best long-term solution for sustainable regional cooperation	Appropriate mechanism identified with countries	✓	All beneficiary countries					
Activity 1.4. Allow technical, programmatic, operational and financial project management and coordination within the whole Programme	Project management and coordination ensured	✓	All beneficiary countries					
<b>OUTPUT 2- National capacities further strengthened</b>								
Activity 2.1. Extend Training-of-Trainers (ToT) on locust management to all CCA countries	ToT: regional, national and briefing sessions organized; refresher courses held	✓	*ToT: countries that haven't fully benefitted from it yet: Armenia, Azerbaijan, Georgia, Kazakhstan, Russian Federation, Turkmenistan and Uzbekistan *Refresher courses for Afghanistan, Kyrgyzstan and Tajikistan					
Activity 2.2. Make available background documentation	Monograph on the Italian Locust translated into English/printed/despached; Practical guidelines on locust pests in CCA and on risk reduction of locust control operations printed/despached & additional ones (for instance on survey, control, information management, etc.) produced	✓	All beneficiary countries (except those that will already receive such background documentation in the framework of the current Japan/JICA project )					
Activity 2.3.a. Organize exposure visits on locust management	Exposure visit on locust management organized (Morocco)		Turkmenistan and Uzbekistan					
Activity 2.3.b. Support post-graduate education/fellowships	One or two fellowships/post-graduate students on locust related topics		As per selection of students following calls for interest					
Activity 2.4. Support applied research	One grant provided		Beneficiary(ies) and topic(s) to be defined					

<b>OUTPUT 3- Locust issues and disasters better anticipated and mitigated</b>						
Activity 3.1. Strengthen human and operational capacities for locust field surveys	Survey equipment delivered		Based on needs and specific requests			
Activity 3.2. Support introduction and operational use of monitoring and analysing systems: Automated System for Data Collection (ASDC) and Caucasus and Central Asia Locust Management System (CCALM)	*ASDC: tablets delivered *CCALM/national level: GIS introduced and trainings on its maintenance and use delivered *CCALM/regional level: GIS management and improvement ensured *Regular training/refresher courses on ASDC & CCALM & QGIS	✓	All beneficiary countries			
Activity 3.3. Enhance preparedness for risk reduction through harmonized national contingency plans	National contingency plan available in at least one pilot country		Kyrgyzstan or Tajikistan			
<b>OUTPUT 4- Improved response mechanisms to locust outbreaks</b>						
Activity 4.1. Strengthen human and operational capacities for locust control	*On-the-job training of young mechanics/ technicians on maintenance, calibration and functioning of ULV sprayers organized; *Control equipment delivered		*On-the-job training for countries largely or increasingly using ULV sprayers, in particular Afghanistan, Azerbaijan, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan *Equipment: based on needs and specific requests			
Activity 4.2. Promote less harmful pesticides and alternatives to conventional pesticides	E-Committee on pesticides for producing an updated pesticide list; Advocacy for less harmful/alternatives to conventional pesticides, including field trial/demonstration of biopesticides use	✓	All beneficiary countries, with field trial/demonstration of biopesticides use in Uzbekistan			
<b>OUTPUT 5- Impact on human health and the environment mitigated and monitored</b>						
Activity 5.1. Mitigate impact of locust control operations on human health and the environment	*Personal Protective Equipment (PPE) delivered; * Facilitate pesticides and empty containers management, incl. pilot activity on empty containers ; *Extension material for staff and for local populations		*Equipment: based on needs and specific requests *All beneficiary countries and, for pilot activity, Kyrgyzstan *Extension material: all beneficiary countries			
Activity 5.2. Monitor impact of locust control operations on human health and the environment	*National system for environmental and health monitoring of locust control developed; *Human Health and Environmental Monitoring Teams reinforced or set-up *Pesticide residue analysis and impact assessment conducted		* Three/four additional beneficiary countries *Kyrgyzstan and Tajikistan as well as two additional beneficiary countries *In one beneficiary country or outside the region to the benefit of all countries			

