Food and Agriculture Organization
of the United Nations

REPORT

Technical Workshop

on Locusts

in Caucasus and Central Asia (CCA)

Bishkek, Kyrgyzstan

19-23 November 2018

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

Bishkek, Kyrgyzstan 19-23 November 2018

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LIST OF ACRONYMS AND ABBREVIATIONS

AGPMM	”Locusts and Transboundary Plant Pests and Diseases” Team (FAO)
ASDC	Automated System of Data Collection
CAIAG	Central Asian Institute for Applied Geosciences (Kyrgyzstan)
CBS	Cross-border surveys
CCA	Caucasus and Central Asia
CCALM	Caucasus and Central Asia Locust Management System
CIT	*Calliptamus italicus* (Linnaeus 1758), Italian Locust
CLCPRO	FAO Commission for Controlling the Desert Locust in the Western Region
DCPP	Department of Chemicalization and Plant Protection (Kyrgyzstan)
DMA	*Dociostaurus maroccanus* (Thunberg 1815), Moroccan Locust
EC	Emulsifiable concentrate
ET	Economic Threshold
FAO	Food and Agriculture Organization of the United Nations
FTPP	FAO-Turkey Partnership Programme
GIS	Geographic Information System
GPS	Global Positioning System
ha	Hectare
IGR	Insect Growth Regulator
JICA	Japan International Cooperation Agency
km	Kilometer
KNAU	Kyrgyz National Agrarian University
l	Liter
LMI	*Locusta migratoria migratoria* (Linnaeus 1758), Asian Migratory Locust
LV	Low Volume
m	meter
MAIL	Ministry of Agriculture, Irrigation and Livestock (Afghanistan)
MS	Master of Sciences
NDVI	Normalized Difference Vegetation Index
OED	Office for Evaluation (FAO)
PPE	Personal Protective Equipment
PPQD	Plant Protection and Quarantine Directorate (Afghanistan)
RP	Regular Programme (FAO)
SEC	FAO Subregional Office for Central Asia (FAO)
SE-LCE	State Entity “Locust Control Expedition” (Tajikistan)

sq. m.	Square meter
TCPf	Technical Cooperation Programme Facility (FAO)
ToT	Training-of-Trainers
TSAU	Tashkent National State Agrarian University (Uzbekistan)
TW	Technical Workshop
ULV	Ultra-Low Volume
UN	United Nations
USAID	United States Agency for International Development
USD	United States Dollar
VIZR	All-Russian Institute for Plant Protection

INTRODUCTION

1. The Technical Workshop on Locusts in Caucasus and Central Asia (CCA) took place in Bishkek, Kyrgyzstan, on 19-23 November 2018. It was organized by the Food and Agriculture Organization of the United Nations (FAO) in the framework of the interregional and multi-funded "Programme to improve national and regional locust management in Caucasus and Central Asia (CCA)".

2. The following ten countries participated in this Technical Workshop (TW): Afghanistan, Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Russian Federation, Tajikistan, Turkmenistan and Uzbekistan. The total number of participants, including CCA countries' Delegates, Japan International Cooperation Agency (JICA) and Turkey Representatives, FAO staff and consultants, as well as observers, was of 50. The list of participants is provided in Annex I.

3. The Technical Workshop was opened by Mr Maksatbek Tashbolotov, State Secretary, Ministry of Agriculture, Food Industry and Melioration, Kyrgyzstan. He thanked FAO for the organization of this regional meeting, which represents a platform for technical exchanges on locust issues and contributes to solve this problem. Kyrgyzstan faces periodically such transboundary pests, which can cause serious damages to cultivated areas, affecting food security of rural population. He reminded that in 2007/08, CCA countries submitted to FAO official requests for technical assistance to improve locust management. After data collection in all CCA countries and a resulting Analytical Report on Locust Management in CCA, a "Programme to improve national and regional locust management in CCA" was designed with countries and then officially launched by FAO, in 2011. Against this background, Mr Tashbolotov referred to the Japanese/JICA funded project to improve national and regional locust survey and control capacities, implemented since 2015 in three countries, Afghanistan, Kyrgyzstan and Tajikistan. He also stressed that thanks to FAO and JICA supports, the last two locust campaigns have been implemented successfully in Kyrgyzstan, including also some preventive activities. He wished a fruitful meeting and thanked FAO and JICA for the support provided to enhance Kyrgyz capacities.

4. Mr Armen Sedrakyan, FAO Representative in Kyrgyzstan *ad interim*, welcomed the participants in the tenth annual meeting on locusts in CCA, which is hosted in Kyrgyzstan for the second time. He reminded that the workshop is organized in the framework of the interregional and multi-funded "Programme to improve national and regional locust management in CCA", involving ten countries. He reminded also that during the 2016 TW, the results achieved since Programme launch had been reviewed, with a very positive assessment; at this occasion, countries had requested to pursue it. During the 2017 TW, the expected results and activities for the coming year were discussed in-depth and the resulting Roadmap endorsed, including for resource mobilization. Main results achieved so far are the creation of a regional technical network and the strengthening of national capacities on locust management, which was possible thanks to the donors' support: JICA, Turkey through the FAO-Turkey Partnership agreement (FTPP), the United States Agency for international Development (USAID) and FAO financial contribution. He reminded that partners' support continues to be required to pursue the very positive current dynamics on improvement of national and regional locust management in CCA. He concluded by indicating that it was very positive that discussions were ongoing for a new Japan/JICA-funded project for Central Asian countries and that a new USAID project has been recently approved for all ten countries.

5. Mr Zhanybek Derbishaliev, Director, Department of Chemicalization and Plant Protection, Ministry of Agriculture, Food Industry and Melioration, Kyrgyzstan, welcomed the participants and expressed his gratitude to FAO and donors for the support provided, especially for the provision of locust equipment under the Japan/JICA project, which had allowed the country to manage locust outbreaks this year and the previous one.

6. Mr Kikuchi Kazuhiko, Chief Representative, JICA Office, Kyrgyzstan, welcomed the audience on behalf of JICA. He indicated that as part of the "Central Asia plus Japan" dialogue, the Japanese Government's strategy was to support countries in solving agricultural problems as well as improving regional cooperation. The Government's strategy is currently being updated for the five forthcoming years and agriculture remains a key priority. He wished countries to continue to cooperate and that the increased capacity in terms of equipment could help them implementing a preventive approach to fight locusts. He thanked FAO, the Ministry of Agriculture, Food Industry and Melioration, Kyrgyzstan, and other country representatives, whishing that this meeting be a good platform for exchange and further cooperation.

7. Ms Annie Monard, FAO Senior Officer, Team Leader "Locusts and Transboundary Plant Pests and Diseases" (AGPMM), welcomed the participants and thanked the hosting country and donors. She also asked for a minute of silence in memory of Mr Ganiev, previous Head of the State Entity "Locust Control Expedition", Tajikistan, and focal point for the Programme, who passed away suddenly a couple of weeks ago. She reminded that Kyrgyzstan hosts such a meeting for the second time and highlighted all progress made together in the meantime while the way has still to be paved in order to consolidate achievements and to put in place a sustainable regional cooperation. She indicated that the structure of the workshop will be quite similar to the previous years with the three first days concerning the activities carried out during Year 7implementation and, discussions on a number of technical issues as well as on the workplan for Year 8. She informed that half-day would be devoted to the fourth Project Steering Committee of the Japan/JICA project with the concerned stakeholders. She concluded her speech by wishing an interesting and fruitful workshop to everybody.

OFFICERS OF THE SESSION

8. The following officers were elected:

Chairperson:	Mr Vladimir Pak (Kyrgyzstan)
Vice-Chairperson:	Mr Otar Skhvitaridze (Georgia)
Drafting Committee:	Mr Andrei Zhivykh (Russian Federation)
	Ms Annie Monard, Senior Officer, Team Leader, AGPMM (FAO)
	Mr Alexandre Latchininsky, Agricultural Officer (Locust Management), AGPMM (FAO)
	Ms Marion Chiris, Locust Programme Officer, AGPMM (FAO)
	Ms Nadiya Muratova, International Consultant, Geographical Information System (GIS) Expert (FAO)
	Ms Greta Graviglia, International Consultant, Operations Expert (FAO)
	Mr Bahromiddin Husenov, International Consultant, Plant Protection/Locusts Expert (FAO)

AGENDA

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

SESSION 1: NATIONAL 2018 LOCUST CAMPAIGNS AND FORECASTS FOR 2019

National locust campaigns in 2018 (Item 4)

10. Delegates from all ten countries made comprehensive presentations on their respective national 2018 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 2018 in CCA

Country	Area (in hectares)		
	Surveyed	Infested	Treated
Afghanistan	83 189	70 189	53 189
Armenia	58 000	540	540
Azerbaijan	373 751	134 894	48 053
Georgia	105 000	56 000/16 900*	15 200
Kazakhstan	17 255 000	1 689 400	1 689 400 and also 311 800 against grasshoppers
Kyrgyzstan	174 902	147 127	146 034
Russian	12 976 080	1 500 680	677 940
Tajikistan	771 124	104 037	107 383
Turkmenistan	465 545	140 000	139 033
Uzbekistan	700 000	585 800	567 400
Total	32 962 591	4 428 667	3 755 972

*Above Economic Threshold (ET)

11. The Delegate from Afghanistan reported that the area of locust survey in 2018 (83 189 ha) was significantly lower than in 2017 (170 000 ha) and explained that the difference was due to the lack of security in many locust-infested areas in the northern part of the country. The total area treated against the main locust pest in the country, Moroccan Locust, *Dociostaurus maroccanus* (DMA), and grasshoppers was 53 189 ha, which is less than 50 percent of the area treated in 2017. The largest areas were treated in Baghlan (11 854 ha), Ghor (11 556 ha), Takhar (8 505 ha) and Balkh (6 100 ha) provinces, representing 71 percent of the total treated area. In total, almost 12 000 liters (l) of pyrethroids and Insect Growth Regulator (IGR) insecticides mostly in Ultra-Low Volume (ULV) formulation were used. Treatments were done using nine vehicle-mounted and numerous hand-held sprayers. Seventy-six staff from Plant Protection Department of the Ministry of Agriculture, Irrigation and Livestock (MAIL) and about 500 volunteers were involved in control operations as well as 70 locally recruited operators who performed treatments in remote areas. During the campaign, 35 rented vehicles were used. Overall, the campaign was successful and DMA populations decreased. The Delegate said that cooperation with neighboring countries, allowing to implement anti-locust treatments in a timely and efficient manner, is crucial and he called for joint survey in 2019 with Tajikistan as well as possibly with Uzbekistan and Iran. He underlined that the lack of security remained one of the most serious constraints in locust management in Afghanistan.

12. The Delegate from Armenia reported that locusts are included in the list of especially dangerous pests in the country. Their monitoring was performed on an area of 57 950 ha. The locust situation remained calm in 2018. The Italian Locust, *Calliptamus italicus* (CIT), is the only economically important locust pest although swarm flights of DMA from neighboring countries cannot be excluded. In total, 540 ha were treated with pyrethroids in the Ararat valley. The Delegate from Azerbaijan protested against the fact that on the map shown by the Delegate from Armenia, Nagorny Karabakh was indicated as a part of Armenia. He added that in Nagorny Karabakh, no plant protection activities are implemented against any pest, which threatens the entire region. The Delegate from Armenia explained that Nagorny Karabakh was not shown as part of Armenia on the map because it was colored differently and separated by contour.

13. The Delegate from Azerbaijan reported that the total area of locust survey was of 373 751 ha out of which 134 894 ha were infested. Treatments against DMA were conducted on a total area of 48 053 ha (including 46 617 ha covered by state budget). Ultra-Low Volume formulations of pyrethroid insecticides (a total of 20 tons) applied mostly by vehicle-mounted sprayers were used. The Delegate reported that in the past, crossborder locust flights took place from Iran to Azerbaijan and emphasized the necessity to invite representatives from the Iranian Plant Protection Service to the next Technical Workshop in 2019 in order to exchange information on locust monitoring and management between Iran and CCA countries.

14. The Delegate from Georgia reported that CIT was the main locust pest in the country requiring regular survey and control operations. In general, the spring was late, cool and wet, which resulted in later hatching than in the previous years. In total, the area of locust survey amounted to 105 000 ha out of which 14 700 ha (CIT) and 2 200 ha (DMA) were infested with densities above the Economic Threshold (ET). Anti-locust treatments were conducted on 15 200 ha, which is similar to 2017. Treatments were mostly carried out with organophosphate and pyrethroid insecticides - with a small proportion of them done with IGR (34 l on 227 ha) - all pesticides being in ULV and Low-Volume (LV) formulations. During treatments, safety measures were strictly enforced including the use of Personal Protective Equipment (PPE) by all personnel. The Delegate indicated that the Automated System of Data Collection (ASDC) and the Caucasus and Central Asia Locust Management System (CCALM) were used during the campaign and proved to be very useful systems; there were some issues, which is natural when starting using such systems on a large scale, to be addressed by FAO and countries. As for the problems, the delegate emphasized the need for regular trainings in all areas of locust management, maybe on an annual basis. Also, the tradition of the annual joint survey should be renewed. Last, he said that the conduct of studies should be supported, including on impact of pesticides on human health and the environment. Finally, as most of the treatments are done in a close proximity to crops, he indicated that there is no possibility to use alternatives to conventional pesticides that would make a lower impact on human health and the environment.

15. The Delegate from Kazakhstan reported that 17.255 million ha were surveyed against locusts. Eight hundred and two staff and 492 seasonal scouts participated in these surveys. Overall, CIT and Asian Migratory Locust, *Locusta migratoria migratoria* (LMI), populations continued to decline while DMA infestations remained at a high level. Largest CIT infestations were in West Kazakhstan, Aktobe, Karaganda, Almaty and Pavlodar regions. DMA infested two southern regions, Turkistan and Zhambyl. Largest LMI infestations were found in Almaty and Kyzyl-Orda regions. In total, 1 689 400 ha were treated against locusts including 929 100 ha against CIT, 558 800 ha against DMA and 201 500 ha against LMI. Besides locusts, 311 800 ha were treated against non-swarming grasshoppers. In total, 540 different sprayers were used including 37 Antonov-2 aircraft, 31 Ultra-Light aircraft, 33 aerosol generators, and 141 vehicle-mounted ULV sprayers. Joint surveys with Kyrgyzstan and Russian Federation were carried out on 2 000 and 267 000 ha, respectively. These activities contributed to timely and efficient locust management in near-border areas.

16. The Delegate from Kyrgyzstan reported that locust hatching started seven to 10 days earlier in 2018 than in 2017. Weather conditions were extremely favorable contributing to mass locust outbreaks in all regions of the country. In fact, the 2018 situation could have been compared to 2008 one (the worst so far in the 21st century) when 157 000 ha were treated. Locust infestations were recorded on 147 100 ha out of which 146 034 ha were treated, mostly (97 percent) by vehicle-mounted ULV sprayers. The most dangerous situation was in Naryn oblast where an emergency situation was declared and 70 030 ha were treated against CIT. Overall, treatments against CIT (76 027 ha) exceeded those against DMA (70 007 ha), which is unusual for Kyrgyzstan. In terms of pesticides, about 45 000 l of pyrethroids, organophosphates and phenyl-pyrazole were used. The Delegate underlined that the equipment received thanks to the Japan/JICA project had allowed addressing successfully the emergency situations and that close relations with specialists from neighboring countries contributed to timely and efficient locust treatments in border areas, particularly with Tajikistan and Kazakhstan. As for the problems, the Delegate indicated that the country still needs vehicles, tractors, and sprayers as well as staff trainings in all aspects of locust management. The need for continued development of modern monitoring (ASDC) and forecasting (Locust GIS, CCALM) tools was emphasized.

17. The Delegate from the Russian Federation reported that about 13 million ha were surveyed against locusts and grasshoppers out of which 1.5 million ha were infested. Overall, the locust situation was relatively calm except in the south where emergency situations were declared in several administrative regions. Anti-locust treatments were carried out on 677 940 ha including on 497 230 ha against nymphs and on 178 290 ha against adults. In addition, 20 030 ha of egg-beds were ploughed. The bulk of the treatments took place in the southern areas of the country, particularly in the North Caucasus and Southern Federal districts. About half a million ha were treated with imidacloprid (out of 33 insecticides used in anti-locust treatments), and a strategic reserve of this insecticide to treat 300 000 ha in 2019 was created. In 2018, treatments were done using 392 sprayers of various models including 43 aircraft. Together with colleagues from Kazakhstan, over 233 000 ha were surveyed in the areas along the border by 325 specialists from Russian Agricultural Center. In three pilot regions (Saratov, Stavropol and Kalmykia), locust information was collected using ASDC.