106. During the discussions concerning Result 1, all countries reiterated the very high importance of regional cooperation and agreed with the activities. It was requested to increase the number of joint and cross-border surveys, involving all countries without any exception. More specifically, besides the CBS conducted recently (i.e. mainly the annual joint survey involving Armenia, Azerbaijan, Georgia and the Russian Federation as well as the different ones involving Afghanistan, Kyrgyzstan, Tajikistan and Uzbekistan), it was suggested to support also CBS between Kazakhstan and Kyrgyzstan and between Kazakhstan and Uzbekistan, as well as between Turkmenistan and Afghanistan, Tajikistan and Uzbekistan. The Delegate from the Russian Federation also indicated that his country was ready to participate on its own funds in the Programme in case of no funding is available from FAO Programme. The role of FAO in maintaining and consolidating the existing regional cooperation was also stressed as well as the need to find appropriate sustainable mechanism for the long-term.
107. All activities under Result 2 were supported. Many delegates indicated that additional high-level trainings were needed and that the ToT was deemed as a core element for strengthening capacities. It was also stressed that it was important to organize such trainings with the right timing, for instance the ones on locust control had to be done immediately before the start of the locust campaign. The Delegate from Tajikistan indicated that many trainings had already been organized in his country and it was ready to host other national and regional ones. Regarding the envisaged exposure visits to the National Centre for Anti-Locust Control (CNLAA) in Morocco, the International Consultant, Senior Locust Expert, suggested that the participants be invited in the next Congress of Orthopterology, scheduled in Agadir in March 2019. The delegates also requested to add one or two fellowships in the newly envisaged project as training for young specialists was very much needed.
108. Under Result 3, during the discussions, several countries indicated that the support provided for CCALM management and use should include continuation of tablets delivery to achieve a 100 percent coverage of locust-infested area, as well as training on QGIS to the benefit of the two/three staff designated to act as national Information Officers for CCALM. It was said that the appointment of such Information Officers, in each country, was crucial and that specialized trainings for them should be held indeed on a yearly basis. The experience of countries where CCALM would be deployed first would be beneficial to all countries and shared with them. Besides trainings, all countries underlined the need for tablets to support ASDC use.
109. Under Result 4, besides the activities already included in the Roadmap on which all countries agreed, it was suggested to request the Uzbek Research Institute for Plant Protection, Locust Research Laboratory, to organize a field trial/ demonstration to the benefit of all countries on biopesticides' use. That would allow learning how to monitor in the field effectiveness as well as impact on human health and the environment of biopesticide and to compare methodology and results with those obtained with various chemical pesticides. Such activity could be coupled with the ToT. It was also agreed that the use of IGR should also be advocated.
110. For Result 5, The Delegate from Kyrgyzstan indicated that his country was ready to act as a pilot for developing a national plan for the management of empty containers of pesticides used for locust control. It was also proposed to continue the work of the Human Health and Environmental Monitoring Team. Regarding pesticide residue analysis, he indicated that cooperation should be strengthened with the toxicology laboratory of Yerevan, Armenia. The Delegate from the Russian Federation indicated that, after locust control operations, for instance in the south of Russia, such analyses could be conducted in the Krasnodar toxicology laboratory and that it would be interesting to get a comparison between analyses realized in different CCA countries.
111. The second part of the discussions focused on equipment to be delivered to the countries under Results 3, 4 and 5 of the Programme. The role of FAO as a specialized agency of the United

Nations for food and agriculture was underlined, in particular with respect to the fact that it offers a unique neutral platform for cooperation within its domain of competencies and provides technical assistance to countries to modernize and improve agricultural practices. Such technical assistance includes strengthening human as well as operational capacities, including provision of equipment for well-justified technical needs.

112. Countries were asked to present their needs in terms of equipment, being pragmatic and prioritizing them. Central Asian countries, followed by Caucasian ones and the Russian Federation, indicated the following –sometimes referring to the list of equipment they had sent to FAO prior the Technical Workshop:

- The Delegate from Afghanistan provided a detailed list of needs. Because such list included a high number of many different items, it was agreed that a revised and reduced list, with prioritized needs, would be sent to FAO soonest.
- The Delegate from Kazakhstan indicated that the State allocates large funds for locust monitoring and that it was planned to purchase GPS and entomological kits in 2018. Against the new project, tablets would be needed for ASDC testing and use (10-15 units).
- The Delegate from Kyrgyzstan referred to the minimum list of equipment sent to FAO and mentioned in particular the needs for tractors.
- The Delegate from Tajikistan indicated that his country was thankful for the already supplied equipment and indicated that a revised/reduced list would be provided the following day.
- The Delegate from Turkmenistan indicated the equipment already received from FAO in the past year and said that under the new project, tablets would be needed (at least five).
- The Delegate from Uzbekistan referred to the requests made to FAO in terms of equipment in the past years, which had no positive outcome in the absence of specific funding for that purpose. He mentioned the huge national territory and indicated the need for transportation means, including vehicles for survey and control operations or at least motorbikes and motor boats. Entomological kits as well as tablets were also indicated.
- The Delegate from Armenia indicated that equipment for locust monitoring was needed, including binoculars, entomological kits and tablets.
- The Delegate from Azerbaijan mentioned the need for Micronair sprayers, motorbikes for survey operations and also stressed the necessity to supply GPS and tablets.
- The Delegate from Georgia indicated that the most urgent needs were related to monitoring equipment and that more details would be given soonest to FAO.
- The Delegate from the Russian Federation informed that the country was trying to update equipment every year and recalled that 12 tablets had been purchased against its own funds to test ASDC in Saratov. Needs would cover tablets, entomological kits and two stereo-microscopes.

113. In conclusion, while the results of the above discussion would be presented to Japan/JICA the following day as far as Central Asia is concerned, the following was said for Caucasus and the Russian Federation: the Delegates from Georgia had recently met the JICA Office in Tbilisi and the delegates of Armenia and Azerbaijan would organize similar meetings after the Technical Workshop; it was agreed that FAO support would be provided to that end to the three countries. Last, the delegates were reminded that they could use the recently produced FAO Information Sheet on locusts in CCA for advocacy purposes as well as the new version of the website “Locust Watch in CCA”, which was showed to the countries and would be online in the coming weeks.

## ANY OTHER BUSINESS

114. During this point of the Agenda and following preliminary exchanges, two private companies introduced themselves, their products and one global initiative on locusts was presented.
115. One of the two Representatives from “*Éléphant Vert*”<sup>3</sup>, a commercial company supported by a foundation and whose goal is “to provide farmers with alternative solution to chemicals in plant nutrition and protection,” gave an overview of its products and geographical distribution (presence in eight countries –mainly in Africa- and represented elsewhere by partners including in two Central Asian countries, Kazakhstan and Uzbekistan); the company holds laboratories and carries out field trials by its own and with various institutes. More information was provided by the Technical Advisor on Novacrid, a biopesticide formulated with the spores of the fungus *Metarhizium acridum*, specific to grasshoppers and locusts. Its mode of action was reminded, i.e. a contact product, germination on the acridid cuticule, penetration through it and development in the body eventually causing the death of the host. Mortality starts usually from seven to 10 days after treatment. Under suitable conditions, the fungus can sporulate.
116. According to the presenter, field trials showed that Novacrid can be effective at very low dose, from 12.5 to 50 g/ha and has no impact on human health, the environment, cattle, and water. More specifically, the following results of field trials carried out in 2016 and 2017 were presented: against DMA, 94 and 92 percent mortality at 17 days after treatment in Kazakhstan (2016 and 2017 respectively); against CIT and grasshoppers in Kazakhstan 87 and 87.8 percent mortality at 19 and 20 days respectively; against *Nomadacris septemfasciata* in Tanzania, 75 percent mortality at 20 days. Field trials were also carried out against *Oedaleus senegalensis* in Niger and in Senegal (at a dose of 12.5 g/ha). It was mentioned that the high temperatures (up to 40°C) during the trials had no impact on efficacy; that the fungus can survive high temperatures, that the only impact is that it stops growing and starts again when temperatures decrease. The trials were usually carried out against hoppers from 3<sup>rd</sup> instar (in one case against a swarm).
117. During the discussions, to a question of the Delegate from Kyrgyzstan concerning the feeding of locusts after treatment, it was replied that they continue to feed for a while. The Delegate from Uzbekistan reported how Novacrid had been efficient against solitary CIT in the Aral Sea area, with locusts feeding slowly at 5/6 days after treatment; that the time to get mortality was fully compatible with the duration of the hopper stage, occurring before fledging. Discussions also concerned the need to mix Novacrid with diesel, which is further sprayed but eventually recognized that a volume of 1 liter/ha does not create any trouble to the environment. The Chairman suggested to take any opportunity to do trials under different conditions.
118. The Representative from Fungipack<sup>4</sup> indicated that the bioproducts are affected by temperature and UV radiation, resulting in a very quick loss of their strength. To solve this issue, the technology of microcontainers (MCC), whose size is of 5-80 µm- was developed, which protects the product. It was tested and registered in the Russian Federation. After spraying, including by aircraft or drones, the microorganism put into MCC enters in contact with the locust and develops. Because of the MCC, an area can be protected up to 30 days. In addition, the product can be stored up to one year and a half. Trials were carried out with a.i. *Beauveria bassiana*. The formulation is a powder of MCC that has to be mixed with water to get a suspension (one part of MCC/four parts of water –whatever water). No negative impact was observed on non-target fauna. Mortality starts on the 6<sup>th</sup> day after treatment and before that, locusts decrease and