18. In Tajikistan, a total of 771 124 ha were surveyed against locusts out of which 104 037 ha were infested. Treatments were carried out on 107 383 ha including 90 584 ha against DMA, 13 849 ha against CIT and 2 950 ha against grasshoppers. Some areas had to be treated repeatedly because of several waves of hatching. In total, 31 218 l of pyrethroid and organophosphate insecticides were sprayed with vehicle-mounted ULV, tractor-driven and hand-held sprayers. Personnel involved in locust control amounted to 1 103 workers including 350 staff of the State Enterprise "Locust Control Expedition" (SE-LCE) and 753 seasonal workers employed by local administration. The equipment used was showed and it was said that proper maintenance was ensured at campaign completion. In terms of constraints, the Delegate mentioned the insufficient campaign financing (60 percent of the needs covered by the regular budget meaning that funds had to be gathered from local administrations), lack of means of transportation including vehicles for transporting personnel and water carriers, insufficient number of sprayers (all kinds), lack of funds for pesticide purchase, etc. Despite all these difficulties, the Delegate underlined that the 2018 anti-locust campaign in Tajikistan performed by SE-LCE was very successful and resulted in ten million dollar savings for the country's agriculture. The very good cooperation with Uzbekistan was also underlined.

19. In Turkmenistan, locust survey was executed on almost half a million hectares. Hopper density in the treated areas ranged from 20 to 30 individuals per square meter. The total area treated against DMA, and, to a lesser extent, the Saxaul grasshopper, *Dericorys albidula*, and other grasshopper species was of 139 033 ha, which is higher than in 2017 (116 062 ha). Treatments were done using pyrethroid insecticides applied with vehicle-mounted ULV and tractor-driven sprayers.

20. The Delegate from Uzbekistan reported that 2018 was extremely dry, which aggravated the locust situation. In total, locusts infested 585 800 ha out of which 567 400 ha were treated. The bulk of treatments (over 400 000 ha) was applied to DMA and the remaining ones against CIT, LMI, the Saxaul grasshopper and other non-swarming grasshopper species. Pyrethroids (80 percent of the total area), imidacloprid and diflubenzuron were the insecticides used. They were applied by 32 vehicle-mounted ULV sprayers (about 50 percent of the total area), 160 tractor-driven, 290 knapsack sprayers and four Ultra-Light Aircraft. Close cooperation with neighboring countries regarding monitoring and management of the locust situation in the border areas with Tajikistan, Kyrgyzstan, Turkmenistan and Kazakhstan was highly appreciated.

Locust forecast for 2018 and preparation of the next campaigns (Item 5)

21. The countries provided locust forecast for 2019 in terms of the areas subject to treatment as follows (in ha):

Table 2. Forecasted treated areas for 2019 in CCA countries

Country	Area (in ha) - subject to control operations
Afghanistan	100 000
Armenia	2 000
Azerbaijan	60 500
Georgia	25 000
Kazakhstan	950 400
Kyrgyzstan	125 000
Russia Federation	603 100
Tajikistan	103 017
Turkmenistan	110 000
Uzbekistan	610 300
Total	2 689 317

Locusts: what we know and what we don't know about them (Item 6)

22. The FAO Agricultural Officer (Locust Management), AGPMM, made a presentation highlighting some latest findings in basic and applied acridology. He explained that the preventive locust management strategy, advocated by FAO, is based on the knowledge of locust bio-ecology, in particular, gregarization and phase transformation, which are key events in locust population dynamics. It was emphasized that, despite decades of intensive research, numerous questions in locust bio-ecology remain unanswered and locusts still present serious challenges for those who manage them. For example, environmental conditions leading to gregarization and phase transformation in CIT and DMA are not clarified yet. The reasons for which swarms take off are unclear and so are the factors influencing the directionality and distances of swarm flights. In the recent years, among other factors, these challenges were aggravated by climate change. After the presentation, a short discussion on the most interesting for the audience points took place.

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

Overview on Programme implementation in 2018 and funding situation (Item 7)

23. The FAO Locust Programme Officer, AGPMM, provided an overview of the implementation of the interregional and multi-funded "Programme to improve national and regional locust management in Caucasus and Central Asia (CCA)" during Year 7, from 1st October 2017 to 30 September 2018. The main achievements for Year 7, under the different Programme results, were summarized as described below.

    - Concerning regional cooperation, while the 2016 TW had permitted reviewing the results achieved by the Programme from 2011 to 2016 as well as agreeing on its continuation and on the three main directions for the way forward, the 2017 TW also allowed in-depth discussions on expected results and activities to be implemented in the coming years. As a result, a Roadmap was endorsed, to be used for resource mobilization and preparation of various new projects under the Programme umbrella.

    - In 2018, for the ninth consecutive year, national (by countries) and regional (by FAO) monthly bulletins were prepared. However, due to staff turnover in the Ministry of Agriculture, Turkmenistan, no national bulletin was received from this country. A visit of the FAO Agricultural Officer (Locust Management) in Ashgabat, in early October, had for objective, amongst others, to facilitate liaison with new technical focal point(s) and thus support bulletins preparation.

    - The cross-border survey carried out between Kyrgyzstan and Tajikistan in May 2018 was as useful as in the previous years; the participation of representatives from the Japan Embassy and JICA Office in Tajikistan provided an excellent occasion to involve this partner in a field activity and show a concrete example of cooperation between countries.

    - Further efforts were made to improve national human capacities with 242 locust experts and local manpower from five countries trained during 17 training sessions held between March and September 2018 on several topics related to locust management.

    - In this respect, the Training-of-Trainers (ToT) on locust management in Afghanistan, Kyrgyzstan and Tajikistan (against the Japan/JICA project) allowed to train 181 experts this year for a total of 608 experts during 41 regional, national and briefing sessions over the three-year project duration. It has played a key role in training Master-Trainers and reaching a large number of beneficiaries and overall, in strengthening national capacities of the three countries.

    - The five-year FTPP project, during the last year of its implementation (completion date in February 2019), also continued to contribute to the strengthening of human capacities. Since the project's start in March 2014, 85 experts from Azerbaijan, Kyrgyzstan and Uzbekistan were trained during seven national sessions on various locust-related topics. The flexibility of this project should be stressed as extremely positive as it allowed providing technical assistance based on countries' most urgent needs and taking into account other available funding for the Programme.

- An important achievement of 2018 concerns the two fellowships, thanks to the FTPP project: the two-year Master of Sciences on biological locust control in Uzbekistan was successfully completed in July 2018 while the three-year PhD on remote sensing and GIS proceeded. It is excellent that a project, in the framework of the whole Programme, could support strengthening of capacities in the long-term, with postgraduate studies of two locust experts in CCA countries. This experience should be replicated, subject to funds availability.

- Support for ASDC and CCALM use continued with GIS in-depth introduction to the staff responsible for their management and use at the national level in two additional countries, Azerbaijan and Georgia (thanks to the FTPP project and the FAO Regular Programme, respectively). As a follow-up of the recommendations formulated in 2017, a highly specialized training was also delivered on QGIS to Afghan, Kyrgyz and Tajik experts (Japan/JICA project). It should be noted that Tajikistan hosted the training delivered to the Afghan experts in September 2018.

- The contribution of the FAO Regular Programme was important as it acted in synergy with other ongoing projects and as a buffer to manage funding gaps. During this year, besides a discrete contribution to the 2017 TW (for all countries), it allowed delivering 15 tablets for ASDC use to Georgia as well as in-depth introduction of CCALM in this country.

- Regarding the strengthening of the operational capacities, it was possible to procure additional equipment for Afghanistan, Kyrgyzstan and Tajikistan with respect to the one initially envisaged in the Japan/JICA project document, thanks to some savings. Overall, during its three-year duration, the project contributed strongly to increase the national capacities of the three countries with the provision of a high number of survey and control equipment items.

- As the FTPP project is coming to an end in February 2019, it is worth specifying that this project has also allowed delivering equipment for survey and for health and environmental monitoring to Azerbaijan, Kyrgyzstan, Tajikistan and Uzbekistan over the past years, mainly to accompany technical assistance, training sessions or pilot activities.

- Activities aiming at reducing risks of control operations on human health and the environment continued in 2018. They concern: the work of the Kyrgyz and Tajik Human Health and Environmental Monitoring Teams; the finalization of the 2018 calendars on safety measures associated with locust control operations in Dari, Kyrgyz and Tajik and their distribution to the relevant local populations, mainly by the national services in charge of locust management; the work on the Practical Guidelines on pesticide risk reduction for locust control in CCA, which continued, with some delays - the text is available in English, Dari, Kyrgyz, Russian and Tajik while the illustrations are under preparation. As it is very important to complete the process, i.e. to finalize, print and despatch the Practical Guidelines, a six-month no-cost extension was in-principle agreed upon by JICA and FAO (to be confirmed through formal exchanges of letters).

- In accordance with Japan/JICA project document, an evaluation of the project was conducted by a three-person team to assess progresses made towards the project outcomes and outputs, to identify the main strengths as well as the aspects that can be improved and, based on lessons learnt, to formulate recommendations for the future. The conclusions of the evaluation will be presented during this TW.

- Last, regarding resource mobilization, liaison occurred mainly with two partners: (a) with the JICA Office in Tajikistan concerning the new envisaged project to the benefit of Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. Following the discussions held during the 2017 TW and afterwards with the donor, the latest version of a Concept Note was shared with JICA in early March 2018; a reply is awaited to proceed with the preparation of the project document. (b) Discussions with USAID, during spring, resulted in the approval, in late September, of a one-year project of United States Dollars (USD) 480 000 to the benefit of all ten CCA countries (GCP/GLO/93/USA). The project will operationally start as soon as a sufficient number of country's signatures is received.

- Following exchanges in March 2018 between Kazakhstan and the FAO Partnership and Liaison Office in the country, a Technical Cooperation Programme Facility (TCPf) project (TCP/KAZ/3701/C1), with a budget of USD 36 000, was approved, with a view of strengthening organization and planning of survey and control activities related to Moroccan Locust in two southern oblasts. Because of a late approval, in June 2018, the envisaged field activity could no more be implemented. During the 2018 TW, Technical discussions will be held with the Kazakh delegates on the envisaged activities within that project.

24. The FAO Locust Programme Officer indicated that a few activities had been cancelled or postponed with respect to the Workplan for Year 7: the translation of the CIT monograph from Russian into English (which was subject to funds availability against the FAO Regular Programme); the procurement of Global Positioning System (GPS) devices for Uzbekistan, as no permit could be obtained from the national authorities to import such goods; the joint border survey involving Afghanistan and Tajikistan in Khatlon, Tajikistan, in May 2018, because of security concerns from the Tajik counterpart; and the setting-up of a Human Health and Environmental Monitoring Team in Azerbaijan and procurement of related small monitoring equipment – during the 2018 TW, the interest of the country should be either confirmed or declined. Some constraints were also met, i.e. delays for: the finalization of the Practical Guidelines on pesticide risk reduction for locust control in CCA (due to initial delays which could not be caught up in 2018) as well as on the three locust pests present in CCA, the latter due to experts' limited availability; the delivery of survey and laboratory equipment as well as camping kits to Kyrgyzstan and Tajikistan against the Japan/JICA project, due to a long procurement process; the publishing of the new website "Locust Watch in CCA.

25. A number of recommendations were made. At a technical level, all stakeholders should make every effort to concur to the three main directions/priorities agreed upon during the 2016 TW and translated into expected results and activities in the Roadmap for future years, endorsed during the 2017 TW, as follows: (a) the consolidation of the existing technical network on locusts in CCA and the identification and agreement on a sustainable mechanism for long-term regional cooperation; (b) the implementation of an effective locust preventive control strategy, allowing to anticipate and prevent crises, better respond to crises in case they occur, and, eventually, reduce annual infested and treated areas; and (c) further increase of knowledge and best practices overall, with particular attention to locust control operations and risk reduction on human health and the environment. At Programme level, the following recommendations were formulated: that countries ensure as soon as possible the signature of the newly approved USAID project so that it can operationally starts; that all efforts be made to prepare, in a reduced timeframe, the project document of the new envisaged Japan/JICA assistance to the benefit of six Central Asian countries, and to speed up the internal clearances, at countries', FAO and donor levels; and to identify at least one additional funding partner.

26. Afterwards, the FAO Locust Programme Officer briefly presented the funding situation of the Programme. Since its start, a total of USD 8.6 million had been gathered. As of Year 7, she indicated that two projects were active, the FTPP and Japan/JICA projects, covering only half of the ten CCA countries; the FAO Regular Programme had also provided a contribution. Overall,

against these three funding sources, the tentative annual expenditures, from 1st October 2017 to 30 September 2018, amounted to USD 846 868 (see table in Annex IV). She indicated that more information could be retrieved from the Working Paper while expenditures for the Japan/JICA project would be presented during the fourth Project Steering Committee.

Regional cooperation in 2018 (Item 8)

Bulletins: questionnaire results (Item 8 a)

27. The FAO Agricultural Officer (Locust Management) presented the situation regarding the monthly CCA locust bulletins. He explained that the bulletins provide a convincing evidence of the improved regional cooperation and represent an important output of the Programme. Since 2010, 58 CCA bulletins were issued based on the information from 466 national bulletins. Since 2017, funding for this activity (one national staff paid for three days/month during the locust campaign) was discontinued, which resulted in the decrease of the national bulletins sent to FAO (2016: 57; 2017: 56; 2018: 49). This caused a concern regarding the usefulness of the CCA bulletins. To collect countries' feedback on this issue, FAO prepared a short Questionnaire and sent it out to about 50 addressees, mostly to attendants of previous annual TWs. Sixteen responses from nine countries (all except Turkmenistan) were received. In summary, the respondents stated that the CCA bulletins were very useful, the level of information they contain was sufficient and that FAO should continue to issue them on a monthly basis during the locust season. The most interesting bulletin topics were locust situation and forecast, areas of locust treatments, and information from neighboring countries. Suggestions to improve the bulletins included: increasing the scale of the maps and presenting those maps for each country separately, including data from ASDC, and nominating a focal point responsible for the national bulletin who could be contacted directly in case urgent information is needed.

28. During the discussion, the Delegate from Uzbekistan explained that delays in the preparation of the national bulletins resulted from low availability of experts during the locust season as they were all in the field. The Delegate from Tajikistan stated that the activity should be financed again. The Delegate from Georgia emphasized the usefulness of the CCA bulletins and reiterated the wish that this important regional activity would be continued in the future, possibly with assistance of external funding.

Cross-border survey (CBS): Kyrgyzstan – Tajikistan, May 2018 (Item 8 b)

29. The Delegate from Tajikistan presented the CBS between Kyrgyzstan and Tajikistan, held on 14-19 May 2018 (Japan/JICA funding). A total of 13 participants of which five from Kyrgyzstan and three from Tajikistan, the FAO Agricultural Officer (Plant Protection/Locusts) and four representatives of Japan Embassy and JICA office in Tajikistan participated in the survey. The total surveyed area was 22 000 ha mainly of DMA sites in the border areas of Sughd region of Tajikistan and Batken region of Kyrgyzstan. Observed DMA hoppers were of 3rd and 4th instars in lowlands and of 1st and 2nd instars in the highlands with density up to 250-300 hoppers per sq. m. On the visited sites, where DMA was observed, control operations were carried out on both sides of the border and no particular damage to crops was recorded. The Delegate noted that some years ago, it was not possible to conduct surveys in border areas due to strict rules of border security forces; nowadays, there are no more any constraints for conducting surveys thanks to the close collaboration between the locust control services of two countries, which started within the FAO Programme. At CBS completion, both sides agreed on further close collaboration and exchange of information in order to preserve agriculture crops from locust threats. The Delegate informed that an agreement was prepared on collaboration in agriculture sector between the

two countries, presently under the review by the Government of Tajikistan. The Delegate from Kyrgyzstan agreed with the report provided by the Tajik Delegate.

National capacities' development in 2018 (Item 9)

Training sessions (Item 9 a)

- **Refresher course on locust monitoring and information management, including Automated System of Data Collection (ASDC), Azerbaijan, 30 April-4 May 2018**

30. The Delegate from Azerbaijan reported on the Refresher course on Locust Monitoring and Information Management, including ASDC, which took place in Ganja, Azerbaijan, on 30 April-4 May 2018 (FTPP funding). Ganja was selected because the Agricultural University of Azerbaijan is situated in this city; it is also the historical capital of Azerbaijan. The training was delivered to 20 specialists of the Ministry of Agriculture from 22 districts by two FAO International Consultants, Senior Locust Expert and GIS Expert. It was hosted by the Agricultural University, whose professors and students actively participated in the training. The first part of the training focused on locust monitoring and forecasting, practical exercises in the field and introduction of GIS in locust management. The second part of the training was devoted to data collection using ASDC and submission of data in the system. Filling of the Locust Survey and Spray Monitoring forms using tablets was practiced.

31. The Delegate from Azerbaijan indicated that the training had been successful and that additional trainings are required in order for the specialists to master the use of this new system. He also indicated that FAO initially provided 20 tablets and that the Ministry of Agriculture is willing to buy additional tablets for locusts and other pests. He concluded by remarking that the University highly welcomed the lectures of the Senior Locust Expert -who joined FAO in early July as Agricultural Officer (Locust Management)- and requested additional trainings on locust biology and control issues.