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<sup>3</sup> <http://en.elephant-vert.com>

<sup>4</sup> <http://bioinsecticide.ru/index.php/en/us>

eventually cease feeding. The Delegate from Uzbekistan mentioned his interest but underlined that *Beauveria* can affect other insects than locusts and that trials have to be carried out, from laboratory to field.

119. The International Consultant, Senior Locust Expert, presented the Global Locust Initiative (GLI)<sup>5</sup>, a non-profit university initiative, membership based and focusing on stakeholder engagement. It is a new research and action program at Arizona State University (the largest University in the States with the best insectaries in the world to rear locusts with the best specialists), designed as a unit to help researchers, international agencies, government organizations, agribusinesses, and farming communities addressing and mitigating the effects of locust plagues. GLI bridges these sectors and uses laboratory research, field studies, data management, and modeling to integrate what is known—and identify what is not known—for creating interventions that reduce the frequency and impacts of locust plagues. There are currently researchers and students in Senegal, Australia and China; the University operates also in Argentina and Bolivia. It is complementary to existing groups, aims at facilitating fundamental and applied research, creating global network and developing on-the-ground to solve the locust problem. It will be officially launched on 12-14 April 2018.

#### **ADOPTION OF THE REPORT**

120. The Report was adopted unanimously with amendments made.

#### **CLOSING REMARKS**

121. The Senior Officer, Team Leader, AGPMM, renewed her thanks to Tajikistan, as hosting country. She also thanked the Chairperson for the excellent job done in conducting the debates. She thanked all Delegates for the very active participation as well as FAO Colleagues, both staff and consultants, and eventually the interpreters. Last, she wished a safe trip back to home countries.
122. The Chairperson indicated that the Workshop had been very fruitful and enjoyable. He said that Tajikistan stood ready to host any future event in the framework of the Programme and underlined that thanks to the strong network built in CCA, it was possible to achieve a lot, all together. He closed the Workshop by thanking all participants.

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<sup>5</sup> <https://isearch.asu.edu/departement/global-locust-initiative>



## **ANNEXES**

## Annex I - List of participants

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**Annex II - Approved Agenda**

Technical Workshop on Locusts in Caucasus and Central Asia (CCA)
<b>Dushanbe, Tajikistan, 13-17 November 2017</b>
Approved agenda

**Opening**

1. Opening address
2. Election of Chairman, Vice-Chairman & Drafting Committee
3. Adoption of the Agenda

**Session 1: National 2017 locust campaigns and forecasts for 2018**

4. National locust campaigns in 2017 (countries' presentations)
5. Locust forecasts for 2018 and preparation of the next campaigns (countries' presentations)

**Session 2: Implementation of the Programme to improve locust management in Caucasus and Central Asia**

6. Overview on Programme implementation in 2017 and funding situation
7. Regional cooperation in 2017: joint or cross-border surveys (countries' presentations):
  - Armenia – Azerbaijan – Georgia – Russia, April 2017
  - Tajikistan – Uzbekistan, April 2017
  - Kyrgyzstan – Tajikistan, May 2017
  - Afghanistan – Tajikistan, July 2017
8. National capacities' development in 2017
  - a) Trainings (countries' presentations)<sup>6</sup>
    - Locust monitoring and information management, jointly with Automated System of Data Collection (ASDC) and Caucasus and Central Asia Locust Management System (CCALM)
      - National training, Uzbekistan, March 2017
      - Sub-regional (Armenia/Azerbaijan/Georgia/Russian Federation) training, Russian Federation, April 2017
      - National training, Azerbaijan, April 2017
    - ASDC use
      - National session on ASDC (Training-of-Trainers/ToT), Kyrgyzstan, April 2017
      - National session on ASDC (ToT), Afghanistan, September 2017

<sup>6</sup>Introduction of CCALM in Kyrgyzstan and Tajikistan, in August/September 2017, and on-the-job training on monitoring impact of locust control in Azerbaijan in June 2017 are addressed under agenda items 11 and 15-a.