32. The GIS Expert informed that 90 percent of the participants had attended similar training in previous year and had used ASDC already; therefore, it was a refresher course but served also as a forum for discussing practical problems encountered while using this new tool. The training improved the capacity of participants on the software use. In addition, the GIS Expert highlighted the very good feedback and interactions with the students who represent the future generation that will manage locusts and other pest issues.

33. The FAO Agricultural Officer (Locust management) thanked the Azeri colleagues for an excellent organization of the training and remarked that students and teachers actively participated in the workshop. He also indicated that the training was translated into Azeri by the same interpreter for the second year in a row, which was highly beneficial.

- **Training-of-Trainers (ToT) on locust management: national and briefing sessions on locust spraying and pesticide risk reduction, incl. ASDC use, Afghanistan, Kyrgyzstan and Tajikistan, March-July 2018**

34. The Delegate from Afghanistan presented the national session on locust spraying and pesticide risk reduction, including ASDC, delivered by the Master-Trainers to 19 Locust staff in Pul-i-Khumri on 12-17 March 2018 as well as the Refresher course on ASDC use held to the benefit of 13 staff, in Kabul on 30 June-1st July 2018. The Plant Protection and Quarantine Directorate (PPQD) Management also attended the training and opened the sessions, whose objective was to improve knowledge and skills of central and provincial Plant Protection Managers and Officers. The topics covered filling standard FAO Survey and Spray Monitoring Forms and a brief review of ASDC use; discussions were held on practical field use of the system, ASDC data analysis and

CCALM use. The Delegate informed that at the occasion of the national session, participants received a mobile internet package for two months. It was said that ASDC and CCALM were completely new and that hopefully they would bring positive results. It was also noted that due to security issues, it was safer on some regions to fill in hard-copy forms and then to insert the data through the web interface rather than by using tablets in the field. The Delegate from Afghanistan also reported on the Refresher course on ASDC and CCALM held in Dushanbe, Tajikistan, in September 2018, which was attended by four Afghan Master-Trainers. Among other topics, they learnt how to produce maps using CCALM and QGIS. The Delegate highlighted the benefits of ASDC and the importance of pursuing such trainings, including, if possible a longer training of minimum one-month on CCALM for one PPQD staff. He also requested support for mobile internet and allowance for the Master-Trainers.

35. The Delegate from Kyrgyzstan reported on the six briefing sessions on locust spraying and pesticide risk reduction, including ASDC use, which were delivered by the national Master-Trainers between March and July 2018 from south to north in Jalal-Abad, Osh, Batken, Chui, Talas and Naryn provinces. The number of participants varied from 14 to 20, for a total of 92 attendees, which included local Department of Chemicalization and Plant Protection (DCPP) staff and manpower, representatives of local administrations, drivers, control operators, etc. With respect to 2017, the duration of the briefing sessions was extended to two days each to cover more in detail, during theoretical and practical sessions, the various topics, which covered locust survey and control -using both ULV and Emulsifiable concentrate (EC) technologies- pesticide risk reduction and ASDC use. Proper management of empty pesticide containers was also addressed although this issue remains a big challenge in the country. He also said that the 2018 Calendars on "Safety measures associated to locust control operations" were distributed among the local population and trainees taking advantage of these briefing sessions. It was also mentioned that during the fourth briefing, held in Chui in June 2018, locusts were found attacking wheat fields; the briefings helped conducted treatments very quickly.

36. The Delegate from Tajikistan indicated that four two-day briefing sessions were delivered to the benefit of 57 local staff and manpower in March 2018, i.e. prior to the locust campaign, by the Master-Trainers supervised by SE-LCE management – more specifically: two briefing sessions in Khatlon Region (Jayhun district, 6-7 March; Danghara district, 8-9 March); one in Districts of Republican Subordination (Rudaki district, 12-13 March); and one in Sughd region (B. Ghafurov district, 19-20 March). The theoretical sessions on locust biology, survey and control, monitoring of human health and the environment, as well ASDC use were followed by field practical sessions on proper use of equipment, including ULV sprayers AU8115 and AU8000, and data collection on tablets. The Delegate reported that the PPE kits provided by the project were distributed to operators and local manpower before the campaign and that 15 AU8115 and 70 AU8000 sprayers were utilized. The Delegate praised the quality of received PPE kits and reiterated that one set of each PPE component could be used in a campaign, including one protective mask and one goggle if well maintained. It was said that shortage of PPE was sometimes encountered as about 1 000 workers had to be enrolled for the 2018 campaign. He informed that the 2018 Calendars on "Safety measures associated to locust control operations" were distributed to the local population and trainees during the visits in the regions. The Delegate concluded by thanking once again Japan/JICA and FAO for the opportunity to conduct the briefing sessions on two days.

37. During the discussions, the JICA Programme Officer asked the three countries whether representatives from the ministries of health and environmental protection had been invited to the briefing or during the campaign. The Delegate from Tajikistan replied that the Emergency Headquarters for control of locust and other plant pests and diseases, annually established at the national and regional levels by governmental order, is composed of representatives from the Ministry of Agriculture, the Committee for Environmental Protection, the Ministry of Health, the Committee on Emergency situation and local administrations. The Delegate from Afghanistan informed that no representative from other ministries was invited as there is no regulation

requiring such common activity for locust control operations; however PPQD collaborates with them and also informs local populations on safety measures. The Delegate from Kyrgyzstan informed that the FAO International Consultant, Environmental Expert, during a mission held in his country in 2017, had met with the representatives from the Ministry of Health and the Agency for Environmental Protection and explained the joint activities to be carried out for the monitoring human health and the environment; such activities were agreed by these official bodies.

38. The FAO Locust Programme Officer commented on the use of PPE kits, underlining that each set of PPE kit is composed of various items, which are provided in different numbers for well-defined purposes. For example, one set includes several masks as a mask cannot be used for the whole campaign and has to be changed regularly. The FAO International Consultant, Plant Protection/Locusts Expert, added that as compared to previous years, the number of young staff increased in the briefing sessions in Tajikistan and that all presentations had been translated from Russian into Tajik by the MTs and edited by the Agricultural Officer (Plant Protection/Locusts), which was highly appreciated by the trainees

Migratory Locust situation in the Aral Sea area (Item 9 b)

39. The Delegate from Uzbekistan thanked FAO for having provided support for the assessment of LMI situation in the Aral Sea zone in Western Uzbekistan, following the country's request at the annual CCA TW in November 2017. The assessment consisted of three missions (funded thanks to project GCP/SEC/004/TUR) carried out in November 2017 as well as in May and September 2018 by three Uzbek Locust Experts, with the FAO Agricultural Officer (Locust Management) in the latter case. The Delegate explained that the purpose of the missions was to survey remote and difficult to access areas in the River Amudarya delta and the dried bottom of the Aral Sea and to assess the hydrological situation, state of vegetation and LMI situation. The missions revealed that the surveyed areas suffered from extreme drought, especially in May and September 2018. Twenty-two of the 24 lakes in the Amudarya delta partially or completely dried out creating favorable conditions for reed growth and, consequently, for LMI breeding and concentration. Besides the surveys, which were done using an all-terrain vehicle, satellite images of the delta were analyzed. The 2018 situation resembled the one in 2013, when severe drought after relatively wet years caused mass outbreak and swarm flights of LMI. During the mission in September 2018, high densities of LMI egg-pods (up to 120 per sq. m) and numerous mature flying adults were recorded. The Delegate illustrated his presentation with numerous photos. He concluded that there is a continuing need to monitor the LMI situation in the Aral Sea zone in 2019 as its swarms are known to migrate long distances (over 1 000 km) from their breeding areas. To this end, he requested FAO support for a mission to the Amudarya delta in May 2019. The FAO Agricultural Officer (Locust Management) reiterated the need to closely follow the LMI situation in this remote area.

Update on fellowships on locust management (Item 9 c)

40. The Delegate from Uzbekistan reported on the Master of Sciences (MS) study on Locust Biological Control performed by Mr Nematjon Abdaliazov at the Department of Plant Protection of Tashkent National State Agrarian University (TSAU), Uzbekistan. Mr Abdaliazov completed the two-year long program and defended his MS thesis in July 2018 with an excellent grade. During his research, he conducted four field missions in Karakalpakstan, Kashkadarya, Surkhandarya, Jizzak and Navoyi regions of Uzbekistan where he collected entomological material (locust egg-pods, nymphs and adults) infected with pathogens or parasitoids for subsequent identification. Mr Abdaliazov published several scientific articles based on his research in English and Russian -whose Internet links will be made available- and is currently preparing to start a Doctoral (PhD) study on the same

topic. The Delegate thanked the donor (FTTP) and FAO for the opportunity to train a young researcher in the important domain of locust biological control.

41. The Delegate from Kyrgyzstan, Mr Almaz Alakunov, reported on the state of his Doctoral (PhD) fellowship on the subject "Application of satellite images and Geographic Information Systems (GIS) to locust monitoring, risk assessment and forecasting," which he performed in the Kyrgyz National Agrarian University - KNAU (Bishkek) and the Central Asian Institute for Applied Geosciences - CAIAG (Bishkek), Kyrgyzstan. He made a presentation entitled "Locust monitoring, risk assessment and forecasting in Kyrgyzstan using Remote Sensing and Geographic Information Systems (GIS)." The study area was chosen in Nooken and Aksy districts in Jalal-Abad region where DMA infestations are frequent. For that area, several layers of information were acquired: satellite scenes from Landsat 8 (land cover), ASTER Global Digital Elevation Model (relief), vector topographic thematic maps (from CAIAG) etc. Spatio-temporal DMA information was collected from local locust experts. Subsequently, these information layers were overlayed using ArcGIS 10.5 and QGIS software. Vegetation cover was assessed using the Normalized Difference Vegetation Index (NDVI) derived from satellite images. Based on the local expert knowledge of the vegetation and elevation of the preferred DMA habitats, it was possible to create a risk map for the study zone based on the remotely sensed data imported into GIS. The Delegate demonstrated several successive steps in building such map by introducing limiting factors. For example, all areas below 500 and above 2 000 meter (m) were excluded as not suitable for DMA breeding. Absence of historical weather data from the study area was one of the major constraints of the research. During the discussion, Delegates from several countries congratulated Mr Alakunov on his extremely interesting research, very useful for the region. It was emphasized that DMA monitoring and risk assessment using remotely sensed data are very difficult taking into account the particularities of the vegetation cover and density in its habitats. To the question regarding the estimated end date of the PhD, Mr Alakunov replied that since his study started later than planned, the envisaged date of the completion will be in mid 2019.

Equipment to strengthen operational capacities: update on delivery to CCA countries (Item 9 d)

42. The FAO International Consultant, Operations Expert, presented an overview on the equipment delivered during Programme Year 7, up to October 2018, to strengthen the operational capacities of CCA countries. She reminded that the Japan/JICA funded project, covering Afghanistan, Kyrgyzstan and Tajikistan, includes an important component for the procurement of locust survey and control equipment, representing about 70 percent of the project budget of USD 4.8 million. Procurement and delivery of such equipment started in 2016 and continued over the course of 2017 and 2018. In order to keep all parts informed, FAO has shared monthly updates on procurement status with the three concerned countries and the donor. The Consultant underlined that it has also been possible to supply in 2018 additional equipment with respect to the one envisaged in the project document, thanks to savings on previously procured equipment (as well as in place of prefabricated houses for Tajikistan). Such savings were shared among the three countries on a *prorata* basis, according to the initial budget for equipment, and additional items to be purchased were identified by countries based on their most urgent technical needs. Other equipment was also delivered thanks to the FTPP project and the FAO Regular Programme.

43. Under Programme Result 3, "Locust monitoring improved", under the Japan/JICA project, a total of 20 survey kits were delivered to Afghanistan as well as additional office equipment, i.e. six desktop computers and six printers compatible with CCALM, to Kyrgyzstan (the latter on project savings). The procurement of survey kits for Kyrgyzstan and Tajikistan (ten survey kits and two control kits each), together with laboratory equipment for Kyrgyzstan, proved to be longer than expected; however the order was placed with delivery expected in early December 2018. In addition, procurement of additional laboratory equipment for Kyrgyzstan (also against savings) was in progress (tender closed and technical evaluation on-going) – this is the last procurement

under the project. Under the same Programme Result, the FTPP project allowed delivering six GPS and one desktop computer and printer to Azerbaijan as well as procuring six digital cameras (to be delivered by the end of November). It was also planned to deliver 15 GPS to Uzbekistan but no official authorization to import the goods was received from the national authorities. The allocation planned for this equipment was therefore used to provide technical assistance, with a mission of the FAO Agricultural Officer (Locust Management) for Asian Migratory Locust assessment in the Aral Sea area, Karakalpakstan, in September 2018, as requested by Uzbekistan. Last, thanks to the contribution of the FAO Regular Programme, 15 tablets were delivered to Georgia in February 2018 for further supporting the ASDC and CCALM use.

44. Under Programme Result 4, "Locust control operations supported", the delivery of camping kits to Afghanistan and Kyrgyzstan, which has started in August 2017, was completed in December of the same year. Two control kits and seven ULV knapsack sprayers (the latter against project savings) were also delivered to Afghanistan in 2018. A total of 37 water tanks, 37 generators and 37 big tents were delivered to Tajikistan between August and October 2018 (in lieu of the prefabricated houses and against the savings). Last, control kits will be delivered to Kyrgyzstan and Tajikistan (two units each), together with the above mentioned survey kits, in early December 2018.

45. Under Programme Result 5, "Risk reduction on human health and environment ensured", the delivery of small environmental monitoring equipment to Azerbaijan was put on hold pending the confirmation of the country to set up a Human Health and Environmental Monitoring Team in 2019.

Programme of work during 2019 (Item 10)

46. Presenting the annual Workplan for Year 8, from 1st October 2018 to 30 September 2019, the FAO Locust Programme Officer indicated that they were three current projects - while no contribution from the FAO Regular Programme (RP) is foreseen is 2019:

- Project GCP/INT/238/JPN funded by Japan/JICA: the initial completion date of this three-year project was 2 December 2018; however FAO and JICA have agreed in principle on a no-cost extension until 2 June 2019, to finalize one pending activity, the Practical Guidelines on pesticide risk reduction for locust control in CCA. There were also some remaining funds to be used in the next six months. This was discussed already and would be confirmed during the Project Steering Committee, the same afternoon.
- Project GCP/SEC/004/TUR, under the FTPP, which is coming to an end in February 2019.
- Project TCP/KAZ/3701, funded by the FAO Technical Cooperation Programme facility, whose current completion date is 19 April 2019.
- Project GCP/GLO/963/USA, funded by USAID, which would become active after its signature by at least two countries; it was also reminded that it will be possible to implement activities in those countries which have signed the project only. These are pre-conditions for the implementation of the below activities against that project.

47. As a result of the discussions, the following Workplan, presented in Table 3, was endorsed. It includes the following activities for Year 8, with tentative periods or dates (funding sources indicated in brackets):

- **Under Result 1**
  - Activity 1.1.2. Contribution to the annual Technical Workshop held in November 2018 in Bishkek, Kyrgyzstan [*FTPP and Japan/JICA*].

- Activity 1.3. Identify the best long-term solution for sustainable regional cooperation: round-trip visits to the CCA countries for advocacy purposes - at dates to be determined [*USAID*].

- **Under Result 2**

  - Activity 2.1. Training-of-Trainers on locust management to the benefit of Armenia, Azerbaijan, Georgia and the Russian Federation: two regional sessions on (a) locust monitoring and information management, including ASDC and CCALM, and (b) locust spraying and pesticide risk reduction (possibly in February/March 2019); and national sessions (from March to September) [*USAID*].

- **Under Result 3**

  - Activity 3.2. Organize a joint survey involving Armenia, Azerbaijan, Georgia and the Russian Federation (dates to be determined) [*USAID*]
  - Activity 3.3. Extend the use of ASDC and CCALM [*USAID*]; more specifically:
    - Delivery of tablets to: introduce ASDC in those countries where it hasn't been done yet, i.e. Kazakhstan (20 units) and Turkmenistan (5 units); complete the already received ones for Armenia (4 units), Azerbaijan (10 units) and Uzbekistan (12 units); and introduce ASDC to a new region, Orenburg, in the Russian Federation (4 units).
    - Technical assistance for introduction of ASDC and CCALM to the benefit of Kazakhstan (February/March 2019).
    - Workshop on data analysis, forecast and reporting, with the ten countries (at the end of the one-year project). Objective: take the best advantage possible of CCALM to establish forecast and reflect on related methodology. To that end, countries (except Kyrgyzstan and Tajikistan, which provided it already) were requested to send historical data on locust infested areas, locust infested areas above EIT and treated areas at the second administrative level (district) to be included in CCALM, together with vegetation index (to be done by FAO for the latter).
    - Hosting, maintenance and improvements of ASDC and CCALM to the benefit of all countries

- **Under Results 3 and 4**

  - Activities 3.1.1. and 4.1.1. Technical assistance for reviewing and assessing the methodology for survey and control activities against the Moroccan Locust in Turkistan (previously named South-Kazakhstan) and Zhambyl oblasts, Kazakhstan (from May to June 2019) [*TCP/KAZ/3701*].

- **Under Result 5 -** Activities 5.2.3

  - Development of an integral system for human health and environmental monitoring in Georgia (March 2019) [*USAID*].
  - Technical and operational support to the Human Health and Environmental Monitoring Teams in Azerbaijan and Georgia (mainly throughout the campaigns) [*FTPP and USAID*].

- **Other:**
  - Final financial allocation for the supervision, coordination and implementation of the Programme and for standard reporting and evaluation costs [*FTPP*].
  - Technical Support Services and standard reporting and evaluation costs [*USAID*].

48. During the discussions, the Delegate from Kazakhstan and FAO staff agreed that the completion date of project TCP/KAZ/3701 should be extended to late June 2019 in order to provide an appropriate time for action given the bio-ecological window of the Moroccan Locust. The Delegate also requested that CBS be funded with Russian and Uzbekistan; it was replied that no funds were available to that purpose and that countries should therefore try to finance them on their own funds. The Delegate from the Russian Federation indicated that if a training on ASDC/CCALM was organized in Kazakhstan, near their common border, their experts could join (at their own costs). The Turkmen Delegates could possibly also join for introduction of ASDC, subject to fund availability. The Delegate from Azerbaijan requested several trainings including on locust monitoring and information management and ASDC as well as a Refresher course on monitoring impact of locust control on human health and environmental; as no funds were available to that end, a one-day Skype session could nevertheless be organized to discuss the topic. The Delegate from Uzbekistan requested at least 15 tablets although it is financially possible to deliver about 12 units. The Delegate from Armenia thanked for the tablets provided indicated that they were important and that they planned to train more staff for monitoring, with an overall estimated needs of 10 tablets. The Delegate from Georgia indicated that would any savings be available, five additional tablets are needed.

Table 3. Workplan for Year 8 of Programme implementation (2019) and related budget

Res. & Act.	Description - Activities envisaged for Year 8	TOTAL BUDGET FOR YEAR 8 (USD) *-JPN excluded-*	AVAILABLE FUNDS FOR YEAR 8 (USD)	
			TURKEY Mar. 2014-Feb. 2019	USAID (dates TBD)
R1 - Regional cooperation		**62,000**	**25,000**	**37,000**
1.1. Facilitate regional exchanges to manage locust situations		**25,000**	**25,000**	**0**
1.1.1. Create/maintain regular regional information sharing of standardized data (Nat. Cslt for bulletins)		0		
1.1.2. Allow direct experience exchange (technical workshop)		25,000	25,000	
1.2. Develop coordination, including through transboundary policy		**0**		
1.3. Identify the best long-tem solution for sustainable regional cooperati		**37,000**		**37,000**
R2 - National capacities		**174,000**	**0**	**174,000**
2.1. Training-of-Trainers (ToT) programme - locust management		**174,000**		**174,000**
2.2. Make available/accessible background documentation on locust pests		**0**		**0**
a	Biblio & Material to be made available (e-committee)	0		
b	Monographies	0		0
c	Guidelines	0		
2.3. Allow internships and post-graduate formation		**0**	**0**	
a	One-month internship	0		
b	Fellowship: 2 or 3-year diploma for 3 students & E-committee	0		
2.4. Promote and support applied research		**0**		
a	Two grants for applied research	0		
b	Entomological and chemical equipment for 6 laboratories	0		
R3 - Locust issues and disasters better anticipated and mitigated		**132,000**	**0**	**132,000**
3.1. Improve survey operations for better field locust monitoring		**0**	**0**	
3.1.1. Strengthen human capacities (techn. consultations on survey)		0		
3.1.2. Strengthen operational capacities (survey equipment)		0		
3.2. Organize regular cross-border surveys		**10,000**	**0**	**10,000**
3.3	Develop monitoring and analyzing systems	**122,000**		**122,000**
3.3.1. Extend use of Geographical Information System and remote sensing		122,000		122,000
3.3.2. Improve forecasting		0		
3.4. Enhance preparedness for risk reduction - contingency plans		**0**		
R4- Improved response mechanisms to locust outbreaks		**0**	**0**	**0**
4.1. Allow early reaction and appropriate control operations		**0**		
4.1.1. Strengthen human capacities (techn. consultations on control)		0		
4.1.2. Strengthen operational capacities (control equipment)		0		
4.1.3. Enhance public-private partnership		0		
4.2. Promote less harmful pesticides and alternatives to conventional pest		**0**		
4.2.1. Develop ULV formulations and related techniques		0		
4.2.2. Propose alternatives to conventional pesticides (demonstration)		0		
4.2.3. Encourage registration of more pesticides		0		

Res. & Act.	Description - Activities envisaged for Year 8	TOTAL BUDGET FOR YEAR 8 (USD) *-JPN excluded-*	AVAILABLE FUNDS FOR YEAR 8 (USD)	
			TURKEY Mar. 2014-Feb. 2019	USAID (dates TBD)
R5 - Impact on human health and the environment mitigated and		**61,549**	**5,000**	**56,549**
5.1. Mitigate impact of locust control operations on human health and the		**0**	**0**	
5.1.1. Strengthen human capacities (techn. assistance)		0		
5.1.2. Strengthen operational capacities (PPE)		0		
5.1.3. Pesticides and empty containers management		0		
5.1.4. Produce extension material for mitigating impact of locust treatmen		0		
5.2. Monitor impact of locust control operations on human health and the		**61,549**	**5,000**	**56,549**
5.2.1. Strengthen human capacities (techn. assistance)		0		
5.2.2. Strengthen operational capacities (Testmate, environmental materi		5,000	5,000	
5.2.3. Develop integral system for environmental and health monitoring		56,549		56,549
5.2.4. Facilitate impact assessment & analysis of material (residue analysis		0		
R6 - Public information and awareness increased		**0**	**0**	
6.1. Develop awareness and education among local populations		**0**		
6.2. Enhance visibility of locust issues and management and of related dor		**0**		
6.2.1. Prepare and implement a communication plan		0		
6.2.2. Create and update a website on locusts in Caucasus and Central Asia		0		
Other		**73,949**	**24,900**	**49,049**
Supervision, coordination, management of Five-year Programme		14,000	14,000	
Reporting & Evaluation		30,600	10,900	19,700
TSS		29,349		29,349
Sub-total		**503,498**	**54,900**	**448,598**
Support cost		45,175	13,773	31,402
Total		**548,673**	**68,673**	**480,000**

SESSION 3: DEVELOPING MONITORING AND ANALYSING SYSTEMS

Developments of ASDC in 2018 and next steps for 2019 (Item 11)

49. The FAO International Consultant, GIS Expert, reported on ASDC, which was developed since 2013 to facilitate collection and sharing of standardized locust data. It is based on the FAO standard "Locust Survey Form" and "Spray Monitoring Form" for CCA and serves as data source for the locust GIS in CCA, named CCALM. Presently ASDC is available in 11 languages (Armenian, Azeri, Dari, English, Georgian, Kazakh, Kyrgyz, Russian, Tajik, Turkmen and Uzbek) for use on tablets, smartphones and computers. To support ASDC use, FAO delivered tablets to a number of countries over the past years as well as training sessions on ASDC use to the benefit of 148 Experts from eight countries, Afghanistan, Armenia, Azerbaijan, Georgia, Kyrgyzstan, Russian Federation, Tajikistan and Uzbekistan, in 2017. During the 2017 TW on Locusts in CCA in Dushanbe, Tajikistan, most delegates reiterated their interest as well as the need for further technical or operational support.

50. During the 2018 locust campaign, training/refresher courses on ASDC use were delivered to the benefit of 225 Experts from Afghanistan, Azerbaijan, Kyrgyzstan and Tajikistan, against different funding sources (see item 9-a) and recommendations for improving ASDC were formulated at this occasion. This concerns the Azeri, Dari, Kyrgyz and Tajik translations of ASDC fields in which a few

corrections were needed. All of them were introduced into the paper version of the Locust Survey and Spray Monitoring Forms while the updated online version of ASDC will be available by the end of 2018. In addition, it was indicated that in case of poor Internet connection, it is now possible to send forms first and pictures later, when secure internet connection is available.

51. A total of 911 reports (see details in Working Paper 11), made by 68 ASDC users, were recorded from seven CCA countries, i.e. Georgia and the Russian Federation (two of the three initial pilot countries for ASDC testing) as well as Afghanistan, Armenia, Azerbaijan, Kyrgyzstan and Tajikistan (the five countries which started using ASDC in 2017). Some countries made excellent progress in 2018, in particular Afghanistan, Georgia and Russian Federation. The reasons of the absence of ASDC reports from three other CCA countries 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.

52. Participants were also informed about specific recommendations for the 2019 national locust campaigns as follows: (a) to countries, continue to use ASDC as widely as possible during locust surveys (and send information even in case of locust absence) and control operations, to test CCALM and to issue GIS products (even in case of absence of specific external funding sources); (b) to the Master-Trainers and advanced ASDC users in all countries, continue supporting national staff on ASDC use (during refresher courses on national budget and/or on on-the-job basis); Filling of Locust Survey and Spray Monitoring Forms should also become an integral part of the Locust Experts' duties and advocacy needs to be made to that end; (c) to FAO, organize a ToT on locust management, including ASDC use, for countries, which did not yet benefit from it; (d) to FAO and countries, as far as possible, contribute to ensure the availability of sufficient number of tablets to in-need countries; (e) To FAO, continue to provide remote technical assistance to the countries for any challenge or difficulty met.

53. The GIS Expert explained that the overall objective is that all or most CCA countries use ASDC in the coming years, together with CCALM. In FAO viewpoint, the following activities are required to that end: (a) ToT on ASDC use to be organized, including regional sessions for MTs and national sessions for national Locust Experts, as early as possible, for all countries; (b) Availability of a sufficient number of tablets per country to be ensured to cover as much as possible locust survey and control operations; (c) Refresher courses to be organized annually prior to the locust campaign by the MTs to the benefit of national Locust Experts; (d) Coaching formula to be promoted and remote technical assistance to be envisaged to the countries for challenges or difficulties met during ASDC operational use; (e) Continuous improvements of ASDC in liaison with CCALM.

54. During the discussions, the Delegate from Georgia asked about possibility to expand ASDC and CCALM for other pests. The Delegate from Azerbaijan underlined the importance of ASDC and requested FAO assistance for additional ASDC/CCALM training. The Delegate from Kazakhstan informed about the willingness to purchase tablets for the plant protection services and suggested testing ASDC along the border with Russia; in this connection he asked FAO assistance for a ToT training on ASDC use. The Delegate from the Russian Federation supported ASDC and mentioned that ASDC will possibly be used in Orenburg oblast in 2019 and expressed interest in participating in the ToT in Kazakhstan. The Delegate from Tajikistan shared his positive opinion on the ASDC use in 2018 and his willingness to have ASDC Refresher course conducted by local Master-Trainers. He emphasized the importance of getting additional tablets and computers.

Developments of CCALM in 2018 and next steps for 2019 (Item 12)

55. The Delegate from Georgia thanked FAO for organizing the course "In-depth introduction of CCALM" in May 2018 in Tbilisi and informed the TW participants that four staff of the Plant Protection Department of the National Food Agency were now using the new skills in their work.

He underlined the usefulness of the knowledge gained for locust management and for delivering national sessions for local specialists. In addition, he stressed that during the 2018 locust campaign there were technical issues with ASDC and that some data were lost. In this regard, he proposed to prepare guidelines and add ASDC & CCALM to the ToT on locust management. He requested FAO assistance for this.

56. The Delegate from Tajikistan informed about the training on ASDC and CCALM, including QGIS, delivered to four Afghan and four Tajik national experts in Dushanbe from 26 to 29 September 2018 (against the Japan/JICA-funded project). He thanked FAO for having well trained Tajik national experts. The Delegate from Afghanistan noted security concerns in some territories and a preference for the use of ASDC paper forms and CCALM Web-interface. In that regard, he requested FAO to deliver additional GIS training and to cover the costs of Internet connection during the locust campaign, from February to September.

57. The FAO International Consultant, GIS Expert, indicated that CCALM basic (data import, query, display, output) and advanced (summary, analysis, forecast) functions are accessible to all countries. It was deployed in two languages, English and Russian, and available starting from 2017 on locust.kz. The system was developed in line with FAO technical standards by the Institute of Space Technique and Technologies, Almaty, Kazakhstan. The GIS Expert underlined that the effective functioning of CCALM depends on ubiquitous ASDC use by all CCA countries. She demonstrated CCALM functions to the Delegates through Internet including the creation of different output products using ASDC data collected by the seven countries and drew attention to all changes in 2018 (details in Working Paper for Item 12).

58. The GIS Expert reported that at the occasion of the in-depth trainings on CCALM and QGIS use, delivered in 2018 to a total of 20 staff from four countries, i.e. Afghanistan, Kyrgyzstan, Tajikistan (JICA/Japan funding), Azerbaijan (FTPP) and Georgia (under FAO Regular Program), the following recommendations were made by the staff responsible for Locust GIS management at the national level: (a) use the names of the economical zones at the first administrative level for Azerbaijan; (b) register in CCALM the smartphones used by locust specialists during locust surveys; (c) translate the CCALM interface and the user manuals (ASDC Operator guide, User Manual to obtain GIS analysis and forecast products and QGIS guide), which exist now in English and Russian, into CCA countries languages; and (d) deepen the draft QGIS guide by adding a description for maps creation using ASDC data.

59. Concerning the strengthening of human capacities and future use of CCALM, it was suggested to: (a) organize one-week refresher courses on CCALM & QGIS as soon as possible for all countries, subject to funds availability - the participants of such course must have relevant education and professional skills; (b) develop Terms of Reference for the staff responsible for CCALM management at the national level; (c) organize a meeting gathering the Master-Trainers and staff responsible for CCALM at the national level every year after the locust season for experience exchange and problem solving.

60. At the end of the CCALM presentation, the GIS Expert informed the participants of FAO recommendations for CCA Locust GIS management as follows: (a) ensure advocacy for high-level support of introduction and/or wide use of ASDC and CCALM at the national levels (action: countries and FAO); (b) if not yet done, nominate at least two Information Officers with relevant education and professional skills to be responsible for CCALM management at the national level (action: countries); (c) organize, to the benefit of these Information Officers, specialized annual trainings/workshops on data validation (ASDC), analysis, forecast and reporting as well as CCALM maintenance and use, including QGIS; also facilitate Skype exchange whenever needed (action: FAO - subject on funds availability); (d) link the management and use of ASDC/CCALM systems to the discussion on long-term regional cooperation (action: countries and FAO); (e) translate CCALM

interface into national languages and provide the possibility to fill in forms via the Web-interface in those languages with appropriate field names and drop-down lists (action: countries for translation and FAO); (f) improve CCALM as per above and any other relevant recommendations formulated by users, especially during the next years of testing (action: users and FAO); (g) issue a video tutorial on ASDC, CCALM and QGIS use in English and Russian.

61. During the discussions, the Delegate from Georgia asked about the possibility to display ASDC data in CCALM for all locust stages in one time. The GIS expert explained that the criteria for highlighting dangerous situation in CCALM for hoppers, hopper bands and egg-pods are different and this will be possible with help of QGIS programme.

62. The Delegate from the Russian Federation underlined the promising perspectives of ASDC & CCALM use and the importance of common approach for CCA countries to estimate areas infested with densities above the Economic Threshold. He pointed out the fact that from year to year the infested areas are estimated by different observers and can therefore significantly differ. Furthermore, the Delegate introduced two proposals: (a) To use the same approach in both ASDC and CCALM in terms of entering data on areas infested by locusts; more specifically, all countries should decide to enter either infested areas or areas infested with densities above the Economic Threshold (ET). Comparing infestations between countries when some of them use infested areas while others use areas infested with densities above ET is incorrect methodically; (b) To consider a possibility to compare countries in ASDC and CCALM according to areas infested at district level. The Delegate from Azerbaijan added that it is desirable to estimate the infested areas by GPS.

63. The Delegates from Kyrgyzstan informed about the training on ASDC and CCALM, including QGIS, delivered in September 2018 to three national experts, who quickly mastered their use and expressed the readiness to gather ASDC survey and control data in all locust habitats. To perform this task, 20 additional tablets are needed. Delegates from Azerbaijan and Georgia indicated also that they will use ASDC during all survey and control operations in 2019 with smartphones and received tablets.

64. The Delegates from Georgia and Kyrgyzstan noticed that a lot of work had been done and requested rapid responses to problems of ASDC use during the next locust campaign.

65. In conclusion, the GIS Expert emphasized that, during the 2018 locust campaign, GIS testing started with the help of the QGIS introduction for national Locust Experts and related training. She reminded that the effective functioning of CCALM (analysis and forecast of locust situation on both regional and national levels) strongly depends on the data collected through ASDC either installed on tablets/mobile devices or entered in the database through WEB-interface from paper Locust Survey and Spray Monitoring Forms previously filled in in the field. So, it is important to introduce and use ASDC & CCALM in all CCA countries especially in connection with the world tendency of the use of digital resources in any state services, including plant protection services.