- Locust spraying and pesticide risk reduction
  - Briefing sessions (ToT), Kyrgyzstan, April-July 2017
  - Briefing sessions (ToT), Tajikistan, April-June 2017
  - Refresher course on locust spraying and pesticide risk reduction for Afghan Experts (ToT), Georgia, July 2017 and national session, Afghanistan, September 2017
- b) Update on fellowships on locust management
- c) Update on the monographs of the three locust pests
- d) Practical guidelines on locusts in CCA: Biology, ecology, behaviour
- e) Equipment to strengthen operational capacities: update on delivery in Afghanistan, Kyrgyzstan and Tajikistan (Japanese-funded project)

#### 9. Programme of work during 2018

##### **Session 3: Developing monitoring and analysing systems**

#### 10. Developments of ASDC in 2017 and next steps for 2018

#### 11. Developments of CCALM in 2017 and next steps for 2018

- a) CCALM introduction at the national level
- b) CCALM improvement and management

##### **Session 4: Risk reduction for human health and the environment**

#### 12. Mitigating impact of locust control operations: background documentation

#### 13. Monitoring impact of locust control operations:

- a) Developing a monitoring system for health and environmental monitoring of locust control operations, including on-the-job training on monitoring techniques, June 2017, Azerbaijan (country's presentation)
- b) Human Health and Environment Monitoring Teams' work in Kyrgyzstan and Tajikistan, May-July 2017 (countries' presentations)
- c) Impact assessment of control operations and pesticide residue analysis, Kyrgyzstan (country's presentation)