SESSION 4: RISK REDUCTION FOR HUMAN HEALTH AND THE ENVIRONMENT

Mitigating impact of locust control operations: background documentation (Item 13)

66. The FAO International Consultant, Senior Environmental Expert, presented via Skype an update on the preparation of the “Practical Guidelines on pesticide risk reduction for locust control in CCA”, which was first presented to countries two years ago. The objective of the guidelines is to detail the risks of insecticide handling and use throughout locust control operations and to propose measures to minimize those risks. The guidelines follow international best practices, build on FAO experience on locust control and pesticide risk reduction in other geographical areas

and take into account the specificities of locust control in CCA. They target decision makers and campaign organizers (senior staff); locust control staff in the field (pesticide applicators, drivers, etc.); and staff from specialized human health and environmental monitoring teams. The guidelines will be a booklet of about 90 pages and will be accompanied by a number of short "best practice" cards, on sturdy plasticized material for field use and for specific target groups.

67. Presently, the English text has been peer-reviewed by FAO, finalized and translated into Dari, Kyrgyz, Russian and Tajik; illustrations and layout are under preparation by the designer and review by FAO. The Consultant informed the countries covered by the Japan/JICA project that a peer review is planned to be carried out by the national locust management services, which will be asked to review the guidelines, confirm they meet the specific requirements of locust control in their country as well as the translation in the national languages, especially technical terminology. FAO will subsequently finalize the guidelines, ensure their clearances as FAO official publications, publish, print and distribute them to national services in charge of locust management.

68. The final version will be available by April next year, prior to the next national campaigns, the reason for which a project no-cost extension, until June 2019, has been agreed in-principle by the donor. The guidelines are instrumental for training new staff and to remind the different practice to reduce the impact on human health and the environment.

69. The Delegates from Kyrgyzstan and Tajikistan informed that, as soon as available, their specialists will review the document. The Delegate from Azerbaijan reminded that an interesting training had been delivered by the Consultant in his country and informed him that this year they had some human health problems with the use of pesticides. He underlined the importance of risk mitigating measures while handling pesticides and requested FAO the possibility of organizing another training. He asked also about the possibility to receive the guidelines prepared in Russian/English, for translation into Azeri by national experts.

70. The Delegate from Georgia asked about the relevance of conducting monitoring activities, as they are not organized in their country. The Environmental Expert stressed the importance of such activities, which aim at minimizing the side effects of chemical pesticides application on human health and the environment. He reminded that monitoring activities include also quality control of the pesticide application: in case of over- or under-dosage of the insecticide, for example, the result can be a strong impact on non-target fauna or no locust mortality respectively. He concluded by saying that FAO considers the monitoring activities as an integral part of a locust campaign and that it would be very important if Georgia could create a Human Health and Environmental Monitoring Team.

Monitoring impact of locust control operations: Human Health and Environment Monitoring Teams' work in Kyrgyzstan and Tajikistan (Item 14)

- **Human Health and Environment Monitoring Teams' work in Kyrgyzstan, April-July 2018**

71. The Delegate from Kyrgyzstan reported on the activities of the Human Health and Environmental Monitoring Team in 2018. From April to mid-July, six five-day missions were conducted in the six regions, where locust control operations took place. The Team consists of seven members, but each mission was carried out by four specialists. All Team members have already experience and are able to perform the monitoring tasks, including cholinesterase test. During the field missions, the Team also conducted on-the-job trainings with the regional staff, as well as meetings with the representatives of the local administration units, local populations, medical centers, schools and other relevant authorities. In total 1 260 people were informed during 28 sessions organized within the framework of project as well as against national expenses in 12 districts, where

chemical treatments against locusts took place. The Team also distributed to local populations the calendar prepared by FAO on safety measures to be taken before, during and after control operations. Team did TV interviews TV and informed population on safety measures by other media means.

72. During the 2018 campaign, insecticide use passport was filled for all monitored staff. A deviation of the cholinesterase level exceeding 20 percent was found for six drivers, who were temporarily taken off from control operations. The Delegate recalled that, when the Environmental Expert visited Kyrgyzstan in 2015, he advised to test not only drivers, but agronomists as well. Every staff, permanent and temporary must undergo medical check-up every year. Environmental monitoring was also carried out on 10 700 ha during which the number of alive non-target organisms were counted prior to treatments and then the mortality was assessed after the treatment. Non-target organisms were identified with the help of scientists from Academy of Sciences. Monitoring forms were filled and information sent using ASDC installed in the Tablets. All results are presented in the report prepared by the Team.

73. Prior to the start of the campaign, PPE kits were received from JPN/JICA-funded project and delivered to field staff together with first-aid kits. In 2018, chemical treatments were conducted using pyrethroids for 76 percent of the control operations, organophosphates for 17 percent, and Fipronil for about 7 percent. All pesticides used were procured in five-liter plastic containers; as a result, about 9 000 empty containers were gathered in the warehouses, in order to prevent their use by the local population.

74. In conclusion, the Delegate highlighted the importance of human health and environmental monitoring, its purpose being to reduce negative impacts of locust control operations on human health and the environment. He said that monitoring works will continue in 2019. He mentioned the progress made by the Team, which learned a lot and has improved knowledge and skills from year to year. He suggested also to continue information dissemination activities among the local populations, especially at schools, local administration units, medical centers, farmers and beekeepers. To that end, information leaflets should be printed. The Delegate highlighted difficulties with empty pesticide containers management and importance of establishing required infrastructure for this.

75. To the question of the Delegate from the Russian Federation on collected empty containers, the Kyrgyz Delegate replied that a big amount was gathered during the past two years in the pesticide warehouses. Since the warehouses are situated close to villages and people complained about the smell, containers were later buried into the soil.

- **Human Health and Environment Monitoring Teams' work in Tajikistan, May-July 2018**

76. The Delegate thanked JPN/JICA and FAO for conducting relevant trainings to the benefit of the Tajik staff, who can now monitor impact of locust control. During the four missions conducted in 2018, the Tajik Team also filled standard monitoring forms and used ASDC for sending information. Team members had difficulties at the beginning in using cholinesterase kits but the various trainings conducted by FAO Experts helped them and there are now certified specialists in the Team, who can do the work very well. The Delegate mentioned some deviations of cholinesterase blood levels for operators during the 2018 campaign and that immediate and necessary actions were taken. The Delegate reported that all gathered information is provided in the reports submitted to FAO.

77. The Delegate informed about empty container management. He started to indicate that SE-LCE receives annually insecticides in five-l plastic containers and that 4 500 pesticide containers were received last year only. After pesticide use, empty containers are collected and brought to Vakhsh polygon, the protected area, as per requirement of the National Centre of Stockholm Convention

under the Committee of Environment Protection. Pictures from the process of utilization of the 61 metallic empty drums, resulting in particular from use of Dursban triangulated within the project, were presented. The Delegate highlighted that all FAO recommendations were followed and that the activity was undertaken in collaboration with FAO. The Delegate appreciated FAO provision of PPE kits, which are kept in regular clean conditions.

78. During the discussions, the FAO International Consultant, Plant Protection/Locusts Expert, added that the Tajik Team conducted a total 11 missions in four regions in 2018. He also thanked the FAO Environmental Expert for the useful Skype training, which helped to prevent many errors in their work. The Senior Environmental Expert thanked the Delegates from both countries for informative presentations and thanked the Team for the quality of their work and the missions carried out, which are improving every year. He also indicated that as per results provided, no incident was reported but there were deviations in blood test results, perhaps caused by the insecticides, as in the case of the example given by the Kyrgyz Delegate. He added that there is always a risk while using organophosphates. The Expert once again praised the countries for having mastered the technique and thus underlined that practicing and conducting the work on a regular basis has to continue. In addition, response to the question of the Environmental Expert concerning observation of any clear patterns in mortality of non-target organisms or of repeated mortality of any separate group of non-target organisms after locust control operations, the Delegate from Kyrgyzstan said that to that end, collaboration with the Academy of Sciences will be strengthened with entomologists joining the Team during field missions.

79. In reply to a question from Delegate from Russia who asked about the disposal of the diesel used for triple-rinsing the empty containers, the Tajik Delegate replied that the diesel was spilled in the field. The Delegate from Tajikistan (Ministry of Agriculture) proposed to consider building specific warehouses for pesticides in the future, where empty drums management activities can also be conducted. The Chairman supported the Delegate, mentioning that the issue with empty containers management is big and exists in every country, which was not the case during the Soviet time. He informed that a legal act is under discussion in Kyrgyzstan so that the suppliers of pesticides take back the empty drums to the factories. The Delegate from Tajikistan added that, in line with the recommendations of the FAO Experts, it had been agreed to send the metal empty containers in a foundry, for melting at high temperatures, but that the Committee of Environment Protection didn't agree and recommended to bring them to the pesticide polygon.

80. The Environmental Expert confirmed that problems with empty pesticide containers exist in many countries. He referred to the missions of Pesticide and Empty container management Experts and suggested to countries to implement their recommendations. He also said that FAO recommends to investigate the ways for recycling empty containers, underlining that burying is not advised, since there are more risks to the environment, water, etc. in that case. He indicated that the procedure reported by the Tajik Delegate is better than burying. He reminded that the first step in empty drums management, i.e. triple rinsing, puncturing and storage, can be done by countries but that the following ones have to be discussed and agreed upon by each country together with FAO. The FAO Senior Technical Officer and Coordinator of the Secretariat of the Rotterdam Convention also commented on management of empty containers, underlining the importance to raise awareness among the farmers and their families. She informed about visual tools produced by the Rotterdam Convention and FAO highlighting risks of pesticide in general and especially for children. The FAO Locust Programme Officer referred to the study on empty drums management in CCA, and indicated that it is available in English and Russian on the website "Locust watch in CCA"[1]. She said that from a Programme approach, this important issue had been

[1] http://www.fao.org/ag/locusts-CCA/en/1014/index.html for the English version and http://www.fao.org/ag/locusts-

included in the Roadmap for the future years endorsed during the 2017 TW; more specifically, a pilot activity to implement the recommendations of the study is planned in Kyrgyzstan on the new envisaged project to be funded by Japan/JICA. The Delegate from Russian Federation also agreed that the issue of empty containers management is serious; he mentioned that the amount of insecticides utilized by the countries annually, result in about 8 000 to 10 000 tons of plastic containers. He suggested to invite representatives of companies specialized in drums recycling in future TWs and that good examples from the European countries could be provided by FAO, guidelines on recycling of empty pesticide containers. Last, the Environmental Expert suggested to look at practical examples of countries properly managing empty containers, like in Europe and Americas. He also informed that links to some relevant sources with examples could be provided to countries. The Delegate from Afghanistan also mentioned the problem with empty containers and that in addition to leaflet distribution, guidelines and films should be produced to inform populations.

81. To the question of the Delegate from Georgia concerning conclusions reached on creating Human Health and Environmental Monitoring Teams and if this activity changed the work, the Delegate from Kyrgyzstan replied that blood tests allowed preventing intoxication of operators and underlined the recent improvement of environmental monitoring, especially for non-target organisms. The Delegate from Tajikistan supported the remarks of the Kyrgyz Delegate and indicated that Team works help them to prevent big problems with human health and the environment.

Progress made on control operations, pesticides and biopesticides (Item 15)

82. The Delegate from Afghanistan reported that usually, population living in locust-affected areas requires anti-locust treatments by fast-acting pesticides, with the mortality occurring just a few hours after application. Therefore slow-acting pesticides like IGRs are usually not appreciated. Nevertheless he requested FAO to procure biopesticides (which are slow-acting by nature and currently not used in Afghanistan against locusts) in the future, in order to decrease the risks to human health and the environment. The Delegate also explained that his country suffers from a shortage of qualified and well-trained personnel and requested FAO to fund two MS and two PhD stipends on DMA, possibly in another country. As an example, he mentioned that in the past, Afghanistan benefitted from PhD studies of its nationals, which took place in Russia.

83. The Delegate from Armenia explained that during the governmental tender, the Ministry of Agriculture usually purchases insecticides, which are registered for a large number of pests and not specifically for locusts. Treatments are carried out by tractors ventilator sprayer and knapsack sprayers; biopesticides are not used.

84. The Delegate from Azerbaijan reported that anti-locust treatments are done from vehicle-mounted ULV sprayers using pyrethroid insecticides in ULV formulations. No aerial treatments are done and no biopesticides used.

85. The Delegate from Georgia said that 60 pesticides (five new in 2018) are registered for locusts. In 2018, two pyrethroids, chlorpyrifos and diflubenzuron were used. Although one biopesticide, Green Guard SC Premium (active ingredient: *Metarhizium acridum*) was registered in 2017, it was not used this year. The biggest problem is the empty pesticide container management.

86. The Delegate from Kazakhstan explained that pesticides for locust control are purchased through a rigorous tender. Lower toxicity pesticides are used in the ecologically sensitive zones in order to

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CCA/ru/1014/index.html for the Russian one within the Section "Human health and the environment"

reduce risk to non-target arthropods. There are four biopesticides registered and it is planned that biopesticides (which exactly – it will be clear after the tender) will be used in two regions: Kyzylorda against LMI and Karaganda against CIT.

87. The Delegate from Kyrgyzstan explained that anti-locust treatments are done with three types of insecticides: 78 percent of the area is treated with pyrethroids, 16 percent with an organophosphate and 6 percent with a phenylpyrazole. The organophosphate is in ULV formulation while the other insecticides are water-based. Regarding IGRs, they were included in governmental tenders but there were no offers. No biopesticides are used. Treatments are done mostly with vehicle-mounted ULV sprayers (ten new were delivered against the Japan/JICA project), which allow to treat 200 ha per day. In terms of problems, a high quantity of the ULV insecticide (44 tons) presented a challenge for transportation by vehicle to remote areas.

88. The Delegate from Russian Federation reported that there are 33 commercial formulations of pesticides registered for locust control. The bulk of treatments (476 500 ha) were done with imidacloprid while pyrethroids were applied on an area of over 50 000 ha. The Delegate presented a new spraying platform – a drone – which is capable to carry 10 l of insecticide and treat up to 4 ha per hour at a rate of 1 l/ha (ULV). Its current price is of USD 14 000. Currently there are no registered ULV formulations; the All-Russian Institute for Plant Protection (VIZR) recently started testing a ULV combination of diflubenzuron and imidacloprid. In terms of problems, the Delegate mentioned the very high day temperatures in Kalmykia allowing to apply anti-locust treatments only at night. Also, it was difficult to treat locusts in natural reserves and areas near water bodies. Another problem is locusts developing on fallows in a close proximity to crop fields.

89. The Delegate from Tajikistan reported that anti-locust treatments are done only by ground using equipment such as tractors OVH 600 and TOS, vehicle-mounted ULV sprayers AU 8115 and knapsack ULV sprayers AU 8000. Up to 80 percent of the treatments are applied to first and second instar nymphal populations. In total, 107383 ha were treated in 2018 including 78 919 ha by SE-LCE and 28 464 ha by local administrations. Two pyrethroids and one mix pesticide (organophosphate/pyrethroid) were used (for a total volume of 31 218 l). The Delegate explained that biopesticides are currently not used in the country although research on this topic is ongoing. Finally, he said that saxaul grasshopper, a species that never occurred in Tajikistan before, was found near the border with Uzbekistan. During the discussion, the Delegate from Georgia questioned the low treated swath (15 m) and treated-per-day area (15 ha) for the AU 8115 sprayer. He said that the ULV spraying should be done only when the wind speed exceeds 5 m/second, and under such conditions, the treated swath should be at least 35 m, which allows to treat between 100 and 150 ha per day. The FAO Senior Officer, Team Leader, AGPMM, further explained that ULV spraying is called “controlled drift application,” which means that a minimum of 5 m/s wind speed is a prerequisite of this application method. The Delegate from Tajikistan replied that because of the complicated relief, treatment vehicles can go only at a low speed between 5 and 10 km/hour, which influences the sprayer productivity. He added that if the wind is high, treated swath could be as large as 40 m. In all cases, local topographical and meteorological conditions should be taken into account during treatments.

90. The Delegate from Turkmenistan stated that anti-locust treatments in his country are done with pesticides from two classes, pyrethroids and neonicotinoids. Biopesticides are not used. Both, ground (using 20 new vehicle-mounted ULV sprayers) and aerial (from Antonov-2 aircraft) treatments take place. Since ULV formulations of pesticides are too expensive, EC formulations to which water is added are used in ULV sprayers.

91. The Delegate from Uzbekistan explained that the bulk of anti-locust treatments are done with pyrethroids and neonicotinoids, which are manufactured locally. Also, to control locusts in ecologically sensitive areas, the country imports IGRs to cover an area of 40 000 to 50 000 ha.

Taking into account the fragile wetland ecosystem in the Aral Sea zone, he requested FAO and donors to consider procuring biopesticides for locust control there on an area of 10 000 to 30 000 ha in 2019. The Delegate made a presentation regarding the tests of the fungal biopesticide Novacrid (active ingredient: *Metarhizium acridum*) for locust/grasshopper control in the Lake Aydarkul area. Novacrid is currently registered in Uzbekistan at a dose rate of 50 g/ha. In order to apply the biopesticide with ULV sprayers, the fungal spores were mixed with diesel and applied at 1 l/ha. To decrease the application costs, the biopesticide was applied at a dose rate of 25 g/ha to populations of third and fourth instar nymphs of *Calliptamus turanicus* on an area of 30 ha. After eight days, the mortality ranged from 79 to 86 percent while it reached 100 percent under laboratory conditions. The biopesticide was also tested against CIT in the Aral Sea zone at 25 g/ha and showed good results. No adverse effects on non-target arthropods were detected. The Delegate concluded that the biopesticide demonstrates good potential for use in conditions with relatively high humidity but would be less effective under dry conditions, which are typical for DMA infestations. Responding to a question regarding potential environmental hazards of spraying diesel, the Delegate explained that no phytotoxicity was noticed.

92. Professor Long Zhang, China Agricultural University (observer), made a presentation on locust biological control in China. He mostly concentrated on a protozoan, *Nosema (Paranosema) locustae,* which provokes about 80 percent of LMI mortality under wetland conditions. Currently, about 40 percent of all anti-locust treatments in China are done with biopesticides, which contributes to preventive and sustainable locust management. Several Delegates participated in discussion on the biology, ecology and efficacy of *Nosema.*

Progress made on safety and environmental precautions (Item 16)

93. The Delegate from Afghanistan reported that a serious effort is made to increase public awareness of risks related to pesticides used in locust control. Rural populations living in the areas where anti-locust treatments are implemented are informed about the impending treatments (type of insecticide used, possible side-effects, re-entry periods, livestock withholding periods, pre-harvest intervals etc.).

94. The Delegate from Armenia also said that the empty container management is a very serious issue, and to that end, nothing in particular is done in the country. Empty containers from pesticides used in locust control are given to trash collectors, but it is rarely the case for other pesticides. However, the Delegate assured that the empty pesticide containers are not re-used.

95. The Delegate from Azerbaijan agreed that the management of empty pesticide containers is a big issue. They are collected in the field and buried in a place far from human settlements. No recycling or burning of plastic containers is done. During pesticide handling, all staff wear appropriate sets of PPE. Pesticide safety briefings are conducted before treatments. Public awareness before the anti-locust campaign is raised on risk reduction from pesticide use. In 2018, there was a case of poisoning of a farmer who allegedly entered a cotton field after an herbicide application.

96. The Delegate from Georgia said that, safety measures, including PPE and buffer zones around water bodies, are strictly observed. Local administrations are briefed on re-entry, withholding periods and pre-harvest intervals. The biggest problem, which is not yet solved, is the empty container disposal. The Delegate requested FAO assistance to assess the situation and propose mitigating measures.

97. The Delegate from Kazakhstan emphasized that the questions related to risks for human health and the environment during anti-locust treatments are taken very seriously in the country. During registration, pesticides undergo a strict quality control. During treatments, efforts are made to

protect water, honeybees, etc., from pesticide exposure. Public is informed about livestock withholding periods and of other precaution measures to be adopted before, during and after control operations. The Delegate requested a training on risk reduction to human health and the environment, which could be delivered in one of the regions, e.g. Aktobe.

98. The Delegate from Kyrgyzstan said that the new equipment received against Japan/JICA funding (ULV sprayers mounted on pickup vehicles) is a big step forward regarding the operator safety, as the windows can be closed and air conditioning turned on. Presentation on Human Health and Environmental Monitoring team was made earlier.

99. The Delegate from the Russian Federation presented the measures adopted concerning pesticide quality control and empty containers management. He showed a leaflet and a brochure describing the steps needed to triple rinse the plastic containers. He explained that recycling companies often do not accept the containers if they are not properly rinsed. However, he pointed out that even after triple rinsing, about 80 ml of pesticides are left in a container, which still presents a hazard. In 2018, almost 900 000 tons of plastic containers from plant protection related activities were accumulated in the country, out of which almost 200 000 tons were recycled by a company. The Delegate requested a special session on this important issue during the next Technical Workshop.

100. The Delegate from Tajikistan explained that under the Plant Protection Law and appropriate state decree, locusts are among the especially harmful organisms. Pesticides are purchased through a tender and then distributed to regions. Representatives from the Ministry of Public Health participate in Locust Headquarters meetings at region and district levels during the campaign planning and also supervise operators' health during treatments. Presentation on Human Health and Environmental Monitoring Team was made earlier.

101. The Delegate from Turkmenistan explained that all pesticides for locust control are purchased on a tender basis. Empty containers are not recycled but buried in special places.

102. The Delegate from Uzbekistan explained that the Plant Protection Law is strictly enforced and observed. More toxic insecticides (e.g. chlorpyrifos) are denied registration. There are three factories that collect empty pesticide containers for recycling. Locust control units will not get insecticides until they return the empty containers. The Institute of Sanitary Hygiene and Professional Illnesses monitors health of staff working with pesticides.

SESSION 5: REGIONAL COOPERATION AND LOCUST MANAGEMENT: EXISTING CHALLENGES AND POSSIBLE SOLUTIONS

Regional cooperation: what is next? (Item 17)

103. The FAO Locust Programme Officer started the presentation by providing a brief overview from the 2000's up to 2018, including: the first attempt to formalize regional cooperation on locust issues in the former Soviet Union, in 2000-2003, which did not concretize for a number of reasons; the design and adoption of the Programme in 2009 when countries discussed the nature of regional cooperation and agreed to build a technical network as first step; the preparation of a "Study on possible mechanisms for long-term regional cooperation on locusts in CCA" and its presentation during the 2014 TW as well as countries' feedbacks (2015); the three main directions identified for the coming years during the 2016 TW, including "towards the sustainability of the existing regional cooperation"; and the adoption of a Roadmap for the future years during the 2017 TW with, under Programme Result 1 ("Regional cooperation further developed") an

Activity 1.3. aiming specifically at "Identifying the best long-term solution for sustainable regional cooperation". It was said that in this context, the newly-approved USAID included a specific activity for kick-starting the process.

104. The FAO Locust Programme Officer then presented the main responsibilities, both at the national level (countries should be responsible for implementing the locust preventive strategy or curative control on their respective territories) and at the regional one: any platform or body should advocate and promote the locust preventive strategy and facilitate regional cooperation between countries, especially in border areas. It was said the functions of the regional body actually depend on how much it is intended to be a technical and information resource forum, or how much it is expected to be a decision-making body. Four groups of functions were presented: information exchange (as the minimum function that any regional platform should ensure); coordination (at least cross-border surveys and annual workshops); contribution to improving locust management (including trainings and technical assistance); and assistance to countries in defined situations.

105. The various possible mechanisms for long-term regional cooperation, as included in the 2014 Study, were reminded, comprising: regional network (independently of any organization or within FAO's framework – as the Programme now actually); a regional organization established independently of any national, regional or international organization; a regional Commission established within the FAO's framework, either under Article VI or XIV of the FAO Constitution. The main advantages and disadvantages of each option were presented, from a sustainability perspective. Sustainability of regional cooperation appears indeed as being the key criteria for selecting a long-term mechanism.

106. As a FAO Commission created under Article XIV presents the highest guarantee in terms of sustainability, concrete examples were given the Delegates, starting from the three FAO commissions for Controlling Desert Locust in South-West Asia, in the Central Region (Red Sea area) and in the Western Region (north and northwest Africa). The FAO Senior Officer, Team Leader, AGPMM, provided more specifically an overview on the Desert Locust Commission in the Western Region (10 members), from its birth to the main results achieved, explaining how it was now instrumental to assist countries in implementing the locust control preventive strategy – and how several outbreaks had thus been timely managed; she also mentioned some relatively new tools adopted by the Commission, including the Regional Fund for Locust Management (to be used extremely rapidly in case of critical locust situation in a country and thus filling the gap in case of need for international assistance) as well as the regional Intervention Force in the Western Region (to balance existence of insecure areas). The FAO Locust Programme Officer then showed the budget of that Commission and explained how the scale of contributions had been built. She also provided the example of the Central Asia and Caucasus Regional Fisheries and Aquaculture Commission (CACFish), which entered into force in 2010 and has currently five Members (Armenia, Azerbaijan, Kyrgyzstan, Tajikistan and Turkey), with two others having indicated their willingness to join soon (Kazakhstan and Uzbekistan). She explained how the Commission budget had been calculated and showed the budget consisting of annual contributions paid by the Member countries complemented by voluntary contributions from the countries as well as by various projects. After that, she came back to the core functions of a body for locust management in CCA, indicating that, following a rough estimate, its budget could be around USD 250 000 per year. Possible criteria for splitting this budget amongst the countries could include Gross Domestic Product per capita, cultivated areas, agricultural yields, average locust-infested area, etc.

107. The FAO Locust Programme Officer concluded her presentation by indicating that as next steps, advocacy and discussions with high-level decision-makers were needed, with the objective to promote a *sustainable* long-term option. This can include, as a first step: meetings organized by the delegates, upon return in their country, to present the question and round-trip missions carried out by FAO staff in all countries in 2019, to support long-term cooperation. During these

round-trip missions, preferences will be collected from high-level national authorities on the selected type of arrangement. Should preferences be for a FAO Commission, further steps would include: an official request by all or some CCA countries that a related item be inserted in the Agenda of the next session of the FAO Committee of Agriculture (COAG), scheduled in 2020; the creation of a Committee of Experts to draft the agreement and prepare a scale of contributions; a ministerial meeting or conference of plenipotentiaries for adoption of the text of the Agreement; and the approval of the Agreement by the FAO Committee on Constitutional and Legal Matters (CCLM) and its Council.

108. During the discussions, the Russian Delegates thanked for the very interesting information provided and indicated their willingness to be part of a long-term regional mechanism and more specifically a FAO Article XIV Commission. It was said that establishing such a regional body, which could rely on an annual budget, was crucial for sustainability rather than depending on projects. However, considering that this involved legal and financial commitments, such option should be presented and discussed with the decision-makers in each country. This was supported by Afghanistan, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan. To that end, the CCA countries formally asked FAO to officially write to the ten countries in order to raise the topic at high level.

109. In reply to a question on the structure of such Commission, the FAO Senior Officer, Team Leader, AGPMM, indicated that there could be an Executive Secretary, recruited in accordance with FAO rules (to be assisted by a small unit if needed), as well as an elected Chairperson of the Commission, from one of the Member countries (for a two-year duration, on a rotation basis between the countries). The Commission could then have mandatory sessions every two years but could also have a Technical Committee meeting annually. It was said that this was however to be decided when drafting the Agreement.

Evaluation of project GCP/INT/238/JPN: presentation of results achieved and recommendations (Item 18)

110. The two International Consultants, Mr Saïd Ghaout, Senior Locust Management Expert and Evaluation Team Leader, and Ms Natalia Kosheleva, Senior Evaluator, presented (via Skype) the key findings of the evaluation of the project "Improvement of locust management in Afghanistan, Kyrgyzstan and Tajikistan" (GCP/INT/238/JPN), conducted by a three-person team – themselves and Mr Ahmadzai, National Consultant, Evaluator (Afghanistan).

111. The Evaluation Team Leader indicated that the evaluation was carried out to: a) assess the progresses made towards the project outcome, i.e. improvement of locust management by developing regional cooperation and strengthening national capacities; as well as b) identify the main strengths of the project, the aspects that can be improved and lessons learnt and, as a result, c) formulate recommendations to improve the assistance to be provided in the next years to the three concerned countries and other CCA ones, including on scaling up some project activities to other CCA countries. The evaluation included extensive review of project-related documentation as well as field missions in Afghanistan, Kyrgyzstan and Tajikistan, in October 2018. Interviews were conducted with 110 project stakeholders in the three countries and FAO-Headquarters, including: 11 FAO staff, nine representatives of JICA offices and Japan Embassies, five representatives of ministries of agriculture, 42 representatives of beneficiary locust control units, 24 representatives of local authorities and 19 farmers. The evaluation team answered to the four initially identified evaluation questions, as follows:

- **To which extent does the project design allow to reach the expected outcome, in coherence with the overall Locust Programme in CCA?**

112. It was indicated that the project is relevant and responds to the needs of the countries to tackle a common problem, which jeopardizes the food security and livelihood of their populations. The project design builds on proven design criteria established during the implementation of related projects in the region (i.e. USAID, FTPP and FAO projects) and is linked to the overall CCA Programme. It was designed to be complementary to others and thus to ensure a coherent approach in the concerned countries, under the CCA Programme.

- **Was the project expected outcome reached, i.e. improvement of locust management by developing regional cooperation and strengthening national capacities, together with project outputs?**

113. To achieve the expected outcome, the project has defined five outputs and 13 activities (sub-divided into 20 sub-activities). Almost all activities have been successfully implemented and most outcomes have been achieved. The results achieved by output are presented in Annex V.

- **What factors contributed to achieving or not achieving intended outcome and outputs?**

114. The Evaluation Team Leader indicated that activities were satisfactorily carried out under the various expected output. It was said that FAO's role has been instrumental in the successful project implementation and the achievement of the project outcome and outputs, highly appreciated by all stakeholders. Furthermore, the existing close relationships between the heads and the technical staff of the services in charge of locust control in the concerned countries, developed during the annual CCA technical meetings, contributed to facilitate the implementation of many activities. Insufficient national funding allocated by the governments and delayed mobilization of earmarked funds as well as lack of personnel were mentioned as constraints.

- **What are the recommendations regarding the positive aspects to be replicated or scaled up in new project, as part of the Programme, and what are the improvements to be considered?**

115. The Evaluation Team Leader presented the following eight recommendations:

- Further increase and harmonize knowledge and best practices through the multiplication of training sessions.
- Provide additional equipment (vehicles, motorcycles, sprayers, tablets...) to further improve operational capacities of the countries.
- Implement an effective locust control preventive strategy in order to avoid any locust upsurge and set up an early warning system.
- Ensure the sustainability of the existing regional cooperation, which is crucial for CCA locust management. The creation of a regional commission seems to be the best option. To do so, a ministerial meeting of the concerned countries should facilitate the creation of this commission, provided that country in the region takes the lead to organize it, similar to what was done for the creation of the FAO Commission for controlling the Desert Locust in the Western Region Control (CLCPRO).
- Have maintenance plans developed by the beneficiary anti-locust units.
- Use the expertise and experience of the Human Health and Environmental Monitoring Teams in place in Kyrgyzstan and Tajikistan to make operational a similar team in Afghanistan (and in other countries in the region) at a lower cost than using international experts, contributing at the same time to strengthen regional cooperation.

- Promote the use of alternatives to conventional pesticides like IGR and biopesticides, whenever possible.
- Develop an appropriate communication strategy to highlight the prevention work undertaken and to be further implemented and its importance in preventing locust crises in order to ensure the sustainability of the required national funding for locust control

116. During the discussions, the Representative of JICA, referring to the recommendations, asked how countries would be able to maintain the equipment delivered if they had difficulties in securing funds. The Evaluation Team Leader replied that more spare parts were needed on the one hand; on the other, the preparation of a maintenance plan by the beneficiary countries should become a prerequisite for the delivery of future equipment and countries should also guarantee that they will keep some specific funds on their national budget for equipment maintenance. In reply to another question from the JICA Representative, the Evaluation Team Leader said that the project had without doubt satisfactorily achieved its expected results. To a question of the Russian Delegate, the Senior Evaluator replied that she did not represent any organization but was independent and had been selected by the FAO Office for Evaluation (OED), through a selection process; she also indicated that she had more than 20 years of experience in conducting evaluations and that the competencies of the three-person team were complementary.

117. The Chairperson, on behalf of Kyrgyzstan, expressed gratitude to the evaluators for the work conducted and hoped that the report would be available soon. The Delegate from Tajikistan indicated, for each result of the project, that they had been achieved. He requested that, in a next project, consultancy reports be received after missions. He also asked that procurement be conducted on the national market whenever feasible and that the names of suppliers be provided for appropriate follow-up. The need to provide cases for the tablets was mentioned. He expressed his wish for a continuation of the project, with a close cooperation between countries, FAO and the donor. The Chairman further underlined how the project had been instrumental and that without it, the situation in terms of available equipment would be quite different; he said that there were some delays with equipment delivery but that in general it was delivered on time. He renewed his thanks to FAO and JICA for that project.

Resource mobilization: situation update and progress made (Item 19)

118. The FAO Locust Programme Officer presented the progresses made in 2018 after having reminded that during the 2017 TW, a Roadmap was agreed upon by the ten countries and FAO, to be used as a framework for the Programme as well as a basis for resource mobilization.