#### 14. Progress made on control operations, pesticides and biopesticides (countries' feedback)

#### 15. Progress made on safety and environmental precautions (countries' feedback)

##### **Session 5: Resource mobilization**

#### 16. Preparation of new project(s)

##### **Closing**

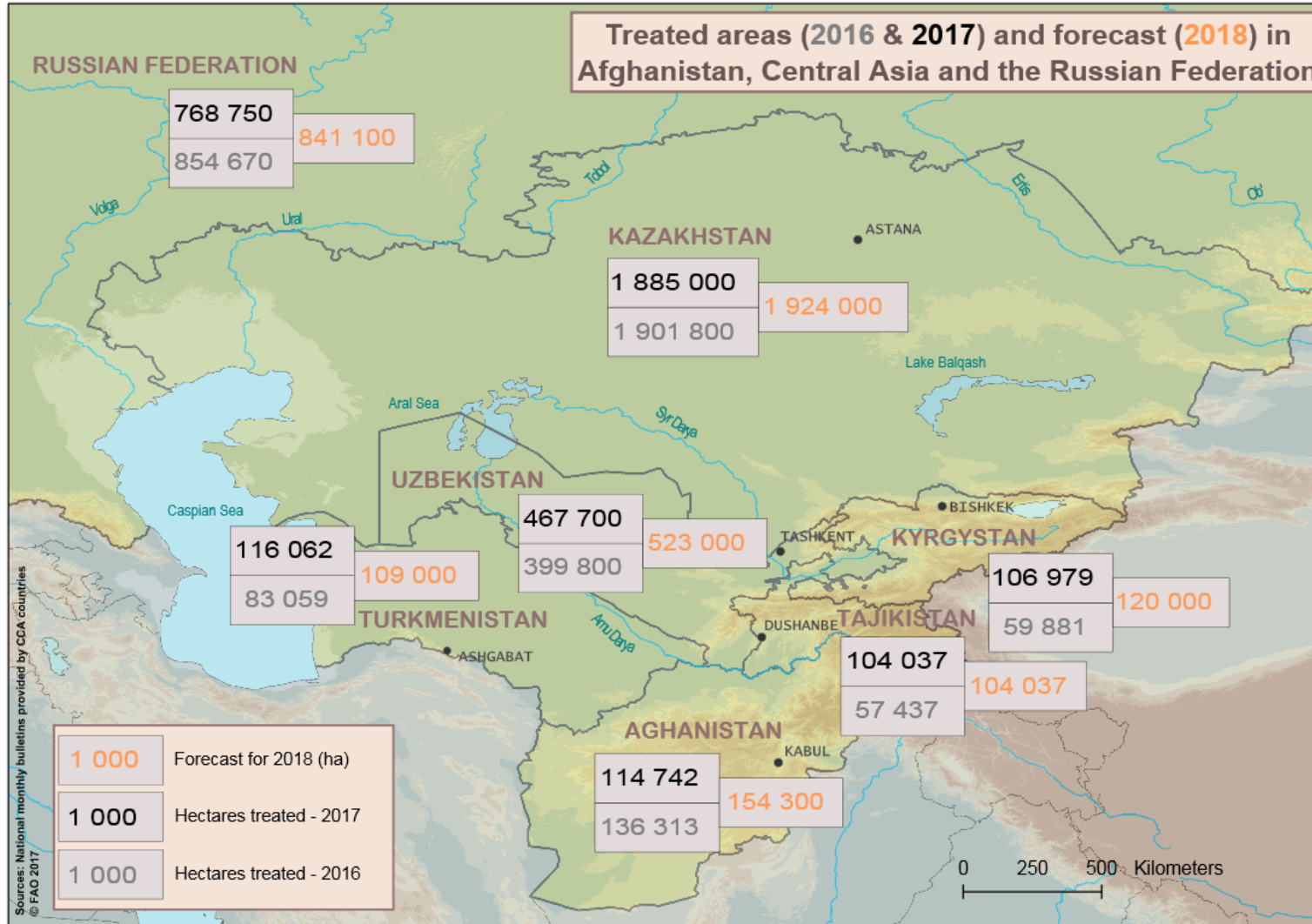
#### 17. Any other business

#### 18. Adoption of the report

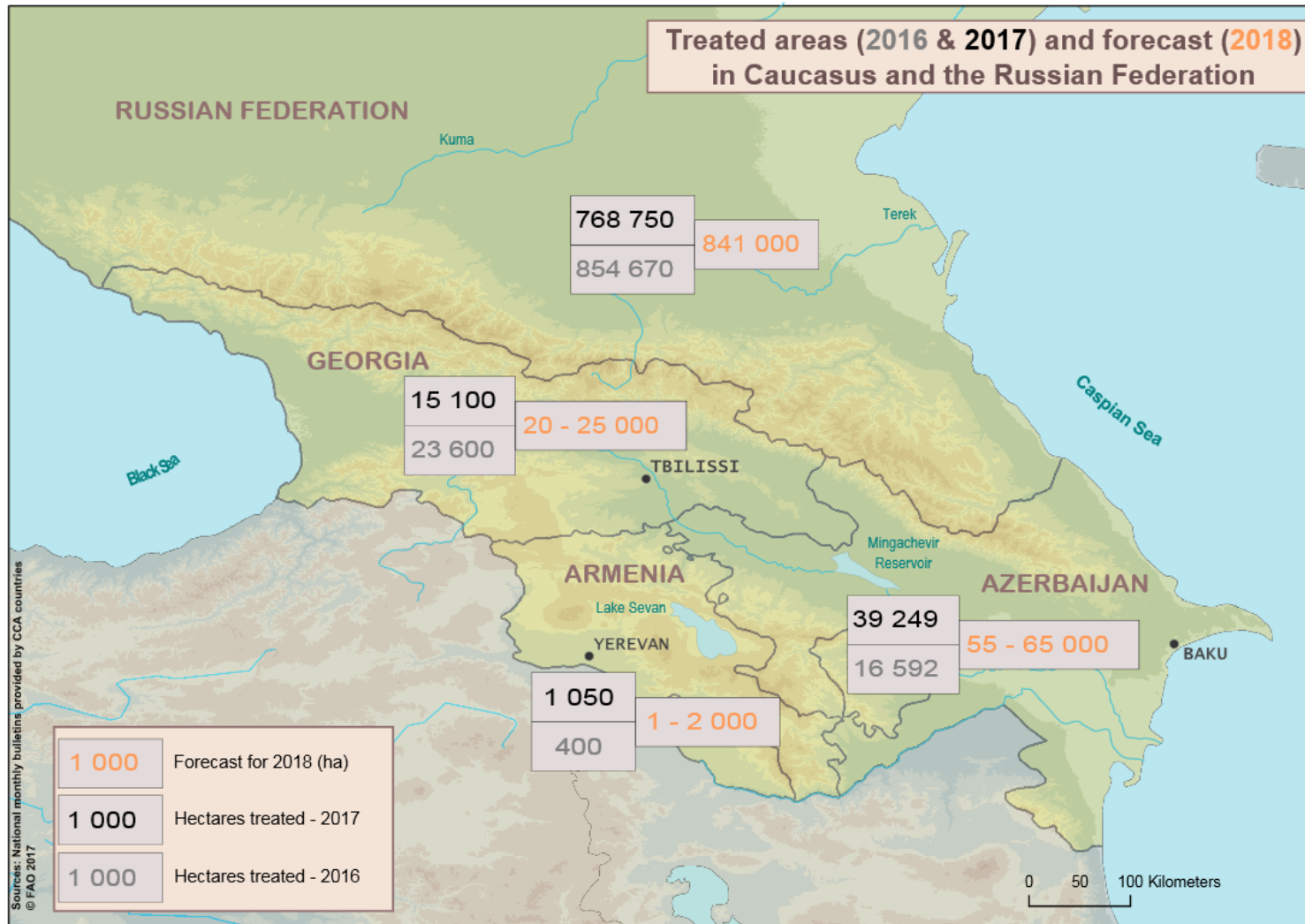
#### 19. Closure address

Annex III - Maps of treated areas in 2016 and 2017 and forecast for 2018 in CCA countries

Map of Central Asia and the Russian Federation



Map of Caucasus



Annex IV - Implementation of the Programme during Year 6 (1 October 2016- 30 September 2017): budget and tentative expenditures - contributions from USAID, Turkey (FTPP) and the FAO Regular Programme (RP)

Res. & Act.	Description	TOTAL USAID/ FTPP/RP (USD) (1st Oct. 2016- 30 Sept. 2017)		USAID (USD)		Turkey (USD)		FAO RP (USD)	
		Budget Year 6	Exp Year 6	Budget Year 6	Exp Year 6	Budget Year 6	Exp Year 6	Budget Year 6	Exp Year 6
<b>R1 - Regional cooperation</b>		<b>139,411</b>	<b>122,025</b>	<b>85,000</b>	<b>97,363</b>	<b>0</b>	<b>2,460</b>	<b>18,000</b>	<b>15,253</b>
1.1. Facilitate regional exchanges to manage locust situations		139,411	122,025	85,000	97,363		2,460	18,000	15,253
1.1.1. Create/maintain regular regional information sharing of standardized data		3,000	-85		-85			3,000	0
1.1.2. Allow direct experience exchange (technical workshop)		134,411	119,074	85,000	97,448		2,460	15,000	15,253
1.2. Develop coordination, including through transboundary policy		0	0						
1.3. Identify the best long-term solution for sustainable regional cooperation		0	0						
<b>R2 - National capacities</b>		<b>55,000</b>	<b>22,137</b>	<b>0</b>	<b>3,222</b>	<b>50,000</b>	<b>18,915</b>	<b>5,000</b>	<b>0</b>
2.1. Build up capacities through a vast Training-of-Trainers (ToT) programme		0	-189	0	-189				
2.2. Make available and accessible background documentation and literature		5,000	3,411	0	3,411			5,000	0
a Bibliography & Material to be made available (E-committee on documentation)		0	0						