119. Starting with the new envisaged project to be funded by Japan/JICA to the benefit of Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, she indicated that following the in-depth discussions held on its content during the 2017 TW, a detailed Note was prepared and shared by FAO with JICA-Tajikistan, in December 2017. Exchanges took place between JICA-Office and FAO in early 2018, including a video-conference, and, as per donor's request, a number of changes were inserted in the project: additions of country-to-country visits within CA as well as exposure visits outside CCA for experience sharing and further strengthening regional cooperation; removal of translation and print-out of the monographs as well as of fellowships and applied research (to focus on immediate capacity building of locust services in Central Asia). The last version of the Note, including these changes, was sent by FAO to JICA-Office in Tajikistan on 1st March 2018, which in turn liaised with JICA offices in the other CA countries and JICA-headquarters to obtain feedbacks. Based on the replies received, intermediate feedbacks were shared by the JICA Office with FAO throughout the year, all positive. A final reply is awaited by FAO to proceed with the preparation of the project document. In parallel, to facilitate and speed up the process, FAO (through the Sub-regional Office for Central Asia and the Representation in

Afghanistan) sent letters to the six concerned countries (in early 2018) asking them to confirm their interest in pursuing the whole Programme and more specifically in participating in the new envisaged Japan/JICA project. Official positive replies were received between February and July 2018 from five out of the six countries (all but Turkmenistan).

120. The Representatives from JICA requested all six countries to follow-up this matter with their respective Ministry of Foreign Affairs, which should officially communicate to the Government of Japan their interest in the project in order to facilitate and speed up the approval process. In particular, it was suggested that countries manifest their interest during the high-level meeting scheduled in December 2018 in Dushanbe, Tajikistan, in the framework of the "Central Asia plus Japan" Dialogue. Upon a question raised by the Delegate from Georgia, the JICA Representative confirmed that the envisaged project covers the six Central Asian countries and not Caucasus.

121. Afterwards, the FAO Locust Programme Officer informed the audience about the new project "Locust disaster risk reduction in Caucasus and Central Asia (CCA)" (GCP/GLO/963/USA), approved by USAID to the benefit of all ten CCA countries, with a budget of USD 480 000. She indicated that a part of the resource mobilization process, FAO had liaised with USAID since March 2018 and that proposals for a new project were submitted, in line with the Roadmap agreed upon during the 2017 TW and taking into account donor's main focus and interest (last version sent in June 2018). As a result, the Grant Agreement, signed by USAID, was received in early October 2018 by FAO and counter-signed a few days later. This new project is the second one funded by this donor in the context of the Programme; the first contribution of USD 1.6 million, also to the benefit of all ten CCA countries, had allowed launching the Programme in October 2011. The expected outcome of the project is improved locust management in CCA and more specifically enhanced early warning and reaction thanks to appropriate locust monitoring as well as enhanced capacities to respond to locust infestations through up-to-date control methods and technologies with particular attention to human health and environment. The FAO Locust Programme Officer explained that a number of activities focus on Caucasian countries and the Russian Federation, considering the envisaged project to be funded by Japan/JICA focus on the Central Asian ones.

122. The process up the project operational start was then explained: first, in-principle agreement should be received from the governments (received so far from Georgia and Uzbekistan); on this basis, FAO officially sends the project document for signature to the governments. It was indicated that the project can operationally start after at least two countries have signed it. While regional activities can be implemented, activities can be organized in a specific country only after this country has signed the project document. Delegates were therefore urged to make all efforts to ensure that such signatures occur as early as possible in order to be able to start the project, especially for the activities to be implemented prior or at the start of the 2019 locust campaigns.

123. A Concept Note on "Preventive and environmentally sound approach to locust management in the Aral Sea zone" was then presented by the FAO Agricultural Officer (Locust Management). He informed that in June 2018, an International Conference entitled "Joint actions to mitigate the consequences of the Aral catastrophe: new approaches, innovative solutions, investments" was organized by the Uzbek Ecological Movement in Tashkent, with the presence of numerous United Nations (UN) agencies as well as different donors. Following such event, in which he participated, the two-page Concept Note was prepared, in July 2018, with the purpose to propose a novel, preventive, multidisciplinary and environmentally-sound approach to locust management in the Aral Sea zone, as part of the overall Programme. The proposed action would target primarily Uzbekistan, Kazakhstan and Turkmenistan. Its objectives are to support: 1) better monitoring and improved forecast; 2) better targeted and more efficient control operations at an early stage of locust outbreaks; 3) reduced use of conventional pesticides in a highly fragile wetland ecosystem; 4) dramatic reduction of water usage in the area of extreme water scarcity; and 5) environmental and human health benefits from using a biopesticide selective for locust pests.

124. Then, the FAO Locust Programme Officer stressed that additional financial support is required as not all of the activities of the Roadmap endorsed by countries during the 2017 TW are covered. This concerns in particular: the setting up and implementation, during an initial phase, of a sustainable mechanism for long-term regional cooperation in CCA (all countries); the continuation and strengthening of ASDC and CCALM operational use, especially in the Caucasian countries (so far covered only in 2019 by the USAID project); the finalization, translation into English and print-out of the three monographs on the three locust pests present in CCA (sub-finalized versions currently available in RUS only); and organization of additional fellowships and applied research. Possibilities for additional support may be explored under FTPP, subject to donor's interest, as the successfully implemented project GCP/SEC/004/TUR is coming to an end in February 2019 and considering that "Disease and pest control" is one of the priorities identified by countries, the donor and the FAO Sub-regional Office for Central Asia (FAOSEC) for the FTPP second phase. Other potential partners may also be identified and it was reminded that CCA countries could also act both as beneficiaries and donors of the Programme and should advocate for it in their respective countries.

125. Last, the FAO Locust Programme Officer presented a new Information Sheet on the Locust Programme in CCA, entitled "Towards sustainable locust management in Caucasus and Central Asia", which was prepared by FAO and issued in November 2018 in English and Russian. Its objective is to advocate for the main directions defined by CCA countries and FAO for the coming years as well as to highlight one key challenge: the sustainability of national and regional locust management in CCA, including through long-term regional cooperation on locusts. This Information Sheet can be used by CCA Locust Experts and FAO staff for advocacy with national high decision-makers as well as with potential donors, together with the one prepared in 2017 entitled "Reducing locust outbreaks in Caucasus and Central Asia to boost food security and livelihoods," which aimed at increasing the visibility of results achieved in 2011-2016 and the need for further support. The new Information sheet is available on the FAO website "Locust Watch in CCA."

126. During the discussions, the Delegate from Kazakhstan asked about the possibility of organizing a cross-border survey between Kazakhstan and Russia in June 2019, which was also supported by the Russian Delegate; the FAO Locust Programme Officer informed that no funds were available to that end under the Programme next year. In reply to a query of the Delegate from Tajikistan for additional information about the ongoing FTPP project and related activities in Tajikistan, the FAO Locust Programme Officer reminded that all activities implemented under any project were discussed yearly during the Technical Workshops -as documented in their Reports- and that an overview of project implementation since its start in March 2014 was also available in the Working Paper for Item 7 of this Technical Workshop. She also explained that this project had initially focused on Kyrgyzstan and Tajikistan only, as these countries had first signed the project document/agreement; from 2016, most activities were implemented to the benefit of Azerbaijan and Uzbekistan because Kyrgyzstan and Tajikistan had already benefitted from it in addition to being also covered by the Japan/JICA funded project.

ANY OTHER BUSINESS

127. The FAO Senior Technical Officer and Coordinator of the Secretariat of the Rotterdam Convention gave a presentation on the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. The Convention, a legally binding instrument, currently has 161 Parties. Only four countries from the CCA region are not (yet) Party to the Convention and are strongly encouraged to take the necessary ratification steps in order to benefit from the many advantages the Rotterdam Convention provides to them. The

Convention is not banning any pesticides but contributes to their environmentally sound use by facilitating information exchange about their characteristics, by providing for a national decision-making process on their import and export and by disseminating these decisions to Parties. The aim is to protect human health and the environment from potential harm caused by these chemicals and pesticides. Parties also have the possibility to request technical assistance to the Rotterdam Convention Secretariat, e.g. related to data collection on pesticide poisoning incidents, alternatives to highly hazardous pesticides or any other activity that reduces the risk of pesticides. Further information, as well as plenty of information material including in Russian, is available underwww.pic.int or directly from the Rotterdam Convention Secretariat.

ADOPTION OF THE REPORT

128. Due to a number of side meetings organized during the Technical Workshop, only the workplan for year 8 (paragraphs 46 to 48) was endorsed by all countries during its closing session. It was agreed that the draft report would be finalized and shared with all countries for comments after the Workshop.

129. The final version will take into account any comment that may be received from participants, by the given deadline, and afterwards the report will be considered as approved by all participants.

CLOSING REMARKS

130. During the closure session, the FAO Senior Officer, Team Leader, AGPMM, thanked all delegates for their fruitful participation as well as the hosting country, Kyrgyzstan, for having welcomed the workshop and for the wholehearted hospitality. The Vice-Chairperson also joined in appraising the warm welcome from Kyrgyzstan. The Chairperson in turn thanked all participants and wish them all a safe trip back to their home country.

ANNEXES

Annex I - List of participants

NAME	TITLE & AFFILIATION	TEL.	E-MAIL ADDRESS	FULL ADDRESS
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Annex II - Provisional Agenda

Opening

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

Session 1: National 2018 locust campaigns and forecasts for 2019

4. National locust campaigns in 2018 (countries' presentations)
5. Locust forecasts for 2019 and preparation of the next campaigns (countries' presentations)
6. Locusts: what we know and what we don't know about them

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

7. Overview on Programme implementation in 2018 and funding situation
8. Regional cooperation in 2018:
    a) Bulletins: questionnaire results
    b) Cross-border survey: Kyrgyzstan – Tajikistan, May 2018 (countries' presentations)
9. National capacities' development in 2018
    a) Training sessions (countries' presentations)[2]
        - Refresher course on locust monitoring and information management, including Automated System of Data Collection (ASDC), Azerbaijan, April/May 2018
        - Training-of-Trainers (ToT): National and briefing sessions on locust spraying and pesticide risk reduction, incl. ASDC use, Afghanistan, Kyrgyzstan and Tajikistan, March-July 2018
    b) Migratory Locust situation in the Aral Sea area (country presentation)
    c) Update on fellowships on locust management
    d) Equipment to strengthen operational capacities: update on delivery to CCA countries
10. Programme of work during 2019

[2]Training sessions on the Caucasus and Central Asia Locust Management System (CCALM) in Afghanistan, Azerbaijan, Georgia, Kyrgyzstan and Tajikistan are addressed under agenda item 12.

Session 3: Developing monitoring and analysing systems

11. Developments of ASDC in 2018 (situation update, issues encountered, lessons learnt and recommendations) and next steps for 2019
12. Developments of CCALM in 2018 (progress made, issues encountered, lessons learnt and recommendations) and next steps for 2019, including (countries' and FAO presentations):
    - In-depth introduction of Caucasus and Central Asia Locust Management System (CCALM), Azerbaijan and Georgia, May 2018
    - Training on ASDC and CCALM, including QGIS, Afghanistan Kyrgyzstan and Tajikistan, September 2018

Session 4: Risk reduction for human health and the environment

13. Mitigating impact of locust control operations: "Practical Guidelines on pesticide risk reduction for locust control in CCA"
14. Monitoring impact of locust control operations: Human Health and Environment Monitoring Teams' work in Kyrgyzstan and Tajikistan, May-July 2018 (countries' presentations)
15. Progress made on control operations, pesticides and biopesticides (countries' feedback), including presentations on biopesticide testing and use
16. Progress made on safety and environmental precautions (countries' feedback)

Session 5: Regional cooperation and locust management: existing challenges and possible solutions

17. Regional cooperation: what is next?
18. Evaluation of project GCP/INT/238/JPN: presentation of results achieved and recommendations
19. Resource mobilization: situation update and progress made

Closing

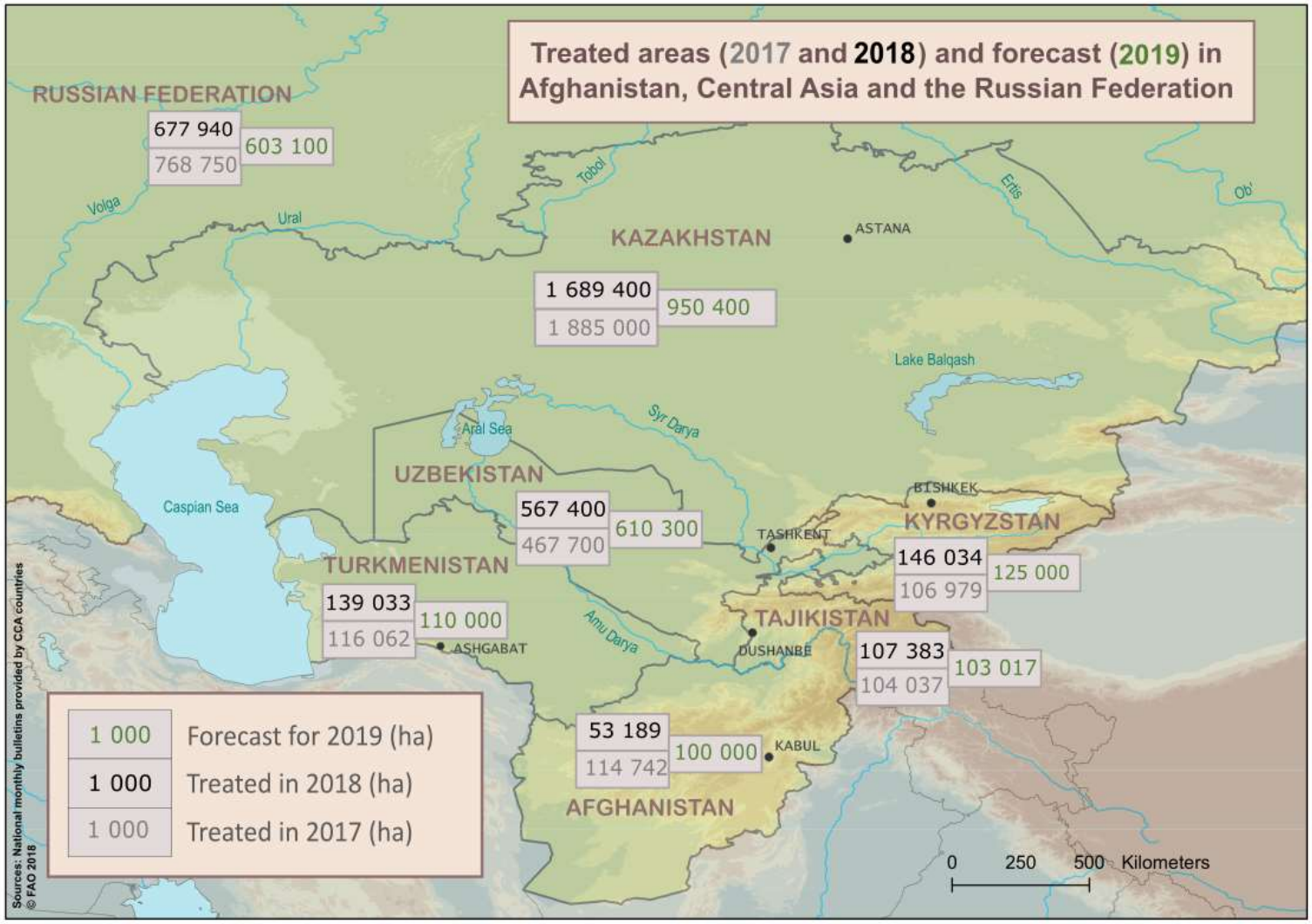
20. Any other business
21. Adoption of the report
22. Closure address

All working papers will be available on the FAO website "Locust Watch in CCA" at:

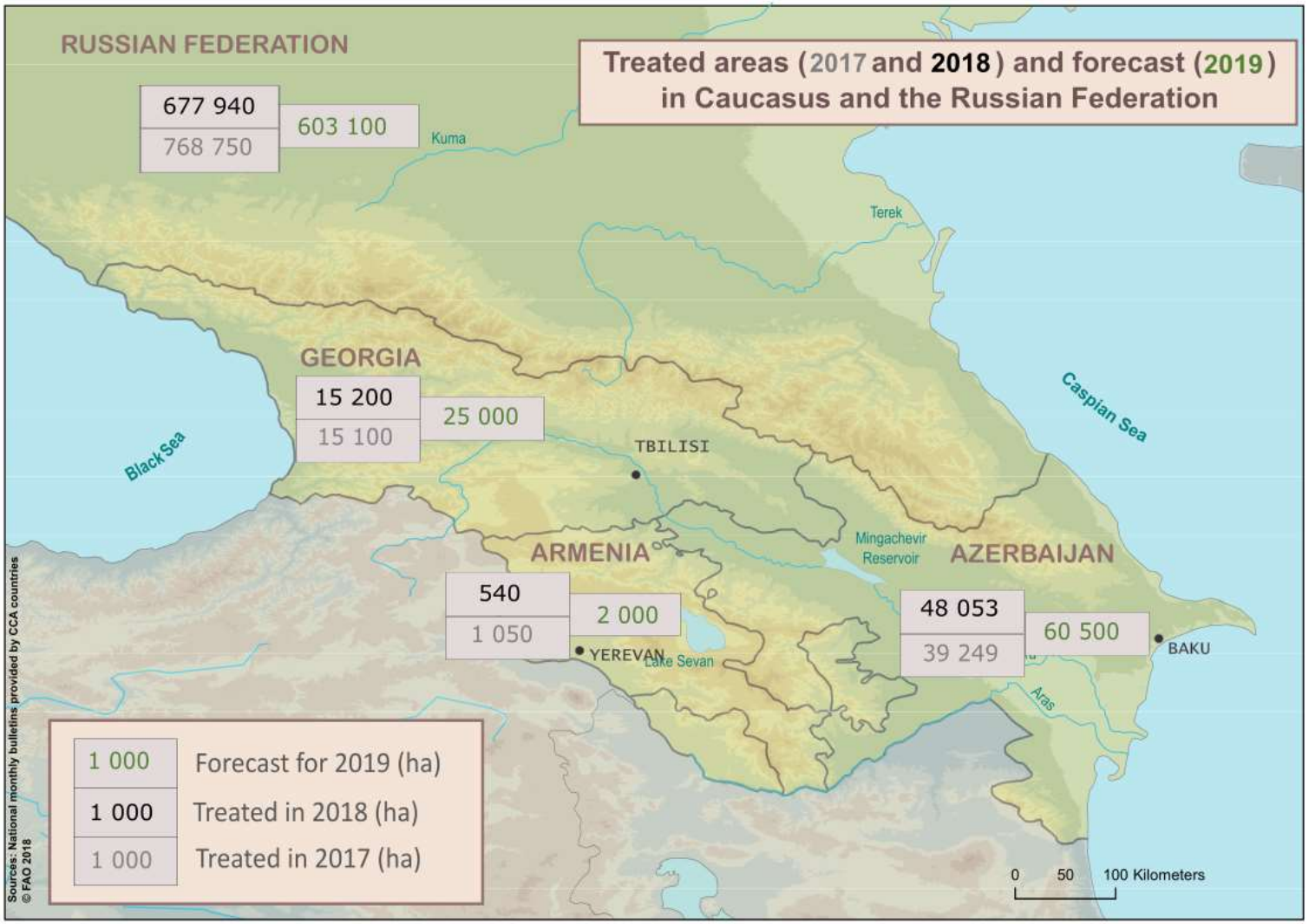
http://www.fao.org/ag/locusts-CCA/en/index.html

Annex III - Maps of treated areas in 2017 and 2018 and forecast for 2019 in CCA countries

Map of Central Asia and the Russian Federation



Map of Caucasus



Annex IV - Implementation of the Programme during Year 7 (1 October 2017- 30 September 2018): budget and tentative expenditures (except Japan/JICA project)

Res. & Act.	Description	TOTAL FTPP/RP (USD) (1st Oct. 2017- 30 Sept. 2018)		Turkey (USD)		FAO RP (USD)	
		Budget Year 7	Exp Year 7	Budget Year 7	Exp Year 7	Budget Year 7	Exp Year 7
R1 - Regional cooperation		**35,000**	**50,227**	**35,000**	**32,719**	**0**	**17,508**
1.1.	Facilitate regional exchanges to manage locust situations	**35,000**	**50,227**	**35,000**	**32,719**	**0**	**17,508**
1.1.1.	Create/maintain regular regional information sharing of standardized data	0	0				
1.1.2.	Allow direct experience exchange (technical workshop)	35,000	50,227	35,000	32,719		17,508
1.2.	Develop coordination, including through transboundary policy	**0**	**0**				
1.3.	Identify the best long-tem solution for sustainable regional cooperation	**0**	**0**				
R2 - National capacities		**9,000**	**2,127**	**4,000**	**2,127**	**5,000**	**0**
2.1.	Build up capacities through a vast Training-of-Trainers (ToT) programme	**0**	**0**				
2.2.	Make available and accessible background documentation and literature	**5,000**	**0**			**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	0				
2.3.	Allow internships and post-graduate formation	**4,000**	**2,127**	**4,000**	**2,127**		
a	One-month internships	0	0				
b	Fellowship: 2 or 3-year diploma for students	4,000	2,127	4,000	2,127		
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				
R3 - Locust issues and disasters better anticipated and mitigated		**51,000**	**67,831**	**51,000**	**51,824**	**0**	**16,007**
3.1.	Improve survey operations for better field locust monitoring	**36,000**	**35,078**	**36,000**	**35,078**		
3.1.1.	Strengthen human capacities (techn. assistance on survey)	28,000	25,003	28,000	25,003		
3.1.2.	Strengthen operational capacities (survey equipment)	8,000	10,075	8,000	10,075		
3.2.	Organize regular cross-border surveys	**0**	**0**				
3.3.	Develop monitoring and analyzing systems	**15,000**	**32,753**	**15,000**	**16,746**		**16,007**
3.3.1.	Extend use of Geographical Information System and remote sensing	15,000	32,753	15,000	16,746		16,007
3.3.2.	Improve forecasting	0	0				
3.4.	Enhance preparedness: harmonized national contingency plans	**0**	**0**				
R4- Improved response mechanisms to locust outbreaks		**0**	**0**	**0**	**0**	**0**	**0**
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**				
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 FTPP/RP (USD) (1st Oct. 2017- 30 Sept. 2018)		Turkey (USD)		FAO RP (USD)	
		Budget Year 7	Exp Year 7	Budget Year 7	Exp Year 7	Budget Year 7	Exp Year 7
R5 -	**Impact on human health & environment mitigated/monitored**	**10,000**	**1,329**	**10,000**	**1,329**	**0**	**0**
5.1.	Mitigate impact of locust control operations on human health & environment	**0**	**0**	**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	0				
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	**10,000**	**1,329**	**10,000**	**1,329**		
5.2.1.	Strengthen human capacities (techn. assistance)	0	0				
5.2.2.	Strengthen operational capacities (Testmate, environmental material, etc.)	3,000	494	3,000	494		
5.2.3.	Develop integral system for environmental and health monitoring	7,000	835	7,000	835		
5.2.4.	Facilitate impact assessment & analysis of material (residue analysis)	0	0				
R6 -	**Public information and awareness increased**	**0**	**0**	**0**	**0**	**0**	**0**
6.1.	Develop awareness and education among local populations	**0**	**0**				
6.2.	Enhance visibility of locust issues and management and of donor support	**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				
Other		**35,000**	**41,767**	**35,000**	**41,767**	**0**	**0**
Coordination (Locust Programme Officer)		35,000	37,472	35,000	37,472		
Standard evaluation & reporting costs		0	0				
FAO SEC		0	0				
TSS		0	4,295		4,295		
Sub-total		**140,000**	**163,281**	**135,000**	**129,766**	**5,000**	**33,515**
Support cost		20,000	15,978	20,000	15,978		
Total		**160,000**	**179,259**	**155,000**	**145,744**	**5,000**	**33,515**

Annex V - Key findings of independent evaluation of Japan/JICA project (GCP/INT/238/JPN)

The evaluation main conclusion is that the project has without doubt successfully achieved its expected results. Based on the methodology described in the main text of these minutes, the evaluation more specifically allowed answering the four initially identified evaluation questions, as follows:

- **To which extent does the project design allow to reach the expected outcome, in coherence with the overall Locust Programme in CCA?**

The project is relevant and responds to the needs of the countries to tackle a common problem, which jeopardizes the food security and livelihood of their populations. The project design builds on proven design criteria established during the implementation of related projects in the region (i.e. USAID, FTPP and FAO projects) and is linked to the overall CCA Programme. It was designed to be complementary to others and thus to ensure a coherent approach in the concerned countries, under the CCA Programme.

- **Was the project expected outcome reached, i.e. improvement of locust management by developing regional cooperation and strengthening national capacities, together with project outputs?**

To achieve the expected outcome, the project has defined five outputs and 13 activities (sub-divided into 20 sub-activities). Almost all activities have been successfully implemented and most outcomes have been achieved. The results achieved by output are presented hereafter:

Concerning Output 1, "Regional cooperation developed":

- Afghanistan, Kyrgyzstan and Tajikistan prepare and send the monthly bulletins on locust and anti-locust situations to FAO-HQ (AGPMM) in time, i.e. before the 5th of the successive month, and on regular basis. In turn, regional bulletins (i.e. six/seven per year) covering the locust situations in all CCA countries, are issued by AGPMM and posted by mid-month on the FAO website "Locust Watch in CCA". Each country sends the national monthly bulletins only to FAO-HQ and does not share them with neighbouring countries. Given the importance of knowing earlier the locust situation in the neighbouring countries, and the fact that regional bulletins are issued ten days after the national ones, the team estimates appropriate that countries share their national bulletins with neighbours to inform on the situation there as soon as possible. This will help the management of locusts at the national level, including the possibility of implementing more timely appropriate measures and further promote country cooperation.
- The project contributed to the annual "Technical Workshops on Locusts in CCA", which are a platform for regular exchanges of information and experience. It also contributed to the establishment of an effective regional cooperation through the creation of technical network.
- The project allowed the organization of cross-border surveys, which are extremely useful particularly in strengthening cooperation and collaboration between the countries.
- The technical supervision, coordination, implementation including the operational and financial management of all activities for the project itself, as well as in the framework of the "Programme to improve national and regional locust management in CCA", were successfully ensured by FAO-AGPMM.

Concerning Output 2, "National capacities strengthened":

- As planned in the project document, a Training-of-Trainers on locust management was successfully organized from early 2016, including regional and national sessions. Twelve Master-Trainers were trained on locust monitoring and information management as well as on locust spraying and risk reduction. Afterwards, they trained national staff on the same topics. All planned sessions at national level were conducted including those for local manpower. These trainings were deemed successful by all the participants met by the evaluators.
- The level of knowledge of the MTs met by the evaluators is deemed very satisfactory. Some people trained by the MTs, showed a small heterogeneity of knowledge. In addition the evaluation has found

that some MTs have already quit their jobs in the national locust control agencies for various reasons. However, the results of the pre- and post-evaluation tests consulted in the training reports showed that overall participants' knowledge has significantly improved in all topics compared to the baseline. The beneficiaries met by the mission stated that thanks to knowledge gained from the training sessions, they have improved their way of working and that was confirmed by their superiors. Therefore, the capacity of locust management staff in all three countries was significantly strengthened.

- Practical Guidelines on pesticide risk reduction for locust control in CCA were prepared with some delay (due to unavailability of the international expert) but already translated into three local languages: Dari, Kyrgyz and Tajik. Illustrations are under preparation. However, as it is not finalized, the Evaluation Team cannot assess it.
- The procurement of prefabricated houses for training and meetings in Tajikistan was cancelled due to its very high cost and replaced with the delivery of camping equipment.

Regarding Output 3, "Locusts better monitored"

- The project strengthened operational capacities for locust field survey by providing the necessary equipment; as a result the efficiency of work has been greatly improved.
- The Automated System of Data Collection (ASDC) for collection and sharing of standardized locust field data was introduced in 2016 to the three countries; tablets, which harbour ASDC were provided to the countries and users were trained on it. The usefulness of ASDC and CCALM has been expressed by all national staff responsible for locust management.
- During the 2017 locust campaign, Afghanistan, Kyrgyzstan and Tajikistan started collecting field data using ASDC during survey and control operations. The GIS "Caucasus and Central Asia Locust Management system" (CCALM) was also deployed and then introduced to the three countries (in national language), with users' training. However, some trainees particularly those from Afghanistan still had difficulty using it and need more training.
- In general, the information is now collected and transmitted from the field to the central service of each country on time in a standardized manner and thus properly managed, which was not the case before.

Concerning Output 4, "Locust control operations supported"

- Control capacities of the concerned countries were strengthened, mainly by providing non-expendable equipment, including 4x4 vehicles (Toyota Hilux) for control operations and pesticide transportation for Kyrgyzstan and Tajikistan, ULV sprayers for the three countries; tractors for control operations (in EC technique) and EC sprayers for Tajikistan; transfer pesticide pumps for Tajikistan; and camping equipment for Afghanistan and Kyrgyzstan.
- The intended quantity of 10 000 l of pesticide Chlorpyrifos 240 g/l in ULV formulation was delivered to Tajikistan through the triangulation[3] process. FAO ensured close monitoring of the pesticide through its' whole life cycle and issued monthly update situation reports to inform the donor.
- According to technical staff from Kyrgyzstan and Tajikistan, the use of new vehicles equipped with Micronair (AU8115) sprayers was instrumental for controlling the locust outbreaks in 2017 and 2018. They appreciated their higher work rate than the one produced by tractor-driven sprayer using EC formulation (100 to 300 ha per day vs. 30-50 ha) and the effectiveness of the treatments.

Regarding Output 5, "Risk reduction on Human Health and the Environment ensured"

- The project purchased PPE for the three countries, whose type and quality were appropriate for locust control in the three countries and took a number of actions regarding the information of local

[3]Process, which allows the quick delivery of pesticides from a country that has stocks in excess to another country, which requires pesticides. FAO ensures the quality control of the pesticides by a certified independent laboratory as well as pesticide transportation.

populations on safety measures to be adopted in view of locust spraying operations during locust campaigns.
- The project produced 2018 calendar on safety measures associated with locust control operations to raise awareness of local populations of Afghanistan, Kyrgyzstan and Tajikistan. Most farmers encountered by the evaluation mission confirmed that they received the calendar, understood the messages and deemed them useful.
- Technical and operational support was provided by FAO to the Tajik and Kyrgyz Human Health and Environment Monitoring Teams that are operational since 2015 and 2016 respectively.
- No particular incidents occurred during control operations.
- None of the two Kyrgyz DCPP laboratories was ready yet to perform residue analyses of the insecticides in plant samples and its staff capacity needs to be improved. So residue analysis of collected material was cancelled.

- **What factors contributed to achieving or not achieving intended outcome and outputs?**

Activities were satisfactorily carried out under the various expected output; two activities were cancelled (procurement of prefabricated houses, but replaced with other equipment; and pesticide residue analysis); last, some delays were encountered for the purchase of some of the requested equipment and for the Practical Guidelines (due to lower availability of the international expert).

It was said that FAO's role has been instrumental in the successful project implementation and the achievement of the project outcome and outputs. It was highly appreciated by all stakeholders. The way that FAO handled the project is deemed very satisfactory. This has been successful in achieving the planned outputs and results. The organizational and managerial skills of the FAO team “Locusts and Transboundary Plant Pests and Diseases” (AGPMM), which relies on a few persons only, as well as its experience and commitment to the project and CCA Programme, have been an important factor for this success.

Furthermore, the existing close relationships between the heads and the technical staff of the services in charge of locust control in the concerned countries, developed during the annual CCA technical meetings organized by FAO over the past years, contributed to facilitate the implementation of many activities, as for instance exchange of information, organization of joint surveys and training sessions.

Regarding the constraints, insufficient national funding allocated by the governments and delayed mobilization of earmarked funds as well as lack of personnel (in particular of young staff) able to quickly master the new technology provided by the project are considered as the main factors which impeded carrying out locust surveys during the project lifespan. To overcome these shortcomings, regional authorities/administrations within the countries were requested to contribute in funding some operations and young people were recruited during the locust campaign (the same ones during each season).

- **What are the recommendations regarding the positive aspects to be replicated or scaled up in new project, as part of the Programme, and what are the improvements to be considered?**

Eight recommendations were formulated by the Evaluation Team:

- Further increase and harmonize knowledge and best practices through the multiplication of training sessions.
- Provide additional equipment (vehicles, motorcycles, sprayers, tablets...) to further improve operational capacities of the countries.
- Implement an effective locust control preventive strategy in order to avoid any locust upsurge and set up an early warning system.
- Ensure the sustainability of the existing regional cooperation, which is crucial for CCA locust management. The creation of a regional commission seems to be the best option. To do so, a ministerial meeting of the concerned countries should facilitate the creation of this commission, provided that

country in the region takes the lead to organize it, similar to what was done for the creation of the FAO Commission for controlling the Desert Locust in the Western Region Control (CLCPRO).

- Have maintenance plans developed by the beneficiary anti-locust units.
- Use the expertise and experience of the Human Health and Environmental Monitoring Teams in place in Kyrgyzstan and Tajikistan to make operational a similar team in Afghanistan (and in other countries in the region) at a lower cost than using international experts, contributing at the same time to strengthen regional cooperation.
- Promote the use of alternatives to conventional pesticides like Insect Growth Regulators (IGR) and biopesticides, whenever possible.
- Develop an appropriate communication strategy to highlight the prevention work undertaken and to be further implemented and its importance in preventing locust crises in order to ensure the sustainability of the required national funding for locust control.

Annex VI - Bilingual List of National Focal Points in CCA

ENGLISH	RUSSIAN
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