b Monographies		5,000	0					5,000	0
c Practical guidelines		0	3,411		3,411				
2.3. Allow internships and post-graduate formation		50,000	18,915	0	0	50,000	18,915		
a One-month internships		0	0						
b Fellowship: 2 or 3-year diploma for students		50,000	18,915			50,000	18,915		
2.4. Promote and support applied research		0	0						
a Grants for applied research		0	0						
b Entomological and chemical equipment for laboratories		0	0						
<b>R3 - Locust issues and disasters better anticipated and mitigated</b>		<b>95,000</b>	<b>87,048</b>	<b>15,000</b>	<b>20,108</b>	<b>80,000</b>	<b>66,940</b>	<b>0</b>	<b>0</b>
3.1. Improve survey operations for better field locust monitoring		80,000	72,413	0	5,473	80,000	66,940		
3.1.1. Strengthen human capacities (techn. assistance on survey)		60,000	54,979		5,473	60,000	49,506		
3.1.2. Strengthen operational capacities (survey equipment)		20,000	17,434			20,000	17,434		
3.2. Organize regular cross-border surveys		10,000	10,901	10,000	10,901				
3.3. Develop monitoring and analyzing systems		5,000	3,734	5,000	3,734				
3.3.1. Extend use of Geographical Information System and remote sensing		5,000	3,734	5,000	3,734				
3.3.2. Improve forecasting		0	0						
3.4. Enhance preparedness: harmonized national contingency plans		0	0						
<b>R4- Improved response mechanisms to locust outbreaks</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
4.1. Allow early reaction and appropriate control operations		0	0						
4.1.1. Strengthen human capacities (techn. assistance on control)		0	0						
4.1.2. Strengthen operational capacities (control equipment)		0	0						
4.1.3. Enhance public-private partnership		0	0						
4.2. Promote less harmful pesticides and alternatives to conventional pesticides		0	0	0	0				0
4.2.1. Develop ULV formulations and related techniques		0	0						
4.2.2. Propose alternatives to conventional pesticides (demonstration)		0	0						
4.2.3. Encourage registration of more pesticides		0	0						
4.3. Promote joint cross-border control operations		0	0						

Res. & Act.	Description	TOTAL USAID/ FTPP/RP (USD) (1st Oct. 2016- 30 Sept. 2017)		USAID (USD)		Turkey (USD)		FAO RP (USD)	
		Budget Year 6	Exp Year 6	Budget Year 6	Exp Year 6	Budget Year 6	Exp Year 6	Budget Year 6	Exp Year 6
		<b>R5 - Impact on human health &amp; environment mitigated/monitored</b>	<b>22,000</b>	<b>12,650</b>	<b>0</b>	<b>-9,000</b>	<b>22,000</b>	<b>21,650</b>	<b>0</b>
5.1. Mitigate impact of locust control operations on human health & environment	0	-9,000	0	-9,000	0	0			
5.1.1. Strengthen human capacities (techn. assistance)	0	0							
5.1.2. Strengthen operational capacities (PPE)	0	0							
5.1.3. Pesticides and empty containers management	0	-9,000		-9,000					
5.1.4. Produce extension material for mitigating impact of locust treatments	0	0							
5.2. Monitor impact of locust control operations on human health & environment	<b>22,000</b>	<b>21,650</b>	<b>0</b>	<b>0</b>	<b>22,000</b>	<b>21,650</b>			
5.2.1. Strengthen human capacities (techn. assistance)	0	0							
5.2.2. Strengthen operational capacities (Testmate, environmental material, etc.)	2,000	856			2,000	856			
5.2.3. Develop integral system for environmental and health monitoring	20,000	20,794			20,000	20,794			
5.2.4. Facilitate impact assessment & analysis of material (residue analysis)	0	0							
<b>R6 - Public information and awareness increased</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
6.1. Develop awareness and education among local populations	0	0		0					
6.2. Enhance visibility of locust issues and management and of donor support	0	0		0					
6.2.1. Prepare and implement a communication plan	0	0							
6.2.2. Create and update a website on locusts in Caucasus and Central Asia	0	0							
<b>Other</b>	<b>174,000</b>	<b>176,722</b>	<b>90,000</b>	<b>100,000</b>	<b>84,000</b>	<b>76,722</b>	<b>0</b>	<b>0</b>	
Coordination (Locust Programme Officer)	78,000	76,722			78,000	76,722			
Standard evaluation & reporting costs	15,000	15,000	15,000	15,000					
FAO SEC	0	0							
TSS	81,000	85,000	75,000	85,000	6,000	0			
<b>Sub-total</b>	<b>623,911</b>	<b>480,147</b>	<b>190,000</b>	<b>211,693</b>	<b>236,000</b>	<b>186,687</b>	<b>23,000</b>	<b>15,253</b>	
<b>Support cost</b>	<b>45,680</b>	<b>35,638</b>	<b>15,000</b>	<b>12,030</b>	<b>30,680</b>	<b>23,608</b>			
<b>Total</b>	<b>494,680</b>	<b>449,271</b>	<b>205,000</b>	<b>223,723</b>	<b>266,680</b>	<b>210,295</b>	<b>23,000</b>	<b>15,253</b>	

Note: budget and tentative expenditures for second year of project GCP/INT/238/JPN will be addressed with representatives of the three beneficiary countries, Afghanistan, Kyrgyzstan and Tajikistan, and of the donor during the third Project Steering Committee, scheduled in January 2018.

## Annex V - Bilingual List of National Focal Points in CCA

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